# Evaluation Process and Criteria

Capital Region Cleaner, Greener Communities Regional Sustainability Plan

## PROCESS

An important phase of the regional sustainability planning process was to evaluate initiatives identified within each of the technical committees. During the second meeting of the committees, participants suggested initiatives that would help the Region to achieve its sustainability goals. There are a number of potential benefits and possible drawbacks to any initiative, as well as other considerations such as the cost or feasibility of implementing it and the scope of its impact. In order to prioritize which initiatives should be included in the Plan and in order to provide some guidance and structure for thinking about the initiatives, a set of evaluation criteria were established and an evaluation process created. The criteria were drafted by the technical consultant team and approved by the Executive Committee with input from technical committee chairs. Without emphasizing any particular criterion as being more important than another, the following criteria were defined and given a point value for scoring each proposed initiative. The criteria are outlined in the table on the following page.

Technical committee consultant leads compiled a list of proposed initiatives from their focus area and provided descriptions and other details that would aid in the scoring of each initiative, including cost, available funding resources, benefits, time needed to implement, examples of other communities where the initiative has been implemented, and other details. This information, with some additional research as necessary, was used by the technical consultant team to run each initiative through a scoring process, using the approved criteria. To ensure consistency of scoring, one evaluator scored half the initiatives, and another scored the rest, then they exchanged initiatives to run the scores again. Any discrepancies were discussed with the consultant lead for that technical committee and consensus was reached. Technical committee leads were also given an opportunity to review all scores to ensure accuracy and understanding of each score.

These scores and the details that informed them were provided to all technical committee members to serve as guidance to them as they prioritized initiatives in their third meeting. No initiatives were removed due to their scores in the evaluation process. Instead the scores and the evaluation criteria provided an additional lens for prioritization as well as for identifying issues that would need particular attention in discussions on how initiatives were to be implemented.

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| Scoring Criteria Name | Criteria Description | Rating Description | | |
|---|---|---|---|---|
| | | High (5 Points) | Medium (3 Points) | Low (1 Point) |
| **Benefits multiple communities** | Initiative benefits, either directly or indirectly, multiple communities within the Capital Region. | Benefits 10 or more communities in the region and does not adversely impact any communities | Benefits 3-10 communities in the region and does not adversely impact any communities | Benefits fewer than 3 communities OR benefits more but has an adverse impact on one or more communities |
| **Implementation Feasibility** | Initiative is both financially and logistically feasible. | Initiative has examples of successful implementation that can be applied to implementing within the Capital Region and/or there is a clearly detailed implementation plan in place | Some examples exist for general implementation framework, but with some areas of uncertainty for implementing within the Capital Region | Vague or non-existent understanding of how strategy can be implemented in the Capital Region |
| **Co-benefits** | Initiative benefits other Regional Sustainability Plan focus areas by supporting achievement of the goals outlined in that focus area. | Benefits more than 2 other focus areas | Benefits 1 or 2 other focus areas | Does not benefit other focus areas |
| **Leverage Resources** | Initiative demonstrates the ability to utilize additional funds and resources for its completion. | Specific non-NYSERDA funding sources are available to cover costs of implementation and any funding necessary to sustain the initiative (if applicable) | Non- NYSERDA funds have been identified to temporarily or partially fund the initiative | Unlikely to leverage additional non-NYSERDA funding sources |
| **GHG Emissions Reduction Potential** | Initiative is evaluated based on its GHG emissions reduction potential. | Strategy will result in a direct, quantifiable reduction in GHG emissions | Some GHG emissions reduction may occur but it cannot be quantified | GHG reduction is very indirect, unlikely to occur, or unknown |
| **Timeframe** | The timeframe for implementation of the initiative is short, medium, or long-term. | Short-term (less than one year) | Medium term (1-5 years) | Long-term (more than 5 years) |
| **Replicability** | Initiative can be immediately implemented throughout region or can serve as a model for other communities to take similar action. | Project could easily be replicated across the region or state | Project is only replicable in certain portions of state or region | Project is unique or would not be replicable in any other areas |
| **Duration of Benefits** | The length of time over which the benefits of implementation continue to be realized | The direct benefit(s) of this initiative will persist beyond the next three years | The initiative will have direct benefit(s) that are likely to last throughout the three years of Phase II of the Cleaner Greener Communities Program | The direct benefit(s) of this initiative can only be sustained with continued investment or may have counter-benefits over the long term |

**<u>BONUS INNOVATION POINTS:</u> 5 Additional Points will be given to an initiative that is breaking new ground by being the first of its kind in the State or the Country**

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## ADDITIONAL NOTES AND DEFINITIONS

*Initiative:* A recommended action to achieve the goals identified for a focus area. This may include a number of strategy or action types including specific physical projects, programs, policies/codes/ordinances, financing/incentive strategies, or other implementable activities that will help the region meet its goals.

*Focus Area:* The Regional Sustainability Plan is divided into eight elements or focus areas, to narrow the priorities. Each focus area includes goals for achieving a more sustainable region and initiatives that will achieve those goals. The focus areas include: Climate Adaptation, Economic Development, Energy, Food Systems, Land Use and Livability, Transportation, Waste, and Water.

*Benefit:* An advantageous attribute that results from implementation of an initiative. An initiative is considered to be beneficial to a community if it is likely to result in a reduction of energy consumption and greenhouse gas emissions, air/water quality or public health improvements, improved economy/job creation, or overall well-being. An adverse impact refers to opposite impacts, such as decreased air quality, downstream pollution, public health issues or discrepancies, losses to the economy/jobs, etc. Benefits such as GHG emissions reduction have a global reach well beyond the boundaries of any particular community, so when considering GHG reduction as a benefit, it will only be considered such if it has reduced a particular community's share of GHG emissions. Other benefits these should be considered for their local level impact as well.

*GHG Emissions Reduction Potential:* Each initiative will be screened for its potential to reduce GHG emissions. Direct reductions occur specifically when the sources of GHGs are reduced, such as replacing fossil fuels with renewable energy sources. Other initiatives may have an indirect impact, such as an energy audit program. While the intent of an audit is to identify opportunities to improve efficiency, the audit program itself does not guarantee that a building owner will actually follow through with implementing recommendations. It is difficult to quantify the energy reduction impact such a program will have. Similarly, a program that is intended to improve recycling will indirectly reduce GHGs within the waste sector, but the program is not a guarantee of any certain waste tonnage reduction. Something like a green jobs training would score the lowest point value because training an individual to perform a green job does not reduce GHGs. Also, an initiative that will *prevent* or *avoid* future GHGs, but not reduce existing GHGs will only score one point.

*Leverage:* Initiatives will be rated according to their ability to secure and utilize additional non-NYSERDA funding sources (i.e. federal funds, private investment, foundation funding) and other resources (i.e., staff and/or volunteers, materials in-hand, etc.) to implement the project. Funding for Phase II will be very competitive; projects that can maximize additional non-NYSERDA resources will be rated higher because they would not be solely dependent on grant funds for it to be successfully implemented.

*Replicability:* Property of an activity or process that allows it to be duplicated at another location or time.

## Cleaner Greener Communities - Initiative Evaluation -- Focus Area: Adaptation

| | Initiative Name | Benefits Multiple Communities | Implementation Feasibility | Co-Benefits | Leverage Resources | GHG Reduction Potential | Time-frame | Replicability | Duration of Benefits | BONUS - Innovation | Total Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GOAL | Build capacity for agencies, governments, institutions, and individuals to adapt to a changing climate. | | | | | | | | | | |
| Score | Implement a tree planting program | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 38 |
| Notes | | benefit to immediate communities and those within the watershed | | Water, Energy, LULC | | if # of trees planted is tracked, can estimate GHG reduction | | | | | |
| Score | Regional Climate Change Collaborative | 5 | 5 | 5 | 3 | 1 | 5 | 5 | 5 | 0 | 34 |
| Notes | | | | Water, Energy, LULC | collaboration allows for leveraging resources from various participating entities | no, only indirectly if strategies are implemented | | | | | |
| Score | Promote green infrastructure | 3 | 5 | 5 | 3 | 3 | 3 | 5 | 5 | 0 | 32 |
| Notes | | benefit to immediate communities and those within the watershed | | Water, Energy, LULC | NYS EFC Green Grants are possible source | | | | | | |
| Score | Include climate change in SEQR review | 5 | 5 | 3 | 1 | 1 | 5 | 5 | 5 | 0 | 30 |
| Notes | | | | Water, Energy, LULC, Econ Dev | not really sure if DEC would have funding to cover costs of revising SEQR; costs for implementing some requirement locally would have to come from muni budget. Likely NYSERDA funds only. | depends on what the details are of the climate change review, but without knowing, have to score as a 1 | | | assuming the CC review was incoporated, it would remain so beyond the next 3 yrs | | |
| Score | Develop guidance document on how to integrate climate change impacts into existing plans and processes | 3 | 5 | 5 | 5 | 1 | 3 | 5 | 1 | 0 | 28 |
| Notes | | depends on the scope of the plans/process, so went with a middle score on this | | Water, Energy, LULC, Econ Dev, Transportation | doesn't require separate funding stream | not from plan itself - only from implementation | | | | | |
| Score | Create floodplain ordinances | 1 | 5 | 3 | 5 | 1 | 3 | 5 | 5 | 0 | 28 |
| Notes | | | | Water, Econ Dev, LULC | | | | | | | |
| Score | Protect and enhance critical natural resources | 3 | 5 | 3 | 3 | 1 | 3 | 5 | 5 | 0 | 28 |
| Notes | | benefit to immediate communities and those within the watershed | | LULC, Water | | | | | | | |
| Score | Conduct local vulnerability assessments and adaptation planning | 1 | 5 | 3 | 3 | 1 | 3 | 5 | 5 | 0 | 26 |
| Notes | | | | land use, economic dev | possible NOAA funding | | | | | | |
| Score | Expand participation in NYS ISO's demand response program | 5 | 5 | 3 | 1 | 3 | 3 | 3 | 1 | 0 | 24 |
| Notes | | | existing program but at state level - not sure on this one | Energy, Econ Dev | again, not sure that ISO can further incentivize | increasing incentive does not guarantee reduced demand on the grid, though it is likely | | | | | |
| Score | Study comparison of energy/GHG use with green vs. grey infrastructure | 5 | 3 | 3 | 1 | 1 | 3 | 5 | 3 | 5 | 29 |
| Notes | | | could look to Albany's application, even though did not win grant | | | this is only a study | | | would need to take action based on study before it becomes outdated | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Score | Green Roofs for Schools Policy | 3 | 3 | 3 | 1 | 3 | 3 | 5 | 5 | | 26 |
| Notes | | | | climate, water | | Possible to quantify energy reduction in schools with green roofs, thus emissions reduction | | | | | |

## Cleaner Greener Communities - Initiative Evaluation -- Focus Area: ECON DEV SCORES

| | Initiative Name | Benefits Multiple Communities | Implementation Feasibility | Co-Benefits | Leverage Resources | GHG Reduction Potential | Time-frame | Replicability | Duration of Benefits | BONUS - Innovation | Total Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GOAL | **Target Cities & Villages** | | | | | | | | | | |
| Score | Establish a regional land bank | 5 | 3 | 3 | 5 | 1 | 3 | 5 | 5 | 0 | 30 |
| Notes | | 42 cities & villages in region | Some communities have been funded but no info on implementation | Land use | | Very indirect | | | | Existing program | |
| Score | Implement a small business incubator program | 1 | 3 | 3 | 3 | 1 | 3 | 3 | 5 | 0 | 22 |
| Notes | | | | Land use | CFA program | Very indirect | | | | | |
| GOAL | **Shared Prosperity & Sustainable Growth** | | | | | | | | | | |
| Score | Establish model zoning that directs growth and promotes sustainability | 5 | 5 | 5 | 3 | 1 | 5 | 5 | 5 | 0 | 34 |
| Notes | | | | Land use, food systems, transportation, water | NYS Dept of State | Very indirect | | | | | |
| Score | Establish a regional sustainability resources and education website | 5 | 3 | 5 | 3 | 1 | 5 | 5 | 5 | 0 | 32 |
| Notes | | | | All | | Very indirect | | | | | |
| Score | Implement a "Buy Local" campaign | 5 | 3 | 3 | 3 | 3 | 3 | 5 | 5 | 0 | 30 |
| Notes | | | | Food systems | | | | | | | |
| GOAL | **Leverage & Collaborate** | | | | | | | | | | |
| Score | Establish a financial literacy program | 5 | 3 | 3 | 1 | 1 | 3 | 5 | 5 | 0 | 26 |
| Notes | | Could be done on a regional scale | New York City | Energy | NYSERDA only | Very indirect | | | | | |
| GOAL | **Innovation & Green Technologies** | | | | | | | | | | |
| Score | Create a green alliance between government and businesses | 5 | 3 | 5 | 3 | 1 | 3 | 5 | 5 | 5 | 35 |
| Notes | | | | All | | Very indirect | | | | | |
| Score | Regional Consortium of Non-Profits | 5 | 3 | 1 | 3 | 1 | 3 | 5 | 5 | 5 | 31 |
| Notes | | | | | | Very indirect | | | | | |
| Score | Promote green leases through education of landlords, tenants, and real estate professionals | 1 | 3 | 5 | 1 | 3 | 3 | 5 | 5 | 0 | 26 |
| Notes | | | No local examples but not difficult to develop | land use, water, climate | No funding sources identified | Indirect | | | | | |
| Score | Expand NYSERDA's green jobs training to include green infrastructure design/installation/maintenance | 5 | 5 | 3 | 1 | 1 | 3 | 5 | 3 | 0 | 26 |
| Notes | | | | | | green jobs training is disconnected from actualy GHG reduction | | | would need continued funding to continue training beyond 3 years | | |

## Cleaner Greener Communities - Initiative Evaluation -- Focus Area: Energy

| | Initiative Name | Benefits Multiple Communities | Implementation Feasibility | Co-Benefits | Leverage Resources | GHG Reduction Potential | Time-frame | Replicability | Duration of Benefits | BONUS - Innovation | Total Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GOAL | **Improve Efficiency of Buildings** | | | | | | | | | | |
| Score | Create a standard environmentally preferable purchasing (EPP) policy | 5 | 5 | 1 | 3 | 1 | 5 | 5 | 5 | 0 | 30 |
| Notes | | | Many examples | Economic Develop. | | | | Can be adopted by any community | | | |
| Score | Adopt a local energy-efficient building code | 1 | 5 | 3 | 3 | 3 | 3 | 5 | 5 | 0 | 28 |
| Notes | | | | Economic Develop. | | | | Can be adopted by any community | | | |
| Score | Establish energy efficiency & renewable energy financing districts (PACE) | 1 | 3 | 5 | 3 | 3 | 3 | 5 | 5 | 0 | 28 |
| Notes | | | No local examples | Econ Dev, Adaptation, Water | Several possible avenues for non-NYSERDA funding but nothing definite | | | | | | |
| Score | Establish a revolving energy efficiency improvement fund for businesses | 1 | 3 | 3 | 1 | 1 | 3 | 5 | 5 | 0 | 22 |
| Notes | | | One example in Central NY | Economic Develop. | | Indirect | | Could be a state program | | | |
| GOAL | **Increase % of Renewable Energy Sources** | | | | | | | | | | |
| Score | Engage in Power Purchase Agreements | 1 | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 0 | 28 |
| Notes | | | | Economic Develop. | | | | | | | |
| Score | Lower or Eliminate Permit fees for energy conservation or renewables | 1 | 3 | 3 | 1 | 1 | 5 | 5 | 5 | 0 | 24 |
| Notes | | | | Economic Develop. | | | | Relates to land use policy and other factors such as Env. Justice. | | | |
| GOAL | **Improve Region's Energy Security** | | | | | | | | | | |
| Score | Implement a Smart Grid pilot program | 5 | 3 | 3 | 1 | 3 | 3 | 3 | 5 | 0 | 26 |
| Notes | | | National Grid program in Syracuse | Economic Develop. | No funding sources identified | | | Infrastructure will not support smart grid in some locations of the State. | | | |
| Score | Incentivize Combined Heat and Power District Energy systems | 1 | 3 | 1 | 1 | 5 | 1 | 3 | 5 | 5 | 25 |
| Notes | | | | | | | | | | regionally innovative | |
| GOAL | **Economic Dev. Through Sustainable Energy** | | | | | | | | | | |
| Score | Establish green districts | 3 | 3 | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 33 |
| Notes | | Not applicable to all communities | | Economic Develop. | Local source but requires additional funding to develop guidelines and incentives | | | | | Promotes innovation | |
| GOAL | **Reduce Energy Consumption** | | | | | | | | | | |
| Score | Local Carbon Tax | 1 | 1 | 1 | 1 | 5 | 3 | 3 | 5 | 5 | 25 |
| Notes | | difficult to implement | | | No funding sources identified | | | | | | |

## Cleaner Greener Communities - Initiative Evaluation - Focus Area: Food Scores

| | Initiative Name | Benefits Multiple Communities | Implementation Feasibility | Co-Benefits | Leverage Resources | GHG Reduction Potential | Time-frame | Replic-ability | Duration of Benefits | BONUS -Innovation | Total Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **GOAL** | **Prioritize the protection of agricultural land.** | | | | | | | | | | |
| Score | Create a Regional Farmland Protection Plan | 5 | 5 | 3 | 5 | 1 | 3 | 5 | 5 | 0 | 32 |
| Notes | | assumes that pre-served farmland provides regional scale benefit | | LULC, Econ Dev | | this is a plan, so it scores a 1 | | | | | |
| **GOAL** | **Augment access to fresh produce for residents across the capital district from urban neighborhoods to rural settings.** | | | | | | | | | | |
| Score | Establish an initiative to create/increase "local food" transactions, especially between large grocery stores and farms | 5 | 5 | 3 | 5 | 3 | 3 | 5 | 5 | 0 | 34 |
| Notes | | Assumes that stores would be selling local food from throughout the region. | | Econ Dev, Transp | | Can't be quantified, but a decrease in food trans-ported in from outside the region will reduce GHGs from transportation | | | | | |
| Score | Establish a regional gleaning and food recovery program | 5 | 3 | 3 | 3 | 5 | 3 | 5 | 5 | 0 | 32 |
| Notes | | | | Waste | I'm giving a 3 to those which have identified potential funding options, but would require successful grant application | Reduction of food wastes sent to landfills results in quantifiable GHG reductions | | | | NYC has a program | |
| **GOAL** | **Maximize utilization of land appropriate for agriculture and en-courage production using sustainable and best management practices.** | | | | | | | | | | |
| Score | Create/reestablish a Food Policy Council for the Capital District | 5 | 5 | 5 | 5 | 1 | 5 | 5 | 5 | 0 | 36 |
| Notes | | | only needs to be reestablished | Land Use, Waste, Transportation, and Economic Development | May be some funding available and not likely to require large invest-ment (other than council member time) | | | | assuming continued participation | | |
| **GOAL** | **Enhance the capacity and number of processing facilities for meat, produce, and other local agricultural products. AND Create a variety of warehousing and storage options to accommodate seasonal food options and adverse weather conditions.** | | | | | | | | | | |
| Score | Create a food hub for regional food processing, storage, and distribution | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 5 | 5 | 33 |
| Notes | | | | Transp, Econ Dev | | | | | | | |
| **GOAL** | **Maximize the utilization of land appropriate for agriculture and encourage production using sustainable and best management practices. AND Increase the volume of local food production commensurate to existing and future demand.** | | | | | | | | | | |
| Score | Build capacity for new and existing farmers by establishing a Farmers Support and Enhancement Program | 5 | 3 | 3 | 3 | 1 | 3 | 5 | 1 | 5 | 29 |
| Notes | | done at regional scale | | Econ Dev | I'm giving a 3 to those which have identified potential funding options, but would require successful grant application | | | | continued invest-ment will be required to continue funding | *Tech Committee Leader, please confirm no such program already exists in NY.* | |
| **GOAL** | **Educate consumers and food buyers about the benefits of eating healthy, preparing, and purchasing local foods.** | | | | | | | | | | |
| Score | Create a Regional Healthy Corner/Convenience Store Network | 5 | 5 | 3 | 3 | 1 | 3 | 5 | 5 | 0 | 30 |
| Notes | | | already started in some locations, looking to expand the network | LULC, Econ Dev | I'm giving a 3 to those which have identified potential funding options, but would require successful grant application | | | | | | |
| **GOAL** | **Enhance the capacity and number of processing facilities for meat, produce, and other local agricultural products.** | | | | | | | | | | |
| Score | Create additional medium to small-sized processing facilities, including kitchen incubators, throughout the region | 3 | 3 | 3 | 3 | 3 | 3 | 5 | 5 | 0 | 28 |
| Notes | | | | Econ Dev | likely to be eligible for MAP funding | | | | | | |

## Cleaner Greener Communities - Initiative Evaluation -- Focus Area: LULC SCORES

| | Initiative Name | Benefits Multiple Communities | Implementation Feasibility | Co-Benefits | Leverage Resources | GHG Reduction Potential | Time-frame | Replicability | Duration of Benefits | BONUS Innovation | Total Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **GOAL:** | **Preserve, protect and enhance the region's natural and cultural resources, sensitive ecosystems and agricultural lands, and effectively manage publicly accessible open space to increase recreational opportunities for all.** | | | | | | | | | | |
| Score | Develop a regional greenway connectivity plan | 5 | 5 | 3 | 3 | 1 | 3 | 5 | 5 | 0 | 30 |
| Notes | | | | Adaptation, Transportation | | | | | | | |
| Score | Implement land conservation practices into land use planning and zoning | 3 | 5 | 3 | 1 | 1 | 5 | 5 | 5 | 0 | 28 |
| Notes | | | | Food, Adaptation | | a conservation program implies something in existence that would be maintained. This means it would not be providing any new reduction benefits | | | | | |
| Score | Improve public access to waterfront areas | 3 | 5 | 3 | 3 | 1 | 3 | 3 | 5 | 0 | 26 |
| Notes | | | | Water, Econ Dev | Where the TC Leads have stated "existing state or local funding" I've scored as 3, but clarity about specific funding sources would be helpful to ensure a specific funding stream to support the initiative exists | | | only applicable to areas with waterfront | | | |
| **GOAL:** | **Encourage investment and redevelopment in existing popula-tion and employment centers, including cities, town centers, villages and hamlets, while maintaining the historic character of the region.** | | | | | | | | | | |
| Score | Develop and implement sustainability guidelines for historic buildings and districts | 1 | 5 | 3 | 1 | 5 | 5 | 5 | 5 | 0 | 30 |
| Notes | | | | Energy, Econ Dev | | | | | | | |
| Score | Prioritize Brownfield redevelopment | 1 | 5 | 5 | 5 | 3 | 1 | 3 | 5 | 0 | 28 |
| Notes | | | | Econ Dev, Food, Energy | | if used for renewable energy installations | | only where brownfields have been identified | | | |
| Score | Design and install public plazas | 1 | 5 | 3 | 3 | 1 | 3 | 5 | 5 | 0 | 26 |
| Notes | | | | Econ Dev, Transportation | Where the TC Leads have stated "existing state or local funding" I've scored as 3, but clarity about specific funding sources would be helpful to ensure a specific funding stream to support the initiative exists | | | | | | |
| Score | Update zoning for transit-oriented development (TOD) | 3 | 5 | 3 | 1 | 5 | 3 | 3 | 5 | 0 | 28 |
| Notes | | | | Transportation, Energy | | | | areas with transit infrastruc-ture or demand for transit infrastructure | | | |
| Score | Promote Complete Streets through zoning regulations and codes | 1 | 5 | 5 | 3 | 3 | 1 | 5 | 5 | | 28 |
| Notes | | | | Transportation, Energy, Econ Dev | | | | | | | |
| **GOAL:** | **Promote diverse, energy efficient and healthy housing options for all residents of the region, including housing for vulnerable populations such as the elderly, the disabled, and low-income populations.** | | | | | | | | | | |
| Score | Modify local codes and regulations to allow for sustainable, compact development | 3 | 3 | 3 | 5 | 3 | 3 | 5 | 5 | 0 | 30 |
| Notes | | | | Transportation, Econ Dev | | | | | | | |
| Score | Promote sustainable and affordable housing that meets the needs of the region's population | 1 | 5 | 5 | 3 | 3 | 1 | 5 | 5 | 0 | 28 |
| Notes | | | | Transportation, Energy, Econ Dev | | energy-efficient and transit-oriented could provide ghg reduction | | | | | |
| Score | Weatherization programs | 5 | 5 | 3 | 3 | 5 | 5 | 5 | 5 | 0 | 36 |
| Notes | | | | Adaptation, Energy | issue of backlog; needs more funding | | | | | | |
| Score | Vacant building rehabilitation | 1 | 5 | 3 | 5 | 1 | 3 | 3 | 5 | 0 | 26 |
| Notes | *Rephrase for specificity: "Establish land banks in order to rehabilitate vacant buildings/vacant building sites."* | | | Econ Dev | | | | wherever there is a problem of vacant/ blighted property | | | |

## Cleaner Greener Communities - Initiative Evaluation -- Focus Area: Transportation Scores

| | Initiative Name | Benefits Multiple Communities | Implementation Feasibility | Co-Benefits | Leverage Resources | GHG Reduction Potential | Time-frame | Replicability | Duration of Benefits | BONUS - Innovation | Total Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **GOAL:** | **Provide viable options as alternatives to personal vehicles and single occupancy vehicle commuting.** | | | | | | | | | | |
| Score | Establish car sharing programs throughout the region | 3 | 5 | 3 | 3 | 5 | 5 | 3 | 5 | 0 | 32 |
| Notes | | Density driven. | CDTC and CDTA have program ready to be implemented | Energy | | would need to make some assumptions, but could estimate reduction | | Appropriate density required | membership fees collected could maintain program | | |
| Score | Improve transit service through technology improvements | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 5 | 0 | 30 |
| Notes | | | | Energy | Funding through the regional Transit Authorities. | transit improvements should increase ridership, thus reduce VMT, but cannot guarantee ridership increase | | only where transit systems are located | | | |
| Score | Create an interconnected regional transit system | 5 | 3 | 3 | 1 | 3 | 1 | 3 | 5 | 0 | 24 |
| Notes | | | | Energy | | should increase ridership, thus reduce VMT, but cannot guarantee ridership increase | | only where transit systems are located | | | |
| **GOAL:** | **Create walkable and bikeable communities interconnected by regional transit and trail networks** | | | | | | | | | | |
| Score | Implement a bicycle and pedestrian infrastructure improvement program | 3 | 5 | 3 | 3 | 3 | 5 | 5 | 5 | 0 | 32 |
| Notes | | each improvement project would likely benefit neighboring communities | | LULC | | | | | | | |
| **GOAL:** | **Encourage the use of alternative fuels and transportation technologies** | | | | | | | | | | |
| Score | Develop and expand electric vehicle and alternative fuel infrastructure | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 5 | 0 | 30 |
| Notes | | | | Energy | not included in spread-sheet, but possibly Clean Cities funding? | Providing infrastructure itself is likely to reduce gasoline/diesel use, but not guaranteed | | EV and other alternative fuel infrastructure only appropriate in certain places | | | |
| Score | Convert municipal fleets and transit vehicles to electric or other alternative fuels | 1 | 5 | 3 | 3 | 5 | 3 | 5 | 3 | 0 | 28 |
| Notes | | | | Energy | not included in spread-sheet, but possibly Clean Cities funding? | | | | will likely need more than one round of funding to complete fleet transition | | |
| Score | Optimize transportation system through alternative street deisng and advanced signal technology | 1 | 5 | 3 | 1 | 5 | 3 | 5 | 5 | 0 | 28 |
| Notes | | | | Energy, LULC | | | | | | | |
| **GOAL:** | **Encourage expanded use of efficient and sustainable freight movement, respecting quality of life of communities** | | | | | | | | | | |
| Score | Incentivize use of clean and fuel-efficient truck and freight technology | 5 | 5 | 3 | 1 | 1 | 3 | 5 | 3 | 0 | 26 |
| Notes | | | | | | creating the incentive program does not ensure technologies will be implemented that result in ghg reduction | | | would require additional funding to maintain incentive program | | |
| Score | Improve freight facility operations, infrastructure, and highway connection | 5 | 1 | 3 | 1 | 3 | 1 | 3 | 5 | 0 | 22 |
| Notes | | | | | | Improvements will lead directly to greater efficiency and measurable reduction in fuel consumption. | | | | | |

## Cleaner Greener Communities - Initiative Evaluation -- Focus Area: Solid Waste

| | Initiative Name | Benefits Multiple Communities | Implementation Feasibility | Co-Benefits | Leverage Resources | GHG Reduction Potential | Timeframe | Replicability | Duration of Benefits | Innovation Bonus (5 pts) | Total Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Score | ***New Recycling & Energy Recovery Goal*** | | | | | | | | | | |
| Notes | | | | | | | | | | | |
| Score | Improve and increase composting options | 3 | 5 | 3 | 5 | 5 | 3 | 5 | 5 | | 34 |
| Notes | | Localized benefits | | Food systems & transportation | Municipal Waste Reduction and Recycling(MWRR) Grants from the NYSDEC | | | | | Considered an existing best practice | |
| Score | Site and develop anaerobic digestion facilities in the region | 3 | 5 | 5 | 1 | 5 | 3 | 5 | 5 | | 32 |
| Notes | | | | Food systems, energy, water & transportation | NYSERDA funding | | | | | | |
| Score | ***Improve Existing Recycling Goal*** | | | | | | | | | | |
| Notes | | | | | | | | | | | |
| Score | Adopt C&D Waste Reduction Ordinance | 3 | 3 | 5 | 5 | 3 | 5 | 5 | 5 | | 34 |
| Notes | | Applicable to any community. | One example with limited enforcement value. | Energy, Economic Development & Transportation | Ability to be self-funded through review fees. | Indirect | | Replicable in any community. | | Best Practice | |
| Score | Implement Single Stream Recycling | 3 | 5 | 3 | 1 | 3 | 5 | 5 | 5 | | 30 |
| Notes | | Applicable to any community. | | Energy & Transportation | Unknown funding | Indirect | | Replicable in any community or at a regional level. | | Best Practice | |
| Score | Implement Volume-based User fees | 3 | 5 | 3 | 1 | 3 | 5 | 5 | 5 | | 30 |
| Notes | | Applicable to any community. | | Energy & Transportation | Funding at local or private level | Indirect | | Replicable in any community or at a regional level. | | Best Practice | |
| Score | Implement a Waste Inspection Program | 3 | 5 | 3 | 1 | 1 | 5 | 5 | 5 | | 28 |
| Notes | | | | Energy | Funding by facility operations | Indirect | | Replicable at any solid waste management facility | | Best Practice | |
| Score | Establish a revolving loan fund to bridge recycling expenses | 5 | 3 | 1 | 3 | 1 | 3 | 5 | 5 | | 26 |
| Notes | | Opportunity to benefit entire state. | Requires action by State legislature | | | Very indirect | | applicable across state | | | |
| Score | ***Material Management Strategies Goal*** | | | | | | | | | | |
| Notes | | | | | | | | | | | |
| Score | Develop a Resource Recovery Park | 3 | 3 | 5 | 1 | 5 | 3 | 5 | 5 | 5 | 35 |
| Notes | | | | Economic development, transportation, energy | Funding source unknown | Centralized waste recovery - reduces transportation, increases recycling and composting | | | | Although examples else-where in the country, there are few and the idea is innovative for the region | |
| Score | Partner with universities to facilitate innovation in waste technologies | 3 | 1 | 3 | 1 | 1 | 3 | 3 | 5 | | 20 |
| Notes | | | Details of how this would be developed are needed. | Economic development, energy | Funding source unknown | very indirect | | Dependent on interest of universities | Potential for long lasting benefits (continued research) | | |
| Notes | | Localized benefits | Some implementation in Capital Region | Food systems, water & transportation | Possible MWRR grant | | | Replicable in any community or at a regional level. | | | |

## Cleaner Greener Communities - Initiative Evaluation -- Focus Area: Water

| | Initiative Name | Benefits Multiple Communities | Implementation Feasibility | Co-Benefits | Leverage Resources | GHG Reduction Potential | Time-frame | Replicability | Duration of Benefits | BONUS - Innovation | Total Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Score | **Water Supply** | | | | | | | | | | |
| Notes | GOAL | | | | | | | | | | |
| Score | Develop an Asset Management Plan for Water Systems | 3 | 5 | 5 | 3 | 3 | 3 | 5 | 5 | 0 | 32 |
| Notes | | | | Energy, Land Use, Climate Adaptation | | Indirect | | | | | |
| Score | Develop a Purchasing Consortium for Municipal Water Projects | 3 | 5 | 1 | 3 | 1 | 5 | 5 | 5 | 0 | 28 |
| Notes | | | | | Limited to no funding required to create consortium. Just requires establishment of intermunicipal agreements. | Very Indirect | | | | | |
| Score | **Sewer** | | | | | | | | | | |
| Notes | GOAL | | | | | | | | | | |
| Score | Develop an Asset Management Plan for Sewer Systems | 3 | 5 | 5 | 3 | 3 | 3 | 5 | 5 | 0 | 32 |
| Notes | | | | Energy, Land Use, Climate Adaptation | | Indirect | | | | | |
| Score | **Stormwater** | | | | | | | | | | |
| Notes | GOAL | | | | | | | | | | |
| Score | Require Use of a Predictive Model for Stormwater Management | 5 | 5 | 5 | 1 | 1 | 5 | 5 | 5 | 5 | 37 |
| Notes | | | | Energy, Land Use & climate | NYSERDA only | Very Indirect | | | | | |
| Score | Conduct a Watershed Assessment for Stormwater Management | 5 | 5 | 5 | 3 | 1 | 3 | 5 | 5 | 0 | 32 |
| Notes | | | | Energy, land use, food systems, Climate | | Very Indirect | | | | | |
| Score | **Protection of Waters** | | | | | | | | | | |
| Notes | GOAL | | | | | | | | | | |
| Score | Create a Small Grant Program for Innovative Water Quality Projects | **1** | 5 | 3 | 1 | 1 | 5 | 5 | 5 | 5 | 31 |
| Notes | | | | Land use, energy | | Very Indirect | | | | | |
| Score | Implement an invasive species management and outreach program | 3 | 5 | 5 | 3 | 1 | 3 | 5 | 5 | 0 | 30 |
| Notes | | waterfront communities | | land use, economic develop, Climate | Partnerships for Regional Invasive Species Management; Greats Lakes Protection Fund. | Very Indirect | | | | | |
| Score | Create a Water/Stormwater Rating System for Commercial & Residential Development | 5 | 5 | 5 | 1 | 1 | 3 | 5 | 5 | 0 | 30 |
| Notes | | | | All | Mostly NYSERDA | | | | | LEED is similar. | |
| Score | Revise municipal code to incorporate water/stormwater best management practices | 3 | 5 | 5 | 1 | 1 | 5 | 5 | 5 | 0 | 30 |
| Notes | | | | All | | Very Indirect | | | | | |

| Scoring Criteria Name | Criteria Description | Rating Description | | |
|---|---|---|---|---|
| | | High (5 Points) | Medium (3 Points) | Low (1 Point) |
| enefits multiple mmunities | Initiative benefits, either directly or indirectly, multiple communities within the Capital Region. | Benefits 10 or more communities in the region and does not adversely impact any communities | Benefits 3-10 communities in the region and does not adversely impact any communities | Benefits fewer than 3 communities OR benefits more but has an adverse impact on one or more communities |
| nplementation easibility | Initiative is both financially and logistically feasible. | Initiative has examples of successful implementation that can be applied to implementing within the Capital Region and/or there is a clearly detailed implementation plan in place | Some examples exist for general implementation framework, but with some areas of uncertainty for implementing within the Capital Region | Vague or non-existent understanding of how strategy can be implemented in the Capital Region |
| -benefits | Initiative benefits other Regional Sustainability Plan focus areas by supporting achievement of the goals outlined in that focus area. | Benefits more than 2 other focus areas | Benefits 1 or 2 other focus areas | Does not benefit other focus areas |
| verage Resources | Initiative demonstrates the ability to utilize additional funds and resources for its completion. | Specific non-NYSERDA funding sources are available to cover costs of implementation and any funding necessary to sustain the initiative (if applicable) | Non- NYSERDA funds have been identified to temporarily or partially fund the initiative | Unlikely to leverage additional non-NYSERDA funding sources |
| HG Emissions eduction Potential | Initiative is evaluated based on its GHG emissions reduction potential. | Strategy will result in a direct, quantifiable reduction in GHG emissions | Some GHG emissions reduction may occur but it cannot be quantified | GHG reduction is very indirect, unlikely to occur, or unknown |
| meframe | The timeframe for implementation of the initiative is short, medium, or long-term. | Short-term (less than one year) | Medium term (1-5 years) | Long-term (more than 5 years) |
| eplicability | Initiative can be immediately implemented throughout region or can serve as a model for other communities to take similar action. | Project could easily be replicated across the region or state | Project is only replicable in certain portions of state or region | Project is unique or would not be replicable in any other areas |
| uration of enefits | The length of time over which the benefits of implementation continue to be realized | The direct benefit(s) of this initiative will persist beyond the next three years | The initiative will have direct benefit(s) that are likely to last throughout the three years of Phase II of the Cleaner Greener Communities Program | The direct benefit(s) of this initiative can only be sustained with continued investment or may have counter-benefits over the long term |

**BONUS INNOVATION POINTS: 5 Additional Points will be given to an initiative that is breaking new ground by being the first of its kind in the State or the Country**

Additional Notes and Definitions:

*Initiative:* A recommended action to achieve the goals identified for a focus area. This may include a number of strategy or action types including specific physical projects, programs, policies/codes/ordinances, financing/incentive strategies, or other implementable activities that will help the region meet its goals.

*Focus Area:* The Regional Sustainability Plan is divided into eight elements or focus areas, to narrow the priorities. Each focus area includes goals for achieving a more sustainable region and initiatives that will achieve those goals. The focus areas include: Climate Adaptation, Economic Development, Energy, Food Systems, Land Use and Livability, Transportation, Waste, and Water.

*Benefit:* An advantageous attribute that results from implementation of an initiative. An initiative is considered to be beneficial to a community if it is likely to result in a reduction of energy consumption and greenhouse gas emissions, air/water quality or public health improvements, improved economy/job creation, or overall well-being. An adverse impact refers to opposite impacts, such as decreased air quality, downstream pollution, public health issues or discrepancies, losses to the economy/jobs, etc. Benefits such as GHG emissions reduction have a global reach well beyond the boundaries of any particular community, so when considering GHG reduction as a benefit, it will only be considered such if it has reduced a particular community's share of GHG emissions. Other benefits these should be considered for their local level impact as well.

*GHG Emissions Reduction Potential:* Each initiative will be screened for its potential to reduce GHG emissions. Direct reductions occur specifically when the sources of GHGs are reduced, such as replacing fossil fuels with renewable energy sources. Other initiatives may have an indirect impact, such as an energy audit program. While the intent of an audit is to identify opportunities to improve efficiency, the audit program itself does not guarantee that a building owner will actually follow through with implementing recommendations. It is difficult to quantify the energy reduction impact such a program will have. Similarly, a program that is intended to improve recycling will indirectly reduce GHGs within the waste sector, but the program is not a guarantee of any certain waste tonnage reduction. Something like a green jobs training would score the lowest point value because training an individual to perform a green job does not reduce GHGs. Also, an initiative that will *prevent* or *avoid* future GHGs, but not reduce existing GHGs will only score one point.

*Leverage:* Initiatives will be rated according to their ability to secure and utilize additional non-NYSERDA funding sources (i.e. federal funds, private investment, foundation funding) and other resources (i.e., staff and/or volunteers, materials in-hand, etc.) to implement the project. Funding for Phase II will be very competitive; projects that can maximize additional non-NYSERDA resources will be rated higher because they would not be solely dependent on grant funds for it to be successfully implemented.

*Replicability:* Property of an activity or process that allows it to be duplicated at another location or time.

# Appendix 4

## Prioritization of Initiatives

### Process

The prioritization of initiatives followed a consistent and systematic process. The proposed initiatives from each focus area were put into a PowerPoint® slide enabled with Turning Point® software to be used during the third meeting of the technical committees. Each focus area had between eight and ten initiatives listed in order based on the score results of the evaluation process. Technical committee members were provided initiative details along with scoring results prior to their third meeting as well as printed handouts of the information at the third meeting. The Turning Point® system which is integrated with PowerPoint® is a polling tool. Using this, technical committee members ranked the initiatives within each focus area.

Because each committee voted on all initiatives, the scores were averaged across all committees and then weighted to give more voting power to the technical committee for its focus area. While this weighted average was relatively consistent with the focus area technical committee ranking, the final prioritization of initiatives deferred to the results from the committee for each focus area. In other words, the priority ranking of the Adaptation initiatives were the result of the ranking by the Adaptation Technical Committee. Average, weighted, and focus area technical committee rankings are provided in the following table.

### Results

| Focus Area | Initiative | Average Score | Overall Weighted Score | Focus Area Committee Ranking | Cross-Committee Ranking |
|---|---|---|---|---|---|
| Adaptation | Local vulnerability assessments and adaptation planning | 12% | 16% | **1** | **2** |
| Adaptation | Develop guidance document to integrate climate change impacts into existing plans and processes | 12% | 15% | **2** | **4** |
| Adaptation | Promote green infrastructure | 15% | 19% | **3** | **1** |
| Adaptation | Implement a tree planting program | 11% | 14% | **4** | **6** |
| Adaptation | Regional Climate Change Collaborative | 13% | 16% | **5** | **3** |
| Adaptation | Climate change in SEQR reviews | 8% | 10% | **6** | **8** |
| Adaptation | Create Floodplain Ordinances | 9% | 12% | **7** | **7** |
| Adaptation | Protect and enhance critical natural resources | 13% | 15% | **8** | **5** |
| Adaptation | Expand participation in demand response | 7% | 8% | **9** | **9** |

| | | | | | |
|---|---|---|---|---|---|
| Economic Development | Implement a small business incubator program | 12% | 16% | **1** | **1** |
| Economic Development | Establish a Regional Land Bank | 11% | 14% | **2** | **3** |
| Economic Development | Establish model zoning that directs growth and promotes sustainability | 13% | 16% | **3** | **2** |
| Economic Development | Create a green alliance between government and businesses | 10% | 13% | **4** | **5** |
| Economic Development | Establish a regional sustainability resources and education website | 10% | 12% | **5** | **7** |
| Economic Development | Establish a financial literacy program | 8% | 10% | **6** | **8** |
| Economic Development | Expand NYSERDA's green jobs training to include green infrastructure design, installation, and maintenance | 12% | 14% | **7** | **4** |
| Economic Development | Create a regional consortium of non-profits | 5% | 7% | **8** | **10** |
| Economic Development | Implement a "Buy Local" campaign | 11% | 13% | **9** | **6** |
| Economic Development | Promote green leases through education of landlords, tenants, and real estate professionals | 8% | 10% | **10** | **9** |
| | | | | | |
| Energy | Establish Energy Efficiency and Renewable Energy Financing Districts (or PACE program) | 12% | 15% | **1** | **2** |
| Energy | Establish a revolving energy efficiency improvement fund for local businesses. | 12% | 16% | **2** | **1** |
| Energy | Adopt a local energy-efficient building code. | 10% | 13% | **3** | **3** |
| Energy | Engage in Power Purchase Agreements | 11% | 13% | **4** | **4** |
| Energy | Implement a Smart Grid program | 9% | 11% | **5** | **7** |
| Energy | Lower or eliminate permitting fees for energy conservation or renewables | 10% | 13% | **6** | **5** |
| Energy | Establish Green Districts | 11% | 13% | **7** | **6** |
| Energy | Create a standard environmentally preferable purchasing (EPP) policy. | 8% | 10% | **8** | **9** |
| Energy | Establish a local carbon tax | 7% | 9% | **9** | **10** |
| Energy | Incentivize Combined Heat and Power District Energy Systems | 9% | 11% | **10** | **8** |

| | | | | | |
|---|---|---|---|---|---|
| Food Systems | Create a food hub for regional food processing, storage, and distribution | 14% | 18% | **1** | **1** |
| Food Systems | Create/reestablish a Food Policy Council for the Capital District | 11% | 14% | **2** | **6** |
| Food Systems | Establish an initiative to create/increase "local food" transactions, especially between large grocery stores and farms | 15% | 18% | **3** | **2** |
| Food Systems | Create additional medium to small-sized processing facilities, including kitchen incubators, throughout the region | 12% | 16% | **4** | **3** |
| Food Systems | Build capacity for new and existing farmers by establishing a Farmers Support and Enhancement Program | 13% | 16% | **5** | **4** |
| Food Systems | Create a Regional Farmland Protection Plan | 14% | 16% | **6** | **5** |
| Food Systems | Establish a regional gleaning and food recovery program | 11% | 13% | **7** | **8** |
| Food Systems | Create a Regional Healthy Corner/Convenience Store Network | 12% | 14% | **8** | **7** |
| | | | | | |
| LULC | Modify local codes and regulations to allow for sustainable, compact development | 13% | 17% | **1** | **2** |
| LULC | Repair and modernize existing infrastructure | 15% | 18% | **2** | **1** |
| LULC | Develop a regional greenway connectivity plan | 11% | 14% | **3** | **3** |
| LULC | Prioritize Brownfield redevelopment | 11% | 14% | **4** | **4** |
| LULC | Implement land conservation practices into land use planning and zoning | 11% | 13% | **5** | **5** |
| LULC | Update zoning for transit-oriented development (TOD) | 10% | 12% | **6** | **6** |
| LULC | Promote sustainable and affordable housing that meeds the needs of the region's population | 10% | 12% | **7** | **7** |
| LULC | Design and install public plazas | 5% | 6% | **8** | **10** |
| LULC | Develop and implement sustainability guidelines for historic buildings and districts | 8% | 9% | **9** | **8** |
| LULC | Improve public access to waterfront areas | 7% | 9% | **10** | **9** |

| | | | | | |
|---|---|---|---|---|---|
| Transportation | Implement a bicycle and pedestrian infrastructure improvement program | 15% | 20% | **1** | **1** |
| Transportation | Optimize transportation system through alternative street design and advanced signal technology | 13% | 17% | **2** | **2** |
| Transportation | Improve transit service through technology improvements | 12% | 16% | **3** | **4** |
| Transportation | Create an interconnected regional transit system | 14% | 17% | **4** | **3** |
| Transportation | Convert municipal fleets and transit vehicles to electric or other alternative fuels | 9% | 11% | **5** | **6** |
| Transportation | Develop and expand electric vehicle and alternative fuel infrastructure | 12% | 13% | **6** | **5** |
| Transportation | Improve freight facility operations, infrastructure, and highway connection | 8% | 10% | **7** | **7** |
| Transportation | Establish car sharing programs throughout the region | 8% | 10% | **8** | **8** |
| Transportation | Incentivize use of clean and fuel-efficient truck and freight technology | 9% | 10% | **9** | **9** |
| | | | | | |
| Waste | Improve and increase composting options | 15% | 19% | **1** | **1** |
| Waste | Site and develop anaerobic digestion facilities in the region | 12% | 15% | **2** | **3** |
| Waste | Adopt C&D waste reduction ordinance | 11% | 14% | **3** | **4** |
| Waste | Establish a revolving loan fund to bridge recycling expenses | 11% | 14% | **4** | **5** |
| Waste | Implement single stream recycling | 14% | 17% | **5** | **2** |
| Waste | Develop a Resource Recovery Park | 11% | 13% | **6** | **7** |
| Waste | Implement volume-based user fees | 12% | 14% | **7** | **6** |
| Waste | Partner with universities to facilitate innovation in waste technologies | 9% | 11% | **8** | **8** |
| Waste | Implement a waste inspection program | 7% | 9% | **9** | **9** |

| | | | | | |
|---|---|---|---|---|---|
| Water | Develop an Asset Management Plan for water systems | 15% | 19% | **1** | **1** |
| Water | Develop an Asset Management Plan for sewer systems | 13% | 17% | **2** | **2** |
| Water | Create a small grant program for innovative water quality projects | 12% | 15% | **3** | **3** |
| Water | Require use of a predictive model for stormwater management | 11% | 14% | **4** | **4** |
| Water | Develop a purchasing consortium for municipal water projects | 9% | 12% | **5** | **7** |
| Water | Revise municipal code to incorporate water/stormwater management best practices | 12% | 14% | **6** | **5** |
| Water | Conduct a watershed assessment for stormwater management | 11% | 14% | **7** | **6** |
| Water | Implement an invasive species management and outreach program | 7% | 9% | **8** | **9** |
| Water | Create water/stormwater management rating system for commercial and residential development | 11% | 12% | **9** | **8** |

# NYSERDA CLEANER GREENER COMMUNITIES SUSTAINABILITY INDICATOR MEMORANDUM CAPITAL REGION SUSTAINABILITY PLAN OCTOBER 17, 2012

## 1.0 INTRODUCTION

This document provides a brief outline on the process for preparing a set of sustainability indicators for the Capital Region Sustainability Plan. It describes the methodology used to identify and develop indicators, suggests an indicator prioritization, and documents suggested data sources for priority indicators.

### 1.1 About Indicators

Broadly speaking, sustainability indicators are tools that can help a community or region determine whether the implementation of a sustainability plan or initiative is moving the community or region toward or away from key intended sustainability outcomes. They can help the community or region understand where it is, where it is going, and how far it is from stated desired targets. Indicators can also serve as alerts to an emerging problem or challenge and to recognize the steps that need to be taken to address them. Some characteristics of effective sustainability indicators include the following[1]:

- Are **relevant** to a community or region's specific priorities and topic areas such that they are tracking meaningful outcomes that resonate with stakeholders and decision makers;
- Are **clear and concise** in the sense that they do not rely on overly complex definitions or calculations that are difficult for stakeholders and decision makers to understand;
- Are **well grounded** and **defensible**;
- Are **usable** in making decisions that affect a community or region;
- Have a **long-range view**, rather than tracking disconnected short-term outcomes;
- Are based on **reliable data** so that they can be consistently and accurately tracked over time; or, if data do not currently exist, a system to reliably collect data can be established; and
- Can **cover multiple** community, economic, and/or environmental topics.

## 2.0 METHODOLOGY

One of the first steps in developing the Plan was to prepare an initial Sustainability Indicator Memorandum as required by NYSERDA. Using a draft Sustainability Indicator Guidance Document and reporting template provided by NYSERDA, the initial Memorandum, submitted to NYSERDA in May 2012, outlined the Capital Region's proposed initial set of indicators.

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[1] Hart, Maureen. 2006. *Guide to Sustainable Community Indicators, 2nd Ed.* Sustainable Measures, West Hartford, CT.

Upon completion of goals by the Technical Committees for each of the Plan's Focus Areas in August 2012, the indicators in the initial Sustainability Indicator Memorandum were re-evaluated to determine how well they mapped to each Focus Area and set of goals. Over 30 potential indicators were identified. These potential indicators were shared with Technical Committee members via webinar in September 2012 and feedback solicited for each Focus Area at the third round of Technical Committee meetings. Technical Committee members were asked to comment on a number of key questions regarding the potential indicators including feasibility of obtaining data, relevance to Focus Area goals, and whether or not certain key indicators rose to the level of being able to track progress at a higher systems or Focus Area level, as opposed to at a specific goal level.

During this development process, NYSERDA provided the region with revised guidance on developing indicators. Specifically, NYERDA required the following:

- Each of the Plan's Focus Areas include at least one common indicator (common to all regions in the state preparing sustainability plans) from NYSERDA's Common Indicators Document.
- The Plan must include five indicators (two for land use, two for transportation, and one for energy). It should be noted that these required indicators can also count toward the requirement of having one indicator for each Focus Area category.

The consultant team then evaluated feedback from Technical Committee members, also taking into account concerns expressed in the region about resources available to track and report on indicators given that no governance structure has yet been established for implementing and monitoring the Plan. As a result, the consultant team sorted potential indicators into "Priority 1" and "Priority 2" indicators to help give the region guidance on which indicators might be most effective given resource limitations. These proposed indicators were then shared with the Executive Committee for final review. Criteria used to identify Priority 1 indicators include:

- The indicator can track progress and relates to multiple goals within a Focus Area, and in some cases goals across Focus Areas;
- Data for the indicator is readily available as part of the plan's baseline, and/or it can be aggregated at the regional level without significant new effort;
- One common indicator from NYSERDA's Common Indicators Document is provided; and/or
- The indicator is one of the five core indicators required by NYSERDA.

A total of 10 indicators were identified as potential Priority 1 indicators. The following Table 1 shows how these indicators provide coverage across all of the Focus Areas, while the attached Table 2 gives additional detail about the specific goals within Focus Areas these indicators support, as well as available data sources for monitoring the indicators and plan targets.

## Table 1. Mapping of Proposed Priority 1 Indicators to Plan Focus Areas

| Indicator | Type[1] | Climate Adaptation | Economic Development | Energy | Food Systems | Land Use | Transportation | Waste | Water |
|---|---|---|---|---|---|---|---|---|---|
| **Regional Energy Consumption Per Capita** | Required | S[2] | S | P | | S | | S | S |
| **Waste Disposal Per Capita** | Modified Common | S | S | | | | | P | |
| **Ag-Farm Production** | Modified (Component of Common) | S | S | | P | S | | | |
| **Per Capita Land Consumption** | Required | S | S | | S | P | | | S |
| **Housing & Transportation Index** | Required | | | | | | P | | |
| **Percent of Passengers Traveling by Mode** | Required | S | | | | | P | | |
| **VMT Per Capita** | Required | S | | | | | P | | |
| **Median Household Income, Families Below Poverty Line, Population Below Poverty Line** | New | | P | S | | | | S | |
| **Governance – Funding for Implementation** | New | S | S | S | S | S | S | S | S |
| **Total Water Permit Violations** | Common | S | | | | | | | P |

1. **Required – required by NYSERDA. Common – suggested by NYSERDA. New – region-specific indicators developed during the planning process**
2. **P – Priority Focus Area the indicator supports; S- Supporting Focus Area(s) the indicator supports**

The attached Table 3 lists those indicators suggested as "Priority 2" indicators. These are indicators that more closely map to specific goals rather than higher level Focus Areas or systems, and for many of them data collection may be problematic at the regional level. This table also summarizes feedback from Technical Committee members on the potential indicators. The consultant team recommends that these indicators be documented in the Plan and further evaluated during subsequent Plan review cycles to determine if the resources are available to regularly report on them for this Plan.

Various resources were used to inform and identify the list of potential indicators for the Albany Capital Region including:

- NYSERDA's Common Sustainability Indicator Guidance document;

- The grant funding application for the Capital Region Cleaner, Greener Communities Sustainability Plan, which discusses key priorities for the Region;
- The Capital Region Economic Development Council Strategic Plan, with a particular focus on Goals, Strategies, and Expected Outcomes from the Strategic Plan that align with the topics of the Sustainability Plan;
- The ICLEI – Local Governments for Sustainability STAR Community Index proposed performance measures by topic area, which were used as a general best practice benchmark for sustainability indicator topic areas and approaches; and
- The consultant team's general knowledge of sustainability indicators from other sustainability planning efforts nationally.

# Table 2. Priority 1 Indicators

| Proposed Indicator | Common NYSERDA Indicator/Required Indicator? | Related Focus Area and Goals | Data Sources | **Plan Target** |
|---|---|---|---|---|
| Annual Regional Energy Consumption Per Capita (MMBtu) | Common and Required Indicator, Provides Coverage for Energy Focus Area | Focus Area – Energy<br><br>Also related to Climate Adaptation (vulnerability goal), Waste (energy recovery goal), Water (energy consumption and maintenance costs goals), Land Use (energy efficient housing options goal), Economic Development (innovation and green technologies goal).<br><br>Greenhouse Gas Emissions | Data included in Region Tier II Greenhouse Gas Inventory. CGC Albany Regional Energy and 2000-2009 Population Estimates.<br><br>Current baseline: 225 MMBtu/Capita | Reduce per capita energy consumption 10% by 2020 |
| Annual Waste Disposal Per Capita | Modified Common Indicator, Provides Coverage for Waste Focus Area | Waste (relates to all goals), Economic Development (innovative and green technologies goal)<br><br>Greenhouse Gas Emissions | Modification to Common Indicator; recommended by Waste Technical Committee.<br><br>Data Source: NYSDEC: www.dec.ny.gov/chemical/65541.html, municipal government<br><br>U.S. Census Bureau Figures for Normalizing Per Capita | Reduce per capita tons of municipal solid waste 10% by 2030; Eliminate all waste going to landfills or incinerators by 2050 |
| Annual Agriculture – Farm Production (Dollars) | Component of Common Indicator on Farms: Acreage and Production | Climate Adaptation (vulnerability goal), Economic Development (safeguard agricultural resources, expanding agricultural economy, promote agricultural economy goals); Food (all goals); Land Use (protect agricultural lands goal). | U.S Department of Agriculture Statistics Division, Annual Bulletin on Food Production by County: www.nass.usda.gov/Statistics_by_State/New_York/Publications/Annual_Statistical_Bulletin/2011/2011-bulletin.htm | Increase by 10% by 2025 |
| Land Use Patterns, Annual Per Capita Land Consumption | Common and Required Indicator, Provides Coverage for Land Use Focus | Climate Adaptation (ability to protect vulnerable ecosystems component), Water (green infrastructure and stormwater runoff goal); Economic Development (target cities | Already part of plan baseline. Characterize land use within region according to the MRLC's National Land Cover Database. Compute the total amount of land that is | Reduce by 5% by 2030 |

| Proposed Indicator | Common NYSERDA Indicator/Required Indicator? | Related Focus Area and Goals | Data Sources | **Plan Target** |
|---|---|---|---|---|
| (Acres) | Area | and villages, neighborhood revitalization goals); Food (protection of agricultural land goal); Land Use (two of three goals)<br><br>Greenhouse Gas Emissions | developed. Divide this total regional area by the population of the region to compute the per capita land consumption. MRLC – Multi-Resolution Land Characteristics Consortium - National Land Cover Database - http://www.mrlc.gov/<br><br>Current baseline: 0.000276 square miles | |
| Total Annual Water Permit Notice of Violations (Number) | Common, Provides Coverage for Water Focus Area | Climate Adaptation (related to natural resources goal); Water (water quality goals) | New York State Department of Environmental Conservation Permit Violation Data | 40% reduction by 2020; 0 permit violations by 2030 |
| Housing + Transportation Index | Common and Required Indicator, Provides Coverage for Economic Development Focus Area | Economic Development Goals – cost of living in the region, percent of household income spent on housing and transportation | Already in baseline. No calculation necessary - just visit website and look up data for region by local government. H+T Affordability Index – Center for Neighborhood Technology (http://htaindex.cnt.org/)<br><br>Current baseline: Household H & T > 45% 225,033 (66.5%) | Reduce percent of households with H & T >45% by 20% by 2030 |
| Percent of Passengers Traveling by Mode | Common and Required Indicator, Provides Coverage for Transportation Focus Area | Transportation Goals<br><br>Greenhouse Gas Emissions | Already in baseline. American Community survey (ACS) (# Employees in the region employed full or part time and # of Employees commuting by carpool, transit, walking, and biking). | Reduce SOV miles 25% by 2030 |
| Annual Vehicle Miles Traveled (VMT) Per Capita | Common and Required Indicator | Transportation Goals<br><br>Greenhouse Gas Emissions | Already in baseline. Summary of VMT by County in the Eight County Capital Region. | Reduce VMT per capita 20% by 2030 |
| Annual Median Household | Common Indicator, Provides Coverage | Energy (economic development from sustainable energy initiatives goal); Waste | 2010 United States Census - 2006-2010 American Community Survey, 5-Year | Increase MHH 3% above rate of |

| Proposed Indicator | Common NYSERDA Indicator/Required Indicator? | Related Focus Area and Goals | Data Sources | **Plan Target** |
|---|---|---|---|---|
| (MHH) Income, Families Below the Poverty Line, Population Below the Poverty Line | for Economic Development Focus Area | (local manufacturing goal); Economic Development (all goals, poverty indicated in two of four goals) | Estimates; New York State Department of Labor.<br><br>Current baseline: MHH - $55,683 Families below poverty level – 43,749 (6.71%); Population below poverty level – 114,141 (10.62%) | inflation by 2020; Reduce total population and number of families below the poverty line 50% by 2030 |
| Percent of Communities Applying for Implementation Funds; Total Funding Received. | Proposed New Indicator | Climate Adaptation (ability of region to adapt to changing climate component), Economic Development (leverage and collaborate goal); Overall Implementation of Plan | Track through annual CFA funding process. | 2013 - 10% of communities; $1 million; 2014 - 20% of communities; $1.5 million; 2015 - 30% of communities; $2.5 million |

# Table 3. Suggested Priority 2 Indicators

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| **Climate Adaptation** | | | |
| *Enhance the region's resiliency in the face of climate change in order to maintain basic services and minimize the impacts of climate change on the most vulnerable populations and ecosystems.*<br><br>Within this goal strategies fall into the following categories: | • Combining this Focus Area into one overarching goal. *(Note: Initial feedback was collected from this Focus Area's committee members before new, combined goal was evaluated for potential indicators.)* | | |
| Social (General Planning/Assessment)<br>• Local vulnerability assessments and adaptation planning<br>• Include climate change in existing plans and processes | • Dollars Invested in Region to Support Climate Adaptation Initiatives | • Potential new indicator. Measures level of financial support for adaptation programs in the region. Method needs to be developed. | |
| Infrastructure<br>• Green Infrastructure Zoning<br>• Study comparison of energy/GHG use with green vs. grey infrastructure<br>• Integrate green | • Number of Jurisdiction with Green Infrastructure Zoning | • Potential new indicator. Would require input from jurisdiction across the region, potentially by survey. | |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| infrastructure into transportation planning and projects | | | |
| Natural Resources<br>• Create floodplain ordinances (this also falls under infrastructure and social)<br>• Protect critical habitat, floodplains, and wetlands from development through conservation | • Acres of Formally Protected Critical Habitat | • Protection through easements, fee simple acquisition. | • Committee is emphasizing the natural resources impact<br>• Consider adding biodiversity: NYSDEC |
| Education and Collaboration<br>• Regional Climate Change Collaborative<br>• Expand NYSERDA's green jobs training to include green infrastructure design/installation/maintenance | • Number of Graduates from Green Jobs Training with Desired Skill Sets | • Would need data from NYSERDA. | • |
| **Energy** | | | |
| Reduce energy consumption and intensity throughout the region as part of a larger GHG reduction plan. | • See Priority 1 indicator, Energy Consumption Per Capita. | • Common indicator. Measures changes in energy consumption. Normalizing by population allows for evaluation of intensity. | • Keep as is. |
| Increase the percentage of the region's energy that comes from renewable sources. | • NYSERDA Common Indicator 6B: Energy – Renewable | • Common indicator. | • Some questions about the ability to get this data. Could also add installed capacity of renewable energy, including both net metered and non-net metered. |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| | Energy – Percentage of regional energy use provided by renewable energy capacity | | |
| Support economic development of the region through sustainable energy initiatives. | • NYSERDA Common Indicator 5A: Economic Development – Sector Analysis – Jobs created (by sector)<br><br>(Also related to Economic Development indicators.) | • Common indicator. Jobs created in the sustainable energy sector provide an approximate indication of economic development. | • Check Green Jobs NY and Department of Labor Survey |
| Improve efficiency of buildings and operations in the residential, commercial, industrial, municipal and institutional sectors. | • Building Energy Intensity | • Potential new indicator. Recommended in Capital Region Sustainability Indicator Memo (Appendix). Can be measured by evaluating building sector energy use and total square footage in the region. | • Look at BOMA for potential indicators and support |
| Become a national leader in innovation & research related to energy efficiency and conservation programs. | • Dollars Invested in Energy Efficiency and Conservation Research | • Potential new indicator. Tracks activity in the efficiency and conservation research space. Likely focused on higher education. | |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| Improve the region's energy security and resiliency. | • Percent of Energy Coming from Local, Regional, and Renewable Sources | • Potential new indicator. Recommended in Capital Region Sustainability Indicator Memo (Appendix). A local/regional energy supply made up of distributed generation and/or renewable sources is typically considered to be more secure and resilient. | • Same comments as first renewable energy indicator above. |
| Increase public awareness and understanding of energy efficiency, conservation, and renewable sources. | • Number of Energy Public Awareness Programs in the Region | • Potential new indicator. The number of awareness programs available is a relatively good indication of public awareness. Gauging the effectiveness of each program should also be considered. | • Number of programs may not translate to awareness. Better indicators may be more specific, such as web site traffic or program participation. |
| **Waste** | | | |
| Develop new systems to recycle and/or recover energy from food waste and other organic materials in the existing solid waste stream. | • Total Energy Recovered from Accumulated Waste (MMBtu) | • Potential new indicator. Recommended in Capital Region Sustainability Indicator Memo (Appendix). The amount of energy recovered is a good indication of systems developed to recover energy from organic matter in the solid waste stream. Method | • Tons of material diverted from Disposal<br>• Indirect Energy Savings (e.g from Life Cycle analysis)<br>• Cost Savings.<br>• Add one under first goal to capture something about composting success as a recovery method |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| | | needs to be developed. | |
| Improve existing recycling programs by more effectively diverting designated recyclables and by increasing the number of materials that are currently designated for recycling. | • See Priority 1 indicator on waste per capita. | • Common indicator. Addresses diversion rate from recycling as well as any other diversion programs such as composting. | • Waste disposal per capita. This is the new metric being promoted by NYSDEC among others because it captures reduction attributable to waste reduction, reuse and recycling<br>• Easier and more accurate to measure how much waste is sent to disposal facilities (absolute) versus % diversion as in 1B |
| Develop material management strategies, on both the regional and local level, that encourage local manufacturing that utilizes regionally recycled materials and that encourages and incentivizes municipalities, businesses, institutions and local non-profits to buy local products, including recycled products. | • Percent of materials used in local/regional production from regionally recycled materials. | • Potential new indicator. Measure of use of recycled materials in local/regional manufacturing. Method needs to be developed but would likely entail some sort of manufacturer survey. | • Percent of recycled materials from the Capital Region used in local/regional production from regionally recycled materials.<br>• Tons of recovered material used in local/regional production from regionally recycled materials.<br>• Who would do this Survey? The last one will be tough to measure -- % of materials used in local production. |
| **Water** | | | |
| Maintain and improve the availability and reliability of the potable water supply. | • Potable Water Use by Sector as a Percentage of Total Water Availability (Note: this indicator could also be used to track where potable water is used when not necessary, such as in agriculture.) | • Potential new indicator. Measures ability to provide potable water supply, also a Climate Adaptation indicator. (Primary Source: 2010 Environmental Performance Index (EPI)) | • Discussed whether or not availability was even an issue in this region. Reliability is the larger issue. To address reliability, the committee wanted to include the yearly number of water main breaks. Overall, these indicators may be difficult to establish due to limited existing data. |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| | | | |
| Maintain or reduce water consumption to ensure adequate supply for all users. | • NYSERDA Common Indicator 2A: Water Management - Water demand per capita, by sector (agricultural, industrial, commercial, residential, power generation) | • Common indicator. Measures changes in water use by sector. Can be used in conjunction with the water use as percent of availability indicator to assess if the supply adequately meets demand. | |
| Protect water quality of streams, rivers, lakes and groundwater to ensure adequate supplies of water for drinking, recreation and wildlife. | • NYSERDA Common Indicator 2D: Water management - Total water permit violations | • Common indicator. Tracking water permit violations (water quality, discharge, and take) provides a good indication of how well the regional water supplies are being protected. | • What permits are being violated? Some violations are related to late reporting and not issues with water quality. Other indicators might include monitoring the increase in impervious area of watersheds and monitoring representative stream segments for both quantity and quality issues.<br><br>• The New York State Department of Environmental Conservation (NYSDEC) evaluates water quality based on a water bodies' ability to support its designated uses, for example drinking water supply, sustaining aquatic life, or providing a location for public swimming or secondary recreation |
| Reduce energy consumption and maintenance costs. | • Energy Used by Potable Water and Wastewater Treatment and | • Potential new indicator. Recommended in Capital Region Sustainability Indicator Memo (Appendix). | • This is a good long term goal but also need to recognize a short term need to increase the maintenance investment in existing systems to achieve water quality improvements. Establishing an indicator for maintenance costs |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| | Storage Facilities (pumps, treatment, and storage) | Good indicator of any changes to energy consumption for water treatment and distribution. Maintenance costs may not be included in this indicator. | will be difficult since they are difficult to identify under current practices due to the variation in size and conditions of the various water and wastewater systems. |
| Minimize the use of grey infrastructure by maximizing use of both natural systems and when necessary the construction of green infrastructure. | • NYSERDA Common Indicator 2B: Water Management - Percent impervious surface area relative to total developed and hardscaped surface | • Common indicator. The amount of impervious area is a relatively good indicator of the use of green infrastructure and natural systems for stormwater management. | • The indicator does not appear to address the issue. The percent imperious area could be used but would be better compared to total greenspace. This does not necessarily measure the use of natural or green infrastructure. |
| Ensure that all downstream areas are appropriately protected from the impacts of stormwater runoff. | • NYSERDA Common Indicator 3B: Climate Change Adaptation – Flood Zones – Economic value of property vulnerable to storm surges and flooding<br><br>(Could also include here other indices- flashiness of streams, biotic integrity indices, etc.) | • Common indicator. Measured for areas just downstream of the region to assess the flooding vulnerability as a result of stormwater management in the region. May be difficult to evaluate what portion of this threat is the result of stormwater management activity in the region. | • There is considerable development already in flood zones. It is unlikely that the amount of development would be reduced. A better or additional indicator might include monitoring stream segments at a smaller watershed level. Changes in the stream geometry would suggest that the stream is no longer in equilibrium and additional stormwater inputs are occurring. Could also conduct macroinvertebrate studies to identify changes in water quality. |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| Maintain and improve water quality and quantity for recreation and habitat. | • Fishable and Swimmable River Miles and Lake Areas, and/or Number of Closures to Fishing and Swimming<br><br>• NYSERDA Common Indicator 2D: Water management - Total water permit violations | • Potential new indicator. Provides some level of analysis of the health of regional water bodies for recreation and habitat.<br><br>• Common indicator. Tracking water permit violations (water quality, discharge, and take) provides a good indication of how well the regional water supplies are being protected | |
| **Topic Area and Goals** | **Proposed Indicators** | **Notes** | |
| **Economic Development** | | | |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| **Target cities and villages.** Economic development should focus on the region's 43 cities and villages—through such strategies as transit-oriented, mixed-use development and land recycling—to increase community revitalization, reduce poverty, improve the efficiency of public works investments, and safeguard our rural and agricultural resources. | • NYSERDA Common Indicator 7C: Land Use & Livable Communities – Percentage of redevelopment of underutilized buildings and sites.<br><br>• See Priority 1 indicator, Housing + Transportation Index | • Common indicator. While this is an Economic Development topic, Indicator 7c seems appropriate as the goal focuses on TOD, mixed-use development and land recycling. | • How do we define "underutilized buildings and sites"? To calculate the % of redevelopment would require a complete inventory of these properties regionally, as well as ongoing tracking. Seems like a difficult measure to implement.<br><br>• Alternatively, maybe something like number or percent of projects (or SF/acreage) occurring within identified growth areas? Or number of land bank properties (or priority sites identified by Study X) developed annually? |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| **Shared prosperity and sustainable growth.** Expand economic opportunities to support a socially and economically diverse population by focusing on small business growth, neighborhood revitalization, expanding our agricultural economy and reducing urban and rural poverty. | • See Priority 1 indicator on median income and poverty<br><br>• NYSERDA Common Indicator 5F: Economic Development – Economic Activity: Gross Regional Product, number of businesses and employees. | • Common indicator. Aligns well with fourth piece of this goal.<br><br>• Common indicator, but suggest further breakout of businesses by size.<br><br>(Suggest that the neighborhood revitalization and agriculture economy components of this goal will be picked up in land use and food topic area indicators.) | • Not seeing an indicator tracking changes in taxes collected (mortgage, property, etc) and tracked across levels – are we generating enough to fund central services? – tied to shared prosperity and sustainable growth (Source: NYS Office of the Comptroller 2008)<br><br>• Use percent for 5E<br><br>• GDP numbers at the local level is pretty much impossible<br>• Tracking new business start-ups – data is always 2-3 years old by the time you get it; hard to track<br>• Suggest further breakdown beyond Gross Regional Product: # businesses by size – recommend breakdown used in County Business Patterns data set; measure employment/output for "green industries" using BLS definitions http://www.bls.gov/green/industry_by_naics.pdf or equivalent. Key is to measure growth of priority/green industries.<br>• Sources: US Census American Community Survey 2008, NYS Office of the Comptroller 2008 (Economic Development Spending) |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| **Leverage and collaborate.** Align state, regional and local policies and funding to remove barriers to collaboration and shared services, increase the opportunities to leverage funding, and improve accountability and effectiveness of all levels of government. | • NYSERDA Common Indicator 4B: Governance – Energy Policy – Percent of regional population living in areas with local energy codes exceeding state requirements, and/or regulations for benchmarking and retrofitting private buildings.<br><br>• NYSERDA Common Indicator 4C: Governance – Tax Policy and Incentives – Percent of municipalities with tax policies | • Common indicator.<br><br>• Common indicator. | |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| **Promote the agricultural economy.** Grow the Region's agricultural economy by assisting local farms and complementary businesses in promoting their products at the local, state and national level and by expanding and strengthening the agricultural infrastructure. The importance of agriculture and its positive social, environmental and economic benefits must be highlighted and celebrated as part of the Region's heritage, community, environment and business climate. | • NYSERDA Common Indicator 5B: Economic Development – Farms: number, acreage, production type<br>• See Priority 1 indicator for farm production | • Common indicator.<br>• Production by local farms in dollars. Data from NYS Office of the State Comptroller, GIS as available. | |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| **Support innovation and green technologies.** Capitalize on knowledge and innovation offered by the Region's 16 universities and the technology offered by the private sector to advance our green economy to the forefront nationally by becoming more energy efficient, increasing production and use of renewable energy sources, creating green buildings, increasing recycling, creating Complete Streets, and reducing greenhouse gas emissions. | • Cleantech Sector Growth (part of sector analysis for Indicator 5A.)<br>• Number of LEED Certified Buildings, Average kbtu/sf of New Buildings | • Two new potential indicators to address green building component of goal. LEED addressed all aspects of green building but not all "green" buildings are LEED certified. Energy intensity of new buildings would address only energy aspects of green performance.<br>• Components of this goal related to energy efficiency, renewable energy, increasing recycling, and reducing GHG emissions are addressed by indicators for Energy, Waste, and GHG emissions. | • Cross-reference to 5F |
| **Food Systems** | | | |
| Prioritize the protection of agricultural land | • Protected Agricultural Land Per Capita | • Data from local GIS databases. Acres formally protected through conservation easements, fee simple acquisition, and zoning that effectively limits land use to agriculture. | • Is there a way to focus more on lands of statewide importance? A more helpful indicator would be total acres of agricultural land and the percentage of that land that is under permanent protection. |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| Maximize the utilization of land appropriate for agriculture and encourage production using sustainable and best management practices | • Percentage of Prime Farmland in Agricultural Production | • Data on prime farmland in the region from U.S. Department of Agriculture, NRCS. Also NYS Farmland Information Center. | • Potential sources: Source: US Department of Agriculture Census 2007; NYS Office of Real Property Taxes 2008 |
| Increase the volume of local food production commensurate to existing and forecasted demand | • Percentage of Local Food Production to Total Food Consumption in Region (Dollars) | • Proposed new indicator, measured in dollars. Will indicate whether or not local food production is keeping pace with consumption year over year. IMPLAN's Regional Purchasing Coefficient (RPC) can be used to calculate food sourced at the county level, by dollar value. | |
| Enhance the capacity and number of processing facilities for meat, produce and other local agricultural products | • Number of Processing Facilities in Region | • Proposed new indicator. Annual count of processing facilities and warehousing/storage facilities. Could also be calculated by square | • The Number of Processing Facilities in the Region indicator didn't feel relevant to the Committee. Instead, can we use "$ of produce in/out of the region"? Or "Total and Net Income of Farms in the region"? The data could come from Ag and Markets Survey (BEA). |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| Create a variety of warehousing and storage options to accommodate seasonal food options and adverse weather conditions | • Warehousing and Storage Space (Square Footage)<br><br>• Investment in Farming Infrastructure, Including Warehousing and Processing (Dollars) | footage or processing volume to track capacity.<br><br>• Another potential indicator is total dollars invested annually in farming infrastructure, including processing and warehousing. | |
| Increase distribution of locally produced foods to institutions and food stores, including large chain grocery stores and corner stores | • Sales of Locally-produced Food to Large Chain Grocers and Institutions (e.g., Education Sector, Hospitals, Other Facilities) | • Dollars in sales from farmers to larger grocers and institutions. Assume that collecting data from smaller "corner stores" would be too difficult.<br><br>(Assume that sales would reflect a trend of increased demand over time, which in turn would be influenced by an effective education campaign. Could also track just sales of produce in general.) | |
| Educate consumers and food buyers about the benefits of eating healthy, preparing, and purchasing local foods | | | |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| Augment access to fresh produce for residents across the Capital District from urban neighborhoods to rural settings | • Proximity to Grocers With Fresh Produce or Farmers Markets (Miles) | • GIS data/maps measuring locations of grocers offering fresh produce and farmers markets and percentage of population within a certain radius (0.25 miles for urban settings, 5 miles for rural settings). | |
| **Land Use** | | | |
| Preserve, protect and enhance the region's natural and cultural resources, sensitive ecosystems and agricultural lands, and effectively provide and manage accessible public space to increase recreational and civic opportunities for all. | • See Priority 1 indicator for land consumption<br>• Total Acreage of Protected Land | • Common indicator that gets at the rate of land consumption and, by association, land that remains in agricultural production and/or as open space.<br>• Potential new indicator, sources from local GIS databases, that tracks formally protected land (e.g., fee simple purchase for parks and open space, easements for agricultural land, etc.) | • Number of residents that live within a 1/4 mile [or 10-minute walk] of a park, trail or other public open space<br>• Park/open space acreage per thousand residents<br>• Acres of conservation land intended for public use<br>• Annual municipal or per capita expenditures on parks, trails and open space<br>• Note that GIS use is not widespread among municipalities including Albany County itself.<br>• Potential Source: NYS Office of Real Property Taxes 2008 |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| Encourage investment and redevelopment in existing cities, town centers, villages and hamlets, and encourage compact, connected, walkable communities wherever major development occurs in the region. | • NYSERDA Common Indicator 7C: Land Use & Livable Communities - Percentage of redevelopment of underutilized buildings and sites | • Common indicator. Fairly good match with goal, although not all sites in population and employment centers may be considered "underutilized." | |
| Promote diverse, energy efficient and healthy housing options for all residents of the region. | • NYSERDA Common Indicator 7B: Land Use & Livable Communities - Land use patterns: housing mix<br><br>• Number of LEED Certified Homes, Average kbtu/sf of New Homes | • Common indicator that addresses diverse housing options.<br><br>• Two new potential indicators to address energy and health components of goal. LEED addressed all aspects of green building but not all "green" homes are LEED certified. Energy intensity of new homes would address only energy efficiency aspects of goal. | |
| **Transportation** | | | |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| Provide viable options as alternatives to personal vehicles and single occupancy vehicle commuting. | • See Priority 1 indicators for travel by mode and VMT per capita<br>• Miles walking/bike infrastructure and transit routes per capita | • Common indicator that will reflect influence of viable alternatives to personal vehicles.<br>• New indicator, data collected from community GIS (sidewalks, bike paths/lanes, transit routes) | • Impossible to do for the region. New indicator but is collected by census? Has concerns about the first one 8B because will be hard to gather, especially on the roadway side; a good indicator if we can collect the data for it. Potential Source: US Census American Community Survey 2007<br>• Connectivity and/or accessibility index for walking, cycling and public transit (See http://reconnectingamerica.org/assets/Uploads/TRB2004-001550.pdf) |
| Create walkable and bikeable communities interconnected by regional transit and trail networks. | | | • Annual municipal or per capita expenditures on bicycling and pedestrian infrastructure<br>• Number of people that live within a ¼ mile of a trail and/or transit stop.<br>• Number of gaps connected in pedestrian, trail, bike or transit networks. New indicator to quantify number of gaps closed. |
| Encourage the use of alternative fuels and transportation technologies. | • NYSERDA Common Indicator 8A: Transportation-fuel consumption per capita | • Common indicator. Should emphasize that this is *fossil* fuel consumption per capita. It does not include alternative fuels such as biodiesel. | • Source: NYS Energy Research and Development Authority (NYSERDA) 2008 (Gasoline Usage) |

| Topic Area and Goals | Proposed Indicators | Notes | Comments Back from Tech Committee Members |
|---|---|---|---|
| Encourage expanded use of efficient and sustainable freight movement, respecting quality of life of communities. | • Average speed, travel time, and reliability of freight truck movement on large transportation networks such as the Interstate Highway System<br><br>• Change in Level of Service on Key Freight Routes | • Does not measure rail freight, but does get at efficiency of moving freight by truck. (http://atri-online.org/2012/02/28/freight-performance-measures )<br><br>• Potential secondary measure of potential mobility of freight. | • Increases in freight tonnage shifted to rail and waterborne freight providers |
| **Governance** | | | |
| Governance will be addressed in each chapter, rather than in a stand-alone chapter. See use of Governance indicators, for example, for Economic Development goals above.<br><br>• Comment from Land Use Committee: The indicator could be a listing/inventory of current, adopted zoning codes, comprehensive plans, local waterfront revitalization plans, farmland protection plans, open space plans and other local laws that pertain to land use regulations by municipality within each County including date of adoption. Adopted municipal plans and studies are the legal documents that allow government bodies to control land use and thus address the goals outlined by the Land Use Tech Committee. The use of these types of documents by a municipality and the fact that they have been recently updated (thus need for adoption date) is a good indicator of whether or not a municipality is addressing various land use issues within their jurisdiction. All County Planning agencies or Regional Planning Agencies should easily be able to collect this data and track it for their individual municipalities. | | | |
| **Greenhouse Gas Emissions** | | | |
| While greenhouse gas emissions will not be addressed in a stand-alone chapter, the baseline analysis for the plan will include all greenhouse gas indicators included in the Common Indicator Discussion Document. | | | |

# INTRODUCTION

This baseline assessment aims to provide the information necessary to understand how climate change will affect the Capital Region so that strategies can be identified and implemented that increase the resiliency of the region. Unless otherwise specified, all climate data in this chapter are from the Integrated Assessment for Effective Climate Change Adaptation Strategies in New York State (ClimAID).

## CLIMATE VS. WEATHER

The difference between climate and weather is often confused. **Climate** refers to the long term trends in **weather**. According to NASA:

> *"Weather is what conditions of the atmosphere are over a short period of time, and climate is how the atmosphere "behaves" over relatively long periods of time. When we talk about climate change, we talk about changes in long-term averages of daily weather."* (NASA 2005)

This report discusses three **primary climate impacts** (changes in climate directly related to the warming of earth's atmosphere) on the Capital Region: changes in precipitation, changes in temperature, and sea level rise. Primary climate impacts can cause **secondary climate impacts (or climate hazards)**, such as flooding, drought, and hurricanes. Primary and secondary climate impacts, in turn, cause **climate effects** – or the results of primary and secondary climate impacts on the social, natural, and built systems in a community. For example, reduced air quality from high heat days and property damage resulting from a severe storm are both examples of how climate impacts affect the region. For a full set of terms and definitions used throughout this assessment, please see the **Glossary**.

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# CLIMATE RISKS

This chapter provides an overview of the Capital Region's past and projected future climate. It also outlines the climate hazards that currently impact the region. Using the information presented here, Chapters two through seven discuss how these projected changes in climate will impact the region in the areas of:

- Water
- Transportation
- Land-Use and Livable Communities
- Energy
- Food Systems and Agriculture
- Economic Development

## CLIMATE OVERVIEW

The general climate of the Capital Region is humid continental. The average annual temperature is 48°F and the region experiences on average 39 inches of precipitation each year (NOAA n.d.). Climate conditions vary across the region: the southern areas' climate is moderated in the winter by its relative proximity to the Atlantic Ocean, whereas generally, the north and western counties experience colder winters, with more precipitation falling as snow, and slightly warmer summers, with more days above 90°F. For example, Cairo in Green County receives, on average, only 48.8 inches of snow per year while Glen Falls in Warren County receives 67.4 inches per year. (NOAA n.d.) **Table 1.1** gives a complete comparison.

**Table 1.1 Capital Region Climate Summary**

| | Annual average temp. (˚F) | Annual average precipitation (in) | Snowfall (in) | Cooling degree days | Heating degree days | # of days with precipitation ≥1 inch | # of days with max. temp. ≥ 90˚F | # of days with max. temp. ≤ 32˚F |
|---|---|---|---|---|---|---|---|---|
| **Glens Falls** | 45.6 | 39.01 | 67.4 | 426 | 7402 | 7.9 | 6.2 | 51.7 |
| **Albany** | 48.3 | 39.31 | 61.7 | 612 | 6598 | 7.5 | 9.1 | 43.5 |
| **Cairo** | 47.8 | 40.97 | 48.8 | 516 | 6294 | 10.4 | 11.2 | 35.6 |

Averages calculated from 1981 – 2011 *Source:* **(NOAA n.d.)**

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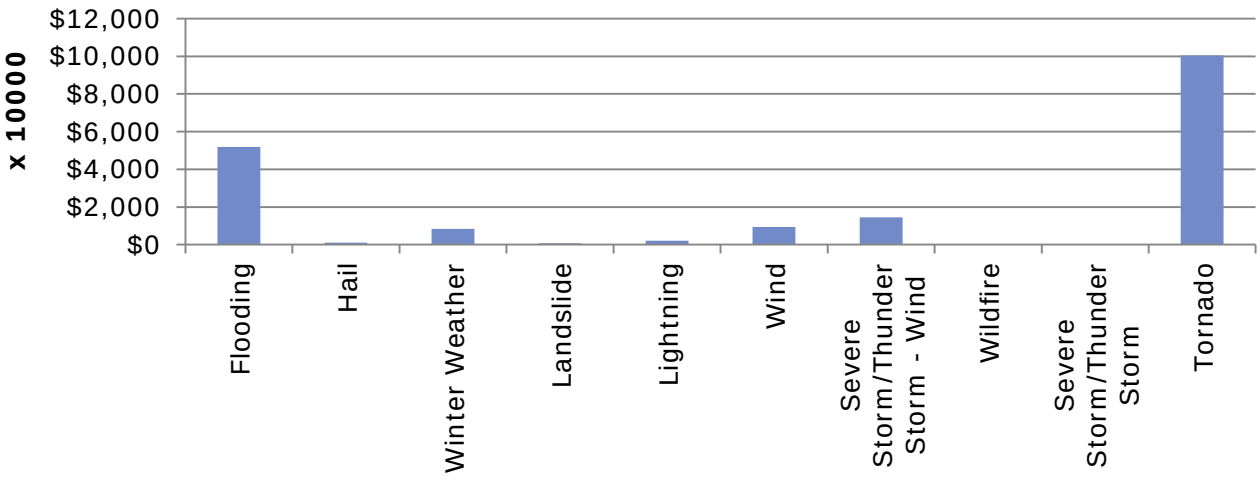
## CLIMATE HAZARDS

Climate hazards that impact the region include:

- Coastal storms
- Coastal erosion
- Drought
- Extreme heat
- Flood
- Hailstorm/Ice storms
- Hurricanes and other tropical storms (including nor'easters)
- Landslides
- Tornados
- Wildfires

Flooding and tornadoes are the most costly hazards in the Capital Region (see **Figure 1.1**) (SHELDUS 2011). **Map 1.1** shows the FEMA floodplains in the region and **Map 1.2** shows the storm surge inundation areas from a tropical storm. The recent impacts of Tropical Storm Irene are a great reminder and example of the damage that can result from flooding. A tornado outbreak on May 31, 1998 spawned three tornados in the region (see **Figures 1.2 and 1.3**). The most severe was an F3 that tore through Rensselaer and Saratoga

**Figure 1.1 Capital Region Property Damage by Natural Hazards Type (2011 USD)**

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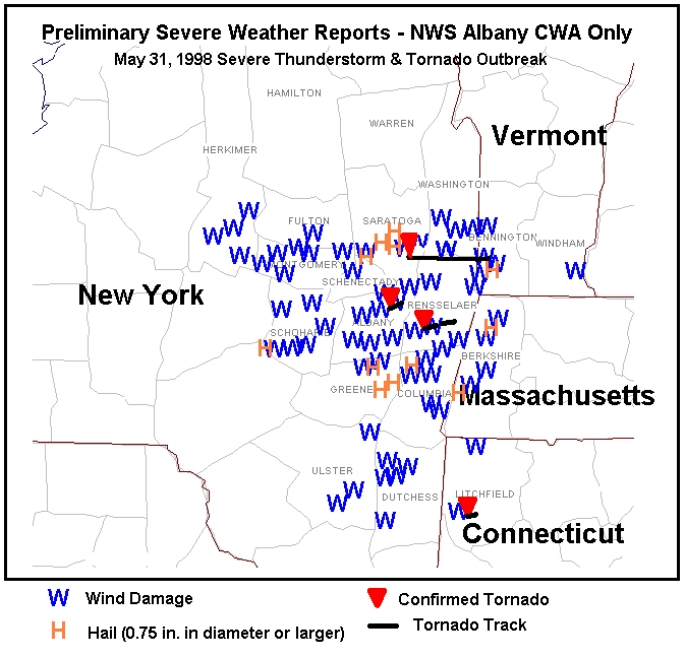


counties, causing over $97 million worth

of damages (2011 USD) (SHELDUS 2011).

**Figure 1.2 and 1.3 Damage in the Capital Region from the May 31, 1998 tornadoes** (National Weather Service Forcast Office Albany, NY 2001)

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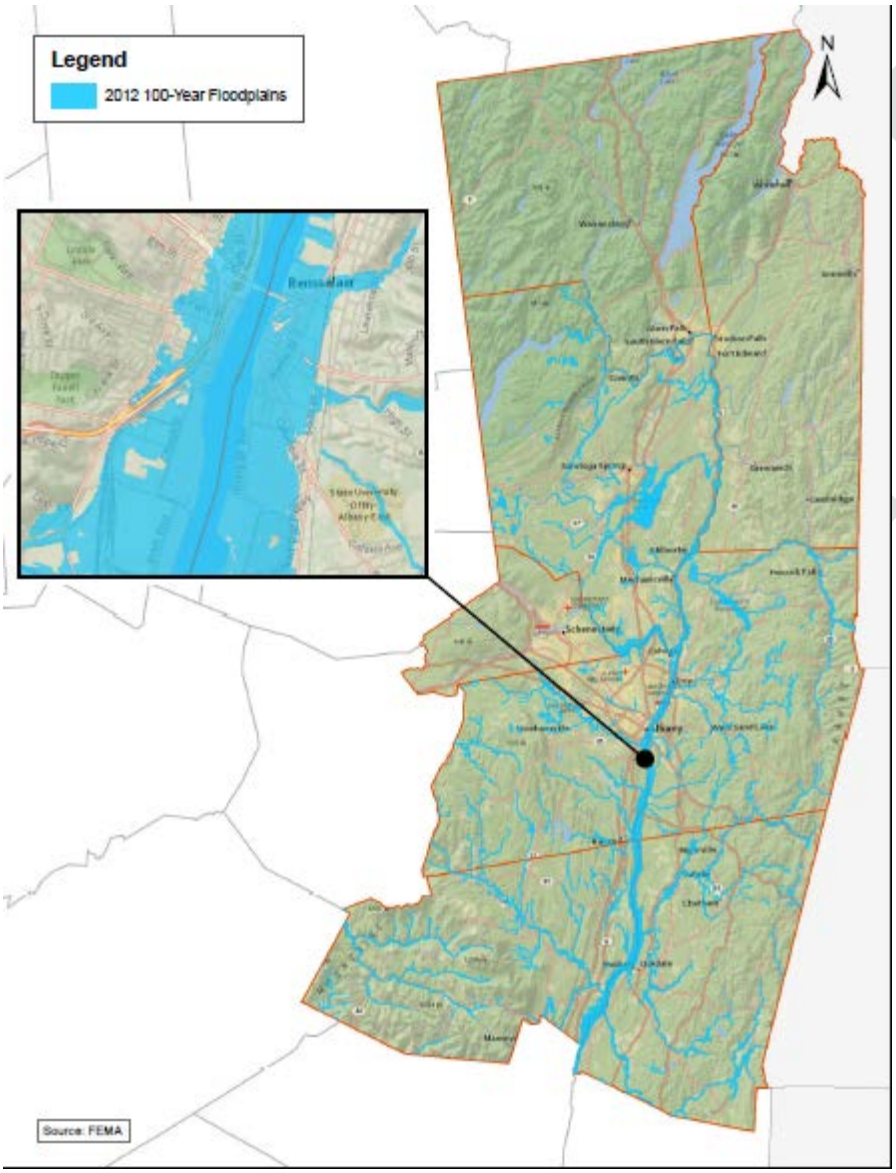
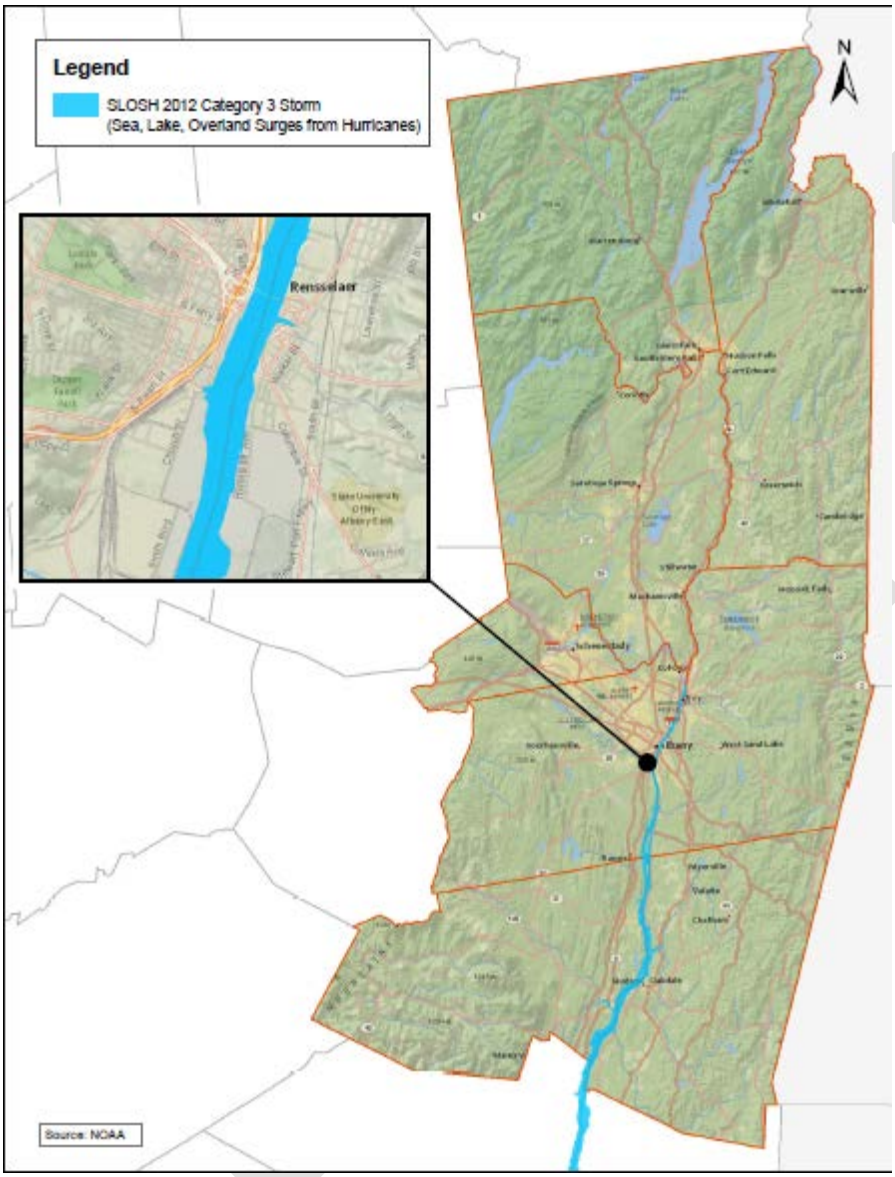
## MAP 1.1: FEMA 100 YEAR FLOODPLAIN 2012



Map 1.2: Storm Surge inundation 2012



## OBSERVED CLIMATE TRENDS

Historical weather patterns already indicate warming trends for New York State. The New York State Department of Environmental Conservation's Hudson River Estuary Program documents the following climate trends for the state (NYS Department of Environmental Conservation 2012):

- Increasing average temperature: nearly 2°F in 30 years.
- Warmer winter average temperatures: 5°F in 30 years.
- Earlier bloom dates of many plant species: 4-8 days earlier on average than they were in the early 1970s.
- Increasing average rainfall and intensity of heavy downpours
- Decreasing days with snow cover.
- Rising sea level: in New York Harbor sea level is 15 inches higher today than it was in 1850.

ClimAID documented specific observed climate trends for the region based on the weather station at Albany (see **Tables 1.2 through 1.4)** The statistically significant trends include an increase in temperatures between 1901 and 2011 as well as between 1970 and 2008, and an increase in precipitation between 1901 and 2000. However, it should be noted that there was no statistically significant increase in precipitation between 1970 and 2008. The number of days per year at or below 32°F has decreased by approximately seven degrees per decade. Non-statistically significant trends represent normal climate variation that occurs over time that is not likely related to global climate change.

**Table 1.2 Observed Climate Trends – Temperature change per decade**

| | Annual | Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|
| **1901-2000** | 0.18** | 0.25** | 0.13* | 0.06 | 0.29** |
| **1970-2008** | 0.64** | 0.23 | 0.69** | 0.47 | 1.23** |

Temperatures in °F per decade *Significant at the 95% level **Significant at the 99% level *Source: NYSERDA 2011*

**Table 1.3 Observed Climate Trends – Precipitation change per decade (inches)**

| | Annual | Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|
| **1901-2000** | 1.13** | 0.33 | 0.34 | 0.36** | 0.10 |
| **1970-2008** | 1.33 | 0.16 | 0.50 | 0.62 | -0.15 |

*Significant at the 95% level **Significant at the 99% level *Source: NYSERDA 2011*

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**Table 1.4 Trends in Extreme Events (1970-2007)**

| | Historical Trend |
|---|---|
| **Number of days below 32˚F (days/decade)** | -7.1** |
| **Heating degree days (degree days/decade)** | -278.4** |
| **Annual snowfall (inches/decade)** | -1.63 |

*Significant at the 95% level **Significant at the 99% level
Based on measurement from Saratoga Springs weather station *Source: NYSERDA 2011*

## GLOBAL CLIMATE MODEL PROJECTIONS

Climate projections for this assessment are from ClimAID. ClimAID used 16 different global climate models (GCMs) and three different Intergovernmental Panel on Climate Change (IPCC) emission scenarios to create future projections for temperature and precipitation, sea level rise and extreme events that are scaled down to the state. The appendix includes a table explaining the 16 CGMs used in ClimAID and the three IPCC emissions scenarios.

The sea level rise models take into account additional factors such as global thermal expansion, melt water from glaciers, ice caps and ice sheets in addition to local components such as land subsidence. The scientific community has recognized that the GCM approach to sea level rise may substantially underestimate the pace at which glaciers will melt and therefore the models underestimate how rapid sea levels may rise. As a result, ClimAID used an alternative 'rapid-ice melt scenario' in addition to the CGM. For more information on the climate model projections, including the rapid-ice melt scenario, please refer to the "Climate Risks" chapter of the ClimAID. **Tables 1.5 and 1.6** summarize the climate projections for the Capital Region.

**Table 1.5 Annual Average Climate Projections**

| | Baseline 1981-2011* | 2020s | 2050s | 2080s |
|---|---|---|---|---|
| Air temperature | 48°F | + 1.5 to 3.0°F | +3.0 to 5.5°F | +4.0 to 8.0°F |
| Precipitation | 39 in | 0 to +5% | 0 to +5% | +5 to 10% |
| Sea level rise | | **Inches** | **Inches** | **Inches** |
| GCM-based | n/a | +1 to +4 | +5 to +9 | +8 to +18 |
| Rapid ice-melt scenario | n/a | ~4 to +9 | ~17 to +26 | ~37 to +50 |

*The baseline data is from NOAA and it is based on the weather station at Albany. The ClimAID region, Region 5, did not align with the Capital Region so the baseline data could not be used.
*Source: NYSERDA 2011*

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| Table 1.6 Extreme weather climate projections | | Baseline (Saratoga Springs) 1971-2000 | 2020s | 2050s | 2080s |
|---|---|---|---|---|---|
| **Full range of changes in extreme events: minimum, (central range), and maximum (NYSERDA 2011)** | | | | | |
| **Heat Waves & Cold Events** | **Number of days per year with max. temperature exceeding** | | | | |
| | 90˚F | 10 | 11 (14 to 20) 28 | 17 (20 to 35) 49 | 18 (26 to 60) 75 |
| | 95˚F | 1 | 1 (2 to 4) 7 | 3 (3 to 10) 218 | 3 (6 to 25) 42 |
| | # of heat waves/year | 2 | 2 (2 to 3) 4 | 2 (3 to 5) 7 | 3 (4 to 8) 9 |
| | Average duration | 4 | 4 (4 to 5) 5 | 4 (5 to5) 6 | 4 (5 to 6) 9 |
| | # of days per year with min. temp. ≤32˚F | 134 | 121 (128 to 139) 147 | 92 (111 to 127) 135 | 78 (90 to 120) 131 |
| **Intense Precipitation** | **Number of days per year with rainfall exceeding**: | | | | |
| | 1 inch | 10 | 8 (10 to 11) 12 | 9 (10 to 11) 12 | 10 (10 to 12) 14 |
| | 2 inches | 1 | 1 (1 to 2) 2 | 1 (1 to 2) 2 | 1 (1 to 2) 2 |

## ANNUAL AVERAGE TEMPERATURE

According to the GCM, an increase in annual average temperature is extremely likely this century. If greenhouse gas (GHG) emissions continue on the current trajectory, temperatures could increase by as much as 8˚F by the end of the century.

## ANNUAL AVERAGE PRECIPITATION

The GCMs also project an overall increase in annual precipitation; however most of this increase will occur in the winter, with possible decreases in precipitation in the summer and early fall. (NYSERDA 2011)

## SEA LEVEL RISE

Sea level rise is extremely likely to occur this century. Based on GCM methods, the tidal Hudson River which extends up to the dam at Troy could see an 18 inch rise by the 2080s. None of the GCMs, however, take into account the melting of the Greenland and West Antarctic Ice Sheets. Based on observed rates of melting and paleoclimate records, many scientists now believe these ice sheets could experience significant melting during the 21st century. If this occurs, sea level could rise anywhere from 37 to over 50 inches by the end of the century. (NYSERDA 2011)

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## EXTREME HEAT

ClimAID projects that, "extreme heat events are very likely to increase and extreme cold events are very likely to decrease throughout New York State." In the Capital Region, the number of days per year with maximum temperatures exceeding 90°F could increase from 10 to 75 days based on the high emission scenario. The number of days per year with minimum temperatures at or below 32°F could decrease from 134 to 131. (NYSERDA 2011)

## INTENSE PRECIPITATION AND DROUGHT

Intense precipitation events are also likely to increase. The number of days per year with over one inch of rainfall is projected to increase by four towards the end of the century.

Such events, coupled with sea level rise, are very likely to increase coastal flooding. ClimAID cites a study that examined the relationship between precipitation and flooding at a national scale and "found that a 13.5 percent increase in overall annual precipitation could increase future flood damage by approximately 130 percent."

With most of the overall increase in precipitation occurring in the winter, short-duration warm season droughts "will more likely than not become more common." Warmer temperatures will also increase the risk of drought. (NYSERDA 2011)

## RIPARIAN FLOODING AND STORMS

Flooding along the Hudson River south of the dam at Troy will increase from storms as sea level rises. While extreme precipitation events are likely to increase, other changes in extreme events are difficult to project due to their inherit variability. There are high levels of uncertainty with regards to any quantitatively projected changes in extreme events; however some qualitative data exists to support the following projections (NYSERDA 2011):

- More frequent nor'easters
- More frequent intense hurricanes as sea surface temperatures increase
- Increase in frequency and intensity of downpours (intense precipitation occurring over a period of minutes or hours)

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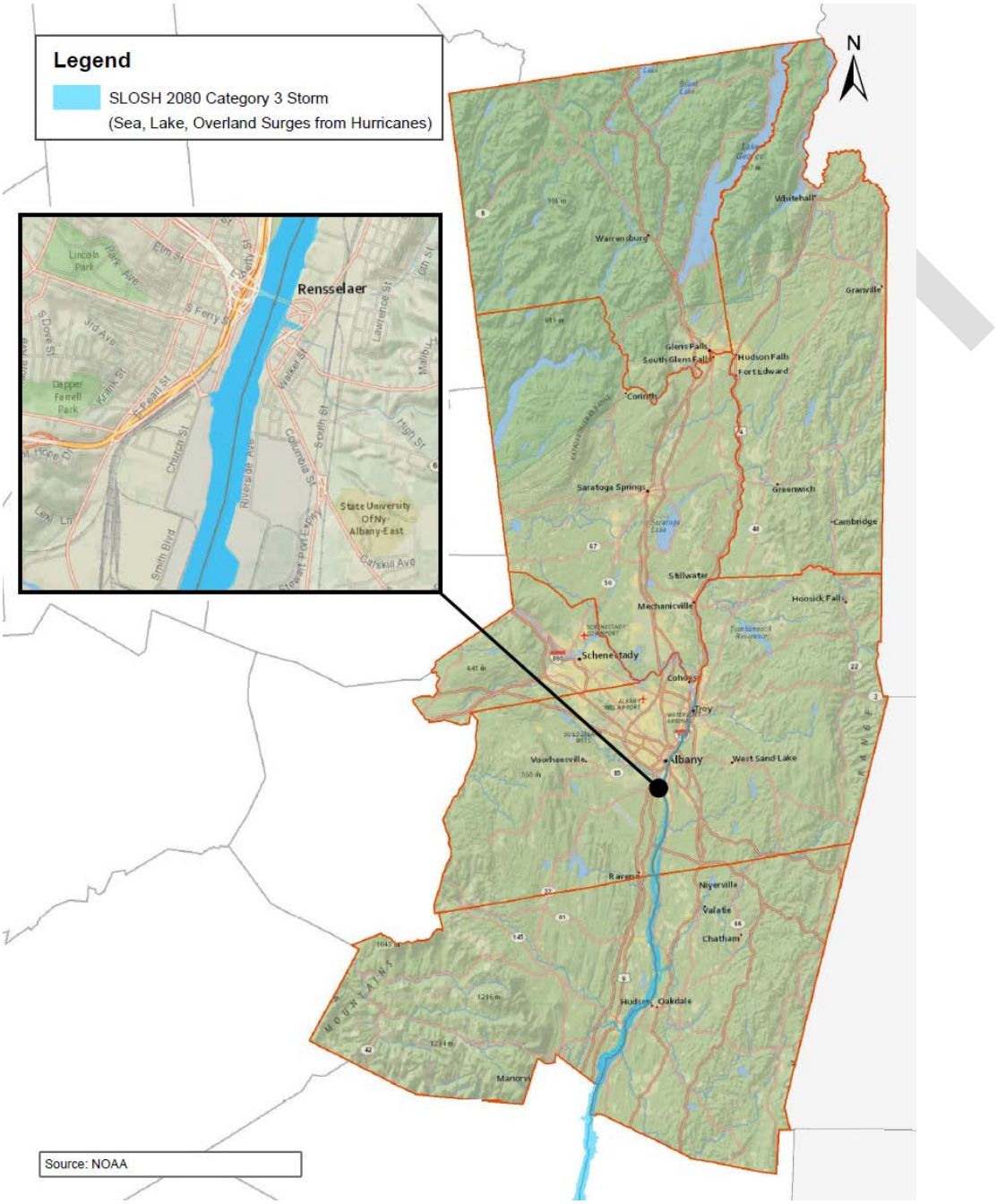
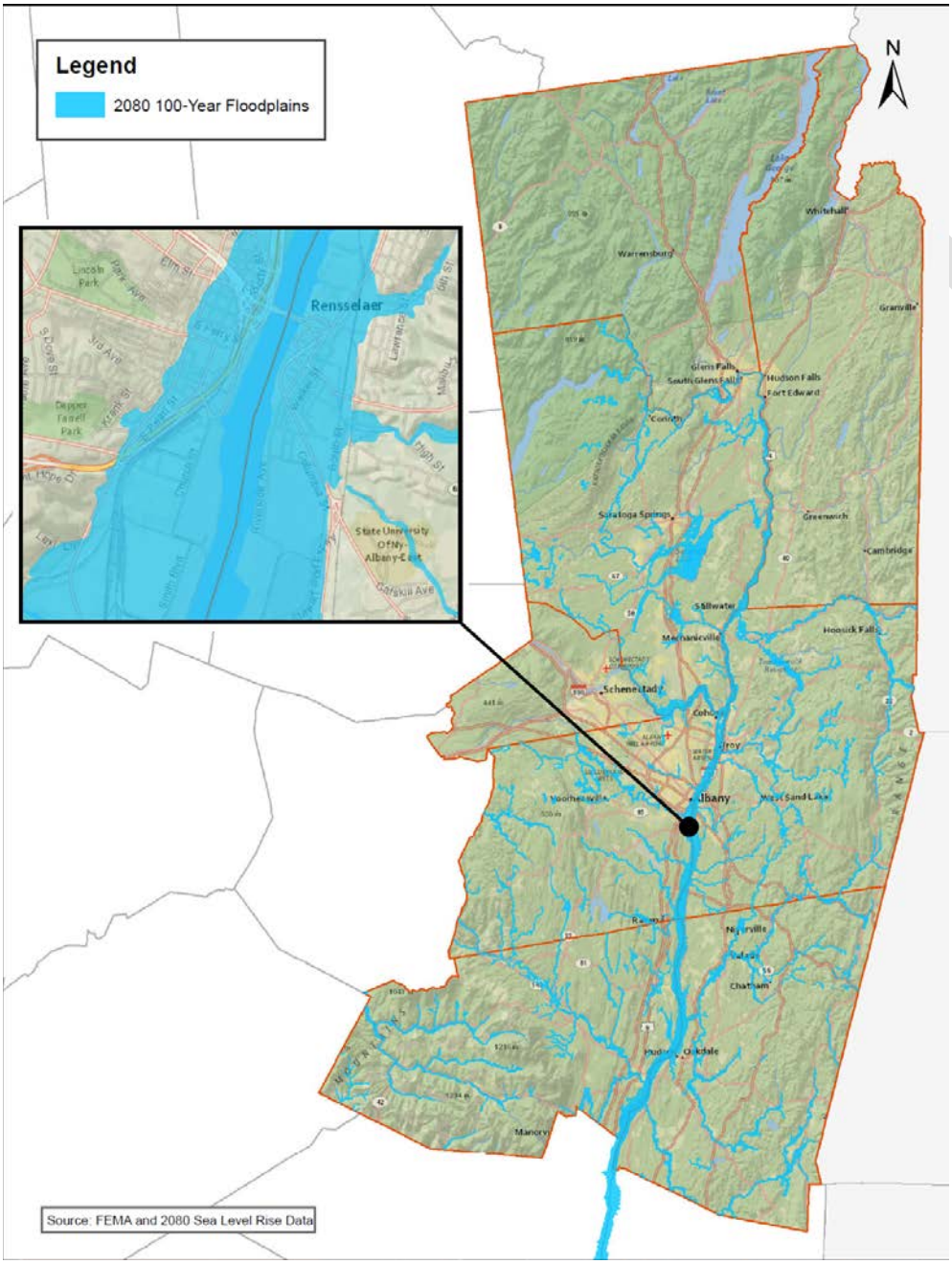
## MAP 1.3 2080 SEA LEVEL RISE



## MAP 1.4 2080 FLOOD



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# APPENDIX

## GLOBAL CLIMATE MODELS USED IN CLIMAID

| Climate Model Acronym | Institution | Atmospheric Resolution (latitude x longitude) | Oceanic Resolution (latitude x longitude) | References |
|---|---|---|---|---|
| BCCR | Bjerknes Center for Climate Research, Norway | 1.9 x 1.9 | 0.5 to 1.5 x 1.5 | Furevik et al., 2003 |
| CCSM | National Center for Atmospheric Research, USA | 1.4 x 1.4 | 0.3 to 1.0 x 1.0 | Collins et al., 2006 |
| CGCM | Canadian Center for Climate Modeling and Analysis, Canada | 2.8 x 2.8 | 1.9 x 1.9 | Flato 2005 |
| CNRM | National Weather Research Center, METEO-FRANCE, France | 2.8 x 2.8 | 0.5 to 2.0 x 2.0 | Terray et al., 1998 |
| CSIRO | CSIRO Atmospheric Research, Australia | 1.9 x 1.9 | 0.8 x 1.9 | Gordon et al., 2002 |
| ECHAM5 | Max Planck Institute for Meteorology, Germany | 1.9 x 1.9 | 1.5 x 1.5 | Jungclaus et al., 2005 |
| ECHO-G | Meteorological Institute of the University of Bonn, Germany | 3.75 x 3.75 | 0.5 to 2.8 x 2.8 | Min et al., 2005 |
| GFDL-CM2.0 | Geophysical Fluid Dynamics Laboratory, USA | 2.0 x 2.5 | 0.3 to 1.0 x 1.0 | Delworth et al., 2006 |
| GFDL-CM2.1 | Geophysical Fluid Dynamics Laboratory, USA | 2.0 x 2.5 | 0.3 to 1.0 x 1.0 | Delworth et al., 2006 |
| GISS | NASA Goddard Institute for Space Studies | 4.0 x 5.0 | 4.0 x 5.0 | Schmidt et al., 2006 |
| INMCM | Institute for Numerical Mathematics, Russia | 4.0 x 5.0 | 2.0 x 2.5 | Volodin and Diansky, 2004 |
| IPSL | Pierre Simon Laplace Institute, France | 2.5 x 3.75 | 2.0 x 2.0 | Marti, 2005 |
| MIROC | Frontier Research Center for Global Change, Japan | 2.8 x 2.8 | 0.5 to 1.4 x 1.4 | K-1 Developers, 2004 |
| MRI | Meteorological Research Institute, Japan | 2.8 x 2.8 | 0.5 to 2.0 x 2.5 | Yuikimoto and Noda, 2003 |
| PCM | National Center for Atmospheric Research, USA | 2.8 x 2.8 | 0.5 to 0.7 x 1.1 | Washington et al., 2000 |
| UKMO-HadCM3 | Hadley Center for Climate Prediction, Met Office, UK | 2.5 x 3.75 | 1.25 x 1.25 | Johns et al., 2006 |

## CLIMAID EMISSIONS SCENARIOS

To produce future climate scenarios, ClimAID used IPCC's projected greenhouse gas emissions scenarios in conjunction with the CGMs. The emissions scenario represents a unique combination of demographic, social, economic, technological, and environmental assumptions. ClimAID used the following three scenarios:

**A2:** Relatively rapid population growth and limited sharing of technological change combine to produce high greenhouse gas levels by the end of this century, with emissions growing throughout the entire century.

**A1B:** Effects of economic growth are partially offset by introduction of new technologies and decreases in global population after 2050. This trajectory is associated with relatively rapid increases in greenhouse gas emissions and

the highest overall carbon dioxide levels for the first half of this century, followed by a gradual decrease in emissions after 2050.

**B1:** This scenario combines the A1 population trajectory with societal changes tending to reduce greenhouse gas emissions growth. The net result is the lowest greenhouse gas emissions of the three scenarios, with emissions beginning to decrease by 2040.

ClimAID acknowledges that "additional IPCC-based scenarios, such as the high-end A1FI scenario, yield moderately higher greenhouse gas concentrations (and therefore climate response) by the end of this century than the three scenarios indicated above. High-end climate change scenarios along the lines of A1FI are discussed qualitatively, especially with regard to the rapid ice melt scenario. Such trajectories should continue to be monitored and reassessed over time. The A1FI scenario was not included in the model-based approach described here due to few available corresponding global climate model simulations."

## MAPPING METHODOLOGY

Mapping and modeling are used throughout the baseline assessment in order to better understand the spatial organization for the Capital Region—especially related to the impacts of sea level rise and flooding. This information was used to analyze the impacts of sea level rise to existing infrastructure and natural resources and to determine other potential impacts of a 100 year storm event in 2080. This analysis does not include any increases in precipitation since any increase in precipitation is relatively minimal and uncertain throughout the next 20 years.

### THE MODEL

The elevation model was created using United States Geological Survey Digital Elevation Model (USGS DEM) and Federal Emergency Management Agency (FEMA) floodplain data in conjunction with ESRI ArcGIS 3D Analyst. ArcGIS 3D Analyst provides advanced visualization, analysis, and surface generation tools. It allows the user to view large sets of data in three dimensions from multiple viewpoints, query a surface, and create a realistic perspective image that drapes raster and vector data over a surface. It is able to interpolate elevations to a tenth of a foot and generate contours at this scale. This feature in particular was critical for creating the model future flood scenarios. The Hudson River shoreline was cross-checked against an aerial image to assure accurate horizontal representation.

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# Capital Region Sustainability Plan: Adaptation Baseline Assessment

Climate Risks

VHB Engineering, Surveying and Landscape Architecture, P.C.

## SEA LEVEL RISE

In order to show inundation from 18 inches of sea level rise, Vanasse Hangen Brustlin, Inc. (VHB) created a future 1.5 contour based upon projected 2080 sea level rise. In essence, the new shoreline was “raised” one and a half feet and mapped over the base. This resulted in a map of what the shoreline could look like in the future with sea level rise.

## FLOOD SCENARIOS

Base flood elevation (BFE) data was obtained from FEMA for various locations along the Hudson River shoreline and inland areas within the city. Using this information in conjunction with NYSERDA’s ClimAID data, VHB created future 100 year floodplain contours based upon projected 2080 sea level rise. ClimAID projects that sea level along the Hudson River will rise approximately 18 inches by the 2080. In essence, the new 100 year floodplain lines were “raised” 18 inches and mapped over the base. This resulted in a map of what the 100 year floodplains could look like in the future with sea level rise.

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# WATER

## OVERVIEW

Water resources in the Capital Region face a variety of impacts from climate change. Water quality in rivers and streams will decline as water and air temperatures rise. Additional impacts include: intense precipitation events that will result in more sewer overflows, late summer droughts that may lower stream flows and cause spikes in water surface temperatures, and sea level rise along the Hudson River that may erode protective natural buffers such as wetlands.

An increase in water demand from population growth, a shifting of the saltwater/freshwater interface (salt front) along the southern part of the Hudson River, increased agricultural production, and/or industry demand for water–especially for energy production–may also stress the region's water supplies. (NYSERDA 2011) **Table 2.1** summarizes the water related climate impacts discussed in this section.

Table 2.1 Summary of water related climate impacts in the Capital Region

| Asset | Climate Impact | Climate Effect | Description |
|---|---|---|---|
| **Water Quality** | Increased precipitation | Increase in CSOs | Heavy precipitation results in CSOs, which discharge untreated sewage into the Hudson River. |
| | Increase in annual average temperature; Extreme heat | Increased Surface Water Temperatures; Low oxygen levels | Warmer air and water temperatures lead to diminished DO levels in water bodies. DO is critical for the survival of most aquatic species including trout, which cannot survive in warmer water temperatures. |
| | Extreme heat; Drought; Warmer winters | Lower Stream Flows | Lower stream flows could occur from periods of drought, higher evaporation rates, increased intake from industry and agriculture, and warmer winters with less snow and an earlier peak flow. Lower stream flows can increase the concentration of water pollutants and lead to warmer water temperatures. |
| | Sea level rise and flooding | Loss of Wetlands and Riparian Buffers | Wetlands and riparian buffers could be lost and/or damaged by sea level rise and flooding. |
| **Water Supply** | Extreme heat; Drought | Reduced Water Supply | Water supplies most vulnerable to climate change include run-of-the-river systems and communities dependent on small aquifers without a backup water supply. However, increased demand for water from hydropower, agriculture, or population growth could stress the region's water supplies. |
| **Infra-structure** | Sea level rise and flooding | Damage to WWTPs | WWTPs are especially vulnerable to SLR and flooding since they are typically located along rivers. |

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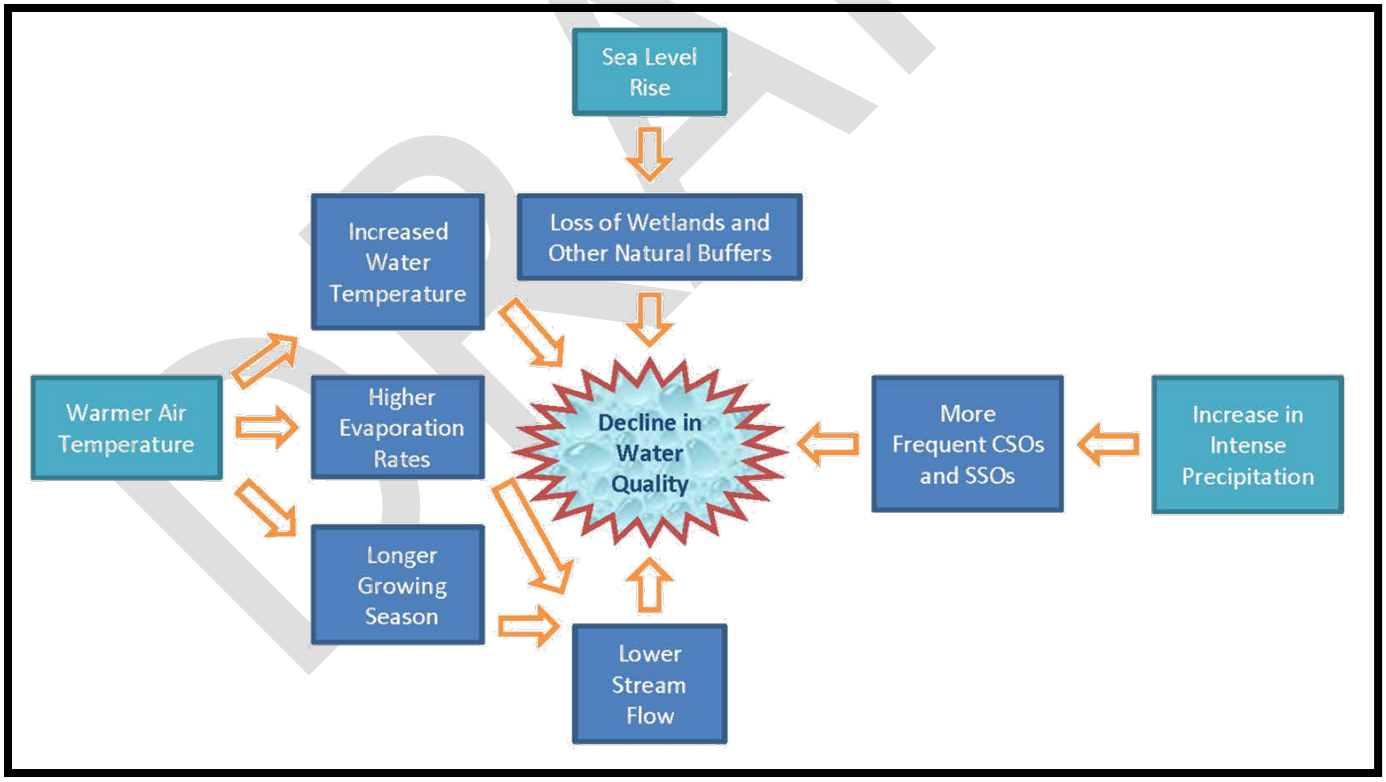
## WATER QUALITY

Factors that affect water quality in the Capital Region include sewage overflows, loss of natural buffers and wetlands, increased water temperatures, low stream flows, and non-point source pollution including urban and agricultural runoff. According to a study conducted by Riverkeeper between 2006 and 2011, water quality in the Hudson failed the US EPA guidelines for safe swimming 21 percent of the time; that is equivalent to one and a half days per week on average. Climate change will exacerbate these issues. **Figure 2.1** explains the impacts of climate change on water quality.

**Figure 2.1 Impacts of climate change on water quality**

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## SEWER OVERFLOWS

Sewer overflows into the Hudson River and its tributaries are an unfortunate reality. Combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) both happen on a regular basis, discharging untreated sewage into the waterways. SSO are primarily the result on aging infrastructure. CSOs on the other hand, occur during periods of heavy precipitation and/or rapid snowmelt when a combined stormwater/sewer system cannot handle all of the additional runoff. When the system meets capacity, it discharges untreated sewage and stormwater into waterways in order to prevent damage to the system. For more information on CSOs and SSOs see **Figure 2.2.**

The Hudson River and its tributaries already have a significant CSO problem. Riverkeeper, New York's clean water advocacy organization, has processed over 2,000 water quality samples from the Hudson River since 2006. It has used this data to start identifying patterns of sewage contamination in the Hudson River. The results of this analysis are presented in the report titled, *How is the Water? Sewage Contamination in the Hudson River Estuary 2006 – 2010.*

The report found evidence of sewage contamination at every testing location; however the levels of contamination were highly localized and increased dramatically during wet weather. Overall, water quality was "unacceptable" 21 percent of the time over the period of the study. This is equivalent to one and a half days per week on average. **Figure 2.3** shows the results from the locations in the Albany region.

The study found a threefold increase in the frequency of unacceptable samples during wet

**Riverkeeper's Water Quality Assessment**

Riverkeeper tests for the sewage-indicating microbe of the genus *Enterococcus* ("Entero"). It is the only group of microbes recommended by the EPA for use as sewage indicators in both salt and fresh water. The following EPA guidelines for safe swimming were used for the assessment:

**"Acceptable"** samples meet the EPA single sample guideline.

**"Unacceptable"** samples fail the EPA single sample guideline.

**"Possible Risk"** samples meet the EPA single sample guideline but if sustained over time they would fail the EPA geometric mean guideline.

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weather events, jumping from nine percent during dry weather to 32 percent in wet weather. According to the Riverkeeper, “these rain-triggered overflows dump tens of billions of gallons of combined sewage and stormwater into the Hudson River each year.” (Riverkeeper 2011) Riverkeeper does not have testing sites north of the Albany region, so more information is needed to assess the water quality in the more northern counties of the Capital Region.

Climate change projections for the region indicate that precipitation will become more concentrated, leading to more intense precipitation events. Without any major upgrades to sewer and stormwater infrastructure, CSOs will occur more often, dumping even more contaminants into the Hudson and its tributaries. This is a particular problem in highly urbanized areas that have high proportions of impervious surfaces. Impervious surfaces create more stormwater runoff, resulting in additional strain on the stormwater management system.

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**Figure 2.2 Combined Sewer Overflows (CSOs) and Sanitary Sewer Overflows (SSOs)**

Both CSO and SSOs release untreated sewage into waterways; however CSOs are a product of the design of "combined sewer systems" and SSOs result from unintentional discharges from faulty municipal sanitary sewer systems.

Combined sewer systems transport sewage and stormwater runoff directly to the sewage treatment plant. These systems are present in many older communities, whereas newer sanitary infrastructure is constructed to have separate stormwater and sewer systems. In periods of rainfall or snowmelt, the wastewater volume in a combined sewer system can exceed the capacity of the sewer system or treatment plant. For this reason, combined sewer systems are designed to overflow occasionally and discharge excess wastewater directly to nearby streams, rivers, lakes, or estuaries. This is known as a CSO. CSOs contain not only stormwater but also untreated human and industrial waste, toxic materials, and debris. This is a major water pollution concern for cities with combined sewer systems. CSOs are among the major sources responsible for beach closings, shellfishing restrictions, and other water body impairments (US EPA 2007).

Properly designed, operated, and maintained sanitary sewer systems are meant to collect and transport all of the sewage that flows into them to a publicly owned treatment works (POTW). However, occasional unintentional discharges of raw sewage from municipal sanitary sewers occur in almost every system. These types of discharges are called SSOs. SSOs have a variety of causes, including but not limited to blockages, line breaks, sewer defects that allow stormwater and groundwater to overload the system, lapses in sewer system operation and maintenance, power failures, inadequate sewer design and vandalism. EPA estimates that there are at least 23,000 - 75,000 SSOs per year (not including sewage backups into buildings). The untreated sewage from these overflows can contaminate our waters, causing serious water quality problems. It can also back-up into basements, causing property damage and threatening public health (US EPA 2012).

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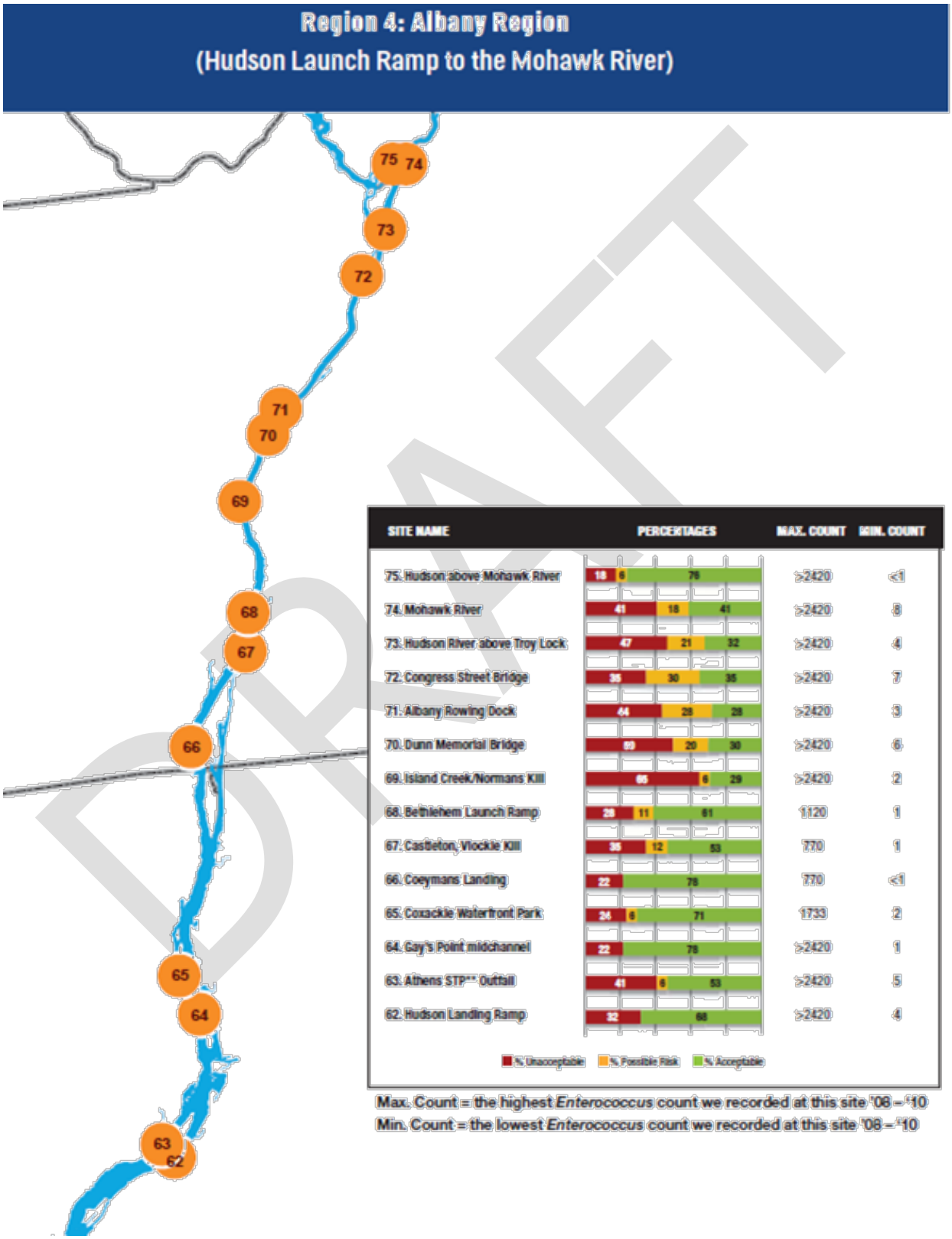
**Figure 2.3 Hudson River water quality monitoring (Riverkeeper 2011)**

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## INCREASED WATER SURFACE TEMPERATURES

Temperature is an important factor for water quality as it relates directly to DO levels. Warm water holds less DO than cold water and aquatic species depend on a certain level of DO in the water to survive. In addition, certain cold water species, such as trout, cannot survive in warmer water temperatures.

Oxygen enters surface water as it mixes with the atmosphere. Water temperature directly increases with air temperature up to approximately 77°F with a proportionality constant of 0.6-0.8°F. For example, an air temperature of 9°F would result in a water temperature increase of 5 to 7°F. (NYSERDA 2011)

Aquatic plants also release oxygen into the water during photosynthesis. Bacteria, fish, and other organisms consume oxygen, which lowers DO levels. High bacteria levels from sewer overflows, decaying organic material, and/or nutrient loading of the water body can lower DO levels by consuming too much oxygen (Michigan Inland Lakes Partnership n.d.).

Surface water DO levels are variable along the Hudson River due to high microbial activity. Some areas of the Hudson have DO levels too low to support fish and other larger aquatic species while other areas are super saturated with DO due to photosynthesis from algal blooms. (Riverkeeper 2012)

## LOWER STREAM FLOWS

Low stream flows result in poor water quality because with less water, the stream or river loses its ability to dilute pollutants. With less volume, the water will also heat up more quickly, further reducing water quality.

Climate change is likely to result in lower stream flows in the late summer and early fall due to reduced precipitation during this time of the year and increased evaporation rates from warmer air temperatures. Increased agricultural production could also affect stream flows. Agricultural irrigation often draws directly from rivers and streams. Warmer, drier summers will increase the need for irrigation as crops will dry out more quickly due to higher evaporation rates.

Stream flow will also be affected by warmer winters that will bring less snow and an earlier snow melt. This will mean that spring stream flows will be lower and peak flow will occur earlier. Low flowing streams and rivers in the spring will not be as resilient to the hot and dry summers.

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## LOSS OF WETLANDS AND RIPARIAN BUFFERS

Wetlands and riparian buffers are a vital part of the ecosystem for both aquatic and land-based wildlife. They play an important role as natural filters of nonpoint source pollutants, including sediment, nutrients, pathogens and metals. The preservation of such buffers help reduce the need for expensive stormwater and flood protection infrastructure.

Development in the region has already compromised much of this natural resource. As sea level rises along the tidal Hudson River and flooding increases throughout the region due to more frequent and intense storms, many of these remaining buffers will be lost. Sea level rise will inundate low lying coastal areas which are home to tidal wetlands. Flooding will exacerbate erosion in both tidal and non-tidal rivers and streams. In undeveloped areas, the buffers and wetlands will migrate upland. However, this will not be possible in many areas due to development or steep slopes (cliffs) along the river.

## WATER SUPPLY

The Capital Region has a relatively wet climate with an average of almost 50 inches of rain per year. Most communities in the region have ample water storage facilities and are well protected against drought.

The ClimAID report projects that the duration and/or frequency of dry periods may increase. ClimAID has assessed water supply vulnerability across the state based on how long the system can handle a temporary, but sizable decrease in water supply. (NYSERDA 2011)

Water supply systems that are relatively insensitive to drought draw from a source that greatly exceeds any potential demand. Most reservoir systems are relatively insensitive to drought since these systems are designed to collect, store and release water over an extended period of time. (NYSERDA 2011)

Water supplies that are sensitive to short periods of drought are those served by what are called run-of-the-river systems within a small drainage basin, where water is pumped directly from the river. Run-of-the-river systems typically do not have back up water supplies since the lowest stream flow still exceeds water demand. As explained in the low stream flow section, these rivers could see lower levels in the late summer and early fall that threaten their ability to supply water to the communities that rely on them. Communities dependent on small streams for their sole source of drinking water are particularly vulnerable to periods of low flow. Only a handful of communities throughout New York State supply drinking water through run-of-the-river systems on small streams, one of which is the City of Hudson in Columbia County. (NYSERDA 2011)

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The ClimAID report also found that municipalities drawing from the Hudson River have a low sensitivity to drought since the volume of water in the Hudson greatly exceeds the demand. Many Capital Region communities, such as Guilderland, Watervliet, Albany, and Troy currently have reservoirs that help supplement supply during low flow periods or short term droughts. (NYSERDA 2011)

However, a shifting salt front and periods of lower flows could threaten some communities' water supply along the Hudson. For example, a total of 122,000 people currently rely on the Hudson River for drinking water, including approximately 75,000 people at the Poughkeepsie withdrawal point. During the 1960s drought, the salt front moved up to the intake point. (NYSERDA 2011) Although Poughkeepsie is located south of the Capital Region, impacts to this water supply could create new demands on other water sources throughout the region.

Large groundwater sources are not typically sensitive to short droughts because, like reservoirs, they collect and store large amounts of water. Climate change may shift the yearly timing of recharge for groundwater sources; but, with annual precipitation projected to increase, these systems will not likely be vulnerable to climate change. Schenectady is sited over a large aquifer that is used as the city's primary water supply. Although the Schenectady aquifer's daily recharge rate (15 million gallons/day) is lower than daily demand (26 million gallons/day), the aquifer receives inflow from the Mohawk River water through induced filtration of the water. The lowest monthly inflow of water from the Mohawk River is 1,176 million gallons per day, far exceeding daily demand by Schenectady. (NYSERDA 2011)

Small aquifers, however, may be more vulnerable. These aquifers often serve more rural communities through well water. This low-tech infrastructure is often preferable in small communities because it avoids the political and regulatory complications of developing new surface water supplies (NYSERDA 2011). If development were to intensify in these areas or surrounding regions, demand for water could exceed supply. Development also reduces groundwater recharge by increasing surface runoff from an increase in impervious surfaces such as roads, roofs and parking lots. (NYSERDA 2011)

There are additional cascading impacts of climate change that will impact water supplies in the Capital Region. Climate change is likely to result in an increase in water demand for non-potable uses such as energy production and agriculture.

Demand for low-carbon and alternative energy is likely to continue to rise as fossil fuels become increasingly scarce and more expensive to extract. New York State has vast resources of natural gas and hydroelectric power—both of which require large amounts of water to produce. Hydraulic fracturing, the process of extracting natural gas from shale,

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involves pumping as much as 7 million gallons of water into one well. (NYSERDA 2011) The ClimAID report states that, "it is important to ensure that these withdrawals do not affect established users (such as public water suppliers) and ecosystem services, and that the potential impact of climate change on low flows is accounted for in the permitting process" (p. 94).

Lower stream flows may impact the ability of New York State to maintain its hydroelectric power generation. Power generation facilities constitute the largest water withdrawal in New York, withdrawing over 4,000 million gallons per day (NYSERDA 2011). Most of these facilities only use the water for cooling, releasing it back to the source at a much higher temperature, upwards of 95°F in the summer. With normally cool water temperatures, the water bodies can assimilate these warmer waters. However, ClimAID points out that "this additional heat load, in combination with higher ambient water temperatures in the

**Figure 2.4 *Other Competing Uses: A Shift from the West?* Excerpt from ClimAID p. 94** (NYSERDA 2011)

Severe water shortages in western states, which are likely to become worse with climate change, may shift populations to eastern states, including New York. If so, New York could experience new population and economic growth with an associated increased demand for water. There is a relatively strong likelihood that the Colorado River Basin will experience a decline in river flows in the future (Rajagopalan et al., 2009; Barnett and Pierce, 2009). The Colorado River provides water to more than 27 million people in seven states, including high-growth regions such as Nevada, Arizona, California, and Colorado. One study suggests that even if demand remains steady, there is a 58-percent chance of shortage by 2050 if the minimum expected decrease in runoff of 10 percent occurs as a result of climate change (it is likely that the decrease in runoff will be larger) (Barnett and Pierce, 2009).

Additionally, water rights conflicts and depletion of groundwater are already affecting agricultural production from California to the Corn Belt. The Ogallala Aquifer, which supplies irrigation water for 10 midwestern states, has been drawn down more than 100 feet in many places. The East is the only region of the United States that is likely to experience an increase in the summer rainfall that is vital to crop production (IPCC, 2007), potentially requiring less supplemental irrigation water than in other places to maintain production. There are more than 1.5 million acres of idle or underused agricultural lands in New York State, and approximately 65 percent of the entire state is forested. Coupled with longer growing seasons, there is some possibility new agricultural land could be brought into production and that agricultural water demands could increase.

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receiving waters, may result in additional stress to aquatic organisms" (p. 93).

Agricultural demand for water may increase due to more frequent summer droughts that could increase the water requirements for crop production. Currently, only 2.5 percent of the cropped acreage in New York is irrigated. Most irrigation water is taken directly from rivers and streams, and not unlike run-of-the-river drinking water supplies, this makes irrigation water highly sensitive to short term drought. (NYSERDA 2011)

## INFRASTRUCTURE

Sea level rise and flooding from both intense precipitation events and coastal storms causes damage to water infrastructure. Wastewater treatment plants (WWTPs) are typically located at the lowest point in a landscape so the waste can be conveyed via gravity. This makes them highly vulnerable to flooding. Such facilities often have flood protection systems in place; however, these systems may not be able to withstand the more intense floods of the future.

Other vulnerable infrastructure includes pump stations and CSO outfalls. These are both a vital part of the wastewater treatment system and they could both be compromised by flooding and sea level rise. Pump stations could become ineffective if flooded. Outfalls will not be able to discharge water if they themselves are under water. Furthermore, sea level rise could result in saltwater intrusion where salt water rises up into the stormwater infrastructure, causing damaging corrosion.

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# TRANSPORTATION

The Capital Region has a diverse transportation system comprised of roads and highways, bridges, ports and marinas, rail, and airports. Public transportation in the region consists of multiple bus systems and intercity passenger rail service. Climate change will impact the transportation system in a variety of ways. For example, sea level rise and increased precipitation can overload drainage systems and undersized culverts can cause roads to washout. Severe storms and flooding can also cause disruptions in rail service and can cause bridge closures.

Extreme heat is another concern for the transportation sector. High heat days can damage pavements and other road, bridge, and runway materials. Power outages during heat waves

Table 3.1 Summary of transportation related climate impacts in the Capital District

| Asset | Climate Impact | Climate Effect | Description |
|---|---|---|---|
| **Roads & Highways** | Flooding and Intense Precipitation | Infrastructure damage | Increased precipitation and sea level rise can cause flooding on roadways. Intense precipitation events can overload drainage systems and culverts too small to handle the increased water volume can cause roads to washout. |
| | Extreme Heat | Infrastructure damage; Summertime construction delays; Traffic signal outages | Extreme heat can damage pavement and other materials on roads, runways, and bridges. Heat can also cause delays in construction due to worker health, although milder winters will extend the construction season. Power outages during heat waves will affect traffic signals and impact traffic flow. |
| | Warmer Winters | Increase in potholes, cracks and frost heaves; Reduce salt use in the winter | Warmer winters mean more freeze/thaw cycles which cause potholes, cracks, and frost heaves in pavement. Warmer winters could also reduce costs from snow removal and road salting. |
| **Railroads & Public Transit** | Severe storms | Service delays | An increase in severe storms could result in service delays while tracks and roadways are cleared of debris or water. High winds and heavy precipitation can also damage roadway and rail infrastructure. |
| | Extreme Heat | Infrastructure damage; Service delays; Passenger discomfort | Heat can damage railroad infrastructure such as railroad tracks, electrified third rail, and catenary wires. Heat also causes service delays since trains run slower in the heat and power outages can impact rail signals. Extreme heat also creates discomfort for passengers using public transit. |
| **Aviation** | Severe Storms | Delays and cancellations | Weather related delays could become more frequent at airports. |
| | Extreme Heat | Infrastructure damage | Airport runway surfaces may need to be constructed with different materials to cope with more high heat days. |
| **Shipping & Bridges** | Severe Storms; Drought | Increase need for dredging; Increase in bridge scour; Bridge closures | Reduced river levels during certain periods of the year and sediment redistribution from storms could increase the need for dredging and/or lead to bridge scour. High winds could also cause temporary closure of larger bridges. |
| | Warmer Winters | Longer shipping season | Reduced ice cover in the winter will allow for a longer shipping season. |

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could increase congestion in urban areas by temporarily shutting off traffic signals. While a warmer winter extends the shipping season along the Hudson River and reduces snow removal costs on roadways, it also means more freeze/thaw cycles that cause frost heaves and potholes on roads. **Table 3.1** summarizes the transportation related climate impacts discussed in this section.

## ROADS AND HIGHWAYS

The Capital Region has about 12,600 centerline miles of roads and highways (*NYSDOT 2010 Mileage Report for New York State)*. This network includes: local and county roads; state and interstate highways and their associated ramps, underpasses, drainage systems and other related systems; and signage and signal systems (NYSERDA 2011). In 2010, the combined regional highway and road system handled approximately 12,510,900,000 vehicle miles (*2010 Capital District Transportation Council STEP Model* and *2009 Highway Performance Monitoring System)*.

### IMPACT OF CLIMATE CHANGE

The effects of climate change will alter roads' infrastructure and facilities, operation and maintenance costs and schedules, and even traffic flow in some cases. Flooding and extreme heat are the two primary impacts of concern.

### INFRASTRUCTURE AND FACILITIES

Highways, roads, and their associated facilities are vulnerable to both flooding and heat. Culverts that carry water under roads can be very dangerous if they are not sized properly. As water gets backed up attempting to pass through the culvert, the water begins to rapidly erode under the road. Ultimately, this erosion could cause the entire road to wash away. Landslides, resulting from saturated soils, can also result in road closures or wash out roads entirely.

Extreme heat can damage materials such as asphalt pavements and other road and bridge surfaces. New specification for these materials will be required as the climate changes.

### OPERATIONS & MAINTENANCE

Warmer winters will mean that there will be more freeze/thaw cycles, rather than steady below freezing temperatures (NYSERDA 2011). Freeze/thaw cycles are particularly

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damaging to roadways, causing frost heaves, cracks and potholes. On the positive side, less snow and freezing rain will reduce snow removal and salting costs. Nor'easters affecting the coastal region will likely bring severe rain storms rather than snow.

Power outages during summer heat waves will affect traffic signals and slow traffic, especially in urban areas. ClimAID reports that "temperatures over 105°F slow down or interrupt summer construction activities largely because of worker heat exhaustion." Drier, warmer summers may also bring increased risk of fires along interstates and state highways, which can cause delays and road closures.

## RAILROADS AND PUBLIC TRANSIT

The Capital Region is served by freight rail, passenger rail, and bus systems providing public transportation. Passenger rail service in the Capital Region is run by Amtrak along with two tourist rail lines: the Adirondack Scenic Railroad and Upper Hudson River Railroad. Bus service in the Capital Region is run by the Capital District Transportation Authority, Greater Glens Falls Transit, the Greene County Transit System, and Coxsackie Transit.

### IMPACT OF CLIMATE CHANGE

Table 3.2 Miles of bus routes vulnerable to sea level rise (SLR) or flooding in the Capital Region

| Service Provider | Counties covered in analysis | Miles of Bus Routes 2012 | Miles of Routes Vulnerable to SLR and/or Located in the Floodplain 2012/2080 |
|---|---|---|---|
| **Capital District Transportation Authority** | Albany Only | 3,538 | 284.4 / 446.1 |
| **Greene County Transit System – Rip Van Winkle Express Bus** | Greene | 118 | 16 / 16.6 |
| **Coxsackie Transport – Bus and Shuttle Service** | Columbia | 140 | 8.4 / 8.8 |

Source: **(Capital District Transportation Authority n.d.)**, **(Greater Glens Falls Transit n.d.)**, **(Green County n.d.)**, **(Columbia County n.d.)**

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Flooding and sea level rise along the Hudson River, along with extreme heat, threatens the region's bus and rail infrastructure and operations south of the Troy Lock Dam. For the purposes of this study, only those counties south of the Troy Dam, and therefore, potentially impacted by sea level rise were included in the analysis.

## INFRASTRUCTURE AND FACILITIES

Similar to roads and highways, flooding and heat are both disruptive to rail infrastructure. Extreme heat compromises materials such as railroad tracks, electrified third rail, and catenary wires. As temperatures rise, trains cannot move at top speeds due to sagging wires and tracks that are softened by the heat. This causes delays for many above ground tracks.

Intense precipitation and storms will also cause service disruptions and could compromise infrastructure. Strong storms bringing high winds often leave debris on tracks causing delays and damaging the infrastructure. Flooding and sea level rise along the Hudson River threatens much of the region's rail infrastructure. Flooding of bus routes would also result in service disruptions and delays.

## OPERATIONS & MAINTENANCE

Operation and maintenance costs are likely to increase as infrastructure incurs damages from flooding and heat. In addition, public transit authorities and agencies often rely on significant amounts of water to wash their busses. Late summer and early fall drought may reduce the availability of water for this use.

Climate change will also impact operations through service disruptions and delays as well as passenger comfort during extreme heat events.

Summer heat waves also often bring disruptions to the power grid. This impacts train traffic signals among other aspects of the rail and public transit infrastructure. In July of 2011, a Norwalk newspaper reported a heat-related train delay on the Metro-North New Haven Line. Over 200 passengers were stuck on the tracks in over $100^0$F weather. The passengers were evaluated for heat exhaustion and provided drinking water. (Barnard 2011)

With or without delays, heat increases passenger discomfort on public transportation ranging from trains to busses. This could lend itself to a public health concern.

# AVIATION

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The Capital District has one commercial airport—Albany International. The region is also served by 10 other general aviation (non-commercial) airports and ten non-SASP (State Aviation System Plan) airports. (New York State Department of Transportation 2007) This section will focus on the impacts to the commercial service airports, however many of the impacts will be relevant to the others as well.

## IMPACTS OF CLIMATE CHANGE

Airports and their related facilities are vulnerable to flooding and extreme heat. Operations and maintenance may also be affected due to changes in wind patterns and service delays, and disruptions from extreme weather events.

### INFRASTRUCTURE & FACILITIES

Runways will suffer in many of the same ways as roadways—extreme heat compromises asphalt and flooding from sea level rise and storms can inundate and destroy the runways.

### OPERATIONS & MAINTENANCE

Extreme weather events such as snow and ice storms, tropical storms, and severe thunderstorms cause flight cancellations and delay. Climate change could increase the frequency of some of these storms. This would result in more frequent delayed or cancelled flights, temporary shutdowns of airports, and/or result in flight detours to alternative airports. However, with more winter precipitation falling as rain rather than snow, winter disruptions may decrease. (NYSERDA 2011)

Shifts in wind patterns and air temperatures will also impact the aviation sector. Flight takeoff and landing patterns are based on wind. High winds also result in service disruptions. Extreme high air temperatures reduce the lift capacity of planes during takeoff and landing. This could mean that in some locations, either runways would have to be lengthened, or passenger, freight, and/or fuel loads reduced. (NYSERDA 2011)Runway surfaces will need new performance specifications to cope with extreme heat.

## SHIPPING & BRIDGES

Of the five toll bridges operated by the New York State Bridge Authority, one is located in the Capital District region. The Rip van Winkle Bridge connects Columbia County to Greene County crossing the Hudson River at Catskill. (New York State Bridge Authority n.d.)

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The Port of Albany, which is located 124 nautical miles (199 km) north of New York City, specializes in heavy lift/project cargo, dimensional cargo, cocoa beans, forest products, salt, millscale and gypsum, grain, steel and wind energy products. (Port of Albany n.d.) In 2010 the Port saw a dramatic increase in tonnage handled—it increased by 75 percent over 2009 levels with some 451,000 tons of cargo led by increased shipments of scrap, grain and heavy lift cargo. The Port is an important staple to the region's economy—in 2009 longshore labor logged almost 30,000 hours. It is also important for the region's manufacturing base; General Electric is one of the Port's largest customers. (Albany Port District Commission 2010)

## IMPACTS OF CLIMATE CHANGE

According to ClimAID, climate change may affect shipping and bridges in the following ways:

- High winds could result in more frequent temporary closures or restricted use of larger bridges
- Increase scouring potential for bridge foundations in some rivers
- Lower river levels will decrease shipping capacity and/or increase the need for dredging of channels
- Reduced ice cover in the winter will lead to longer shipping season
- Storms redistribute existing sediments in New York Harbor and the Hudson, increasing the need for dredging

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# LAND USE AND LIVABLE COMMUNITIES

This section covers the impacts of climate change on land use, natural resources, and public health. Climate change will have an impact on certain land uses and natural resources in the Capital Region, especially those along the Hudson River. Public health will be impacted via more instances of heat-related illnesses, increased exposure to vector-borne diseases, and reduced air quality during high heat days. These impacts are summarized in **Table 4.1**.

Table 4.1 Summary of land use and livable communities related climate impacts in the Capital Region

| Asset | Climate Impact | Climate Effect | Description |
|---|---|---|---|
| **Developed Land** | Extreme weather; flooding | Property damage | Residential, recreational, cultural, and historical properties will experience damage from severe weather events—flooding in particular. |
| **Agricultural Lands** | Sea level rise and flooding | Crop loss from flooding | More farmland in the region may suffer increasing damage from flooding |
| | Increased temperature | Pests / Invasive Species | Warmer temperatures could allow invasive species to expand their range and have longer breeding seasons. |
| **Natural Habitat & Biodiversity** | Increased temperature; altered precipitation patterns | Shifts in species habitat and range; change in forest composition; invasive species; reduced water quality | Species composition will likely change as species migrate north; this includes an increase in invasive species. Species unable to migrate may become extinct. Forest composition is likely to change with implications for economically vital species such as sugar and red maple. Warmer water temperatures result in decreased water quality and diminished habitat for cold water species. |
| | Extreme heat and weather | Damage to habitat | Additional stress on habitats could impact the ability of species, communities, or habitat to recover. Species already vulnerable from non-climate stressors would be especially impacted. |
| | Reduced Snow Cover | Damage to habitat; trophic cascades; alter food web structure | Small mammals depend on snow cover for insulation and protection from predators. A decline in small mammals impacts predator populations but benefit large herbivores by reducing competition for vegetation. |
| | Flooding; sea level rise | Damage to wetlands | Inundation and more frequent flooding can alter habitat suitability of wetlands. |
| **Public Health** | Extreme heat Increase in annual average temperature | Reduced air quality Increase in vector-borne diseases | High heat days result in increase ozone (smog) levels. Warmer weather results in longer breeding seasons and ranges for pests such as ticks and mosquitoes that carry diseases including Lyme disease and West Nile virus. |
| | Extreme heat | Increase in heat-related illness | More high heat days and heat waves can lead to heat-related illnesses such as heat exhaustion and heat stroke. |
| | Extreme weather: flooding & heat | Disruption of medical service | Flooding and severe weather can prevent care givers from reaching patients and provide medical attention. Certain individuals also rely on electricity to run medical devises and are vulnerable to power outages that could result from extreme weather including heat, flooding and other storms. |

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# LAND USE AND NATURAL RESOURCES

The Capital Region has a diverse array of landscapes including densely developed cities, large water bodies and rivers, forested lands, and agricultural areas. A mix of forests and agriculture dominate the landscape in Washington, Rensselaer, and Columbia counties. Forested areas are the primary land feature in Warren and Greene counties whereas Schenectady, Albany, and Saratoga counties have the greatest mix of land uses and host the region's most developed areas. It is the second fastest growing region in the state with a 4.8 percent increase in population between 2000 and 2010 (Regional Economic Development Councils 2011). The Capital Region is also home to the Albany Pine Bush Preserve, a globally rare habitat. **Figure 4.1** shows the various land uses throughout the region.

Land use types and settlement patterns can alter the carbon footprint of a region. For example, these patterns often determine whether residents walk, bike, drive or take public transit to get from point A to point B. In more dense, walkable, and transit-oriented developments, residents are less dependent on their automobiles, which reduces their GHG emissions. Conserving open spaces such as forests and agricultural land can also help reduce GHG emissions; these land uses are often sources of carbon sinks (they absorb GHGs) and help offset emissions. According to the US Environmental Protection Agency (EPA), the forest and agricultural sectors offset almost six percent of the total US GHG emissions (this takes into account carbon sequestration and non-$CO_2$ emissions) (US EPA 2005).

Land use can also impact the localized micro-climate. Densely populated and developed areas tend to have dark surfaces that absorb more heat than natural habitats, creating an urban heat island effect. The urban heat island effect results in significantly warmer temperatures in cities.

## DEVELOPED LAND

Although the Capital Region as a whole is relatively rural, the region hosts the state capital of Albany and has many important cultural, residential, and commercial developed areas. Historically, development in the Capital Region has clustered around the region's rivers. Recent trends in waterfront development indicate an emphasis on developing waterfronts not only as points of industry and trade, but also as downtown revitalization strategies that boost the tourism, retail, and entertainment industries. The City of Albany, for example, is exploring the possibility of making land in and around its port available for commercial development.

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Land along the Hudson River is also often utilized for recreational opportunities and ecosystem and habitat preservation. As sea level rise and flooding encroach on these areas, they will be squeezed between the rising river on one side and development on the other. This could limit waterfront access to the river and damage important natural areas.

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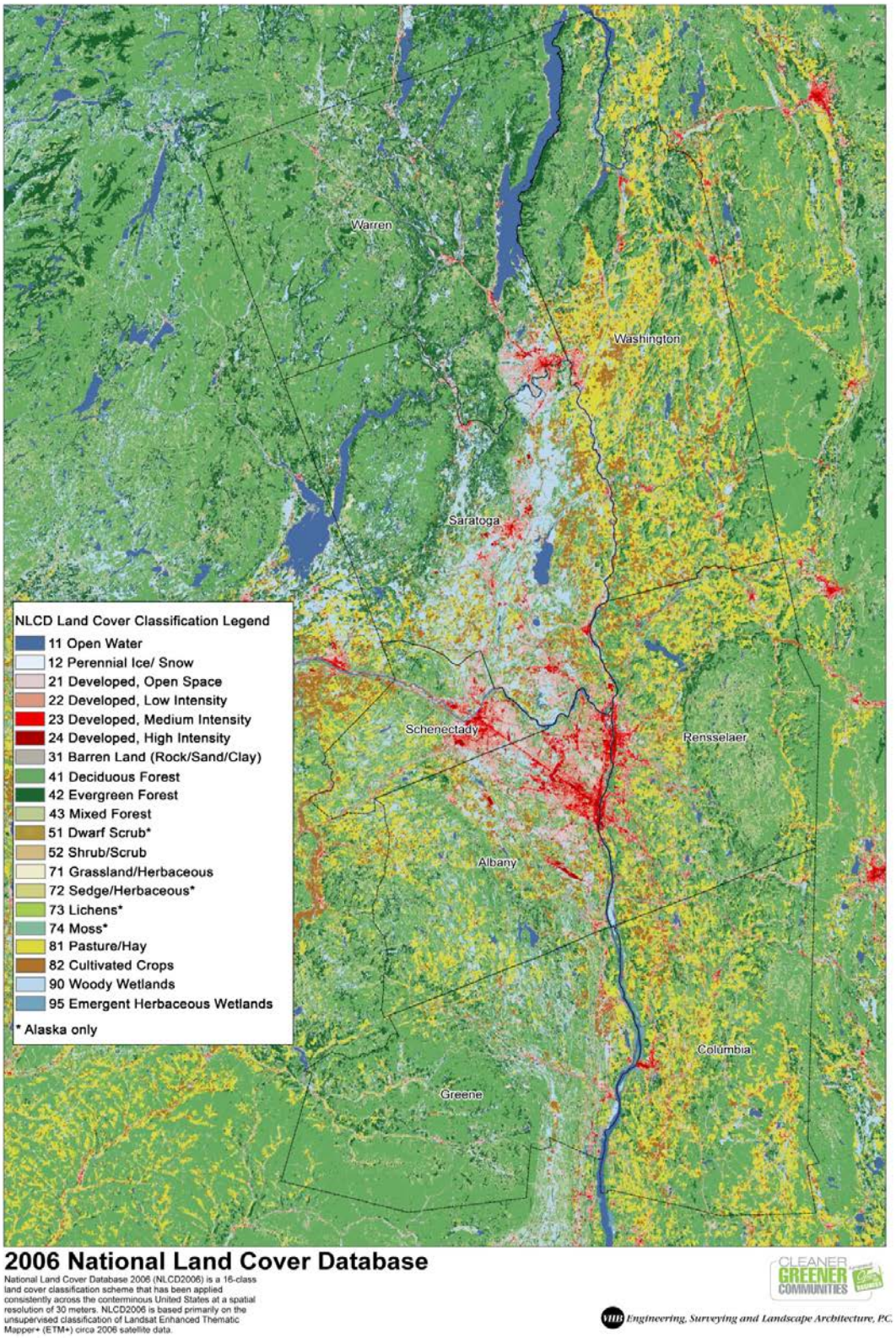
**Figure 4.1 2006 Land Use in the Capital District**



## AGRICULTURAL LAND

Agriculture is an important form of land use in the Capital Region. The 2007 US Census of Agriculture reports that the Capital Region has 496,613 acres of farmland (US Department of Agricultural 2007). Agricultural land is particularly dominant in the counties east of the Hudson River including Columbia, Rensselaer, and Washington.

In terms of climate change, local agricultural land reduces GHG emissions from the transport of food, absorbs $CO_2$, and provides open space for floodwater storage. Transportation represents 11 percent of life-cycle GHG emissions from food consumption, while production contributes 83 percent of the average US household's 8.1 $CO_2$ equivalent per year food footprint (Weber and Matthews 2008).

Overall, the agriculture sector is a net emitter of $CO_2$, however agricultural soils absorb $CO_2$ (US EPA 2005). Certain farm management techniques including reduced tillage on croplands, changes in grazing management, and cropland conversion to grassland, can help increase carbon sequestration. Organic farming practices and substituting fossil fuels for biofuels can help reduce the agriculture sector's overall GHG emissions (US EPA 2005).

Farms are often located near rivers because historic flood events have deposited nutrient-rich silt along the banks, making the soil highly fertile and productive. Agriculture land in the floodplain is often viewed as a flood protection and mitigation tool because this land can absorb floodwaters and protect surrounding development. However, this leaves crops highly vulnerable to damage from flooding. Based on GIS analysis, approximately 7,445 acres of farmland south of the Troy Dam are vulnerable to flooding and sea level rise in 2012. Chapter 6 provides more information on other ways in which agriculture is vulnerable to climate change.

## NATURAL HABITAT AND BIODIVERSITY[1]

Natural areas are important in the Capital Region; they provide critical habitat, ecosystem services such as water filtration and erosion control, carbon sequestration, and recreational and economic opportunities including forestry, tourism, fishing, and maple syrup production.

Climate change is expected to impact natural habitat and biodiversity in a number of ways. Changes in temperature and precipitation can alter the suitability of an ecosystem for a

[1] Unless otherwise noted, the source for all information on the impact of climate change on natural habitats and biodiversity in the capital district is from the ClimAID report (NYSERDA 2011).

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species in a particular area. Such shifts lead to changes in forest composition and migration or extinctions of species that cannot tolerate a warmer climate. As species migrate northward, the Capital Region could see an increase in organisms more typical of southern climates and may lose other species that have typically thrived in the area. Warmer temperatures will increase the primary productivity in some natural systems, while causing heat stress of plants and animals in others. Warmer temperatures could also have negative impacts in aquatic systems by lowering dissolved oxygen levels, creating water temperatures not suitable for cold water fish species, and by increasing harmful algal blooms. Chapter 2 discusses the impacts of climate change on water quality.

Reduced snow cover in winter has negative implications for small mammals that depend on insulation and protection provided by the snow. These small mammals are an important part of the food chain; if their population declines, so will their predators. Vegetation typically consumed by these small mammals will flourish. Reduced snow cover will also expose more plants for grazing in the winter, benefiting the deer population.

Rising sea levels and flooding could also inundate or damage critical wetland areas. Other potential climate risks to natural areas and biodiversity include more extreme weather events and climate variability. However, it is difficult to predict the exact impacts of these climate hazards on ecosystems and species given the complex relationships among species and their environment.

Climate change can also threaten habitats and biodiversity by exacerbating the negative effects of non-climate threats to ecosystems such as development pressures and pollution. According to ClimAID, criteria for determining the vulnerability of a species, community, or ecosystem to climate change are as follows (NYSERDA 2011):

- Location near the southern border of habitable range
- Low tolerance to environmental change
- Specialized food and/or habitat requirements
- Specialized interactions with other species that will be disrupted by climate change
- Poor competitor with species infringing on range, or susceptibility to new pests or diseases on edge of range
- Poor dispersal ability
- Limited genetic diversity
- Low population levels or currently classified as an endangered species or species of special concern

Table 4.2 summarizes the non-climate stressors currently facing New York State and the impact of climate on these stressors.

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**Table 4.2 Non-Climate stressors on natural habitats in the Capital Region**

| Non-Climate Threat | Exacerbated by Climate Change? | Description |
|---|---|---|
| **Invasive Species, Pests, and Pathogens** | Yes | New York State has more invasive species than almost any other state in the US. (NYSERDA 2011, 169). Invasives have a competitive advantage over native species in a changing climate because they tend to thrive in warmer environments, are generalists, reproduce quickly, and are adapted for stressful environments. |
| **Acid Rain, Nitrogen Deposition, Ozone** | Yes | Terrestrial plants and aquatic flora and fauna already stressed by acid rain, nitrogen, and ozone will be less resilient than species unaffected by these pollutants. Because ozone is formed through a photochemical reaction, warmer temperatures may also increase the amount of ozone in the atmosphere. |
| **Increasing Deer Populations** | Possibly | Selective grazing by deer can reduce biodiversity and cause negative changes in the structure and function of plant communities. Plants favored by deer, such as oak, sugar maple, and various wildflowers, decrease in abundance. This can lead to dominance of grasses, ferns, invasives, and/or beech and striped maple trees. Reduced snow cover could expose more vegetation for deer to eat. |
| **Land Use Change, Land-ownership, Habitat Fragmentation** | Possibly | Habitat fragmentation from development can limit the ability of species to migrate to cooler climates, create more opportunities for invasive species and pathogens to colonize an area, and limit valuable core habitat areas for wildlife. The majority of undeveloped land in New York is privately owned, which may limit the ability of government to implement adaptation strategies in natural areas. |

Source: **(NYSERDA 2011)**

## RARE PLANTS AND ANIMALS

Plants and animals considered rare or endangered are often most vulnerable to climate change. Populations already stressed from existing threats, such as limited genetic diversity, low population levels, and/or habitat loss, are less able to adapt to adverse conditions caused by climate change. Certain species, especially plants, may be further limited by poor dispersal ability if migration to northern latitudes becomes necessary.

According to the New York Nature Explorer database, the Capital Region is home to 163 species of rare plants and 288 species of rare and common animals (New York Department

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of Environmental Conservation 2009)[2]. Based on a climate vulnerability assessment of 199 animal species in New York,[3] 16 of the 288 animal species found in the Capital Region are moderately to extremely vulnerable to climate change. In addition, New York State's Environmental Conservation Law (ECL) officially lists 17 plant and animal species as Endangered, 21 as Threatened, and 34 as Rare or Special Concern (New York Department of Environmental Conservation 2009). No plants found in the Capital Region are protected under the federal Endangered Species Act (ESA), although 15 animal species are listed as Endangered and one as Threatened under ESA.

**Table 4.3** shows all plant species that are currently protected by ECL. **Table 4.4** shows all animal species identified as vulnerable to climate change by the New York Natural Heritage Program.

**Table 4.3 Capital Region plants protected by the New York State Environmental Conservation Law (ECL)**

| Common Name | Scientific Name | Plant Type | ECL Protection Status |
|---|---|---|---|
| **Flowering Plants** | | | |
| **Back's Sedge** | *Carex backii* | Sedges | Endangered |
| **Bent Sedge** | *Carex styloflexa* | Sedges | Endangered |
| **Brown Bog Sedge** | *Carex buxbaumii* | Sedges | Endangered |
| **Clustered Sedge** | *Carex cumulata* | Sedges | Endangered |
| **Clinton's Clubrush** | *Trichophorum clintonii* | Sedges | Endangered |
| **American Alumroot** | *Heuchera americana var. americana* | Other Flowering Plants | Endangered |
| **Butternut** | *Juglans cinerea* | Other Flowering Plants | Endangered |
| **Carey's Smartweed** | *Persicaria careyi* | Other Flowering Plants | Endangered |
| **Auricled Twayblade** | *Listera auriculata* | Orchids | Threatened |
| **Bicknell's Sedge** | *Carex bicknellii* | Sedges | Threatened |
| **Bush's Sedge** | *Carex bushii* | Sedges | Threatened |
| **Algae-like Pondweed** | *Potamogeton confervoides* | Other Flowering Plants | Threatened |

[2] "Rare" plants and animals in the New York Nature Explorer include: all plants and animals listed by New York State (NYS) as Endangered or Threatened under New York State's Environmental Conservation Law (ECL), some plants and animals listed by NYS as Rare or Special Concern under ECL, and some plants and animals not officially protected under ECL but are still categorized as rare by the New York Natural Heritage Program. The New York Natural Explorer also includes birds and game regulated under ECL as well as birds from the 2nd New York State Bird Atlas and reptiles and amphibians form the New York Herp Atlas. For more information see: http://www.dec.ny.gov/natureexplorer/app/moreinfo/about

[3] The New York Natural Heritage Program assessed the climate vulnerability of 199 of New York State's Species of Conservation Need using the NatureServe Climate Change Vulnerability Index (http://www.natureserve.org/prodServices/climatechange/ccvi.jsp)

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**Table 4.3 Capital Region plants protected by the New York State Environmental Conservation Law (ECL) Continued**

| Common Name | Scientific Name | Plant Type | ECL Protection Status |
|---|---|---|---|
| **American Waterwort** | *Elatine americana* | Other Flowering Plants | Threatened |
| **Appalachian Sandwort** | *Minuartia glabra* | Other Flowering Plants | Threatened |
| **Bird's-foot Violet** | *Viola pedata* | Other Flowering Plants | Threatened |
| **Canadian Single-spike Sedge** | *Carex scirpoidea ssp. scirpoidea* | Sedges | Rare |
| **Cat-tail Sedge** | *Carex typhina* | Sedges | Rare |
| **Mosses** | | | |
| **Carolina Clubmoss** | *Pseudolycopodiella caroliniana* | Clubmosses | Endangered |
| **Chalk dwarf moss** | *Seligeria calcarea* | Other Mosses | Threatened |
| **Clubmoss lantern moss** | *Mnium lycopodioides* | Other Mosses | Threatened |
| **Ferns** | | | |
| **Blunt-lobe Grape Fern** | *Botrychium oneidense* | Ferns | Endangered |

Source: **(New York Department of Environmental Conservation 2009)**

**Table 4.4 Capital Region animals vulnerable to climate change and protected by the New York State Environmental Conservation Law (ECL)**

| Common Name | *Scientific Name* | Subgroup | Climate Vulnerability Rating* | State Protection Status** | Federal Protection Status*** |
|---|---|---|---|---|---|
| **Amphibians** | | | | | |
| **Marbled Salamander** | *Ambystoma opacum* | Salamanders | High | Special Concern | None |
| **Birds** | | | | | |
| **Bicknell's Thrush** | *Catharus bicknelli* | Thrushes and Bluebirds | Moderate | Special Concern | None |
| **Olive-sided Flycatcher** | *Contopus cooperi* | Flycatchers | Moderate | Protected Bird | None |
| **Butterflies and Moths** | | | | | |
| **Frosted Elfin** | *Callophrys irus* | Butterflies and Skippers | Extreme | Threatened | None |
| **Karner Blue** | *Plebejus melissa samuelis* | Butterflies and Skippers | Extreme | Endangered | Endangered |

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**Table 4.4 Capital Region animals vulnerable to climate change and protected by the New York State Environmental Conservation Law (ECL) Continued**

| Common Name | Scientific Name | Subgroup | Climate Vulnerability Rating* | State Protection Status** | Federal Protection Status*** |
|---|---|---|---|---|---|
| **Persius Duskywing** | *Erynnis persius persius* | Butterflies and Skippers | Moderate | Endangered | None |
| **Fish** | | | | | |
| **Shortnose Sturgeon** | *Acipenser brevirostrum* | Sturgeons and Paddlefish | Extreme | Endangered | Endangered |
| **Eastern Sand Darter** | *Ammocrypta pellucida* | Darters and Sunfishes | Moderate | Threatened | None |
| **Mammals** | | | | | |
| **Eastern Small-footed Myotis** | *Myotis leibii* | Bats | Moderate | Special Concern | |
| **Indiana Bat** | *Myotis sodalis* | Bats | Moderate | Endangered | Endangered |
| **Eastern Small-footed Myotis** | *Myotis leibii* | Bats | Moderate | Special Concern | |
| **New England Cottontail** | *Sylvilagus transitionalis* | Rabbits and Hares | Moderate | Special Concern | Candidate |
| **Reptiles** | | | | | |
| **Bog Turtle** | *Glyptemys muhlenbergii* | Turtles | Extreme | Endangered | Threatened |
| **Eastern Hog-nosed Snake** | *Heterodon platirhinos* | Snakes | Moderate | Special Concern | |
| **Blanding's Turtle** | *Emydoidea blandingii* | Turtles | Moderate | Threatened | |

Source: **(Schlesinger 2011)**, **(New York Department of Environmental Conservation 2009)**
* The New York Natural Heritage Program defined extremely vulnerable species as those whose abundance and/or range is extremely likely to substantially decrease or disappear by 2050. Highly vulnerable species are those whose abundance and/or range are likely to decrease significantly by 2050, and moderately vulnerable species as those whose abundance and/or range are likely to decrease by 2050. **(Schlesinger 2011)**
** Species identified as vulnerable to climate change by the New York Natural Heritage Program are displayed in this table. In total, the Capital Region has 51 animal species that are considered Endangered, Threatened, or Special Concern by ECL.
***This column indicates a species conservation status under the federal 1973 Endangered Species Act (ESA). Endangered species are in danger of extinction in a significant portion of their range. Threatened species are likely to become endangered throughout a significant portion of their range in the near future, and a species of special concern may be in need of conservation protection but has no legal protection under the ESA. **(Schlesinger 2011)**

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## FORESTS

Forests are an important component of the Capital Region's landscape. Sixty-percent of the land in the region is forested. Over ten percent of land in Warren County falls within the Adirondack Park and one to three percent of Saratoga and Washington Counties are located within the park (New York State Adirondack Park Agency 2011). As shown in **Table 4.5**, Warren County has the greatest amount of forested land in the region, followed by Saratoga County and Greene County. The Capital Region is primarily deciduous (hardwood) forest, although apporoximately 19 percent of forested area is softwood stands that are largely dominated by pines (U.S. Forest Service 2012). One percent of forested land in the Capital Region is categorized as spruce/fir. See **Figure 4.2** for the current forest composition in the region.

**Table 4.5 Capital Region Forested Area (Acres) by County, 2005-2010**

| County | Acres of Forest | Percent Sampling Error |
|---|---|---|
| **Warren** | 481,169 | 10.3% |
| **Saratoga** | 375,992 | 11.3 % |
| **Greene** | 329,083 | 12.5% |
| **Washington** | 320,768 | 12.6% |
| **Rensselaer** | 263,459 | 14.1 % |
| **Albany** | 191,140 | 16.8% |
| **Columbia** | 158,817 | 18.3% |
| **Schenectady** | 84,849 | 25.8% |
| **TOTAL** | **2,205,276** | **3.5%** |

Source: **(U.S. Forest Service 2012)**

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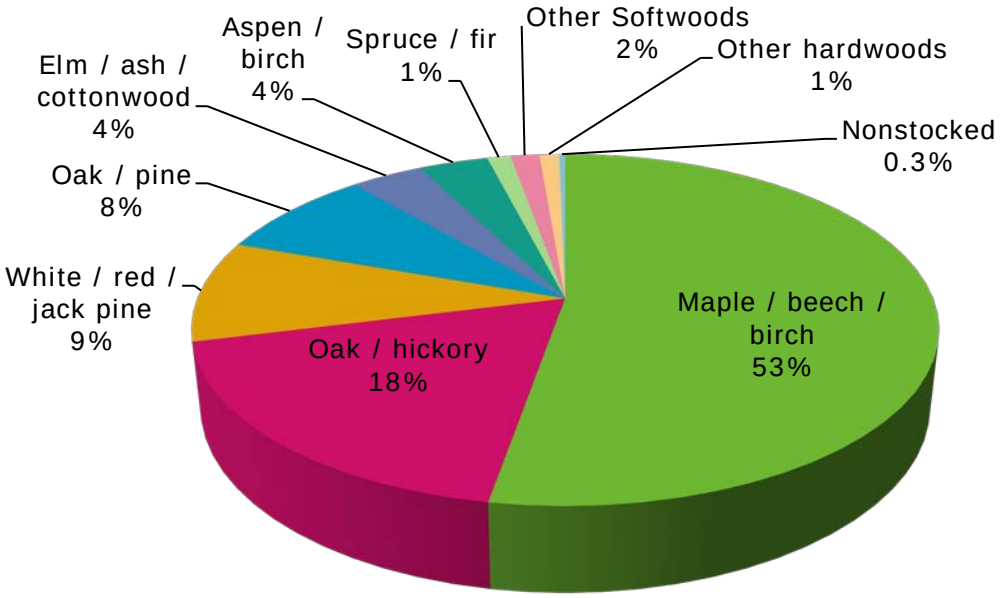
**Figure 4.2 Capital Region Forestland by Forest Type, 2005-2010**




Source: U.S. Forest Service Forest Inventory Analysis National Program, Forest Inventory Data Online (FIDO) accessible at: http://fia.fs.fed.us/tools-data/default.asp
Note: The percent sampling error for the different forest types ranged from six to 90 percent.

The Capital Region is also home to the 3,200 acre Albany Pine Bush Preserve, one of approximately 20 inland Pine Barrens ecosystems in the world (Albany Pine Bush Preserve Commission 2011). This globally rare, fire dependent ecosystem is home to 45 of New York State's 538 "Species of Greatest Conservation Need."[4]

In addition to providing valuable habitat for plants and animals, forests also have a number of public health, economic, and recreational benefits. In urban areas, trees provide shade and vegetation that help mitigate the urban heat island effect and provide habitat. Forest-based manufacturing and forest-related recreation and tourism produced over $8.8 billion for the New York economy in 2005 (North East State Foresters Association 2007).

| Species Most Likely to Decrease | Percent (%) |
|---|---|
| Quaking aspen | -92.3 |
| Black ash | -80.5 |
| Balsam fir | -68.9 |
| American beech | -68.9 |
| Yellow birch | -66.3 |
| Black cherry | -63.4 |
| Sugar maple | -62.9 |
| Red spruce | -61.6 |
| White ash | -57.9 |
| Eastern white pine | -53.2 |
| **Species Most Likely to Increase** | **Percent (%)** |
| Eastern red cedar | 930.0 |
| Flowering dogwood | 759.7 |
| Black walnut | 466.2 |
| Black oak | 405.6 |
| Sassafras | 380.2 |
| Yellow poplar | 328.2 |
| White oak | 240.9 |
| Chestnut oak | 134.5 |
| Post oak | 134.5 |
| American elm | 59.3 |

Note: Percentages are based on changes in each species' area-weighted importance value for a high carbon dioxide emission scenario. Area weighted importance values are an index that includes both geographic area and the

**Table 4.6 ClimAID Table 6.3 "Important Tree species in New York predicted to show the most dramatic decreases or increases in habitable area with climate change by the end of the century" (NYSERDA 2011)**

Maple syrup production is another example of an economic benefit of forest communities. In 2012, New York produced more maple syrup than any state except Vermont (National Agricultural Statistics Service 2012). In 2007, the Capital Region had an overall gallon per tap ratio of 0.17, compared to 0.23 in 2002, indicating a decline in tree productivity. The Food System & Agriculture section

[4] Species of Greatest Conservation Need are designated by New York State based on the following criteria: federally or state listed as endangered, threatened, or special concern; species having 20 fewer elemental occurrences in the New York State Natural Heritage Program database; and estuarine and marine species designated by New York Department of Environmental Conservation as having the greatest conservation need. (New York Department of Environmental Conservation 2012)

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contains more information on the impacts of climate change on maple syrup production in the region.

## IMPACTS OF CLIMATE CHANGE

While the exact impacts of climate change on forests are difficult to predict, it is likely that New York State will not experience a loss of overall forest area but will instead see a change in composition of the forest stands and the species they support. Coniferous trees that are adapted to survive in cold weather, such as spruce and fir, are likley to decline with warmer temperatures (NYSERDA 2011). Oak trees are among the species expected to increase, although grazing from deer could curb the increase in abundance of oak in the region (NYSERDA 2011). **Table 4.6** shows changes in forest composition in New York projected for the end of the century.

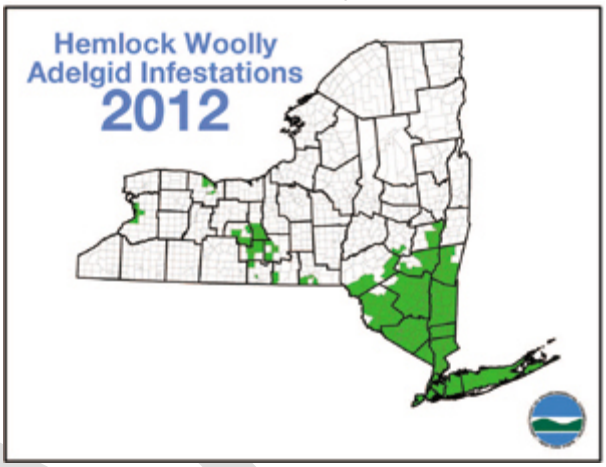


**Figure 4.3** (NYS Department of Conservation 2012)

Forests in the Capital Region are also likely to face new invasive species, pests, and pathogens whose ranges are currently constrained by colder winter temperatures. Invasives are well suited to compete in warmer, more stressful environments (NYSERDA 2011). One possible threat is the expansion of the hemlock wooly adelgid (native to parts of Asia) into the northern counties of the Capital Region. As of 2012, the hemlock wooly adelgid was only found as far north as Albany County (see **Figure 4.3**). This particular pest thrives in a warmer climate and can decimate Hemlock forests. According to the New York State Department of Environmental Conservation (NYS DEC), "valued plantings of the shade-loving eastern hemlock (*Tsuga canadensis*) can be ravaged by the hemlock woolly adelgid, and the natural stands of hemlock in the forests and parks in upstate New York would be greatly affected if the pest spreads to those locations." (NYS Department of Conservation 2012)

## WETLANDS AND AQUATIC HABITATS

The Capital Region has approximately 161.86 square miles of open water from lakes, ponds, rivers, and streams (NOAA 2006). Emergent wetlands and woody wetlands account for 26.73 and 514.79 square miles, respectively (NOAA 2006). In addition to their habitat value, lakes, ponds, and rivers provide the region's water supply and wetlands provide

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important flood control and water filtration services. These bodies also offer an array of recreational opportunities, such as fishing, swimming, and boating.

### IMPACTS OF CLIMATE CHANGE

Coldwater species of fish, such as brook trout and short nosed sturgeon, could decrease in abundance as water temperatures warm (NYSERDA 2011). If eastern hemlock trees become less abundant due to infestation by the hemlock wooly adelgid, aquatic habitats could also be impacted. Hemlocks often provide shade along rivers and streams which helps keep the water temperature cool enough for coldwater species (NYSERDA 2011). Warmwater species, such as bass, could increase in abundance as air and water temperatures rise. Chapter 2 provides additional information of the ways in which climate change affects aquatic and wetland ecosystems.

## PUBLIC HEALTH

There is a direct connection between public health and climate change from air quality and asthma to pests and diseases. Extreme heat leads to more high ozone days and reduces air quality. Milder winters will bring more cases of vector-borne diseases such as West Nile virus and Lyme disease. Heat-related illnesses such as heat exhaustion and heat stroke will increase due to extreme heat. Flooding and other extreme weather will lead to more weather-related deaths and injuries. Natural disasters also cause stress that can cause mental health problems. The young, elderly and those with pre-existing conditions will be disproportionately affected by many of these impacts. People who cannot afford or do not otherwise have access to safe shelter and air conditioning, and those who rely on public services such as transportation, will also be more vulnerable to the public health impacts of climate change.

### AIR QUALITY

Air quality plays an important role for sustainable, livable, and healthy communities. The EPA identifies six common air pollutants—particle pollution (commonly referred to as particulate matter), ground-level ozone (smog), carbon monoxide, sulfur oxides, nitrogen oxides, and lead. Particulate matter (PM) and smog have the most widespread health threats (US EPA 2012). Both of these pollutants are byproducts of the burning of fossil fuels such as coal and oil. Ozone levels increase with heat and therefore is a focus of air quality and climate change adaptation.

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## OZONE

Ozone or 'smog' is the byproduct of a chemical reaction when nitrogen ($NO_X$) and volatile organic compounds (VOCs) interact with heat and sunlight. Some VOCs occur naturally, however motor vehicle emissions, industrial facilities, and electric utilities are all major sources of VOCs and $NO_X$.

Ozone is highly damaging to humans and the ecosystem. Ozone can reduce plants' ability to photosynthesize and it makes sensitive plants more susceptible to certain diseases, insects, harsh weather and other pollutants (US EPA 2012). For humans, breathing ozone can trigger chest pain, coughing, throat irritation, and congestion. It can reduce lung function and inflame the lining of the lungs. Repeated exposure can permanently damage lung tissue.

Children are at greatest risk from exposure to ozone because of their developing lungs. Those who suffer from bronchitis, emphysema and asthma are also particularly vulnerable because ozone can worsen these conditions. Asthma emergency department (ED) visits increased between 2007 and 2009 in the Capital Region. **Figure 4.4** shows an 11 percent increase in asthma ED visits during this time period (NYS Department of Health 2011). **Figure 4.5** shows the disparities in ED visit rates[5] between counties, with the more urbanized counties of Albany and Schenectady having the highest rates (NYS Department of Health 2011).

**Figure 4.4 Total Asthma Emergency Department Visits (ED) in the Capital District (2007-2009)**

[5] ED visit rates are per 10,000 Population and adjusted to age based on 2000 United States population

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**Figure 4.5 Average Asthma Emergency Department Visit Rates in the Capital District Compared to New York State (2007-2009)**

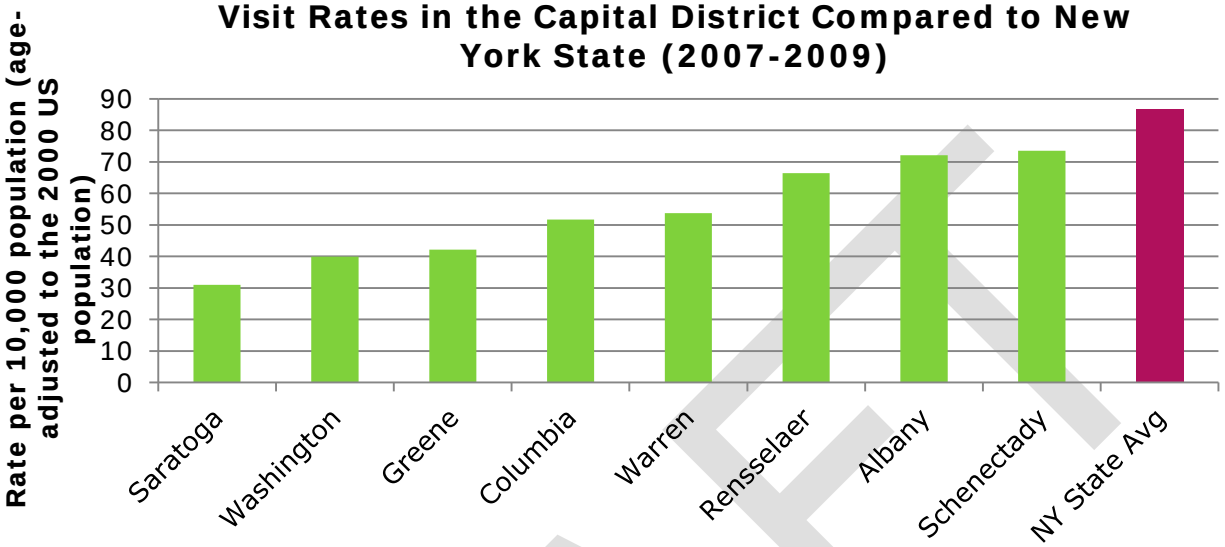


**Table 4.7 Average Number of High Ozone Days 2008-2010 (American Lung Association 2012)**

| County | Grade | Weighted Average, All High Ozone Days* | Orange Days | Red Days | Purple Days |
|---|---|---|---|---|---|
| **Schenectady** | C | 1.0 | 3 | 0 | 0 |
| **Rensselaer** | C | 2.0 | 6 | 0 | 0 |
| **Saratoga** | D | 2.3 | 7 | 0 | 0 |
| **Albany** | D | 2.7 | 8 | 0 | 0 |

*The following factors were used to calculate the weighted average: orange days x 1, red days x 1.5, purple days x 2, and maroon days x 2.5.

All of the counties in the Capital Region with air quality data (Albany, Schenectady, Saratoga and Rensselaer) received poor marks for ozone levels (see **Table 4.7**).The EPA's Air Quality Index (see **Table 4.8**) rates days based on the eight-hour ozone concentration. The current national ambient air quality standard for ozone is 0.075 parts per million (ppm) measured over eight hours. The American Lung Association evaluates counties based on the number of 'orange,' 'red,' and 'purple' days per year (see the Appendix for a full methodology). Albany County had the highest number of 'orange' days, or days with an 8-hour ozone concentration of 0.076 – 0.095 ppm. Such days are deemed by the EPA unhealthy for sensitive groups (the young, elderly and those with preexisting conditions).

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**Table 4.8 EPA Air Quality Index**

| 8-hour Ozone Concentration | Air Quality Index Levels |
|---|---|
| 0.000 – 0.059 ppm | Good (Green) |
| 0.060 – 0.075 ppm | Moderate (Yellow) |
| 0.076 – 0.095 ppm | Unhealthy for Sensitive Groups (Orange) |
| 0.096 – 0.115 ppm | Unhealthy (Red) |
| 0.116 – 0.374 ppm | Very Unhealthy (Purple) |
| >0.374 ppm | Hazardous (Maroon) |

## IMPACTS OF CLIMATE CHANGE ON AIR QUALITY

Since sun and heat are key ingredients in forming ozone, high ozone days tend to occur during the summer. For example, **Figure 4.6** shows ozone concentrations in Albany County throughout 2011. The highest ozone concentrations occur during the summer months. As the climate warms, air quality could decline and the Capital Region may see an increase in orange and red days. This could result in continued increases in asthma hospitalization rates and other public health implications from poor air quality.

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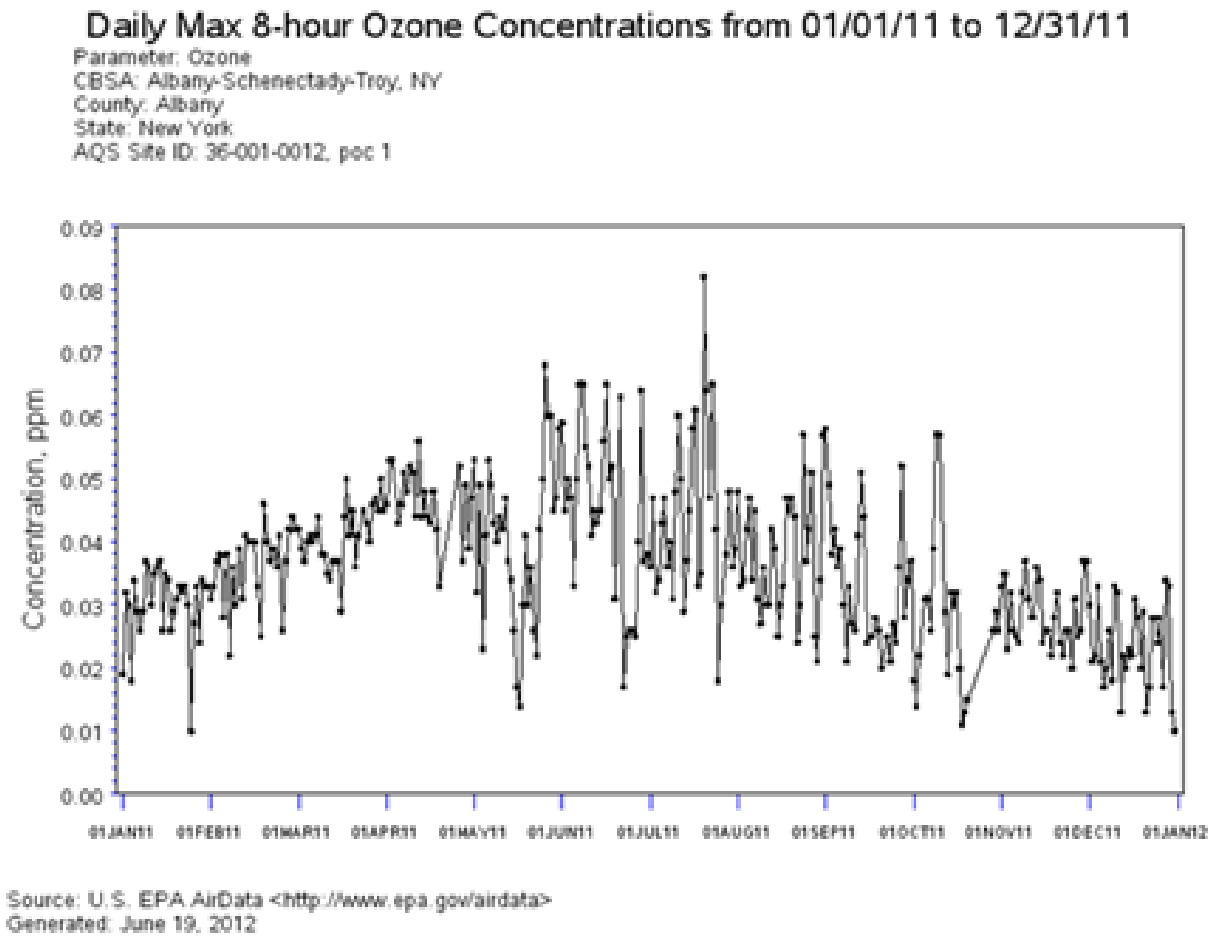
**Figure 4.6 Daily Max 8-hour Ozone Concentrations for Albany, NY 2011**



## HEAT-RELATED ILLNESSES

Heat-related illnesses such as heat exhaustion and heat stroke are a significant threat to public health. Exposure to excessive heat over an extended period of time can lead to hyperthermia[6] or death. Between 1999 and 2003 an average of 688 deaths occurred in the United States from exposure to extreme heat (Center for Disease Control 2006). In 2011, New York State experienced 20 heat-related deaths (NOAA National Weather Services 2012). The elderly, outdoor workers, athletes and those with cardiovascular illnesses are more likely to suffer from heat exhaustion and heat stroke.

Climate change will increase the risk of heat-related illnesses. In the Capital Region, the number of days per year with maximum temperatures exceeding $90^0$ F could increase from 10 to 75 days, based on a high emission scenario.

## VECTOR-BORNE DISEASES

Warmer weather could result in longer breeding seasons and extend ranges for pests including ticks and mosquitoes. These pests often carry diseases harmful to human health, such as Lyme disease and West Nile virus.

### LYME DISEASE

Lyme disease is a bacterium that is transmitted to humans through infected ticks. New York State has the highest number of reported cases of Lyme disease in the United States, with over 95,000 cases reported since 1986 (Wadsworth Center n.d. and New York State Department of Health 2011). Data from the NYS Department Health's County Health Indicator Profiles (CHIPs) used in **Figure 4.7**, show that between 2005 and 2009, Lyme disease incidence rates have risen within the Capital Region (NYS Department of Health 2010). Because deer ticks are currently active from May through November, and can be active anytime the temperature is above freezing (NYS Department of Health 2011), the Capital Region may experience more cases of Lyme disease as summers grow longer and winters become milder.

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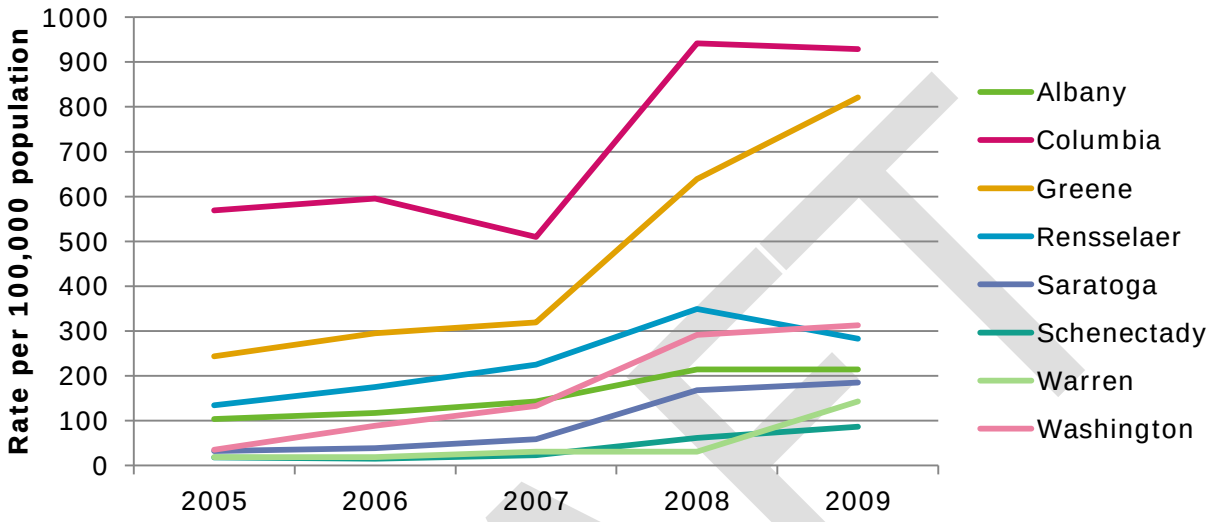
[6] Abnormally high body temperature caused by the body's inability to dissipate heat

**Figure 4.7 Lyme Disease Incidence Rates in the Capital District 2005-2009**




## WEST NILE VIRUS

West Nile virus (WNV) is an infection carried by mosquitoes that can cause encephalitis in humans (NYS Department of Health 2011). In 2011, three out of the eight counties in the Capital Region reported West Nile virus infections, two of which (Albany and Washington) had human disease cases (see **Figure 4.8**). Rensselaer County also had two equine cases and one case in a species other than human, equine, or mosquito. Prior to 2011, the last time the Capital Region experienced a human case of WNV was in 2002 (see **Figure 4.9**) (NYS Department of Health 2010). Because mosquitoes thrive in wet and warm climates, the region can expect to see more cases of WNV with climate change.

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**Figure 4.8 2011 West Nile Virus Surveillance Summary (NYS Department of Health 2012)**

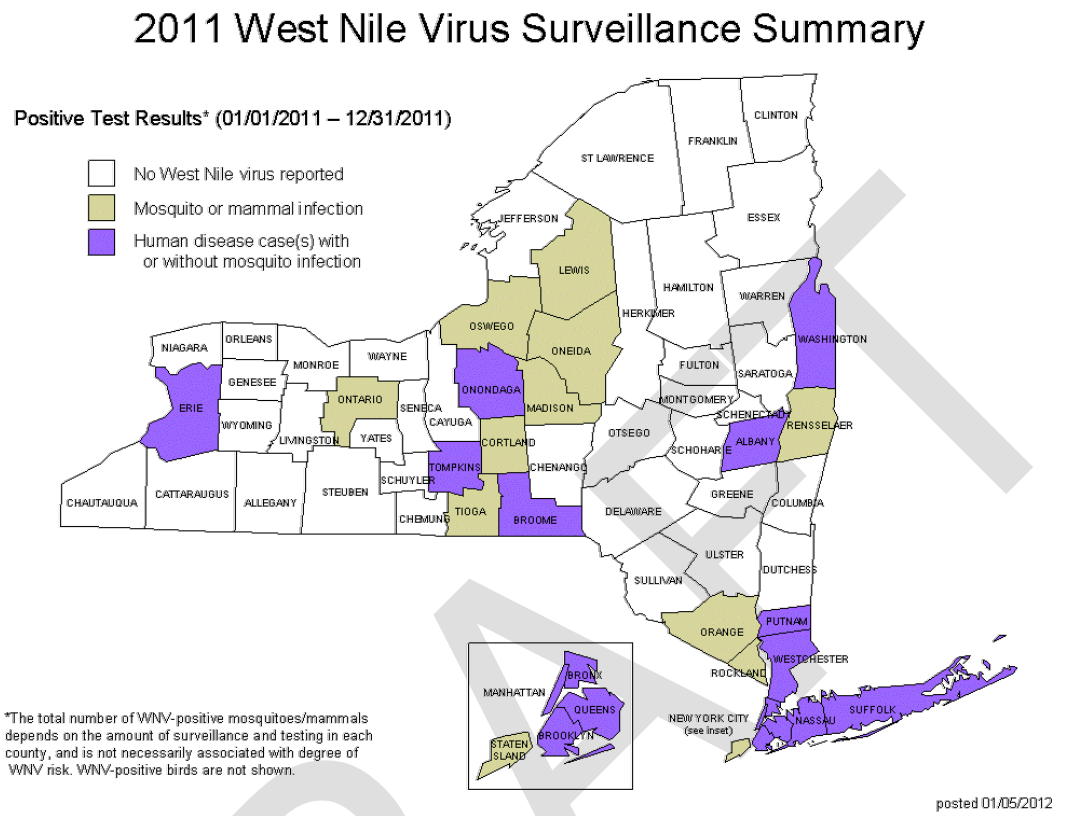


**Figure 4.9 Human Cases of West Nile Virus in the Capital District**

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## FLOODING AND EXTREME WEATHER

In 2011, 31 people in New York State died from hazardous weather and 32 were injured (NOAA 2012). Flooding, tornadoes, and tropical storms are some of the deadly hazards that could increase with climate change. These hazards have cascading effects that can also cause injury or death. Many people rely on electricity for vital health services. For example, insulin requires refrigeration. Transportation service disruptions may also prevent people from getting food, clean water, and any necessary medical attention including their regular prescriptions.

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# ENERGY

The Capital Region has a highly reliable electricity and gas supply and distribution system; however, weather-related stressors can damage equipment, disrupt fuel supply chains, reduce power plant output levels, or increase demand beyond the system's operational capacity (NYSERDA 2011). **Table 5.1** summarizes the impacts of climate change on energy in the Capital Region. **Figure 5.1**, taken from ClimAID, provides a state-wide overview of the impacts of climate change to the energy sector. Please note that impacts from sea level rise and flooding were only applied to those counties that are located south of the Troy Lock Dam.

Table 5.1 Summary of Energy related climate impacts in the Capital Region

| Asset | Climate Impact | Climate Effect | Description |
|---|---|---|---|
| Generation & Distribution | Severe storms; Extreme heat | Reduced grid reliability | Power outages from severe storms; Brownouts and blackouts from spikes in demand during extreme heat events |
| | Drought; Warmer winters | Reduced production capacity | Lower stream flows in the late summer may reduce hydropower production |
| Demand | Extreme heat; Warmer winters | Increased demand in the summer; reduced demand in the winter | Increased demand in the summer is projected to outpace the decrease in demand in the winter |

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| | Vulnerability | Principal Climate Variable(s) | Specific Climate-related Risks | Location | Crosscutting Links |
|---|---|---|---|---|---|
| **Energy Supply and Distribution** | | | | | |
| Power Supply | Thermoelectric power plants | Temperature | The thermal efficiency of power generation is affected by air temperature. | Statewide | |
| | Coastal power plants (including cogeneration at wastewater treatment facilities) | Extreme weather events & sea level rise | Flood risk at individual facilities depends on the likelihood and intensity of storm surges associated with extreme weather events and their interaction with sea level rise. Operational impacts may be different than impacts on fuel storage or fuel unloading operations. | Statewide | Coastal Zones |
| | Water-cooled power plants | Temperature | Water-cooled nuclear plants are affected by changes in the temperature of intake and discharge water, which is affected by changes in temperature. | Statewide | Water Resources |
| | Hydropower systems | Precipitation & temperature | Hydropower availability at individual plants is affected by the timing and quantity of precipitation, as well as snowmelt; snowmelt is also affected by seasonal temperature. | Western, Central, and Northern NYS | Water Resources, Ecosystems, Agriculture |
| | Wind power systems | Wind speed and direction | Availability and predictably of wind power | Western, Central, and Northern NYS | |
| | Solar power systems | | Availability and predictably of solar power | Statewide | |
| | Biomass-fueled energy systems | Temperature & precipitation | Biomass availability depends on weather conditions during the growing season. | Western, Central, and Northern NYS | Ecosystems |
| Energy Transmission and Distribution Assets | Transmission lines (winter) | Extreme weather events | Frequency, duration, and spatial extent of outages are affected by winter storms, particularly ice storms and high winds. | Western, Central, and Northern NYS | Communications |
| | Transmission lines (summer) | Temperature | Sagging lines can result from increased load associated with higher temperatures. | Statewide | Communications, Public Health |
| | Transformers | Temperature | Transformers rated for particular temperatures may fail during prolonged periods of increased temperature. | Statewide | Communications, Public Health |
| | Natural gas distribution lines | Temperature, extreme weather events, & flooding | Changing temperatures may affect vulnerability to frost heave risks, which can threaten structural stability of the pipeline. Flooding risks can also jeopardize pipeline stability/operations. Extreme weather events may threaten underwater pipelines in the Gulf Coast region, a large source of natural gas supply for New York. | Statewide | |
| **Energy Demand and Consumption** | | | | | |
| Electricity Demand | Total demand | Temperature (heating degree days & cooling degree days) & extreme weather events | Temperature affects demand for electricity in winter, summer, and shoulder-season periods. Extreme weather events may temporarily or permanently change demand patterns. | Statewide | |
| | Peak demand in summer | Temperature and humidity (cooling degree days, heat index, & heat waves) | Temperature and humidity affect demand for electricity for cooling and can increase the summertime peak; increasing frequency, intensity, and duration of heat waves could be particularly problematic, leading to more brownouts and blackouts. | Southern NYS | Public Health |
| | Power sharing | Temperature (heating degree days) | Warming temperatures can increase summer demand in traditional winter-peaking areas, leading to reduced availability of power for downstate regions. | Statewide | |
| Building-sited Energy Systems* | Cooling systems | Temperature | Cooling capacity may not be sufficient if the period of days with high temperatures is lengthy. | Statewide | Public Health |
| | Heating systems | Precipitation | Flood risk for boilers located in basements | Statewide | |
| | Building envelopes | Extreme weather events | Increased severity of storm regime may reveal weaknesses in building envelopes. | Statewide | |
| | Mechanical and electric systems | Extreme weather events | Failure of mechanical-electrical elements is related to extreme weather conditions. | Southern NYS | Public Health |

* Building-sited energy systems are not discussed in detail in this report.

**Figure 5.1 Climate impacts on the Energy Sector (NYSERDA 2011)**

## GENERATION AND DISTRIBUTION

The Capital Region is home to three major electric power plants—Athens Generating Plant, Bethlehem Energy Facility (BEC) and Selkirk Cogen. **Table 5.2** provides an overview of these facilities and demonstrates the energy connection to water resources. For more information on the energy and water connection, please see the Water Resources chapter.

BEC and Selkirk Cogen are located along the Hudson River, making them particularly vulnerable to the impacts of climate change. The region also has over 40 miles of overhead electricity transmission lines and 12 substations that are currently located in the floodplain.

The Capital Region's generation and distribution system will be impacted by climate change due to more extreme weather (wind, storms, heat and flooding) and potentially a reduced capacity to generate power.

**Table 5.2 Major power plants in the Capital Region**

| Facility Name | Generation (MW) | Fuel | Location | Cooling system | Water Withdrawn (gallons/day) |
|---|---|---|---|---|---|
| **Athens Generating Plant (NYS Department of Environmental Conservation 2012)** | 1,080 | Natural gas | Athens | Dry cooling towers | 180,000 |
| **Bethlehem Energy Facility (Riverkeeper 2012)** | 754 | Natural Gas (Low Sulfur Distillate Oil As Secondary) | Bethlehem | Hybrid wet/dry cooling towers | 8M |
| **Selkirk Cogen** | 345 | Natural gas and oil | Selkirk | No Data | No Data |

Extreme weather could damage both energy supply and distribution. Flooding, sea level rise and coastal storms may threaten generation facilities along the Hudson River as well as fuel storage facilities. Nor'easters bringing more ice versus snow in the winter could result in more widespread power outages during these events. Sagging transmission lines from extreme heat could result in downed wires. Extreme heat could also cause transformers to fail if they are not designed for the increased

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temperatures. Natural gas supply could be vulnerable due to increase frost heave risk; frost heaves can threaten the structural stability of pipelines.

As water supplies decline (see Water Resources section), less water may be available for energy production. Power generation facilities constitute the largest water withdrawal in New York State, withdrawing over 4,000 million gallons per day. Hydraulic fracturing, the process of extracting natural gas from shale, is also water-intensive; it involves pumping as much as 7 million gallons of water to drill one well. The ClimAID report states that, "it is important to ensure that these withdrawals do not affect established users (such as public water suppliers) and ecosystem services and that the potential impact of climate change on low flows is accounted for in the permitting process" (p. 94). New York State also relies on hydropower for nearly 20 percent (Administration 2012) of its power generation; lower stream flows may reduce the capacity of some hydropower facilities. (NYSERDA 2011)

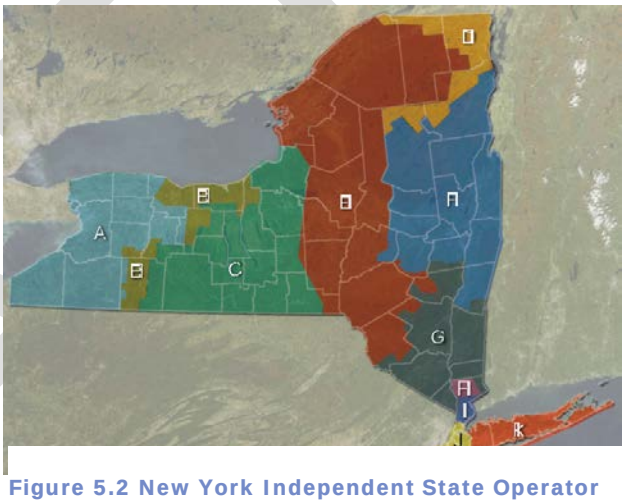


Figure 5.2 New York Independent State Operator (NYISO) (NYSERDA 2011)

## DEMAND

The annual average load (2002-2008) for New York Independent System Operator (NYISO) load zone F (Capital) is 11,452 GWh. This number has increased by approximately two and a half percent during that time period. **Figure 5.2** shows a map of the load zones. Please note that Zone F covers most of the Capital Region, but does not align precisely with it.

Climate change will impact demand by both increasing demand for cooling in the summer and decreasing demand for heat in the winter; however the increase demand in the summer is projected to outpace the decrease in demand in the winter. **Figure 5.3** shows that peak electricity demand for Zone F will decrease by 15 to 29 MW in the winter and increase by 63 to 126 MW in the summer. **Figure 5.4** demonstrates the

| NYISO Zone | Weather Station | Heating Season: Decrease in MWp electricity demand in 2020s | Cooling Season: Increase in MWp electricity demand in 2020s |
|---|---|---|---|
| Zone A | Buffalo | 14–27 | 55–111 |
| Zone B | Rochester | 9–18 | 53–105 |
| Zone C | Syracuse | 19–37 | 61–122 |
| Zone D | Massena | 5–10 | 7–15 |
| Zone E | Watertown | 11–21 | 29–57 |
| Zone F | Albany | 15–29 | 63–126 |
| Zone G | Poughkeepsie | 12–25 | 72–145 |
| Zone J | NYC (LGA) | 40–80 | 249–497 |
| Zone K | Islip | 27–58 | 194–387 |

Figure 5.3 Albany Peak Electricity Demand 2020 (NYSERDA 2011)

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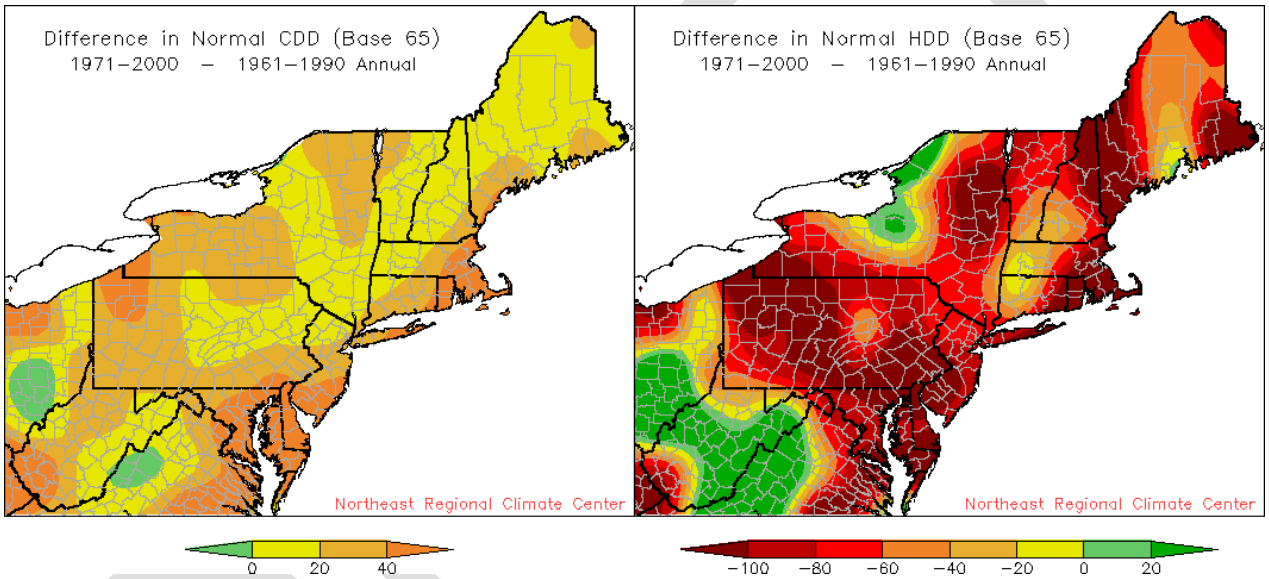
historic trends for both heating and cooling degree days.

An increase in summer demand will drive up energy prices and could result in brownouts and blackouts during extreme heat. Extreme heat results in many residents using above average amounts of electricity for cooling. This spike in demand often exceeds the capacity of the grid, leading to grid failure (brownouts and blackouts). When the grid fails under these circumstances, it has many cascading impacts on the economy, public health and transportation systems.

**Figure 5.4 Heating and Cooling Degree Days in the Region: Historic Trends**




Between 1970 and 2007, the number of heating degree days (HDDs)[1] has declined by 46.3 per decade[1] (NYSERDA 2011). The images above show the difference in HDD and cooling degree days (CDD) between two 30 year time periods (1971 to 2000 and 1961 to 1990). The figures show that CDDs have increased in the region while HDDs have decreased.

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# FOOD SYSTEMS AND AGRICULTURE

Throughout the Capital Region and the United States, there has been a growing interest in food systems including food security and local food production and consumption. Climate change has the potential to alter local and global food systems. ClimAID states that "farmers will be on the front lines of coping with climate change, but the direct impacts on crops, livestock, and pests, and the costs of farmer adaptation, will have cascading effects beyond the farm gate and throughout the state's economy" (p. 218). **Table 6.1** summarizes the climate impacts related to food systems and agriculture expected in the Capital Region.

## GLOBAL FOOD SYSTEM

Despite the recent emphasis on local food

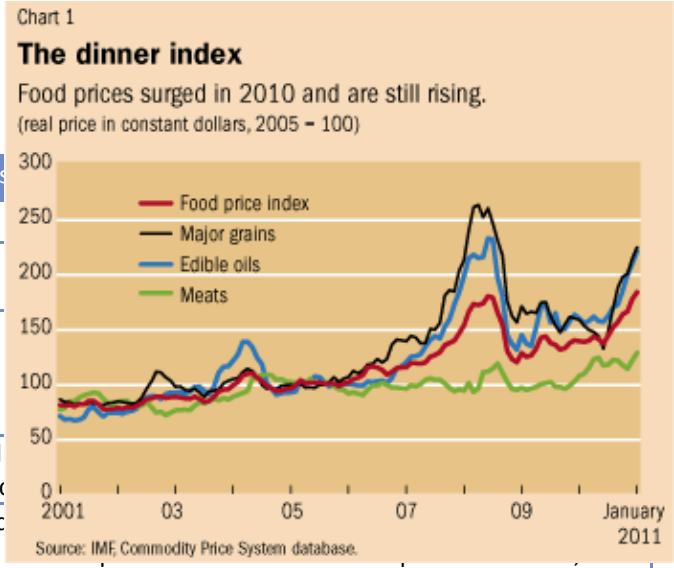


Figure 6.1 Climate changes may be affecting the cost of food. (International Monetary Fund 2011)

Table 6.1 Summary of climate impacts related to food sys

| Asset | Climate Impacts | Climate Effect | |
|---|---|---|---|
| **Farmland** | Sea Level Rise (SLR) and Flooding | Crop loss from flooding | |
| | Increase annual average temperature | Pests / Invasive Species | |
| **Dairy Production** | Extreme heat | Heat Stress and Reduced Produc | |
| | Increase annual average temperature; extreme heat; drought; flooding | Changes in Feed Availability and | stress, late summer drought, and heavy precipitation could decrease yields and drive up prices. |
| **Fruit and Vegetable Production** | Extreme heat; Increase annual average temperature | Changes in Fruit and Vegetable Yield | Many of the high-value crops that currently dominate the region's agricultural economy such as apples, cabbage and potatoes, could experience a decline in yield and quality as a result of climate change. |
| | Extreme heat; Increase annual average temperature | Changes in Apple Yields | Warmer winters could lead to a reduced apple fruit set and yield. Cool-season apple varieties will likely decline in the region, while varieties such as Fuji and Granny Smith could increase. |
| **Maple Syrup** | Increase annual average temperature | Changes in sap yield and number of sugar maple trees | Warmer winters could lead to reduced sap yield and a reduction in sugar maple trees. |

production, the vast majority of food consumed in the Capital Region comes from other parts of the United States

and the world. While New York State may experience improved agricultural conditions under projected climate change scenarios, much of the United States' food production occurs in areas that are expected to experience more flooding and prolonged droughts. In recent years, natural disasters such as flooding in the Midwest and drought in Texas and Mexico have devastated crops. On the global scale, the Organisation for Economic Co-operation and Development (OECD) and the United Nation's Food and Agricultural Organization (FAO) reports,

**Table 6.2: Capital Region Agriculture (US Department of Agricultural 2007)**

| County | Land in Farm (acres) | Value of Products Sold |
|---|---|---|

> "*There are signs that production costs are rising and productivity growth is slowing. Energy related costs have risen significantly, as have feed costs. Resource pressures, in particular those related to water and land, are also increasing. Land available for agriculture in many traditional supply areas is increasingly constrained and production must expand into less developed areas and into marginal lands with lower fertility and higher risk of adverse weather events."* (OECD - FAO 2011)

The report identifies "weather and climate change" as "the most frequent and significant factor causing volatility" (OECD - FAO 2011). **Figure 6.1** shows that since the beginning of the 21st century, food prices have been on the rise. As the cost of food increases, populations across the globe will be affected, including residents of the Capital Region. A higher cost of food puts an additional strain on family and individual budgets.

## LOCAL FOOD SYSTEM

The 2007 US Census of Agriculture reports that the Capital Region produces $316,050,000 worth of agricultural products and has 496,613 acres of farmland. Dairy dominates the agricultural landscape in the region, accounting for 55 percent of the $316 million dollar market. Fruit and vegetable production is also prominent in the region with a combined total of 12 percent of the total market value. (US Department of Agricultural 2007)

As shown in **Table 6.2**, Washington County has both the most acres of land in farming and highest market value of agricultural products sold in the region. Washington and Columbia counties have more acres of farmland than all other counties in the region combined. Rensselaer and Saratoga counties also have prominent agricultural production.

| | | |
|---|---|---|
| **Albany** | 61,030 | $22,415,000 |
| **Columbia** | 106,574 | $65,770,000 |
| **Greene** | 44,328 | $16,373,000 |
| **Rensselaer** | 85,034 | $37,512,000 |
| **Saratoga** | 75,660 | $58,226,000 |
| **Schenectady** | 19,129 | $3,495,000 |
| **Warren** | 8,555 | - |
| **Washington** | 202,877 | $112,259,000 |
| **Total** | **603,187** | **$316,050,000** |

Climate change in the Capital Region will bring challenges and opportunities to food production in the region. A warmer climate will lengthen the growing season, increase production and may even expand the variety of crops that can be grown in the region. However, some production, such as dairy, may struggle in a warming climate.

A warmer climate will also bring new and increased numbers of pests. ClimAID reports that "it has been estimated that with a 3.6˚F temperature increase, insects might experience one to five additional lifecycles per season" (p.223). Crop damage from flooding may also increase in certain areas and late summer drought could prove challenging to water-intensive crops. Between 1997 and 2010, the Capital Region experienced over $11 million in crop damage from extreme weather events (SHELDUS 2011).

Tropical storm Irene provided insight into the damage that flooding can cause on crops in the state. Farms are often located near rivers because historic flooding deposits nutrient-rich silt along the banks, making these highly fertile soils. However, this also leaves crops highly vulnerable to damage from flooding. In the four counties that are located south of the Troy Dam, and therefore the only ones vulnerable to potential sea level rise, there are currently 7,445 acres of agricultural land located in the floodplain. Given that the impact of sea level rise in this region is anticipated to be minimal, the acreage of land in the floodplain in 2080 is estimated to increase only slightly to 7,453 acres.

## DAIRY PRODUCTION

According to ClimAID, "dairy milk production per cow will decline in the region as temperatures and the frequency of summer heat stress increase, unless farmers adapt by increasing the cooling capacity of animal facilities" (p. 222). Milk and other dairy products sold in the region brought $173 million to the region in 2007 (US Department of Agricultural 2007). Washington, Columbia, Saratoga and Rensselaer Counties all have significant dairy production (see **Table 6.3**). Climate change will affect dairy production within the region in two ways: heat stress and productivity; and, feed availability and prices (NYSERDA 2011).

### HEAT STRESS AND PRODUCTIVITY

Heat stress in dairy cattle can lower feed intake, reduce milk production, decrease calving, and increase risk for other health disorders. Scientists have developed a "thermal heat index" (THI) based on temperature and humidity that can indicate the potential for heat stress in livestock[1]. A THI of 70 to 72 for dairy cattle will typically result in a loss of productivity; however, recent research suggests that the THI should be "68 rather than 72 for the high-producing dairy cows (producing more than 77 pounds of milk per day) common in many of the state's dairy herds today" (NYSERDA 2011, 226).

**Table 6.3 Dairy Production in the Capital Region (US Department of Agricultural 2007)**

| County | Milk and other dairy products from cows ($1,000) | Total value of agricultural products sold ($1,000) | % of the value of agricultural products sold |
|---|---|---|---|
| **Albany** | 5,747 | 22,415 | 26% |
| **Columbia** | 25,561 | 65,770 | 39% |
| **Greene** | 2,175 | 16,373 | 13% |
| **Rensselaer** | 19,660 | 37,512 | 52% |
| **Saratoga** | 34,045 | 58,226 | 58% |
| **Schenectady** | 574 | 3,495 | 16% |
| **Warren** | - | - | - |
| **Washington** | 85,630 | 112,259 | 76% |
| **Total** | **173,392** | **316,050** | **55%** |

Field observations during the unusually warm summer of 2005 found that milk production declined by five to 15 percent per cow per day at many dairy operations. Consecutive days of high heat can exacerbate heat stress in dairy cattle.

Without adaptation measures such as cooling and shade facilities for cattle, the dairy industry in the region could suffer economic losses.

[1] THI=Temp(°C, dry bulb)+0.36(Temp(°C, dew point))+ 41.2 (NYSERDA 2011)

## FEED AVAILABILITY AND PRICE

Hay, grain, corn and silage yields will be affected by multiple factors associated with climate change. Longer growing seasons could increase production, driving down prices. Conversely, heat stress, late summer drought and heavy precipitation could decrease yields and drive up prices. Most of the corn, grain, and silage acreage used as feedstock for dairy are rain-fed, making it particularly vulnerable to short-term drought. (NYSERDA 2011)

'Other crops and hay' make up five percent of the crop production market value in the region. It is particularly dominant in Saratoga County where it is worth approximately $4 million (US Department of Agricultural 2007). Water shortages and associated decline in hay production could also have an impact on the horse industry in the area.

**Table 6.4 Hay Production in the Capital Region (US Department of Agricultural 2007)**

| County | Other crops and hay ($1,000) | Total value of agricultural products sold ($1,000) | % of the value of agricultural products sold |
|---|---|---|---|
| **Albany** | 1,794 | 22,415 | 8% |
| **Columbia** | 2,736 | 65,770 | 4% |
| **Greene** | 1,377 | 16,373 | 8% |
| **Rensselaer** | 2,422 | 37,512 | 6% |
| **Saratoga** | 4,075 | 58,226 | 7% |
| **Schenectady** | 585 | 3,495 | 17% |
| **Warren** | - | - | - |
| **Washington** | 3,606 | 112,259 | 3% |
| **Total** | **16,595** | **316,050** | **5%** |

## FRUIT AND VEGETABLE PRODUCTION

A milder climate will benefit some fruit and vegetable production in the Capital Region, while proving to be challenging for others. Farmers who have enough capital to expand production of crops that are adapted to a warmer climate (e.g., European red wine grapes, peaches, tomatoes, watermelon) will be able to shift their markets. However, many of the high-value crops that currently dominate the region's agricultural economy such as apples, cabbage and potatoes, could experience a decline in yield and quality as a result of climate change. (NYSERDA 2011)

Schenectady County has the highest percentage of vegetable, melons, potatoes, and sweet potatoes, while Columbia County dominates apple production in the region. Both of these production areas will be impacted by climate change. Vegetables, melons, potatoes, and sweet potatoes combined with the fruit trees, nuts and berries sector, account for 12 percent of the agricultural market value (US Department of Agricultural 2007)

## APPLE PRODUCTION

New York State is recognized as a national leader in productivity and quality of apples. The Capital Region sold over $19 million worth of fruit, tree nuts and berries in 2007; most of which was likely from apple production (US Department of Agricultural 2007). In 2007 the region as a whole had 3,436 acres of apple orchards; this number declined by 1,579 acres from 2002. Columbia County dominates the apple market in the region with over half of the region's acres of orchards (US Department of Agricultural 2007). See **Tables 6.6 and 6.7** for a county-level comparison of apple production in the region.

**Table 6.6 – Acres of Apple Orchards in the Capital Region (US Department of Agricultural 2007)**

| | 2007 | 2002 |
|---|---|---|
| **Albany** | 127 | 428 |
| **Rensselaer** | 227 | 91 |
| **Saratoga** | 518 | 758 |
| **Schenectady** | 22 | 35 |
| **Washington** | 296 | 401 |
| **Columbia** | 2,208 | 3,214 |
| **Greene** | 38 | 88 |
| **Capital Region** | **3,436** | **5,015** |

ClimAID identifies apples as being particularly vulnerable to climate change and a high priority due to their state-wide economic value. The report points to several studies that indicate apples have a reduced fruit set and yields in the seasons following warmer winter conditions. In some cases this may be the result of an increase in spring frost damage because the trees leafed out and bloomed too early. Cool-season varieties such as McIntosh and Empire will likely decline in the region; however, new opportunities for Fuji and Granny Smith apples may increase. (NYSERDA 2011) Similar to vegetable production, only those farms with the resources to invest in new apple varieties will be able to adapt.

**Table 6.7 Apple Production in the Capital Region (US Department of Agricultural 2007)**

| County | Fruits, tree nuts, and berries ($1,000) | Total value of Fruits, tree nuts, and berries sold ($1,000) | % of the value of Fruits, tree nuts, and berries sold |
|---|---|---|---|
| **Albany** | 425 | 22,415 | 2% |
| **Columbia** | 12,674 | 65,770 | 19% |
| **Greene** | 395 | 16,373 | 2% |
| **Rensselaer** | 1,342 | 37,512 | 4% |
| **Saratoga** | 3,074 | 58,226 | 5% |
| **Schenectady** | 157 | 3,495 | 4% |
| **Warren** | - | - | - |
| **Washington** | 1,282 | 112,259 | 1% |
| **Total** | **19,349** | **316,050** | **6%** |

## VEGETABLE PRODUCTION

Washington, Saratoga, and Columbia counties have the highest vegetable production levels in the Capital Region, all of which produce over $8 million worth of vegetables (US Department of Agricultural 2007). **Table 6.5** shows the vegetable production for all counties in the region.

With a relatively stable agricultural economy (see Food System Baseline Assessment for more information), vegetable farmers may be in a position to adapt their crops to a warmer climate. Between 2002 and 2007, the number of farms in the region has remained stable, land in farms and size of farms have both slightly decreased (seven percent each), and the market value of products sold has increased by a total of 27 percent (US Department of Agricultural 2007). A better understanding of farm profit margins is needed to assess the capacity of the region's vegetable farms to adapt to climate change.

**Table 6.5 Vegetable Production in the Capital Region (US Department of Agricultural 2007)**

| County | Vegetables, melons, potatoes, and sweet potatoes ($1,000) | Total value of agricultural products sold ($1,000) | % of the value of agricultural products sold |
|---|---|---|---|
| **Albany** | 1,782 | 22,415 | 8% |
| **Columbia** | 3,595 | 65,770 | 5% |
| **Greene** | 2,895 | 16,373 | 18% |
| **Rensselaer** | 3,778 | 37,512 | 10% |
| **Saratoga** | 848 | 58,226 | 1% |
| **Schenectady** | 745 | 3,495 | 21% |
| **Warren** | - | - | - |
| **Washington** | 3,900 | 112,259 | 3% |
| **Total** | **17,543** | **316,050** | **6%** |

## MAPLE SYRUP

**Table 6.8 Maple Syrup Production In The Capital Region, Measured In Gallons (US Department of Agricultural 2007)**

| County | 2002 | 2007 |
|---|---|---|
| **Albany** | 1,067 | 787 |
| **Rensselaer** | 1,920 | 740 |
| **Saratoga** | 1,945 | 831 |

In 2012, New York produced more maple syrup than any state except Vermont (National Agricultural Statistics Service 2012). As shown in **Tables 6.8 and 6.9**, in 2007 the Capital Region produced 18,562 gallons of maple syrup from 109,831 taps (US Department of Agricultural 2007). These numbers result in an overall gallon per tap ratio of 0.17. Production in the region has been declining. The number of taps in has declined by 23,742 between 1997 and 2007. Between 2002 and 2007, gallons of syrup produced shrunk by 4,872 gallons. The gallon per tap ratio in 2002 was 0.23, indicating a decline in tap productivity between 2002 and 2007.

| | | |
|---|---|---|
| **Schenectady** | 35 | No Data |
| **Washington** | 13,481 | 13,057 |
| **Warren** | 2,055 | 530 |
| **Columbia** | 831 | 913 |
| **Greene** | 2,100 | 1,704 |
| **Capital Region** | **23,434** | **18,562** |

## IMPACTS OF CLIMATE CHANGE ON MAPLE SYRUP PRODUCTION

Warmer winters and early springs are highly detrimental to maple syrup production. Maple syrup production depends on alternating freeze/thaw days for sap flow; warm years can cause this process to begin earlier and last for a shorter period of time (NYSERDA 2011). In 2012, maple syrup production in New York decreased by 36 percent from 2011 levels due to warmer temperatures (National Agricultural Statistics Service 2012). As the the region continues to experience warmer winters, like that of 2012, maple production will continue to suffer. Furthermore, the Sugar Maple tree is expected to decline altogether in the state by approximately 63 percent by the end of the century due to climate change (see **Table 6.10**). The Land Use and Livable Communities section provides more information on the impacts of climate change on the region's forests and other natural resources.

**Table 6.9 Number of Maple Syrup Taps in the Capital Region 1997 – 2007 (US Department of Agricultural 2007)**

| County | 1997 | 2002 | 2007 |
|---|---|---|---|
| **Albany** | 9,450 | 4,925 | 5,547 |
| **Rensselaer** | 9,016 | 10,456 | 5,825 |
| **Saratoga** | 27,500 | 9,756 | 7,733 |
| **Schenectady** | 3,698 | 117 | No Data |
| **Washington** | 54,237 | 52,875 | 69,255 |
| **Warren** | 7,139 | 7,200 | 5,300 |
| **Columbia** | 5,521 | 3,957 | 4,607 |
| **Greene** | 17,012 | 12,140 | 11,564 |
| **Capital Region** | **133,573** | **101,426** | **109,831** |

| Species Most Likely to Decrease | Percent (%) |
|---|---|
| Quaking aspen | -92.3 |
| Black ash | -80.5 |
| Balsam fir | -68.9 |
| American beech | -68.9 |
| Yellow birch | -66.3 |
| Black cherry | -63.4 |
| Sugar maple | -62.9 |
| Red spruce | -61.6 |
| White ash | -57.9 |
| Eastern white pine | -53.2 |
| **Species Most Likely to Increase** | **Percent (%)** |
| Eastern red cedar | 930.0 |
| Flowering dogwood | 759.7 |
| Black walnut | 466.2 |
| Black oak | 405.6 |
| Sassafras | 380.2 |
| Yellow poplar | 328.2 |
| White oak | 240.9 |
| Chestnut oak | 134.5 |
| Post oak | 134.5 |
| American elm | 59.3 |

Note: Percentages are based on changes in each species' area-weighted importance value for a high carbon dioxide emission scenario. Area weighted importance values are an index that includes both geographic area and the relative abundance of a species in different areas.
Source: Iverson and Prasad 2002

**Table 6.10 ClimAID Table 6.3 "Important Tree species in New York predicted to show the most dramatic decreases or increases in habitable area with climate change by the end of the century"**

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# ECONOMIC DEVELOPMENT

The impacts of climate change will have many cascading effects on the Capital Region's economy throughout the 21st century. Climate change is expected to impact the insurance and real estate industries, agriculture, energy, and health care sectors, and public and private infrastructure. **Table 7.1** summarizes the economic impacts of climate change on the Capital Region.

## INSURANCE

The insurance industry is the 'canary in the coal mine' for the economic impacts of climate change. As the number of natural disasters increases (see **Figure 7.1**), losses have

Table 7.1 Summary of the economic impacts of climate change in the Capital Region

| Asset | Climate Impact | Climate Effect | Description |
|---|---|---|---|
| **Insurance** | Severe storms | Increases in insured losses; Reduced insurance coverage | As losses increase from severe weather and flood events, insurance companies are leaving vulnerable markets. As a result, government sponsored insurers are absorbing the risk. |
| **Agriculture** | Extreme heat; Drought | Shifts in crop production and productivity | Struggling farmers are unlikely to be able to adapt to climate change without additional resources and support. |
| **Energy** | Severe storms; Extreme heat; Drought | Reduced grid reliability; Increase in cost of energy; Reduced production | The cost of energy will likely rise due to increased infrastructure maintenance costs and increased demand for cooling in the summer months. |
| **Health Care** | Increased average temperatures; Extreme heat | Increase in vector-borne diseases, heat-related illnesses, and respiratory illnesses | Warmer weather could lead to more medical cases related to heat and poor air quality. |
| **Infrastructure** | Severe storms; Extreme heat; Flooding | Public and private infrastructure damage | Damage from climatic events to public and private infrastructure, such as transportation networks, energy generation facilities, and water and wastewater facilities. |

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skyrocketed (see **Figure 7.2**) (Insurance Information Institute 2012). The insurance industry has responded by pulling out of various vulnerable markets, leaving government sponsored insurers to absorb the risk. The National Flood Insurance Program (NFIP) would have gone bankrupt after the 2005 storms if it were not for a $20 billion loan from the US Treasury (US Global Change Research Program 2009).

As the insurance industry adapts, the impacts will ripple through the economy. For example, the real estate sector will be impacted when the banks refuse loans on uninsurable properties. The insurance industry "provides a window into the myriad ways in which the costs of climate change will manifest, and serves as a form of economic adaptation and a messenger of these impacts through the terms and price signals it sends its customers." (US Global Change Research Program 2009, 104)

**Figure 7.1 Number of catastrophic natural disasters, 1980 - June 2011 (Insurance Information Institute 2012)**

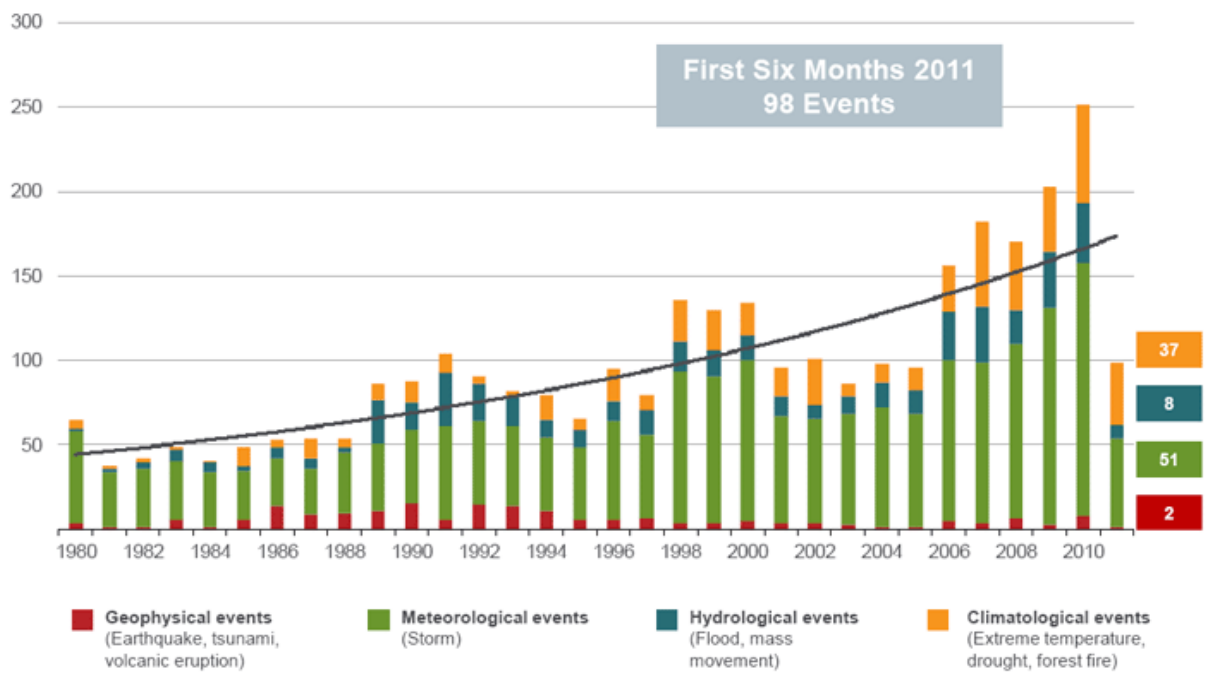
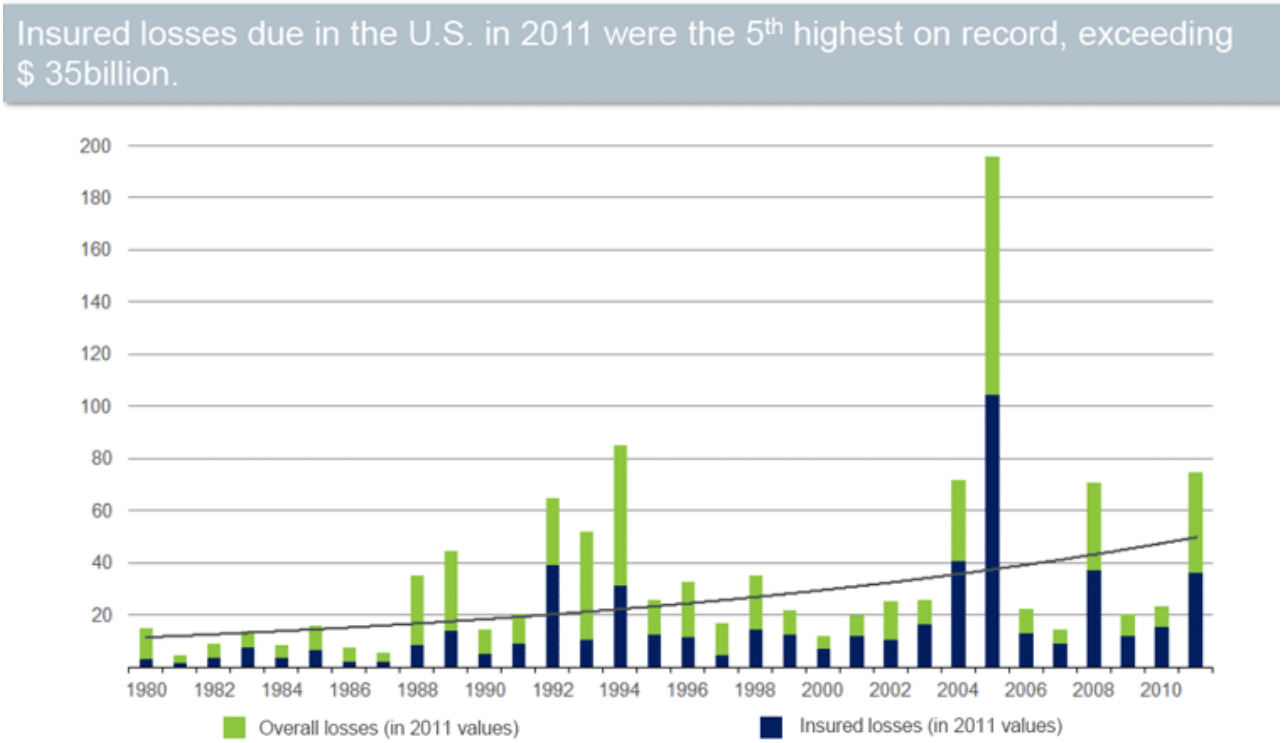


**Figure 7.2 Insured losses due in the US, 1980 - 2011 (Insurance Information Institute 2012)**




## AGRICULTURE

The Region's $316 million agricultural industry will likely suffer without any investment in adaptation. As described in the Food System and Agricultural section of this baseline assessment, global food prices have already risen and will likely continue to rise as natural disasters such as flooding and drought destroy crops and diminish productivity. Local production will also have to adapt to new growing conditions. Depending on how quickly the region's farms can adapt, there could be a decline in production. Residents will also feel a strain on their household budgets as food and energy prices rise.

## ENERGY

Energy prices will rise as demand for cooling rises in the summer and the utility companies absorb the additional cost of maintaining and repairing infrastructure in a more volatile climate. This will burden both the utility companies as well as the consumers.

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## HEALTH CARE

The health care system and labor market will have to respond to the additional strain from heat-related illnesses and deaths. Outdoor summer labor such as the construction and landscaping industries will be particularly impacted.

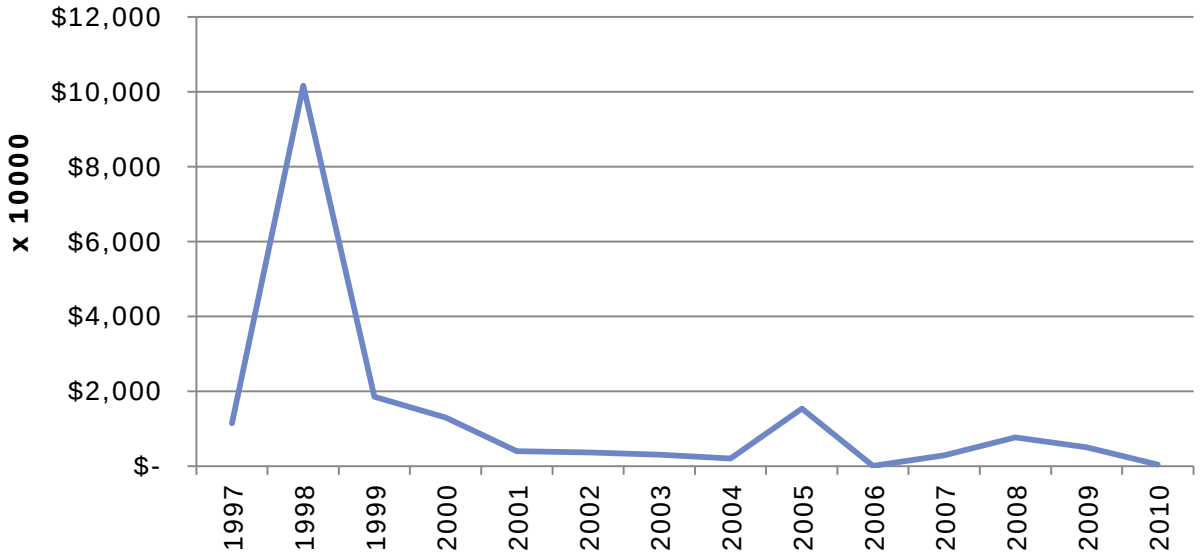
## INFRASTRUCTURE

Some impacts are more direct, such as public and private property damage from flooding and other natural hazards. Damage to infrastructure such as transportation, energy, and water will be particularly costly. The loss of these types of infrastructure is not only expensive to repair, but the failure of these systems has deep and crippling impacts on the rest of society.

While the cost of upgrading and replacing vulnerable infrastructure may be high, there will be opportunities to incorporate infrastructure adaptation into long-range capital improvement projects and planning. The fact that so much of the region's infrastructure is in need of repair serves as an opportunity for adaptation.

Between 1997 and 2010, the region suffered over $188 million dollars worth of property damage to natural hazards. Two tornadoes touched down in Saratoga and Rensselaer counties on May 31, 1998 and were the most expensive disasters in the region up until that time, accounting for just over $97 million dollars worth in damages (see **Figure 7.3**). Over this 14 year time period, tornadoes and flooding proved to be the two most expensive

**Figure 7.3 Capital Region Total Property Damage From Natural Hazards (2011 USD)**

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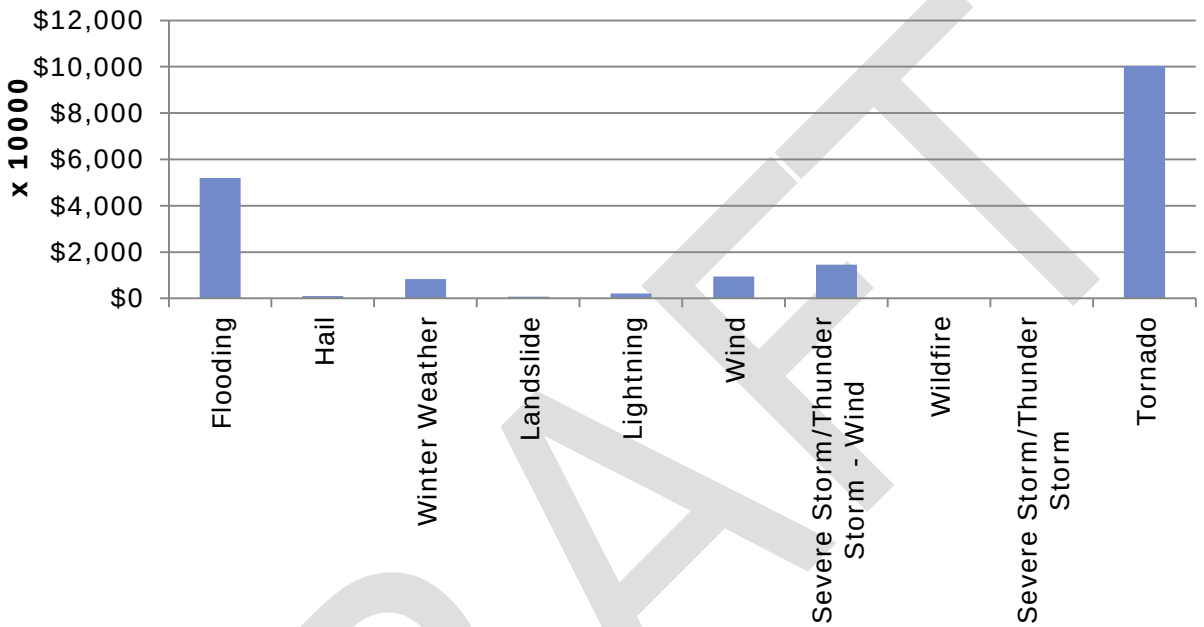
natural hazards (**see Figure 7.4**). (SHELDUS 2011)

**Figure 7.4 Capital Region Property Damage by Natural Hazards Type, 1997-2010 (2011 USD)** ***Source: SHELDUS, 2011***

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# Glossary

| | |
|---|---|
| **Climate** | The long term trends of weather. |
| **Climate Adaptation** | The process of increasing the resilience of individuals, communities, and systems to climate hazards. |
| **Cascading events** | Certain individuals, populations, or pieces of infrastructure have a disproportionate effect on an overall system. For example, in natural systems, certain species play a disproportionate role in the function of the ecosystem. If one of those species is affected by climate change, such as the removal of a keystone predator, than all trophic levels of the ecosystem are impacted. |
| **ClimAID** | Integrated Assessment for Effective Climate Change Adaptation Strategies in New York State. A research team funded by NYSERDA to provide information to decision makers on climate vulnerabilities and opportunities in New York State. ClimAID is also tasked with identifying adaptation strategies in New York State and areas for future research. |
| **Climate Effect** | These are the result of primary and secondary climate impacts on social, natural and infrastructure systems. Climate effects included changes to air quality, property damage, service disruptions, length of the growing season, water quality and habitat changes. |
| **Climate Hazard** | Any hazard caused by climatic events, such as severe storms, heat waves, or droughts. A climate hazard could also be caused by changes in long term climate trends, such as small increases in average annual temperature, altering the habitat suitability for a species or ecosystem. |
| **Climate Mitigation** | Reducing one's contribution to climate change by reducing greenhouse gas emissions. |
| **Climate Vulnerability** | The vulnerability of an individual, population or group of individuals, natural and built infrastructure, or a community or ecosystem to changes in climate. "Vulnerability" can be determined by a number of factors, including sensitivity, adaptive capacity, cascading events, economic impact, climate risk, and frequency and timing. |

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| | |
|---|---|
| **Climate Risk** | Individuals, populations, infrastructure, and systems at high risk of experiencing climate hazards can also determine vulnerability. Climate risk is a function of the likelihood a climate hazard will occur and the magnitude of the hazard's impact if it does occur. |
| **Global Climate Model (GCM)** | Computer model designed to help understand and simulate global and regional climate, in particular the climatic response to changing concentrations of greenhouse gases. GCMs aim to include mathematical descriptions of important physical and chemical processes governing climate, including the role of the atmosphere, land, oceans and biological processes. The ability to simulate sub regional climate is determined by the resolution of the model. |
| **Extreme Precipitation** | A 24-hour period with over one inch of rain |
| **Extreme Heat** | Days where temperatures reach over 90 degrees F |
| **Primary Climate Impact** | These are the direct climate-related consequences of global warming. They include things like changes to annual average temperature, precipitation and sea level rise. |
| **Secondary Climate Impact** | The hazard events that result from primary climate impacts; i.e. flooding |
| **Weather** | Atmospheric conditions over a short time period. |

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# Appendix 5

## Quantification of Greenhouse Gas Reduction Potential of Initiatives

One of the goals of the Capital Region Sustainability Plan is to identify initiatives for the region that have a greenhouse gas (GHG) reduction benefit. Not all initiatives identified for this Plan have a direct emissions reduction benefit. Several initiatives will have an emissions reduction benefit, but it is not possible to directly quantify exactly what that benefit will be. Where possible, however, an estimate was made for what amount of GHG emissions reduction the Region might expect from implementation of a particular initiative. In those cases, 2010 baseline data from the Regional Greenhouse Gas Inventory was used along with reputable sources for estimating GHG reduction impacts to calculate estimated reductions. The following describes the methods used to complete those calculations.

### Energy

#### Establish Energy Efficiency and Renewable Energy Financing Districts (or PACE program)

California PACE homes typically use 30 percent less energy than non-PACE homes (FIGTree Energy Resource Company). If a similar trend held true in New York, a 30 percent reduction in residential energy consumption would result in an equivalent reduction of greenhouse gases from residential energy consumption. That would, of course, only be true where PACE programs were implemented and when residents took advantage of the program. Assuming a conservative market penetration of 2 percent, if a residential PACE program were implemented in half of the region, the result would be a GHG emissions reduction of 9,046 metric tons $CO_2e$.

*Residential Energy Emissions / 2 X 30% less energy X 2% market penetration = emissions reduction*

*3,015,446/2 X .30 X .02 = 9,046*

#### Adopt a Local Energy-Efficient Building Code

A Climate Policy Initiative report estimates that the impact of energy efficient building codes is a 1.8 percent reduction in GHG emissions from the residential building sector (Deason & Hobbs, 2011). Applying this impact to the commercial sector as well, if energy efficient building codes were implemented across the region, it could see a reduction of 106,520 metric tons $CO_2e$.

*(Residential Energy Emissions + Commercial Energy Emissions) x 1.8% reduction = emissions reduction*

*5,917,762 X .018 = 106,520*

### Solid Waste

### Site and develop anaerobic digestion facilities in the Region

*GHG Savings from Digesting Food Waste*

The emissions from the combustion of methane generated by food waste and combusted in an anaerobic digester was calculated by modifying equation 10.1 from the Local Government Operations Protocol (LGOP) as follows (ICLEI - Local Governments for Sustainability, 2010):

*Methane gas produced / ton of food waste disgested (meter^3/ton) x Methane Density (g/m^3) x metric tons/g x (1-Destruction efficiency) x Methane GWP*

The methane gas produced per ton of food waste digested (meter^3/ton) factor was from a study completed for the EPA by the East Bay Municipal Utility District titled "Anaerobic Digestion of Food Waste" (East Bay Municipal Utility District, 2008). The remainder of the factors in the equation were from equation 10.1 of the LGOP. The amount of non-biogenic GHG emissions produced from the combustion of methane generated by one ton of food waste was then subtracted from the methane produced from landfilling one ton of food waste.

*GHG Savings from Avoided Grid Electricity*

The EPA report, "Anaerobic Digestion of Food Waste" also provided an average electricity production rate of between 180 and 250 kWh/wet ton of food waste delivered to the anaerobic digester (East Bay Municipal Utility District, 2008). To be conservative, the lower bound of the average electricity production rate was used to estimate GHG emissions reduced from reducing electricity produced through the digester instead of the grid. The 180 kWh/wet ton of food waste was then multiplied by the metric tons $CO_2e$ reduced per kWh reduced.

Using these methods, it is estimated that 0.34 metric tons $CO_2e$ will be reduced per ton of waste sent for anaerobic digestion. According to New York Department of Environmental Conservation (NY DEC), 22 percent of municipal solid waste in 2010 was food waste (New York State Department of Environmental Conservation, 2010). If all of the Region's food waste was sent for anaerobic digestion, it would reduce GHG emissions by 70,233 metric tons $CO_2e$.

*Total waste generated X 22% X 0.34 = emissions reduction*

*938,940 tonnes X 0.22 X 0.34 = 70,233*

## Transportation

### Implement a bicycle and pedestrian infrastructure improvement program

A rule of thumb VMT reduction for bicycle and pedestrian infrastructure improvement programs is one to two percent. This is based on an estimated one to five percent area VMT reduction from bike improvements, as estimated in the CCAP Transportation Guidebook Part One as well as a zero to two percent VMT reduction estimate for pedestrian improvements according to CAPCOA's "Quantifying Greenhouse Gas Mitigation Measures" (CAPCOA, 2010). Using this rule of thumb and assuming a 1.5 percent VMT reduction, a regional reduction of GHG emissions from transportation is estimated to be 82,743 metric tons $CO_2e$.

*Total On-Road Emissions X 1.5% reduction = emissions reduction*

*5,516,191 X 0.015 = 82,743*

### Optimize transportation system through alternative street design and advanced signal technology

As a rule of thumb, GHG emissions are reduced by two percent from improved traffic signalization (Center for Clean Air Policy (CCAP), 2005). A two percent reduction in transportation emissions across the region would result in a reduction of 110,324 metric tons $CO_2e$.

*Total On-Road Emissions X 2% reduction = emissions reduction*

*5,516,191 X 0.02 = 110,324*

# NEW YORK STATE

# REGIONAL GREENHOUSE GAS

# EMISSIONS SUMMARY

Version 1.0
March 19, 2012

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## EXECUTIVE SUMMARY

Phase I of Cleaner Greener Communities will result in the development of regional sustainability plans. The planning process will allow each region to develop its vision, goals, and objectives for a sustainable future. The plans are intended to:

- Outline tangible actions to reduce greenhouse gas emissions consistent with New York State's goal of 80% carbon reduction below 1990 levels by the year 2050
- Inform municipal sustainability and land use policies
- Serve as a basis for local government infrastructure decision making
- Guide infrastructure investment of both public and private resources
- Identify strategies for adapting to the effects of climate change

Phase II, the implementation phase, will provide funding on a competitive basis for the implementation of defined projects that contribute to the realization of the goals identified in the regional sustainability plans.

Focusing specifically on fuel combustion emission sources, this report provides a high-level regional analysis encompassing roughly 89% of the state's total greenhouse gas emissions. The regional inventories were developed using statewide greenhouse gas emissions data along with readily available regional data.

The Tier II analysis that will be developed by each region as part of their baseline assessment should focus on filling gaps in the Tier I analysis or replacing the statewide data utilized to create the Tier 1 analysis with local data to make the inventory a more accurate profile of regional emissions. It is recommended that the following areas be reviewed in the Tier II analysis:

- Assess non-combustion sources of greenhouse gas emissions
- Gather data from local transportation agencies
- Assess off-highway transportation sources such as trains and subways
- Gather local data for household consumption of space and water heating
- Determine if wood as a residential fuel source should be evaluated
- Gather data from local sources about commercial and industrial processes
- Break down electricity consumption to align with direct emissions categories

The detailed Tier I analysis is provided in an accompanying spreadsheet and will be discussed at the kickoff meetings and through the Greenhouse Gas Protocol Working Group. The process of defining expectations for the Tier II analysis will also be discussed at these times.

## BACKGROUND

The Regional Sustainability Planning Program is the first phase of the Cleaner, Greener Communities (CGC) Program. The planning phase of the program is intended to provide the necessary resources for each region in New York State, as defined by the boundaries of the Regional Economic Development Councils (REDCs), to develop a comprehensive sustainability plan. Engaging in the planning process will allow each region to develop its vision, goals, and objectives for a sustainable future and to identify the activities or types of projects needed to achieve that future. The sustainability plans developed with this grant are intended to:

- Outline specific and tangible actions to reduce greenhouse gas emissions consistent with New York State's goal of 80% carbon reduction below 1990 levels by the year 2050
- Inform municipal sustainability and land use policies
- Serve as a basis for local government infrastructure decision making
- Guide infrastructure investment of both public and private resources
- Identify strategies for adapting to the effects of climate change

In Phase II of the CGC program, the implementation phase, funding will be provided on a competitive basis for the implementation of specific projects that provide the greatest opportunities to meet the objectives of the program:

- Reducing greenhouse gas emissions
- Increasing energy efficiency
- Promoting the deployment of renewable energy projects
- Furthering the region's progress toward the goals established by the sustainability plan

One of the primary goals of the sustainability plans is a baseline assessment of each region, including inventories of greenhouse gas emissions and energy use. This document should provide each region with a better idea of where emissions reduction opportunities may exist and where they may want to focus their initial attention for further analysis when developing the sustainability plan.

Moving forward the regions will use this analysis to inform their Tier II analysis.

## REGIONAL CALCULATION METHODOLOGY

To estimate the greenhouse gas emissions for each region in New York State, several sources of emissions were considered. Direct emissions, those produced on-site as a result of fuel combustion, are separated into four sources: transportation, residential, commercial, and industrial. Indirect emissions, those produced off-site in order to generate the electricity consumed in each region, are made up of all electricity consumption and include any net imports of electricity. Global warming potential (GWP) was used to combine the effects of the greenhouse gases analyzed. The basic methodology used to calculate the quantity of greenhouse gas emissions attributable to each source of fuel combustion analyzed is described below. Final values for each of these emissions sources can be found in Appendix B.

**Transportation Emissions:**
Transportation emissions represent the on-roadway greenhouse gases produced by all types of on-highway vehicles. The data collected from the Department of Transportation and Oak Ridge National Laboratory provided typical fuel economies and estimated vehicle miles traveled within each region. Using this information with emissions rates for the various vehicle and fuel types, the regional transportation emissions were calculated using Equation 1.

**Equation 1:**

$$\begin{matrix} Transportation \\ Emissions \end{matrix} = \begin{matrix} Fuel\ Consumption \\ per\ Vehicle\ Type \end{matrix}\ x\ \begin{matrix} Emission \\ Rates \end{matrix}\ x\ GWP$$

**Residential Emissions:**
Residential emissions represent the greenhouse gases produced as a result of the heating fuels used by each household to provide space heating and water heating. The American Community Survey and the Energy Information Administration provided data for the major heating fuels present in New York State, which are natural gas, liquefied petroleum gas (LPG), and fuel oil, and coal. Using the statewide consumption data for each of these fuels and their respective emissions profiles, Equation 2 was used to calculate the regional residential emissions.

**Equation 2:**

$$\begin{matrix} Residential \\ Emissions \end{matrix} = \begin{matrix} Statewide \\ Fuel\ Use \end{matrix}\ x\ \frac{Regional\ Households\ per\ Fuel}{Statewide\ Households\ per\ Fuel}\ x\ \begin{matrix} Emission \\ Rates \end{matrix}\ x\ GWP$$

**Commercial Emissions:**
Commercial emissions represent the greenhouse gases produced as a result of commercial fuel consumption. The most available data for this type of consumption was the statewide greenhouse gas emissions calculated in NYSERDA's New York State Greenhouse Gas Emissions Inventory for 2009. Using this figure, the percentage of statewide employment present in each region was used to calculate the commercial emissions of each region, as shown in Equation 3.

**Equation 3 (per 2.1.2 of EPA Regional Greenhouse Gas Inventory Guidance):**

$$Commercial\ Emissions = Statewide\ Emissions\ x\ \frac{Regional\ Employees}{Statewide\ Employees}$$

**Industrial Emissions:**
Industrial emissions represent the greenhouse gases produced as a result of industrial fuel consumption. The most available data for this type of consumption was the statewide greenhouse gas emissions calculated in NYSERDA's New York State Greenhouse Gas Emissions Inventory for 2009. Using this figure, the percentage of statewide employment present in each region was used to calculate the industrial emissions of each region, as shown in Equation 4.

**Equation 4 (per 2.1.3 of EPA Regional Greenhouse Gas Inventory Guidance):**

$$Industrial\ Emissions = Statewide\ Emissions\ x\ \frac{Regional\ Employees}{Statewide\ Employees}$$

**Electricity Consumption:**
Electricity consumption represents the indirect greenhouse gas emissions associated with the consumption of electricity by residential, commercial, and industrial end users. It is focused on the consumption of electricity generated within New York State as well as any electricity imports. Using a statewide average emission rate and NYISO consumption data for various geographical zones within the state, regional greenhouse gas emissions due to electricity consumption was calculated using Equation 5.

**Equation 5:**

$$Electricity\ Emissions = \begin{matrix} Regional \\ Consumption \end{matrix}\ x\ \begin{matrix} Electricity \\ Emissions\ Rate \end{matrix}$$

## REGIONAL GREENHOUSE GAS EMISSIONS SUMMARIES

The greenhouse gas emissions caused by fuel combustion were analyzed for each of the ten REDC regions across New York State: Western New York, Finger Lakes, Southern Tier, Central New York, Mohawk Valley, North Country, Capital Region, Mid-Hudson, New York City, and Long Island. The emission sources were divided into five categories:

- Transportation
- Residential
- Commercial
- Industrial
- Electricity Consumption

.

Within each of these categories, calculations were performed to determine the quantity of carbon dioxide ($CO_2$), methane ($CH_4$), and nitrous oxide ($N_2O$) present in the greenhouse gas emissions. To compare each of the greenhouse gases, each gas is measured in $CO_2$ equivalent ($CO_2e$) units[1]. As a result, all $CO_2$ equivalent values below represent the additive emissions of the three greenhouse gases that are caused by fuel combustion. $CO_2$ accounts for approximately 98.3% of the statewide greenhouse gas emissions, while $CH_4$ and $N_2O$ account for approximately 0.4% and 1.3%, respectively.

A summary of the overall findings can be seen in Figure 1. As expected, the regions with the highest total emissions tend to be those containing dense metropolitan areas. With the exception of New York City, on-highway transportation contributes to anywhere from 30-43% of the regional emissions, while electricity consumption contributes to approximately 30% in most regions.

As expected, the total emissions generated by each region are roughly correlated to the size of its respective population. The emissions per capita for each region can be seen in Figure 2. With the exception of New York City, the emissions profiles of each region appear to be fairly consistent with respect to the quantity of emissions resulting from each source of fuel combustion. Regional variations in emissions may occur for the following reasons:

- **Commuting distance, vehicle type, and availability of public transportation** all affect on-highway transportation. For example, residents of a more metropolitan region are more likely to live closer to their workplace reducing their vehicle miles travelled.
- **The prevalence of coal as a heating fuel** affects residential emissions because coal combustion emits over 100 times more methane gas than natural gas or any petroleum-based fuel source.
- **Population density** affects several emissions sources. More densely populated areas tend to require less vehicle use on a daily basis and have smaller sized homes..
- **Regional weather patterns** affect the number of heating and cooling degree days, which will affect all energy use and emissions associated with space heating and air conditioning.

[1] Per the Regional Greenhouse Gas Inventory Guidance provided by the EPA, the Global Warming Potentials of $CH_4$ and $N_2O$ are 21 and 310 times that of $CO_2$, respectively (i.e. 1 $CH_4$ = 21 $CO_2e$ and 310 $N_2O$ = 310 $CO_2e$).

**Figure 1:**

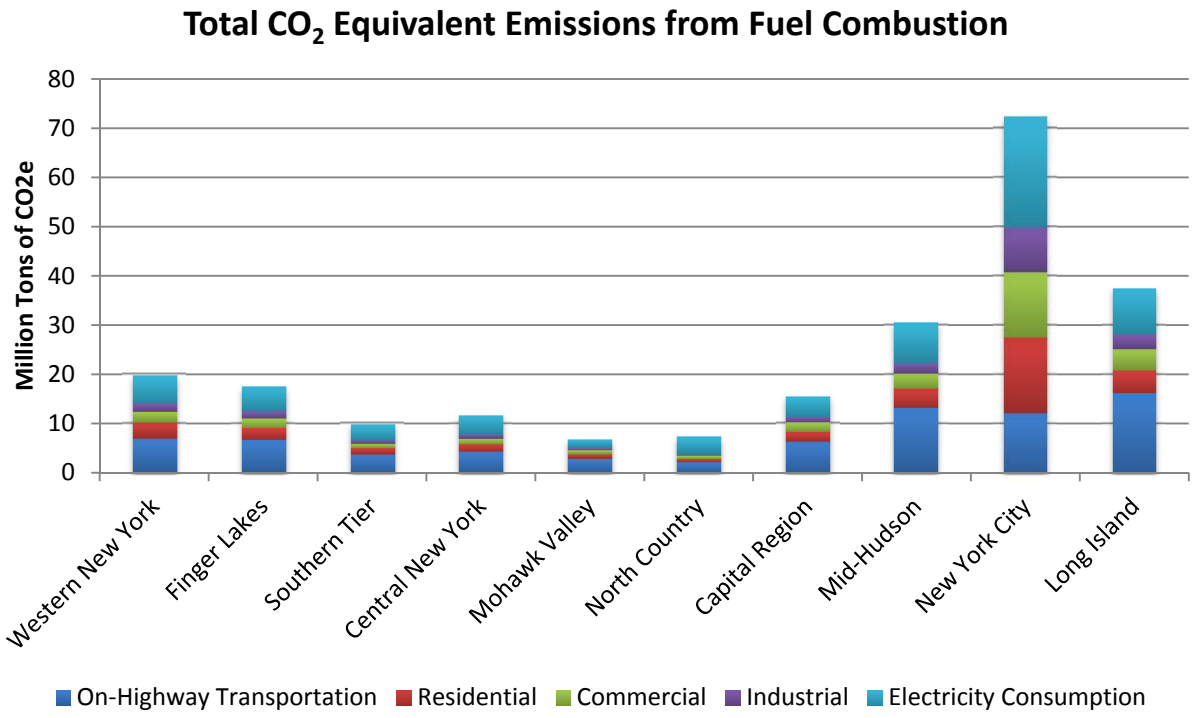
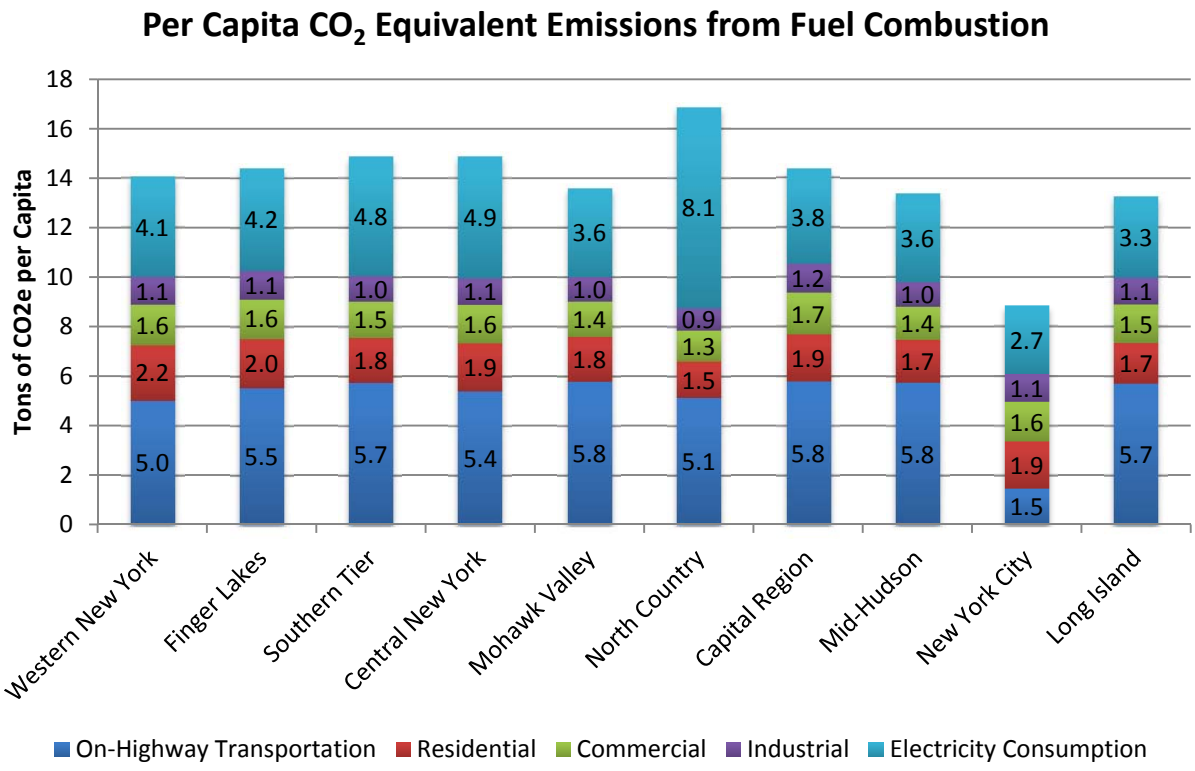



**Figure 2:**



## RECOMMENDATIONS FOR TIER II ANALYSIS

This document provides a high-level analysis of the fuel combustion sources of greenhouse gas emissions for each region of New York State and is intended to offer insight into determining where regions should focus their efforts to reduce emissions. To make the analysis more representative of local conditions, regions are encouraged to use local data to analyze relevant sources of emissions in more depth during the development of the following areas of their Tier II analysis.

**Assess non-combustion sources of greenhouse gas emissions.**
On a statewide level, the emissions not attributed to fuel combustion, such as HFCs, PFCs, and $SF_6$, make up approximately 11% of total statewide emissions. However, any geographically concentrated activity in a given region may cause these greenhouse gases to play a more significant role in their emissions profile. For example, methane from agricultural processes may be a large source of emissions for one region, while management of forest land may reduce emissions for another.

**Gather data from local transportation agencies.**
The regional on-highway transportation data was developed using estimates derived from statewide and national data. Working with local transportation agencies may allow regions to gain more recent and accurate data to further define their transportation emissions.

**Assess off-highway transportation sources such as trains and subways.**
The on-highway transportation emissions were calculated from data on the vehicle miles traveled within each region. However, this approach inherently excludes off-highway transportation, such as trains and subways. Emissions data for this type of transportation are included in figures for the commercial and electric consumption emissions. For regions where off-highway transportation is heavily used, a closer analysis is recommended to more accurately define the quantity of total emissions caused by transportation.

**Gather local data for household consumption of space and water heating.**
When calculating the residential greenhouse gas emissions caused by heating fuel combustion for space and water heating, only statewide average household consumption data was available. Differences in regional weather patterns and average home sizes could not be taken into account. Using heating degree days, more localized consumption information (from local utilities, if possible), and statistics on regional home sizes, each region can further refine its residential emissions figures.

**Determine if wood as a residential fuel source should be evaluated.**
To maintain consistency with EPA methodology, the use of wood as a residential heating fuel was not included in this analysis. However, wood combustion emits nearly 1000 times more methane than natural gas, so its addition causes significant increases in the residential greenhouse gas emissions for regions where wood is a relatively common heating fuel.

**Gather data from local sources about commercial and industrial processes.**
The regional commercial and industrial emissions data was calculated using statewide emissions data, which was in turn partially developed from national data. Since the calculations assume that each region's commercial and industrial emissions are proportional to its employment figures, the individualism of each region is averaged out of the results presented in this report. A bottom-up approach, studying and summing up the finer details of the commercial and industrial profiles of each region, will be beneficial for fine-tuning the total emissions from these sources.

**Break down electricity consumption to align with direct emissions categories.**
When electricity consumption was analyzed, in-state generation and imports were combined and it was assumed that electricity consumption is proportional to population. However, there may be variations in the regional consumption based on variables such as commercial activity, average home size, etc. Breaking out regional electricity consumption to correspond to the other four emission sources (transportation, residential, commercial, and industrial) may help identify areas where indirect greenhouse gas emissions from electricity consumption can be reduced.

## REGIONAL ANOMALIES

### New York City

The overall greenhouse gas emissions for New York City reflect the economies of scale resulting from its uniquely concentrated population, but this population density also presents issues worthy of further consideration. For example, the average size of each residence in New York City is notably smaller than those in other regions and typically found in multi-family buildings. Since the data available reflects statewide average consumption, the quantity of residential emissions per capita calculated for New York City is likely higher than what might be expected.

New York City also has a robust public transportation system which drastically reduces the use of on-highway transportation. However, most of the emissions from off-highway public transportation are included in the data for electricity consumption and commercial fuel combustion. As a result, the on-highway transportation emission figures may not be an accurate estimation of the actual emissions that are a result of transportation.

### North Country

The greenhouse gas emissions due to electricity consumption are nearly twice as high for the North Country region, primarily due to the large usage figures for the northeast section of the region. The data shows that approximately 30% of the occupied households in Clinton County use electricity as their primary heating fuel, which is more than twice the percentage found in most other counties throughout the state. Additionally, because of its relatively low population and proximity to the US-Canada border, there may be significant commercial and industrial activity, causing the data to reflect higher electricity use per capita. A deeper evaluation of electricity consumption in the Tier II analysis might further define the source of these emissions.

## APPENDIX A: SOURCES

NYS Emissions Inventory Figures - **New York State Greenhouse Gas Emissions Inventory and Forecasts for the 2009 State Energy Plan**
Employment Figures – **New York State Department of Labor**
Population Figures – **United States Census Bureau**
New York State Electric Generation Data – **eGRID 2010**
Household Heating Data – **American Community Survey (2008-2010)**
Emissions Calculation Data – **IPCC Guidelines for National Greenhouse Gas Inventories (2006)**
Average NYS Household Fuel Consumption – **NYSERDA Patterns and Trends 1995-2009**
Vehicle Miles Traveled (VMT) – **Federal Highway Administration, Dept. of Transportation**
NYS VMT per Vehicle Type – **Oak Ridge National Laboratory**
Average vehicle mileage – **EPA Draft Regional Greenhouse Gas Inventory Guidance**
Regional Electricity Consumption – **NYISO Load & Capacity Data "Gold Book" (2011)**

## APPENDIX B: DATA

### Data for Figure 1:

| Fuel Combustion (Inc. Net Imports of Electricity) | Million tons of $CO_2$ Equivalent Emissions | | | | | |
|---|---|---|---|---|---|---|
| | On-Highway Transportation | Residential | Commercial | Industrial | Electricity Consumption | Total |
| Western New York | 7.05 | 3.15 | 2.24 | 1.58 | 5.72 | 19.73 |
| Finger Lakes | 6.75 | 2.42 | 1.95 | 1.37 | 5.08 | 17.57 |
| Southern Tier | 3.77 | 1.20 | 0.97 | 0.68 | 3.17 | 9.80 |
| Central New York | 4.30 | 1.52 | 1.23 | 0.87 | 3.89 | 11.80 |
| Mohawk Valley | 2.90 | 0.91 | 0.71 | 0.50 | 1.80 | 6.81 |
| North Country | 2.22 | 0.63 | 0.55 | 0.39 | 3.52 | 7.32 |
| Capital Region | 6.25 | 2.06 | 1.80 | 1.27 | 4.12 | 15.50 |
| Mid-Hudson | 13.17 | 3.93 | 3.14 | 2.21 | 8.20 | 30.64 |
| New York City | 12.10 | 15.47 | 13.13 | 9.24 | 22.42 | 72.36 |
| Long Island | 16.17 | 4.70 | 4.34 | 3.05 | 9.32 | 37.58 |
| Total | 74.68 | 36.00 | 30.05 | 21.14 | 67.23 | |

### Data for Figure 2:

| Fuel Combustion (Inc. Net Imports of Electricity) | Tons of $CO_2$ Equivalent Emissions Per Capita | | | | | |
|---|---|---|---|---|---|---|
| | On-Highway Transportation | Residential | Commercial | Industrial | Electricity Consumption | Total |
| Western New York | 5.04 | 2.25 | 1.60 | 1.13 | 4.09 | 14.10 |
| Finger Lakes | 5.55 | 1.99 | 1.60 | 1.13 | 4.17 | 14.44 |
| Southern Tier | 5.74 | 1.83 | 1.47 | 1.03 | 4.83 | 14.89 |
| Central New York | 5.43 | 1.92 | 1.55 | 1.09 | 4.91 | 14.90 |
| Mohawk Valley | 5.79 | 1.83 | 1.41 | 0.99 | 3.59 | 13.62 |
| North Country | 5.13 | 1.46 | 1.28 | 0.90 | 8.12 | 16.90 |
| Capital Region | 5.79 | 1.91 | 1.67 | 1.17 | 3.82 | 14.36 |
| Mid-Hudson | 5.75 | 1.71 | 1.37 | 0.96 | 3.58 | 13.37 |
| New York City | 1.48 | 1.89 | 1.61 | 1.13 | 2.74 | 8.85 |
| Long Island | 5.71 | 1.66 | 1.53 | 1.08 | 3.29 | 13.26 |
| Total | 51.40 | 18.45 | 15.09 | 10.61 | 43.14 | |

## Summary of Overall $CO_2$ Emissions (million tons)

| | On-Highway Transportation | Residential | Commercial | Industrial | Electricity Consumption* | Total |
|---|---|---|---|---|---|---|
| **Western New York** | 6.83 | 3.13 | 2.22 | 1.57 | 5.72 | 19.47 |
| **Finger Lakes** | 6.54 | 2.41 | 1.94 | 1.37 | 5.08 | 17.33 |
| **Southern Tier** | 3.66 | 1.20 | 0.96 | 0.68 | 3.17 | 9.67 |
| **Central New York** | 4.16 | 1.51 | 1.22 | 0.86 | 3.89 | 11.65 |
| **Mohawk Valley** | 2.81 | 0.91 | 0.70 | 0.50 | 1.80 | 6.71 |
| **North Country** | 2.15 | 0.63 | 0.55 | 0.39 | 3.52 | 7.24 |
| **Capital Region** | 6.06 | 2.06 | 1.79 | 1.26 | 4.12 | 15.28 |
| **Mid-Hudson** | 12.76 | 3.91 | 3.11 | 2.20 | 8.20 | 30.18 |
| **New York City** | 11.72 | 15.40 | 13.04 | 9.21 | 22.42 | 71.78 |
| **Long Island** | 15.67 | 4.69 | 4.30 | 3.04 | 9.32 | 37.02 |
| **Total** | 72.37 | 35.83 | 29.83 | 21.07 | 67.23 | |

**Note:** Electricity consumption emissions are represented as $CO_2e$. $CH_4$ and $N_2O$ could not be broken out using the data used.

## Summary of Overall $CH_4$ Emissions (in million tons of $CO_2e$)

| | On-Highway Transportation | Residential | Commercial | Industrial | Total |
|---|---|---|---|---|---|
| **Western New York** | 0.04 | 0.001 | 0.012 | 0.001 | 0.052 |
| **Finger Lakes** | 0.035 | 0.001 | 0.010 | 0.001 | 0.048 |
| **Southern Tier** | 0.020 | 0.001 | 0.005 | 0.001 | 0.026 |
| **Central New York** | 0.022 | 0.001 | 0.007 | 0.001 | 0.030 |
| **Mohawk Valley** | 0.015 | 0.000 | 0.004 | 0.000 | 0.020 |
| **North Country** | 0.012 | 0.000 | 0.003 | 0.000 | 0.015 |
| **Capital Region** | 0.033 | 0.001 | 0.010 | 0.001 | 0.044 |
| **Mid-Hudson** | 0.069 | 0.002 | 0.017 | 0.002 | 0.089 |
| **New York City** | 0.063 | 0.007 | 0.070 | 0.009 | 0.148 |
| **Long Island** | 0.085 | 0.002 | 0.023 | 0.003 | 0.112 |
| **Total** | 0.39 | 0.02 | 0.16 | 0.02 | |

**Summary of Overall $N_20$ Emissions (in million tons of $CO_2e$)**

| | On-Highway Transportation | Residential | Commercial | Industrial | Total |
|---|---|---|---|---|---|
| **Western New York** | 0.18 | 0.018 | 0.004 | 0.004 | 0.208 |
| **Finger Lakes** | 0.174 | 0.013 | 0.004 | 0.003 | 0.194 |
| **Southern Tier** | 0.097 | 0.005 | 0.002 | 0.002 | 0.106 |
| **Central New York** | 0.111 | 0.007 | 0.002 | 0.002 | 0.123 |
| **Mohawk Valley** | 0.075 | 0.003 | 0.001 | 0.001 | 0.081 |
| **North Country** | 0.057 | 0.001 | 0.001 | 0.001 | 0.061 |
| **Capital Region** | 0.161 | 0.009 | 0.004 | 0.003 | 0.177 |
| **Mid-Hudson** | 0.340 | 0.013 | 0.006 | 0.005 | 0.364 |
| **New York City** | 0.312 | 0.065 | 0.026 | 0.022 | 0.425 |
| **Long Island** | 0.417 | 0.014 | 0.009 | 0.007 | 0.448 |
| **Total** | 1.93 | 0.15 | 0.06 | 0.05 | |

**NYSERDA**

Cleaner Greener Communities / Climate Smart Communities
Regional Level GHG Reporting Template

**Instructions**

Please use this template to report summary regional GHG inventories to NYSERDA as part of your final deliverables for the regional GHG inventory. Fill it out and rename the sheet "**REGION_NAME.CGC Final GHG Inventory.2010.xlxs**".

In this template there are two tabs, "Emissions by Source" and the "Roll Up Report". Emissions by Source shows all direct and indirect emissions sources considered by the GHG Working Group for inclusion in the inventory, and the Roll Up Report reflects the consensus decision for which sources are to be included when totaling the regions GHG inventory into a single number . The final submission should the two tabs for the region in total, and two additional tabs for each county separately. For county tab names, please rename "Region" to the name of the county.

We understand each region will have its own custom way of managing data and calculations so please cut and paste summary results from from your own data sheets into this template. Although you may create dynamic links to this template from your analysis sheets when filling it out, please submit this template without these links.

Protocol Compliance Statements. In the Region level tabs only, please fill in Columns P through R, and indicate if your methods adhered to methods in Column O that summarize NY GHG Working Group consensus decisions with "Rec" standing for the recommended methods and "Alt" standing for an acceptable alternative methods. It's not required that all methods adhere to the recommended or alternate methods, but please indicate any deviations, justifications, findings, or recommendations you have for additional methods to consider. It may help you to select Columns O-P and choose the "wrap text" format to help you read the methods.

Please Fill in the Summary Table on this Cover Sheet tab to the right at the conclusion of filling out the data sheets. You may dynamically link these numbers to the other sheets in this template.

Color Coding- in general, a green cell requires a value or entry, a white cell is optional.

| **Reporting Region** | **Capital District REDC** |
|---|---|

| **Numbers (MTCDE)** | |
|---|---|
| Albany | 6,240,745 |
| Columbia | 848,505 |
| Greene | 1,344,809 |
| Rensselaer | 1,851,648 |
| Saratoga | 3,195,600 |
| Schenectady | 1,762,500 |
| Warren | 1,426,897 |
| Washington | 840,499 |
| **REDC** | 17,511,202 |

## APPENDIX 8 - Capital District CGC GHG Inventory Tier 2 – Emissions by Sector and County

| Capital Region Greenhouse Gas Emissions by Sector, Source, and County, 2010 (Metric Tons $CO_2e$) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Region | Albany | Columbia | Greene | Rensselaer | Saratoga | Schenectady | Warren | Washington |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | |
| | Electricity / Steam | 792,708 | 209,768 | 57,027 | 49,939 | 112,065 | 160,609 | 109,011 | 54,450 | 39,838 |
| | Natural Gas | 1,496,817 | 572,813 | 21,992 | 7,434 | 199,843 | 336,458 | 295,535 | 46,658 | 16,083 |
| | Propane / LPG | 155,533 | 14,717 | 14,106 | 12,438 | 24,957 | 49,890 | 9,601 | 14,765 | 15,059 |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 562,417 | 84,720 | 87,869 | 69,855 | 100,955 | 98,747 | 39,378 | 35,639 | 45,254 |
| | Wood | 4,754 | 141 | 171 | 135 | 249 | 306 | 57 | 1,244 | 2,451 |
| | Coal | 3,217 | 560 | 270 | 526 | 747 | 888 | 196 | 17 | 13 |
| | **Commercial Energy Consumption** | | | | | | | | | |
| | Electricity / Steam | 1,209,415 | 549,187 | 49,556 | 43,811 | 126,877 | 204,811 | 144,833 | 29,913 | 60,427 |
| | Natural Gas | 1,249,937 | 665,100 | 9,751 | 4,106 | 101,826 | 193,965 | 182,976 | 45,204 | 47,009 |
| | Propane / LPG | 41,150 | 8,073 | 2,955 | 3,245 | 6,008 | 13,588 | 2,808 | - | 4,472 |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 205,429 | 58,403 | 23,131 | 22,904 | 30,540 | 33,798 | 14,475 | - | 22,179 |
| | Residual Fuel Oil (#5 and #6) | 195,811 | 57,362 | 22,718 | 22,496 | 29,996 | 33,196 | 14,217 | - | 15,827 |
| | Coal | 315 | 99 | 18 | 44 | 58 | 78 | 18 | - | - |
| | Wood | 258 | 65 | 30 | 29 | 50 | 70 | 14 | - | - |
| | **Industrial Energy Consumption** | | | | | | | | | |
| | Electricity / Steam | 215,650 | 46,078 | 7,611 | 6,407 | 19,798 | 33,027 | 36,414 | 45,655 | 20,661 |
| | Natural Gas | 576,904 | 160,737 | 23,065 | 2,220 | 13,801 | 155,790 | 104,035 | 102,089 | 15,167 |
| | Propane / LPG | 5,035 | 515 | 69 | 58 | 2,957 | 298 | 337 | - | 801 |

## APPENDIX 8 - Capital District CGC GHG Inventory Tier 2 – Emissions by Sector and County

| Capital Region Greenhouse Gas Emissions by Sector, Source, and County, 2010 (Metric Tons $CO_2e$) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Region | Albany | Columbia | Greene | Rensselaer | Saratoga | Schenectady | Warren | Washington |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 81,039 | 7,091 | 697 | 1,955 | 1,832 | 49,675 | 4,005 | 8,450 | 7,334 |
| | Residual Fuel Oil (#5 and #6) | 26,232 | 2,406 | 188 | 158 | 3,961 | 814 | 6,467 | 3,106 | 9,132 |
| | Coal | 759,767 | 483,564 | 1,533 | 133,415 | 3,987 | 6,651 | 7,333 | 123,284 | - |
| | Petroleum Coke | 73,090 | 48,468 | - | 24,623 | - | - | - | | |
| | Motor Gasoline (E-10) | 8,918 | 2,752 | 454 | 383 | 1,182 | 1,972 | 2,175 | | |
| | Other Oils | 41,721 | 28,359 | 982 | 826 | 2,553 | 4,260 | 4,742 | | |
| | Wood | 498 | 14 | 2 | 2 | 6 | 10 | 11 | - | 451 |
| | **Energy Generation and Supply** | | | | | | | | | |
| | Electricity T/D Losses | 117,099 | 42,506 | 6,029 | 5,288 | 13,662 | 21,038 | 15,326 | 6,865 | 6,385 |
| | Natural Gas T/D Losses | 1,208,940 | 532,660 | 7,531 | 320,606 | 111,844 | 130,562 | 80,051 | 26,539 | 10,708 |
| | Use of SF6 in the Utility Industry | 22,957 | 11,022 | 1,563 | 1,371 | 3,543 | 5,455 | 3,974 | - | - |
| | **Industrial Processes** | | | | | | | | | |
| | Cement Production | 1,026,474 | 544,401 | - | 160,108 | - | - | - | 321,965 | - |
| | Iron and Steel Production | - | - | - | - | - | - | - | - | - |
| | Aluminum Production | - | - | - | - | - | - | - | - | - |
| | Pulp and Paper Manufacturing | 2,520 | - | - | - | - | - | - | 2,520 | - |
| | Limestone Use | - | - | - | - | - | - | - | - | - |
| | Soda Ash Use | - | - | - | - | - | - | - | - | - |
| | Semi-Conductor Manufacturing | - | - | - | - | - | - | - | - | - |

## APPENDIX 8 - Capital District CGC GHG Inventory Tier 2 – Emissions by Sector and County

| Capital Region Greenhouse Gas Emissions by Sector, Source, and County, 2010 (Metric Tons $CO_2e$) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Region | Albany | Columbia | Greene | Rensselaer | Saratoga | Schenectady | Warren | Washington |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | |
| | Chemical Manufacturing | - | - | - | - | - | - | - | - | - |
| | **Product Use (ODS Substitues)** | | | | | | | | | |
| | All Refrigerants- except utility SF6 | 400,579 | 112,914 | 23,420 | 18,270 | 59,177 | 81,514 | 57,431 | 24,389 | 23,464 |
| **Transportation Energy** | **On-road** | | | | | | | | | |
| | Motor Gasoline (E-10) | 4,673,375 | 1,413,551 | 282,738 | 284,415 | 583,404 | 1,101,457 | 430,868 | 351,314 | 225,627 |
| | Diesel | 842,816 | 232,734 | 58,667 | 64,027 | 106,266 | 198,041 | 74,519 | 69,066 | 39,496 |
| | Ethanol | 10,691 | 3,716 | 727 | 725 | 1,520 | 2,875 | 1,127 | - | - |
| | Biodiesel | - | - | - | - | - | - | - | - | - |
| | **Rail** | | | | | | | | | |
| | Diesel | 115,385 | 28,430 | 8,310 | 8,197 | 24,952 | 13,339 | 23,088 | 355 | 8,714 |
| | Electricity Consumption | 0 | | | | | | | | |
| | **Marine** | | | | | | | | | |
| | Motor Gasoline (E-10) | 47,924 | 2,821 | 3,611 | 3,047 | 3,385 | 9,366 | 1,016 | 21,135 | 3,544 |
| | Diesel | 4,203 | 510 | 653 | 551 | 612 | 1,693 | 184 | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 2,189 | 2,055 | 56 | 41 | 36 | 0 | 0 | | |
| | Residual Fuel Oil (#5 and #6) | 66,005 | 61,989 | 1,699 | 1,243 | 1,073 | 1 | 1 | | |
| | **Off-road Mobile** | | | | | | | | | |
| | Motor Gasoline (E-10) | 222,831 | 30,104 | 17,938 | 17,503 | 16,119 | 29,509 | 11,385 | | |
| | Diesel | 271,852 | 87,839 | 19,909 | 22,155 | 39,321 | 75,959 | 26,669 | 62,901 | 37,373 |
| | Natural Gas | | | | | | | | | |

## APPENDIX 8 - Capital District CGC GHG Inventory Tier 2 – Emissions by Sector and County

| Capital Region Greenhouse Gas Emissions by Sector, Source, and County, 2010 (Metric Tons $CO_2e$) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Region | Albany | Columbia | Greene | Rensselaer | Saratoga | Schenectady | Warren | Washington |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | |
| | | 2,470 | 935 | 169 | 79 | 303 | 561 | 422 | | |
| | Propane / LPG | 29,027 | 9,567 | 2,038 | 945 | 3,695 | 6,806 | 5,976 | | |
| **Waste Management** | **Solid Waste Management** | | | | | | | | | |
| | Landfill Gas | 183,703 | 60,836 | 13,224 | 10,316 | 33,303 | 32,778 | 32,428 | 426 | 392 |
| | MSW incineration (non grid connected) | 45,146 | 5,064 | - | - | 190 | 22,983 | - | 10,880 | 6,029 |
| | **Sewage Treatment** | | | | | | | | | |
| | Central WWTPs and Septic Systems | 107,943 | 29,554 | 6,130 | 4,782 | 15,489 | 21,335 | 15,032 | 7,174 | 8,447 |
| **Agriculture** | **Livestock** | | | | | | | | | |
| | Enteric Fementation | 205,974 | 11,174 | 33,381 | 6,210 | 23,995 | 33,730 | 2,083 | 5,752 | 89,649 |
| | Manure management | 62,154 | 2,363 | 9,568 | 1,216 | 6,574 | 10,993 | 300 | 1,067 | 30,072 |
| | **Crop Production and Soil Management** | | | | | | | | | |
| | Use of Fertilizer | 116,799 | 13,008 | 26,946 | 6,707 | 18,934 | 16,704 | 1,984 | 4,075 | 28,441 |
| | Crop Residue Incineration | - | - | - | - | - | - | - | - | - |
| **Grand Totals** | | 17,511,502 | 6,240,745 | 848,505 | 1,344,809 | 1,851,648 | 3,195,600 | 1,762,500 | 1,426,897 | 840,499 |

**Regional GHG Emissions By Source and Sector**
**Year: 2010**

| Region / County Name | REDC |
|---|---|

**Color Code**

| | |
|---|---|
| | REQUIRED, though some data may be zero or considered to small to count |
| | OPTIONAL |
| | DO NOT Report Data in these cells |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence Yes | Adherence No | Brief Description of Method and Issues |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 792,708 | | | Yes | Consumption | MMBTU | ######### | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | x | Alt 2- Allocated based only on Unit Size. Did not allocate by HDD |
| | Natural Gas | 1,496,817 | | | | Yes | Consumption | MMBTU | ######### | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | x | | Recommended method- As described |
| | Propane / LPG | 155,532 | | | | Yes | Consumption | MMBTU | 2,471,447 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | x | | Recommended method- As described |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 562,417 | | | | Yes | Consumption | MMBTU | 7,575,151 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | x | | Recommended method- As described |
| | Wood | 4,754 | | | 398,875 | Yes | Consumption | MMBTU | 6,124,397 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | x | | Recommended method- As described |
| | Coal | 3,217 | | | | Yes | Consumption | MMBTU | 34,039 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | x | | Estimated coal usage in MMBTU in this sector by multiplying census heating data by the average MMBTU use per household that heats with oil. |
| | **Commercial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 1,209,415 | | | Yes | Consumption | MMBTU | ######### | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | x | Alt 2- Method as described, although did not weight to HDD or home heating |
| | Natural Gas | 1,249,937 | | | | Yes | Consumption | MMBTU | ######### | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | x | | Recommended method- As described |
| | Propane / LPG | 41,150 | | | | Yes | Consumption | MMBTU | 652,547 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | x | | Recommended method- As described |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 205,429 | | | | Yes | Consumption | MMBTU | 2,763,995 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | x | | Recommended method- As described. NOTE modifided template to group Fuel Oil #4 into distillate fuels in line with EIA convention. |
| | Residual Fuel Oil (#5 and #6) | 195,811 | | | | Yes | Consumption | MMBTU | 2,598,733 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | x | | Recommended method- As described |
| | Coal | 315 | | | | Yes | Consumption | MMBTU | 3,351 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | x | | Recommended method- As described |
| | Wood | 258 | | | 97,153 | Yes | Consumption | MMBTU | 1,035,742 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | x | | Recommended method- As described |
| | **Industrial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 215,650 | | | Yes | Consumption | MMBTU | 3,216,910 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) allocate SEDS EIA data based allocated by industrial employment | x | | Recommended method- As described |
| | Natural Gas | 576,904 | | | | Yes | Consumption | MMBTU | ######### | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | x | | Recommended method- As described. We computed the Industrial pie slice as the sum all ALL non-utility Title 5 sources that may represent industrial and commercial sources. It was difficult to differentiate and because we didn't do the pice slice method in commercial, we did not want to double count emissions. |
| | Propane / LPG | 5,035 | | | | Yes | Consumption | MMBTU | 79,938 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | x | | Recommended method- As described. We computed the Industrial pie slice as the sum all ALL non-utility Title 5 sources that may represent industrial and commercial sources. It was difficult to differentiate and because we didn't do the pice slice method in commercial, we did not want to double count emissions. |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 81,039 | | | | Yes | Consumption | MMBTU | 1,092,043 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | x | | Recommended method- As described. We computed the Industrial pie slice as the sum all ALL non-utility Title 5 sources that may represent industrial and commercial sources. It was difficult to differentiate and because we didn't do the pice slice method in commercial, we did not want to double count emissions. |
| | Residual Fuel Oil (#5 and #6) | 26,232 | | | | Yes | Consumption | MMBTU | 348,140 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | x | | Recommended method- As described. We computed the Industrial pie slice as the sum all ALL non-utility Title 5 sources that may represent industrial and commercial sources. It was difficult to differentiate and because we didn't do the pice slice method in commercial, we did not want to double count emissions. |
| | Coal | 759,767 | | | | Yes | Consumption | MMBTU | 8,064,661 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | x | | Recommended method- As described. We computed the Industrial pie slice as the sum all ALL non-utility Title 5 sources that may represent industrial and commercial sources. It was difficult to differentiate and because we didn't do the pice slice method in commercial, we did not want to double count emissions. |
| | Petroleum Coke | 73,090 | | | | Yes | Consumption | MMBTU | 711,971 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | x | | **Added Line.** Recommended method- As described. We computed the Industrial pie slice as the sum all ALL non-utility Title 5 sources that may represent industrial and commercial sources. It was difficult to differentiate and because we didn't do the pice slice method in commercial, we did not want to double count emissions. |
| | Motor Gasoline (E-10) | 8,918 | | | | Yes | Consumption | MMBTU | 126,549 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | x | | **Added Line.** Recommended method- As described. We computed the Industrial pie slice as the sum all ALL non-utility Title 5 sources that may represent industrial and commercial sources. It was difficult to differentiate and because we didn't do the pice slice method in commercial, we did not want to double count emissions. |
| | Other Oils | 41,721 | | | | Yes | Consumption | MMBTU | 545,634 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | x | | **Added Line.** Follwed recommended method but added a correction to reduce emissions by the fraction this is sequestered in non-energy uses. |
| | Wood | 498 | | | 17,629 | Yes | Consumption | MMBTU | 416,312 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | x | | Recommended method- As described. We computed the Industrial pie slice as the sum all ALL non-utility Title 5 sources that may represent industrial and commercial sources. It was difficult to differentiate and because we didn't do the pice slice method in commercial, we did not want to double count emissions. |
| | **Energy Generation and Supply** | | | | | | | | | | | | |
| | Coal | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | x | | Recommended Method- As Described |
| | Natural Gas | 5,559,370 | | | | No | Consumption | MMBTU | ######### | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | x | | Recommended Method- As Described |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 1,855 | | | | No | Consumption | MMBTU | 25,004 | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | x | | Recommended Method- As Described |
| | Residual Fuel Oil (#5 and #6) | 2,330 | | | | No | Consumption | MMBTU | 30,920 | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | x | | Recommended Method- As Described |
| | Wood / Biomass | 3,490 | | | - | No | Consumption | MMBTU | 4,616,914 | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. Wood CO2 emissions reported optionally as biogenic CO2, Ch4 and N2 Emissions required to be reported to Scope 1 | x | | Recommended Method- As Described |
| | MSW | 55,294 | | | - | No | MSW Combusted | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. MSW CO2 emissions split as 44% reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1. | x | | Recommended Method- As Described |
| | Landfill Gas | 145 | | | 28,820 | No | Consumption | | 553,480 | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. Wood CO2 emissions reported optionally as biogenic CO2, Ch4 and N2 Emissions required to be reported to Scope 1 | x | | Recommended Method- As Described |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Related GHG Metrics / Activity Data: Metric | Unit | Value | Protocol Compliance Report: Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Electricity T/D Losses | | 117,099 | | | Yes | Losses | MMBTU | 1,742,823 | (Rec) - Acquire utility specific estimate of T/D (in %) and apply that to all consumption (res/commercial/industrial). Report emissions as Scope 2 using regional EGRID emission factors consistent with all Scope 2 calculations. (Alt) use a statewide average T/D loss of 5.28% as documented by EPA's EGRID reporting for New York. | x | | Alternate Method- As Described. Will update this with utility data. |
| | Natural Gas T/D Losses | 1,220,501 | | | | Yes | Losses | MMBTU | 3,012,443 | (Rec) - Acquire utility specific estimate of T/D (in %), compute as percentage of total residential/commercial/industrial/energy generation. Report as Scope 1 CH4 emissions. (Alt) use a statewide average of 1.8% as documented by National Grid in 2010 PSC Reporting. | x | | Alternate Method- As Described. Will update this with utility data. |
| | Use of SF6 in the Utility Industry | 26,929 | | | | Yes | Consumption | MMBTU | - | (Rec) - acquire utility specific estimate and report as SF6. (Alt) Apportion NYSERDA 2009 Emission Inventory Total for the state to counties based ration of EIA reported total electricity demand to computed regional or county demand for all sectors. | | x | New Alternate Method- Computed US Total Emissions to Total Consumption, and applied to county consumption estimates. |
| | **Industrial Processes** | | | | | | | | | | | | |
| | Cement Production | 1,026,474 | | | | Yes | | | | | x | | Recommended Method- As Described |
| | Iron and Steel Production | - | | | | Yes | | | | | x | | Recommended Method- As Described |
| | Aluminum Production | - | | | | Yes | | | | | x | | Recommended Method- As Described |
| | Pulp and Paper Manufacturing | 2,520 | | | | Yes | | | | | x | | Recommended Method- As Described |
| | Limestone Use | - | | | | Yes | | | | (Rec) Direct Allocation from from EPA MMR only. Small Sources to not to be included at this time. | x | | Recommended Method- As Described |
| | Soda Ash Use | - | | | | Yes | | | | | x | | Recommended Method- As Described |
| | Semi-Conductor Manufacturing | - | | | | Yes | | | | | x | | Recommended Method- As Described |
| | Glass Production | - | | | | Yes | | | | | x | | Recommended Method- As Described |
| | Chemical Manufacturing | - | | | | Yes | | | | | x | | Recommended Method- As Described |
| | **Product Use (Ozone Depleting Substances)** | | | | | | | | | | | | |
| | All Refrigerants- except SF6 | 400,580 | | | | Yes | | | | (Rec) Use EPA 2009 Draft Guidance method. Allocate national per/capita emissions to counties based on population. Methods include mobile refrigeration | x | | Recommended Method- As Described |
| **Transportation Energy** | **On-road** | | | | | | | | | | | | |
| | Motor Gasoline (E-10) | 4,673,376 | | | 443,281 | Yes | Consumption | MMBTU | ########## | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region- appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions. | x | | Recommended Method - As Described. Used CDTC data for Albany, Schenectady, Rensselaer, and Saratoga Counties and NYSDOT data for the remaining. Adirondack / Glens Falls Transportation Council provided data for Washington and Warran Counties, but stated it did not include local roads. Comparing these values to the NYSDOT numbers, the DOT numbers we slightly high so we used them. |
| | Diesel | 842,815 | | | | Yes | Consumption | MMBTU | ########## | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region- appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions on the ethanol line item. | x | | Recommended Method - As Described. Used CDTC data for Albany, Schenectady, Rensselaer, and Saratoga Counties and NYSDOT data for the remaining. Adirondack / Glens Falls Transportation Council provided data for Washington and Warran Counties, but stated it did not include local roads. Comparing these values to the NYSDOT numbers, the DOT numbers we slightly high so we used them. |
| | Ethanol (E-85) | | | | | No | Consumption | MMBTU | | Optional- Include regional E-85 consumption if you have it, and debit against your gasoline estimate create using VMT. Allocate 15% as gasoline to be reported as Scope 1, and 85% as ethanol to be reported as optional biogenic. | | | |
| | Biodiesel | | | | | No | Consumption | MMBTU | | Optional- Include regional biodiesel consumption if you have it, and debit against your diesel estimate create using VMT. Because biodiesel blends change, allocate option biogenic component on this line item only, and retain the diesel fraction on the diesel line item. | | | |
| | Electricity Consumption | | | | | No | Consumption | MMBTU | | Today this will be zero, but as NYSERDA pushes to electrify on-road transportation we will want to report here, debiting against electricity consumption in the other sectors as appropriate. | | | |
| | **Rail** | | | | | | | | | | | | |
| | Diesel | 115,386 | | | | Yes | Consumption | MMBTU | 1,514,604 | Freight and Passenger. (Rec) Use direct provider fuel consumption data allocated spatially to location of routes (Alt) Use Nyserda 2002 estimates of Diesel consumption by county directly. | x | | Alternate Method- As Described. |
| | Electricity Consumption | | 0 | | | Yes | Consumption | MMBTU | - | Passenger and Commuter (Rec) Use direct provider electricity consumption data allocated spatially to location of routes (Alt) None identified. | | | |
| | **Marine** | | | | | | | | | | | | |
| | Motor Gasoline (E-10) | 47,420 | | | | Yes | Consumption | MMBTU | 711,177 | | x | | Recommended Method- As Described using Non-Road |
| | Diesel | 4,203 | | | | Yes | Consumption | MMBTU | 54,484 | | x | | Recommended Method- As Described usiing Non-Road |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 2,189 | | | | Yes | Consumption | MMBTU | 29,581 | Rec - USE NYSDEC 2007 data from the state emission inventory for the small and pleasure craft categories reported by county (data on Wiggio). For commercial distillate and bunkers, No consensus method identified- please document methods used. | x | | New Method- Use NEI data for CO emissions from commercial marine vessels, and scaled via a CO to CO2 ratio for typical combustion. We considered apportioning EIA-reported vessel bunkering fuel use, but could not determine which fraction was used in state and what was international |
| | Residual Fuel Oil (#5 and #6) | 66,005 | | | | Yes | Consumption | MMBTU | 846,220 | | x | | New Method- Use NEI data for CO emissions from commercial marine vessels, and scaled via a CO to CO2 ratio for typical combustion. We considered apportioning EIA-reported vessel bunkering fuel use, but could not determine which fraction was used in state and what was international |
| | **Air** | | | | | | | | | | | | |
| | All Fuels (Jet and Aviation Gasoline) | | | 468,986 | | No | Consumption | MMBTU | 6,493,857 | Optional Scope 1- Estimate Landing and Take off Cycle emissions using a dispersion model such as EDMS, or with related data from the NYSDEC for the 2007 state emission inventory. Optional Scope 3, use FAA statistics on departure miles from regional airport, allocate jet fuel use to it, then allocate to counties by fraction of population served | x | | Alt method for Scope 3 used, as described. We included all flight miles, domestic and international, and for total emissions used ALL forms of flight including commercial travel, international bunkering, military, etc. |
| | **Off-road Mobile** | | | | | | | | | | | | |
| | Motor Gasoline (E-10) | 220,167 | | | 13,321 | Yes | Consumption | MMBTU | 3,310,748 | Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine. | x | | Recommended Method- As Described usiing Non-Road |
| | Diesel | 271,852 | | | | Yes | Consumption | MMBTU | 3,524,041 | Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine. | x | | Recommended Method- As Described usiing Non-Road |
| | Natural Gas | 2,470 | | | | Yes | Consumption | MMBTU | 45,637 | Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine. | x | | Recommended Method- As Described usiing Non-Road |
| | Propane / LPG | 29,027 | | | | Yes | Consumption | MMBTU | 451,764 | Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine. | x | | Recommended Method- As Described usiing Non-Road |
| **Waste Management** | **Solid Waste Management** | | | | | | | | | | | | |
| | Landfill Gas | 122,399 | | 183,703 | | Yes - ONLY Scope | MSW+CD Generated | Tonnes | 938,940 | This is fugitive CH4 emissions from landfills. There are two required Scopes. Scope 1 - Estimate of actual emissions in regional boundary. (rec) use MMR or Title 5 (annual landfill reporting) data directly for facilities (data on Wiggio). For recently closed landfills or for areas without reported data, use a First Order Decay model to estimate emissions. Scope 3- emissions footprint attributed to current waste generation regardless of where it is treated. (rec) Estimate county level MSW and C/D waste generation and apply a representative FOD model with prevailing CH4 captures rates forward-casted 50 years to estimate the footprint. | x | | Recommended Methods, As Described. We estimated generation, by county from the MSW Source Receptor matrix and computed per capita generation. Because the source receptor matrix does not account for transfer station impact, some counties with large transfer stations that take out of county waste had much high oper capita generation that others. To accomodate this, we normalized total generation across counties to a common generation rate. |
| | MSW incineration (non grid connected) | - | | 45,145 | | Yes | MSW+CD Processed | Tonnes | 422,140 | Rec - for any MSW incinerated that does not generate grid connected power, compute emissions. MSW CO2 emissions split. 44% shall be reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1 | x | | Recommended Methods, As Described. |
| | **Sewage Treatment** | | | | | | MSW Sent for Incineration | Tonnes | 69,597 | | | | |
| | Central WWTPs and Septic Systems | 107,943 | | | | Yes | MSW incinerated in Boundary | Tonnes | - | Determine population covered by WWTPs. (Rec)- Use the ICLEI Local Government Operations Protocol and apply to all facilities in the region. (Alt) use methods as described in the EPA 2009 Draft GHG guidance to translate populations served into emissions using default data. Determine population covered by Septic Systems, and apply the default emissions / capita as described in the ICLEI Local Government Operations Protocol. | x | | Applied State Inventory Tool and apportioned by population to counties. |
| **Agriculture** | **Livestock** | | | | | | | | | | x | | Applied State inventory Tool using county level data from NASS |
| | Enteric Fermentation | 205,974 | | | | Yes | | | | | x | | Applied State inventory Tool using county level data from NASS |
| | Manure management | 62,154 | | | | Yes | | | | (Rec) Methods as described in the EPA 2009 guidance and executed in the EPA's State Inventory Tool. Use locally resolved fertilizer, crop, and livestock population from either the 2007 Ag census or the US NASS system to get county-level data and make calculations for each county. | x | | Applied State inventory Tool using county level data from NASS |
| | **Crop Production and Soil Management** | | | | | | | | | | | | |
| | Use of Fertilizer | 116,799 | | | | Yes | | | | | x | | Applied State inventory Tool using county level data from NASS |
| | Crop Residue Incineration | | | | | No | | | | | | | |
| **Land Use and Forestry** | | | | | | | | | | | | | |
| | Urban Forest Annual Reserve | | | | | No | | | | Optional Source and Sink. Use methods described in the EPA 2009 Guidance. Use local forest inventory data, or use the US Forest Services online inventory tool for forests. For carbon stock factors use the National Council for Air and Stream Improvement's Carbon On-Line Estimator. | | | |
| | Forest Carbon Reserve (Change) | | | | | No | | | | (NCASI 2008) Use the | | | |
| Grand Totals | Gross Totals | 20,678,506 | 2,334,872 | 697,835 | 999,078 | | | | | Sum Totals in columns for all EXCEPT ANY FORESTRY SINKS. Totals in the Scope 1 column can be a considered a physical roll up of emissions that occur in boundary, and is analogous to reporting that is done for state and federal GHG inventories, and for air quality management. | | | |
| | Net Totals | | | | | | | | | Value above MINUS and reported optional forestry sinks. | | | |

# Regional GHG Emissions Roll Up Report - Year: 2010
## (all emissions in Column D, when summed will equal the total County or Region protocol compliant GHG emissions estimate)

**Region / County Name** REDC

**Color Code**

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | CO2e | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | |
| | Electricity / Steam | 792,708 | 780,790 | 1,640 | 10,277 | | | |
| | Natural Gas | 1,496,817 | 1,495,118 | 641 | 1,057 | | | |
| | Propane / LPG | 155,533 | 154,917 | 155 | 461 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 562,417 | 560,319 | 649 | 1,450 | | | |
| | Wood | 4,754 | - | 1,526 | 3,228 | | | |
| | Coal | 3,217 | 3,180 | 8 | 30 | | | |
| | **Commercial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 1,209,415 | 1,190,615 | 2,586 | 16,214 | | | |
| | Natural Gas | 1,249,937 | 1,248,371 | 567 | 998 | | | |
| | Propane / LPG | 41,150 | 40,987 | 42 | 121 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 205,429 | 204,740 | 175 | 514 | | | |
| | Residual Fuel Oil (#5 and #6) | 195,811 | 195,165 | 163 | 483 | | | |
| | Coal | 315 | 313 | 1 | 2 | | | |
| | Wood | 258 | - | 65 | 193 | | | |
| | **Industrial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 215,650 | 212,878 | 382 | 2,390 | | | |
| | Natural Gas | 576,904 | 575,905 | 321 | 677 | | | |
| | Propane / LPG | 5,035 | 5,015 | 5 | 14 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 81,039 | 80,768 | 68 | 203 | | | |
| | Residual Fuel Oil (#5 and #6) | 26,232 | 26,145 | 23 | 65 | | | |
| | Coal | 759,767 | 753,904 | 1,863 | 4,000 | | | |
| | Petroleum Coke | 73,090 | 72,913 | 45 | 132 | | | |
| | Motor Gasoline (E-10) | 8,918 | 8,886 | 8 | 24 | | | |
| | Other Oils | 41,721 | 41,585 | 34 | 101 | | | |
| | Wood | 498 | | 166 | 332 | | | |
| | **Energy Generation and Supply** | | | | | | | |
| | Electricity T/D Losses | 117,099 | 115,330 | 243 | 1,525 | | | |
| | Natural Gas T/D Losses | 1,208,940 | | 1,208,940 | | | | |
| | Use of SF6 in the Utility Industry | 22,957 | | | | | | 22,957 |
| | **Industrial Processes** | | | | | | | |
| | Cement Production | 1,026,474 | 1,025,687 | 250 | 537 | | | |
| | Iron and Steel Production | - | - | - | | | | |
| | Aluminum Production | - | - | | | | | |

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | CO2e | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | |
| | Pulp and Paper Manufacturing | 2,520 | 886 | 728 | 1792 | | | |
| | Limestone Use | - | - | - | | | | |
| | Soda Ash Use | - | - | - | | | | |
| | Semi-Conductor Manufacturing | - | | | | | | |
| | Chemical Manufacturing | - | 0 | 0 | | | | |
| | **Product Use (ODS Substitues)** | | | | | | | |
| | All Refrigerants- except utility SF6 | 400,579 | | | | 3,090 | 397,489 | |
| **Transportation Energy** | **On-road** | | | | | | | |
| | Motor Gasoline (E-10) | 4,673,375 | 4,557,566 | 6,938 | 108,871 | | | |
| | Diesel | 842,816 | 841,450 | 591 | 775 | | | |
| | Ethanol | 10,691 | | 632 | 10,059 | | | |
| | Biodiesel | - | | 0 | 0 | | | |
| | **Rail** | | | | | | | |
| | Diesel | 115,385 | 114,345 | 182 | 859 | | | |
| | Electricity Consumption | 0 | 0 | 0 | 0 | | | |
| | **Marine** | | | | | | | |
| | Motor Gasoline (E-10) | 47,924 | 47,419 | 51 | 455 | | | |
| | Diesel | 4,203 | 4,121 | 8 | 74 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 2,189 | 2,146 | 4 | 39 | | | |
| | Residual Fuel Oil (#5 and #6) | 66,005 | 64,711 | 129 | 1,165 | | | |
| | **Off-road Mobile** | | | | | | | |
| | Motor Gasoline (E-10) | 222,831 | 220,167 | 266 | 2,398 | | | |
| | Diesel | 271,852 | 266,522 | 533 | 4,797 | | | |
| | Natural Gas | 2,470 | 2,421 | 5 | 44 | | | |
| | Propane / LPG | 29,027 | 28,458 | 57 | 512 | | | |
| **Waste Management** | **Solid Waste Management** | | | | | | | |
| | Landfill Gas | 183,703 | | 183,703 | | | | |
| | MSW incineration (non grid connected) | 45,146 | 43,633 | 537 | 976 | | | |
| | **Sewage Treatment** | | | | | | | |
| | Central WWTPs and Septic Systems | 107,943 | | 107,915 | 28 | | | |
| **Agriculture** | **Livestock** | | | | | | | |
| | Enteric Fementation | 205,974 | | 205,974 | | | | |
| | Manure management | 62,154 | | 43,854 | 18,299 | | | |
| | **Crop Production and Soil Management** | | | | | | | |
| | Use of Fertilizer | 116,799 | | | 116,799 | | | |
| | Crop Residue Incineration | - | - | - | - | | | |
| **Grand Totals** | | 17,495,669 | 14,987,376 | 1,772,674 | 312,970 | 3,090 | 397,489 | 22,957 |

**Regional GHG Emissions By Source and Sector**
**Year: 2010**

| Region / County Name | Albany |
|---|---|

**Color Code**

| | |
|---|---|
| | REQUIRED, though some data may be zero or considered to small to count |
| | OPTIONAL |
| | DO NOT Report Data in these cells |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence Yes | Adherence No | Brief Description of Method and Issues |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 209,768 | | | Yes | Consumption | MMBTU | 3,117,930 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | | |
| | Natural Gas | 572,813 | | | | Yes | Consumption | MMBTU | 10,793,139 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | | |
| | Propane / LPG | 14,717 | | | | Yes | Consumption | MMBTU | 232,749 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 84,720 | | | | Yes | Consumption | MMBTU | 1,141,640 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Wood | 141 | | | 53,201 | Yes | Consumption | MMBTU | 567,176 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Coal | 560 | | | | Yes | Consumption | MMBTU | 5,949 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | **Commercial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 549,187 | | | Yes | Consumption | MMBTU | 8,162,951 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | | |
| | Natural Gas | 665,100 | | | | Yes | Consumption | MMBTU | 12,532,025 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | | |
| | Propane / LPG | 8,073 | | | | Yes | Consumption | MMBTU | 127,679 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 58,403 | | | | Yes | Consumption | MMBTU | 787,002 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Residual Fuel Oil (#5 and #6) | 57,362 | | | | Yes | Consumption | MMBTU | 761,283 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Coal | 99 | | | | Yes | Consumption | MMBTU | 1,050 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Wood | 65 | | | 24,410 | Yes | Consumption | MMBTU | 260,235 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | **Industrial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 46,078 | | | Yes | Consumption | MMBTU | 684,892 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) allocate SEDS EIA data based allocated by industrial employment | | | |
| | Natural Gas | 160,737 | | | | Yes | Consumption | MMBTU | 3,028,664 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Propane / LPG | 515 | | | | Yes | Consumption | MMBTU | 8,152 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 7,091 | | | | Yes | Consumption | MMBTU | 95,558 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Residual Fuel Oil (#5 and #6) | 2,406 | | | | Yes | Consumption | MMBTU | 31,936 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Coal | 483,564 | | | | Yes | Consumption | MMBTU | 5,137,354 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Petroleum Coke | 48,468 | | | | Yes | Consumption | MMBTU | 472,122 | | | | |
| | Motor Gasoline (E-10) | 2,752 | | | | Yes | Consumption | MMBTU | 39,048 | | | | |
| | Other Oils | 28,359 | | | | Yes | Consumption | MMBTU | 370,890 | | | | |
| | Wood | 14 | | | 5,440 | Yes | Consumption | MMBTU | 57,992 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | **Energy Generation and Supply** | | | | | | | | | | | | |
| | Coal | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Natural Gas | 2,477,641 | | | | No | Consumption | MMBTU | 46,684,531 | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 1,346 | | | | No | Consumption | MMBTU | 18,142 | reported. For overlap, prioritize EIA 923 Database. | | | |
| | Residual Fuel Oil (#5 and #6) | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Wood / Biomass | - | | | - | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. Wood CO2 emissions reported optionally as biogenic CO2, Ch4 and N2 Emissions required to be reported to Scope 1 | | | |
| | MSW | - | | | - | No | MSW Combusted | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. MSW CO2 emissions split as 44% reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1. | | | |
| | Landfill Gas | 145 | | | 28,820 | No | Consumption | | 553,480 | | | | |
| | Electricity T/D Losses | | 42,506 | | | Yes | Losses | MMBTU | 631,793 | (Rec) - Acquire utility specific estimate of T/D (in %) and apply that to all consumption (res/commercial/industrial). Report emissions as Scope 2 using regional EGRID emission factors consistent with all Scope 2 calculations. (Alt) use a statewide average T/D loss of 5.28% as documented by EPA's EGRID reporting for New York. | | | |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence |
| | Natural Gas T/D Losses | 532,660 | | | | Yes | Losses | MMBTU | 1,314,690 | (Rec) - Acquire utility specific estimate of T/D (in %), compute as percentage of total residential/commercial/industrial/energy generation. Report as Scope 1 CH4 emissions. (Alt) use a statewide average of 1.8% as documented by National Grid in 2010 PSC Reporting. | |
| | Use of SF6 in the Utility Industry | 11,022 | | | | Yes | Consumption | MMBTU | | (Rec) - acquire utility specific estimate and report as SF6. (Alt) Apportion NYSERDA 2009 Emission Inventory Total for the state to counties based ration of EIA reported total electricity demand to computed regional or county demand for all sectors. | |
| | **Industrial Processes** | | | | | | | | | | |
| | Cement Production | 544,401 | | | | Yes | | | | | |
| | Iron and Steel Production | - | | | | Yes | | | | | |
| | Aluminum Production | - | | | | Yes | | | | | |
| | Pulp and Paper Manufacturing | - | | | | Yes | | | | | |
| | Limestone Use | - | | | | Yes | | | | (Rec) Direct Allocation from from EPA MMR only. Small Sources to not to be included at this time. | |
| | Soda Ash Use | - | | | | Yes | | | | | |
| | Semi-Conductor Manufacturing | - | | | | Yes | | | | | |
| | Glass Production | - | | | | Yes | | | | | |
| | Chemical Manufacturing | - | | | | Yes | | | | | |
| | **Product Use (Ozone Depleting Substances)** | | | | | | | | | | |
| | All Refrigerants- except SF6 | 112,914 | | | | Yes | | | | (Rec) Use EPA 2009 Draft Guidance method. Allocate national per/capita emissions to counties based on population. Methods include mobile refrigeration | |
| **Transportation Energy** | **On-road** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 1,413,551 | | | 152,932 | Yes | Consumption | MMBTU | 23,235,881 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region- appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions. | |
| | Diesel | 232,734 | | | | Yes | Consumption | MMBTU | 3,072,690 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region- appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions on the ethanol line item. | |
| | Ethanol (E-85) | | | | | No | Consumption | MMBTU | | Optional- Include regional E-85 consumption if you have it, and debit against your gasoline estimate create using VMT. Allocate 15% as gasoline to be reported as Scope 1, and 85% as ethanol to be reported as optional biogenic. | |
| | Biodiesel | | | | | No | Consumption | MMBTU | | Optional- Include regional biodiesel consumption if you have it, and debit against your diesel estimate create using VMT. Because biodiesel blends change, allocate option biogenic component on this line item only, and retain the diesel fraction on the diesel line item. | |
| | Electricity Consumption | | | | | No | Consumption | MMBTU | | Today this will be zero, but as NYSERDA pushes to electrify on-road transportation we will want to report here, debiting against electricity consumption in the other sectors as appropriate. | |
| | **Rail** | | | | | | | | | | |
| | Diesel | 28,430 | | | | Yes | Consumption | MMBTU | 372,333 | Freight and Passenger. (Rec) Use direct provider fuel consumption data allocated spatially to location of routes (Alt) Use Nyserda 2002 estimates of Diesel consumption by county directly. | |
| | Electricity Consumption | | 0 | | | Yes | Consumption | MMBTU | - | Passenger and Commuter (Rec) Use direct provider electricity consumption data allocated spatially to location of routes (Alt) None identified. | |
| | **Marine** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 2,760 | | | 307 | Yes | Consumption | MMBTU | 43,655 | | |
| | Diesel | 510 | | | | Yes | Consumption | MMBTU | 6,612 | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 2,055 | | | | Yes | Consumption | MMBTU | 27,781 | Rec - USE NYSDEC 2007 data from the state emission inventory for the small and pleasure craft categories reported by county (data on Wiggio). For commercial distillate and bunkers, No consensus method identified- please document methods used. | |
| | Residual Fuel Oil (#5 and #6) | 61,989 | | | | Yes | Consumption | MMBTU | 794,725 | | |
| | **Air** | | | | | | | | | | |
| | All Fuels (Jet and Aviation Gasoline) | | | 150,131 | | No | Consumption | MMBTU | 2,078,807 | Optional Scope 1- Estimate Landing and Take off Cycle emissions using a dispersion model such as EDMS, or with related data from the NYSDEC for the 2007 state emission inventory. Optional Scope 3, use FAA statistics on departure miles from regional airport, allocate jet fuel use to it, then allocate to counties by fraction of population served | |
| | **Off-road Mobile** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 29,449 | | | 3,272 | Yes | Consumption | MMBTU | 465,852 | | |
| | Diesel | 87,839 | | | | Yes | Consumption | MMBTU | 1,138,661 | | |
| | Natural Gas | 935 | | | | Yes | Consumption | MMBTU | 17,277 | | |
| | Propane / LPG | 9,567 | | | | Yes | Consumption | MMBTU | 148,903 | Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine. | |
| **Waste Management** | **Solid Waste Management** | | | | | | | | | | |
| | Landfill Gas | 122,399 | | 60,836 | | Yes - ONLY Scope 3 | MSW+CD Generated | Tonnes | 272,626 | This is fugitive CH4 emissions from landfills. There are two required Scopes. Scope 1 - Estimate of actual emissions in regional boundary. (rec) use MMR or Title 5 (annual landfill reporting) data directly for facilities (data on Wiggio). For recently closed landfills or for areas without reported data, use a First Order Decay model to estimate emissions. Scope 3- emissions footprint attributed to current waste generation regardless of where it is treated. (rec) Estimate county level MSW and C/D waste generation and apply a representative FOD model with prevailing CH4 captures rates forward-casted 50 years to estimate the footprint. | |
| | MSW incineration (non grid connected) | - | | 5,064 | | Yes | MSW+CD Processed | Tonnes | 369,373 | Rec - for any MSW incinerated that does not generate grid connected power, compute emissions. MSW CO2 emissions split. 44% shall be reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1 | |
| | **Sewage Treatment** | | | | | | MSW Sent for Incineration | Tonnes | 12,481 | | |
| | Central WWTPs and Septic Systems | 29,554 | | | | Yes | MSW incinerated in Boundary | Tonnes | - | Determine population covered by WWTPs. (Rec)- Use the ICLEI Local Government Operations Protocol and apply to all facilities in the region. (Alt) use methods as described in the EPA 2009 Draft GHG guidance to translate populations served into emissions using default data. Determine population covered by Septic Systems, and apply the default emissions / capita as described in the ICLEI Local Government Operations Protocol. | |
| **Agriculture** | **Livestock** | | | | | | | | | | |
| | Enteric Fermentation | 11,174 | | | | Yes | | | | | |
| | Manure management | 2,363 | | | | Yes | | | | | |
| | **Crop Production and Soil Management** | | | | | | | | | (Rec) Methods as described in the EPA 2009 guidance and executed in the EPA's State Inventory Tool. Use locally resolved fertilizer, crop, and livestock popul | |
| | Use of Fertilizer | 13,008 | | | | Yes | | | | | |
| | Crop Residue Incineration | | | | | No | | | | | |
| **Land Use and Forestry** | | | | | | | | | | | |
| | Urban Forest Annual Reserve | | | | | No | | | | Optional Source and Sink. Use methods described in the EPA 2009 Guidance. Use local forest inventory data, or use the US Forest Services online inventory tool for forests. For carbon stock factors use the National Council for Air and Stream Improvement's Carbon On-Line Estimator. | |
| | Forest Carbon Reserve (Change) | | ) | | | No | | | | (NCASI 2008) Use the | |
| Grand Totals | Gross Totals | 7,924,405 | 847,539 | 216,032 | 268,381 | | | | | Sum Totals in columns for all EXCEPT ANY FORESTRY SINKS. Totals in the Scope 1 column can be a considered a physical roll up of emissions that occur in boundary, and is analogous to reporting that is done for state and federal GHG inventories, and for air quality management. | |
| | Net Totals | | | | | | | | | Value above MINUS and reported optional forestry sinks. | |

# Regional GHG Emissions Roll Up Report - Year: 2010

**(all emissions in Column D, when summed will equal the total County or Region protocol compliant GHG emissions estimate)**

**Region / County Name - Albany**

**Color Code**

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | CO2e | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | |
| | Electricity / Steam | 209,768 | 206,327 | 473 | 2,968 | | | |
| | Natural Gas | 572,813 | 572,252 | 227 | 335 | | | |
| | Propane / LPG | 14,717 | 14,659 | 15 | 43 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 84,720 | 84,436 | 72 | 212 | | | |
| | Wood | 141 | - | 36 | 105 | | | |
| | Coal | 560 | 556 | 1 | 3 | | | |
| | **Commercial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 549,187 | 540,177 | 1,239 | 7,771 | | | |
| | Natural Gas | 665,100 | 664,448 | 263 | 388 | | | |
| | Propane / LPG | 8,073 | 8,041 | 8 | 24 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 58,403 | 58,207 | 50 | 146 | | | |
| | Residual Fuel Oil (#5 and #6) | 57,362 | 57,172 | 48 | 14 | | | |
| | Coal | 99 | 98 | 0 | 1 | | | |
| | Wood | 65 | - | 16 | 48 | | | |
| | **Industrial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 46,078 | 45,322 | 104 | 652 | | | |
| | Natural Gas | 160,737 | 160,580 | 64 | 94 | | | |
| | Propane / LPG | 515 | 513 | 1 | 2 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 7,091 | 7,068 | 6 | 18 | | | |
| | Residual Fuel Oil (#5 and #6) | 2,406 | 2,398 | 2 | 6 | | | |
| | Coal | 483,564 | 479,829 | 1,187 | 2,548 | | | |
| | Petroleum Coke | 48,468 | 48,350 | 30 | 88 | | | |
| | Motor Gasoline (E-10) | 2,752 | 2,742 | 2 | 7 | | | |
| | Other Oils | 28,359 | 28,266 | 23 | 69 | | | |
| | Wood | 14 | | 4 | 11 | | | |
| | **Energy Generation and Supply** | | | | | | | |
| | Electricity T/D Losses | 42,506 | 41,808 | 96 | 601 | | | |
| | Natural Gas T/D Losses | 532,660 | | 532,660 | | | | |
| | Use of SF6 in the Utility Industry | 11,022 | | | | | | 11,022 |
| | **Industrial Processes** | | | | | | | |
| | Cement Production | 544,401 | 544,401 | - | | | | |
| | Iron and Steel Production | - | - | - | | | | |
| | Aluminum Production | - | - | | | | | |
| | Pulp and Paper Manufacturing | - | - | - | | | | |
| | Limestone Use | - | - | - | | | | |
| | Soda Ash Use | - | - | - | | | | |
| | Semi-Conductor | - | | | | | | |

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | CO2e | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | |
| | Manufacturing | | | | | | | |
| | Chemical Manufacturing | - | | | | | | |
| | **Product Use (ODS Substitues)** | | | | | | | |
| | All Refrigerants- except utility SF6 | 112,914 | | | | | 112,914 | |
| **Transportation Energy** | | | | | | | | |
| | **On-road** | | | | | | | |
| | Motor Gasoline (E-10) | 1,413,551 | 1,376,386 | 2,193 | 34,971 | | | |
| | Diesel | 232,734 | 232,386 | 140 | 208 | | | |
| | Ethanol | 3,716 | | 219 | 3,497 | | | |
| | Biodiesel | - | | | | | | |
| | **Rail** | | | | | | | |
| | Diesel | 28,430 | 28,159 | 47 | 224 | | | |
| | Electricity Consumption | | | | | | | |
| | **Marine** | | | | | | | |
| | Motor Gasoline (E-10) | 2,821 | 2,760 | 6 | 55 | | | |
| | Diesel | 510 | 500 | 1 | 9 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 2,055 | 2,015 | 4 | 36 | | | |
| | Residual Fuel Oil (#5 and #6) | 61,989 | 60,773 | 122 | 1,094 | | | |
| | **Off-road Mobile** | | | | | | | |
| | Motor Gasoline (E-10) | 30,104 | 29,449 | 65 | 589 | | | |
| | Diesel | 87,839 | 86,117 | 172 | 1,550 | | | |
| | Natural Gas | 935 | 917 | 2 | 16 | | | |
| | Propane / LPG | 9,567 | 9,380 | 19 | 169 | | | |
| **Waste Management** | **Solid Waste Management** | | | | | | | |
| | Landfill Gas | 60,836 | | 60,836 | | | | |
| | MSW incineration (non grid connected) | 5,064 | 4,953 | 37 | 73 | | | |
| | **Sewage Treatment** | | | | | | | |
| | Central WWTPs and Septic Systems | 29,554 | | 29,554 | | | | |
| **Agriculture** | **Livestock** | | | | | | | |
| | Enteric Fementation | 11,174 | | 11,174 | | | | |
| | Manure management | 2,363 | | 1,626 | 737 | | | |
| | **Crop Production and Soil Management** | | | | | | | |
| | Use of Fertilizer | 13,008 | | | 13,008 | | | |
| | Crop Residue Incineration | - | - | - | - | | | |
| **Grand Totals** | | 6,240,745 | 5,401,445 | 642,844 | 72,519 | | 112,914 | 11,022 |

**Regional GHG Emissions By Source and Sector**
**Year: 2010**

| Region / County Name | Columbia |
|---|---|

**Color Code**

- REQUIRED, though some data may be zero or considered to small to count
- OPTIONAL
- DO NOT Report Data in these cells

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherenc | |
| | | | | | | | | | | | Yes | No | Brief Description of Method and Issues |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 57,027 | | | Yes | Consumption | MMBTU | 847,633 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | | |
| | Natural Gas | 21,992 | | | | Yes | Consumption | MMBTU | 414,387 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | | |
| | Propane / LPG | 14,106 | | | | Yes | Consumption | MMBTU | 223,100 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 87,869 | | | | Yes | Consumption | MMBTU | 1,184,078 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Wood | 171 | | | 64,581 | Yes | Consumption | MMBTU | 688,494 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Coal | 270 | | | | Yes | Consumption | MMBTU | 2,870 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | **Commercial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 49,556 | | | Yes | Consumption | MMBTU | 736,582 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | | |
| | Natural Gas | 9,751 | | | | Yes | Consumption | MMBTU | 183,731 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | | |
| | Propane / LPG | 2,955 | | | | Yes | Consumption | MMBTU | 46,734 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 23,131 | | | | Yes | Consumption | MMBTU | 311,696 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Residual Fuel Oil (#5 and #6) | 22,718 | | | | Yes | Consumption | MMBTU | 301,510 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Coal | 18 | | | | Yes | Consumption | MMBTU | 193 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Wood | 30 | | | 11,315 | Yes | Consumption | MMBTU | 120,629 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | **Industrial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 7,611 | | | Yes | Consumption | MMBTU | 113,121 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) allocate SEDS EIA data based allocated by industrial employment | | | |
| | Natural Gas | 23,065 | | | | Yes | Consumption | MMBTU | 434,590 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Propane / LPG | 69 | | | | Yes | Consumption | MMBTU | 1,086 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 697 | | | | Yes | Consumption | MMBTU | 9,387 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Residual Fuel Oil (#5 and #6) | 188 | | | | Yes | Consumption | MMBTU | 2,490 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Coal | 1,533 | | | | Yes | Consumption | MMBTU | 16,283 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Petroleum Coke | - | | | | Yes | Consumption | MMBTU | - | | | | |
| | Motor Gasoline (E-10) | 454 | | | | Yes | Consumption | MMBTU | 6,449 | | | | |
| | Other Oils | 982 | | | | Yes | Consumption | MMBTU | 12,836 | | | | |
| | Wood | 2 | | | 898 | Yes | Consumption | MMBTU | 9,578 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | **Energy Generation and Supply** | | | | | | | | | | | | |
| | Coal | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Natural Gas | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | - | | | | No | Consumption | MMBTU | - | reported. For overlap, prioritize EIA 923 Database. | | | |
| | Residual Fuel Oil (#5 and #6) | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Wood / Biomass | - | | | - | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. Wood CO2 emissions reported optionally as biogenic CO2, Ch4 and N2 Emissions required to be reported to Scope 1 | | | |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative Adherenc |
| | MSW | - | | | - | No | MSW Combusted | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. MSW CO2 emissions split as 44% reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1. |
| | Landfill Gas | - | | | - | No | Consumption | | - | |
| | Electricity T/D Losses | | 6,029 | | | Yes | Losses | MMBTU | 89,619 | (Rec) - Acquire utility specific estimate of T/D (in %) and apply that to all consumption (res/commercial/industrial). Report emissions as Scope 2 using regional EGRID emission factors consistent with all Scope 2 calculations. (Alt) use a statewide average T/D loss of 5.28% as documented by EPA's EGRID reporting for New York. |
| | Natural Gas T/D Losses | 7,531 | | | | Yes | Losses | MMBTU | 18,589 | (Rec) - Acquire utility specific estimate of T/D (in %), compute as percentage of total residential/commercial/industrial/energy generation. Report as Scope 1 CH4 emissions. (Alt) use a statewide average of 1.8% as documented by National Grid in 2010 PSC Reporting. |
| | Use of SF6 in the Utility Industry | 1,563 | | | | Yes | Consumption | MMBTU | | (Rec) - acquire utility specific estimate and report as SF6. (Alt) Apportion NYSERDA 2009 Emission Inventory Total for the state to counties based ration of EIA reported total electricity demand to computed regional or county demand for all sectors. |
| | **Industrial Processes** | | | | | | | | | |
| | Cement Production | - | | | | Yes | | | | |
| | Iron and Steel Production | - | | | | Yes | | | | |
| | Aluminum Production | - | | | | Yes | | | | |
| | Pulp and Paper Manufacturing | - | | | | Yes | | | | |
| | Limestone Use | - | | | | Yes | | | | (Rec) Direct Allocation from from EPA MMR only. Small Sources to not to be included at this time. |
| | Soda Ash Use | - | | | | Yes | | | | |
| | Semi-Conductor Manufacturing | - | | | | Yes | | | | |
| | Glass Production | - | | | | Yes | | | | |
| | Chemical Manufacturing | - | | | | Yes | | | | |
| | **Product Use (Ozone Depleting Substances)** | | | | | | | | | |
| | All Refrigerants- except SF6 | 23,420 | | | | Yes | | | | (Rec) Use EPA 2009 Draft Guidance method. Allocate national per/capita emissions to counties based on population. Methods include mobile refrigeration |
| **Transportation Energy** | **On-road** | | | | | | | | | |
| | Motor Gasoline (E-10) | 282,738 | | | 30,607 | Yes | Consumption | MMBTU | 4,650,353 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region- appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions. |
| | Diesel | 58,667 | | | | Yes | Consumption | MMBTU | 774,539 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region- appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions on the ethanol line item. |
| | Ethanol (E-85) | | | | | No | Consumption | MMBTU | | Optional- Include regional E-85 consumption if you have it, and debit against your gasoline estimate create using VMT. Allocate 15% as gasoline to be reported as Scope 1, and 85% as ethanol to be reported as optional biogenic. |
| | Biodiesel | | | | | No | Consumption | MMBTU | | Optional- Include regional biodiesel consumption if you have it, and debit against your diesel estimate create using VMT. Because biodiesel blends change, allocate option biogenic component on this line item only, and retain the diesel fraction on the diesel line item. |
| | Electricity Consumption | | | | | No | Consumption | MMBTU | | Today this will be zero, but as NYSERDA pushes to electrify on-road transportation we will want to report here, debiting against electricity consumption in the other sectors as appropriate. |
| | **Rail** | | | | | | | | | |
| | Diesel | 8,310 | | | | Yes | Consumption | MMBTU | 108,834 | Freight and Passenger. (Rec) Use direct provider fuel consumption data allocated spatially to location of routes (Alt) Use Nyserda 2002 estimates of Diesel consumption by county directly. |
| | Electricity Consumption | | 0 | | | Yes | Consumption | MMBTU | - | Passenger and Commuter (Rec) Use direct provider electricity consumption data allocated spatially to location of routes (Alt) None identified. |
| | **Marine** | | | | | | | | | |
| | Motor Gasoline (E-10) | 3,532 | | | 392 | Yes | Consumption | MMBTU | 55,878 | |
| | Diesel | 653 | | | | Yes | Consumption | MMBTU | 8,464 | Rec - USE NYSDEC 2007 data from the state emission inventory for the small and pleasure craft categories reported by county (data on Wiggio). For commercial distillate and bunkers, No consensus method identified- please document methods used. |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 56 | | | | Yes | Consumption | MMBTU | 762 | |
| | Residual Fuel Oil (#5 and #6) | 1,699 | | | | Yes | Consumption | MMBTU | 21,787 | |
| | **Air** | | | | | | | | | |
| | All Fuels (Jet and Aviation Gasoline) | | | 31,139 | | No | Consumption | MMBTU | 431,173 | Optional Scope 1- Estimate Landing and Take off Cycle emissions using a dispersion model such as EDMS, or with related data from the NYSDEC for the 2007 state emission inventory. Optional Scope 3, use FAA statistics on departure miles from regional airport, allocate jet fuel use to it, then allocate to counties by fraction of population served |
| | **Off-road Mobile** | | | | | | | | | |
| | Motor Gasoline (E-10) | 17,548 | | | 1,950 | Yes | Consumption | MMBTU | 277,585 | |
| | Diesel | 19,909 | | | | Yes | Consumption | MMBTU | 258,085 | |
| | Natural Gas | 169 | | | | Yes | Consumption | MMBTU | 3,127 | |
| | Propane / LPG | 2,038 | | | | Yes | Consumption | MMBTU | 31,715 | Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine. |
| **Waste Management** | **Solid Waste Management** | | | | | | | | | |
| | Landfill Gas | - | | 13,224 | | Yes - ONLY Scope 3 | MSW+CD Generated | Tonnes | 56,546 | This is fugitive CH4 emissions from landfills. There are two required Scopes. Scope 1 - Estimate of actual emissions in regional boundary. (rec) use MMR or Title 5 (annual landfill reporting) data directly for facilities (data on Wiggio). For recently closed landfills or for areas without reported data, use a First Order Decay model to estimate emissions. Scope 3- emissions footprint attributed to current waste generation regardless of where it is treated. (rec) Estimate county level MSW and C/D waste generation and apply a representative FOD model with prevailing CH4 captures rates forward-casted 50 years to estimate the footprint. |
| | MSW incineration (non grid connected) | - | | - | | Yes | MSW+CD Processed | Tonnes | - | Rec - for any MSW incinerated that does not generate grid connected power, compute emissions. MSW CO2 emissions split. 44% shall be reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1 |
| | **Sewage Treatment** | | | | | | MSW Sent for Incineration | Tonnes | - | |
| | Central WWTPs and Septic Systems | 6,130 | | | | Yes | MSW incinerated in Boundary | Tonnes | - | Determine population covered by WWTPs. (Rec)- Use the ICLEI Local Government Operations Protocol and apply to all facilities in the region. (Alt) use methods as described in the EPA 2009 Draft GHG guidance to translate populations served into emissions using default data. Determine population covered by Septic Systems, and apply the default emissions / capita as described in the ICLEI Local Government Operations Protocol. |
| **Agriculture** | **Livestock** | | | | | | | | | |
| | Enteric Fermentation | 33,381 | | | | Yes | | | | |
| | Manure management | 9,568 | | | | Yes | | | | (Rec) Methods as described in the EPA 2009 guidance and executed in the EPA's State Inventory Tool. Use locally resolved fertilizer, crop, and livestock |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | Rolled Up? |
|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | |
| | **Crop Production and Soil Management** | | | | | |
| | Use of Fertilizer | 26,946 | | | | Yes |
| | Crop Residue Incineration | | | | | No |
| **Land Use and Forestry** | | | | | | |
| | Urban Forest Annual Reserve | | | | | No |
| | Forest Carbon Reserve (Change) | | | | | No |

| Related GHG Metrics / Activity Data | | |
|---|---|---|
| Metric | Unit | Value |
| | | |
| | | |
| | | |
| | | |

| Protocol Compliance Report | |
|---|---|
| Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherenc |
| population from either the 2007 Ag census or the US NASS system to get county-level data and make calculations for each county. | |
| Optional Source and Sink. Use methods described in the EPA 2009 Guidance. Use local forest inventory data, or use the US Forest Services online inventory tool for forests. For carbon stock factors use the National Council for Air and Stream Improvement's Carbon On-Line Estimator. (NCASI 2008) Use the | |

| | | | | | |
|---|---|---|---|---|---|
| Grand Totals | Gross Totals | 713,863 | 120,223 | 44,363 | 109,744 |
| | Net Totals | | | | |

Sum Totals in columns for all EXCEPT ANY FORESTRY SINKS. Totals in the Scope 1 column can be a considered a physical roll up of emissions that occur in boundary, and is analogous to reporting that is done for state and federal GHG inventories, and for air quality management.
Value above MINUS and reported optional forestry sinks.

# Regional GHG Emissions Roll Up Report - Year: 2010

**(all emissions in Column D, when summed will equal the total County or Region protocol compliant GHG emissions estimate)**

| **Region / County Name** | Columbia |
|---|---|

**Color Code**

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | CO2e | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | |
| | Electricity / Steam | 57,027 | 56,091 | 129 | 807 | | | |
| | Natural Gas | 21,992 | 21,971 | 9 | 13 | | | |
| | Propane / LPG | 14,106 | 14,051 | 14 | 41 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 87,869 | 87,574 | 75 | 220 | | | |
| | Wood | 171 | - | 43 | 128 | | | |
| | Coal | 270 | 268 | 1 | 1 | | | |
| | **Commercial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 49,556 | 48,743 | 112 | 701 | | | |
| | Natural Gas | 9,751 | 9,741 | 4 | 6 | | | |
| | Propane / LPG | 2,955 | 2,943 | 3 | 9 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 23,131 | 23,053 | 20 | 58 | | | |
| | Residual Fuel Oil (#5 and #6) | 22,718 | 22,643 | 19 | 56 | | | |
| | Coal | 18 | 18 | 0 | 0 | | | |
| | Wood | 30 | - | 8 | 22 | | | |
| | **Industrial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 7,611 | 7,486 | 17 | 108 | | | |
| | Natural Gas | 23,065 | 23,042 | 9 | 13 | | | |
| | Propane / LPG | 69 | 68 | 0 | 0 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 697 | 694 | 1 | 2 | | | |
| | Residual Fuel Oil (#5 and #6) | 188 | 187 | 0 | 0 | | | |
| | Coal | 1,533 | 1,521 | 4 | 8 | | | |
| | Petroleum Coke | - | - | - | - | | | |
| | Motor Gasoline (E-10) | 454 | 453 | 0 | 1 | | | |
| | Other Oils | 982 | 978 | 1 | 2 | | | |
| | Wood | 2 | | 1 | 2 | | | |
| | **Energy Generation and Supply** | | | | | | | |
| | Electricity T/D Losses | 6,029 | 5,930 | 14 | 85 | | | |
| | Natural Gas T/D Losses | 7,531 | | 7,531 | | | | |
| | Use of SF6 in the Utility Industry | 1,563 | | | | | | 1,563 |
| | **Industrial Processes** | | | | | | | |
| | Cement Production | - | - | - | | | | |
| | Iron and Steel Production | - | - | - | | | | |
| | Aluminum Production | - | - | | | | | |
| | Pulp and Paper Manufacturing | - | - | - | | | | |

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | CO2e | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | |
| | Limestone Use | - | - | - | | | | |
| | Soda Ash Use | - | - | - | | | | |
| | Semi-Conductor Manufacturing | - | | | | | | |
| | Chemical Manufacturing | - | | | | | | |
| | **Product Use (ODS Substitues)** | | | | | | | |
| | All Refrigerants- except utility SF6 | 23,420 | | | | | 23,420 | |
| **Transportation Energy** | **On-road** | | | | | | | |
| | Motor Gasoline (E-10) | 282,738 | 275,465 | 432 | 6,841 | | | |
| | Diesel | 58,667 | 58,578 | 36 | 53 | | | |
| | Ethanol | 727 | | 43 | 684 | | | |
| | Biodiesel | - | | | | | | |
| | **Rail** | | | | | | | |
| | Diesel | 8,310 | 8,231 | 14 | 65 | | | |
| | Electricity Consumption | | | | | | | |
| | **Marine** | | | | | | | |
| | Motor Gasoline (E-10) | 3,611 | 3,532 | 8 | 71 | | | |
| | Diesel | 653 | 640 | 1 | 12 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 56 | 55 | 0 | 1 | | | |
| | Residual Fuel Oil (#5 and #6) | 1,699 | 1,666 | 3 | 30 | | | |
| | **Off-road Mobile** | | | | | | | |
| | Motor Gasoline (E-10) | 17,938 | 17,548 | 39 | 351 | | | |
| | Diesel | 19,909 | 19,519 | 39 | 351 | | | |
| | Natural Gas | 169 | 166 | 0 | 3 | | | |
| | Propane / LPG | 2,038 | 1,998 | 4 | 36 | | | |
| **Waste Management** | **Solid Waste Management** | | | | | | | |
| | Landfill Gas | 13,224 | | 13,224 | | | | |
| | MSW incineration (non grid connected) | - | - | - | - | | | |
| | **Sewage Treatment** | | | | | | | |
| | Central WWTPs and Septic Systems | 6,130 | | 6,130 | | | | |
| **Agriculture** | **Livestock** | | | | | | | |
| | Enteric Fementation | 33,381 | | 33,381 | | | | |
| | Manure management | 9,568 | | 6,724 | 2,845 | | | |
| | **Crop Production and Soil Management** | | | | | | | |
| | Use of Fertilizer | 26,946 | | | 26,946 | | | |
| | Crop Residue Incineration | - | - | - | - | | | |
| **Grand Totals** | | 848,505 | 714,856 | 68,091 | 40,575 | | 23,420 | 1,563 |

**Regional GHG Emissions By Source and Sector**
**Year: 2010**

| Region / County Name | Greene |
|---|---|

**Color Code**

| | |
|---|---|
| | REQUIRED, though some data may be zero or considered to small to count |
| | OPTIONAL |
| | DO NOT Report Data in these cells |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence Yes | Adherence No | Brief Description of Method and Issues |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 49,939 | | | Yes | Consumption | MMBTU | 742,279 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | | |
| | Natural Gas | 7,434 | | | | Yes | Consumption | MMBTU | 140,078 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | | |
| | Propane / LPG | 12,438 | | | | Yes | Consumption | MMBTU | 196,708 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 69,855 | | | | Yes | Consumption | MMBTU | 941,334 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Wood | 135 | | | 50,826 | Yes | Consumption | MMBTU | 541,850 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Coal | 526 | | | | Yes | Consumption | MMBTU | 5,590 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | **Commercial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 43,811 | | | Yes | Consumption | MMBTU | 651,200 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | | |
| | Natural Gas | 4,106 | | | | Yes | Consumption | MMBTU | 77,358 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | | |
| | Propane / LPG | 3,245 | | | | Yes | Consumption | MMBTU | 51,323 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 22,904 | | | | Yes | Consumption | MMBTU | 308,640 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Residual Fuel Oil (#5 and #6) | 22,496 | | | | Yes | Consumption | MMBTU | 298,553 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Coal | 44 | | | | Yes | Consumption | MMBTU | 469 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Wood | 29 | | | 11,092 | Yes | Consumption | MMBTU | 118,247 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | **Industrial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 6,407 | | | Yes | Consumption | MMBTU | 95,228 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) allocate SEDS EIA data based allocated by industrial employment | | | |
| | Natural Gas | 2,220 | | | | Yes | Consumption | MMBTU | 41,821 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Propane / LPG | 58 | | | | Yes | Consumption | MMBTU | 914 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 1,955 | | | | Yes | Consumption | MMBTU | 26,346 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Residual Fuel Oil (#5 and #6) | 158 | | | | Yes | Consumption | MMBTU | 2,096 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Coal | 133,415 | | | | Yes | Consumption | MMBTU | 1,417,390 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Petroleum Coke | 24,623 | | | | Yes | Consumption | MMBTU | 239,850 | | | | |
| | Motor Gasoline (E-10) | 383 | | | | Yes | Consumption | MMBTU | 5,429 | | | | |
| | Other Oils | 826 | | | | Yes | Consumption | MMBTU | 10,806 | | | | |
| | Wood | 2 | | | 756 | Yes | Consumption | MMBTU | 8,063 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | **Energy Generation and Supply** | | | | | | | | | | | | |
| | Coal | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Natural Gas | 2,319,364 | | | | No | Consumption | MMBTU | ########## | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 242 | | | | No | Consumption | MMBTU | 3,255 | reported. For overlap, prioritize EIA 923 Database. | | | |
| | Residual Fuel Oil (#5 and #6) | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence |
| | Wood / Biomass | - | | | - | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. Wood CO2 emissions reported optionally as biogenic CO2, Ch4 and N2 Emissions required to be reported to Scope 1 | |
| | MSW | - | | | - | No | MSW Combusted | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. MSW CO2 emissions split as 44% reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1. | |
| | Landfill Gas | - | | | - | No | Consumption | | - | | |
| | Electricity T/D Losses | | 5,288 | | | Yes | Losses | MMBTU | 78,604 | (Rec) - Acquire utility specific estimate of T/D (in %) and apply that to all consumption (res/commercial/industrial). Report emissions as Scope 2 using regional EGRID emission factors consistent with all Scope 2 calculations. (Alt) use a statewide average T/D loss of 5.28% as documented by EPA's EGRID reporting for New York. | |
| | Natural Gas T/D Losses | 320,606 | | | | Yes | Losses | MMBTU | 791,306 | (Rec) - Acquire utility specific estimate of T/D (in %), compute as percentage of total residential/commercial/industrial/energy generation. Report as Scope 1 CH4 emissions. (Alt) use a statewide average of 1.8% as documented by National Grid in 2010 PSC Reporting. | |
| | Use of SF6 in the Utility Industry | 1,371 | | | | Yes | Consumption | MMBTU | | (Rec) - acquire utility specific estimate and report as SF6. (Alt) Apportion NYSERDA 2009 Emission Inventory Total for the state to counties based ration of EIA reported total electricity demand to computed regional or county demand for all sectors. | |
| | **Industrial Processes** | | | | | | | | | | |
| | Cement Production | 160,108 | | | | Yes | | | | | |
| | Iron and Steel Production | - | | | | Yes | | | | | |
| | Aluminum Production | - | | | | Yes | | | | | |
| | Pulp and Paper Manufacturing | - | | | | Yes | | | | | |
| | Limestone Use | - | | | | Yes | | | | (Rec) Direct Allocation from from EPA MMR only. Small Sources to not to be included at this time. | |
| | Soda Ash Use | - | | | | Yes | | | | | |
| | Semi-Conductor Manufacturing | - | | | | Yes | | | | | |
| | Glass Production | - | | | | Yes | | | | | |
| | Chemical Manufacturing | - | | | | Yes | | | | | |
| | **Product Use (Ozone Depleting Substances)** | | | | | | | | | | |
| | All Refrigerants- except SF6 | 18,270 | | | | Yes | | | | (Rec) Use EPA 2009 Draft Guidance method. Allocate national per/capita emissions to counties based on population. Methods include mobile refrigeration | |
| **Transportation Energy** | **On-road** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 284,415 | | | 30,796 | Yes | Consumption | MMBTU | 4,679,073 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions. | |
| | Diesel | 64,027 | | | | Yes | Consumption | MMBTU | 845,283 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions on the ethanol line item. | |
| | Ethanol (E-85) | | | | | No | Consumption | MMBTU | | Optional- Include regional E-85 consumption if you have it, and debit against your gasoline estimate create using VMT. Allocate 15% as gasoline to be reported as Scope 1, and 85% as ethanol to be reported as optional biogenic. | |
| | Biodiesel | | | | | No | Consumption | MMBTU | | Optional- Include regional biodiesel consumption if you have it, and debit against your diesel estimate create using VMT. Because biodiesel blends change, allocate option biogenic component on this line item only, and retain the diesel fraction on the diesel line item. | |
| | Electricity Consumption | | | | | No | Consumption | MMBTU | | Today this will be zero, but as NYSERDA pushes to electrify on-road transportation we will want to report here, debiting against electricity consumption in the other sectors as appropriate. | |
| | **Rail** | | | | | | | | | | |
| | Diesel | 8,197 | | | | Yes | Consumption | MMBTU | 107,354 | Freight and Passenger. (Rec) Use direct provider fuel consumption data allocated spatially to location of routes (Alt) Use Nyserda 2002 estimates of Diesel consumption by county directly. | |
| | Electricity Consumption | | 0 | | | Yes | Consumption | MMBTU | - | Passenger and Commuter (Rec) Use direct provider electricity consumption data allocated spatially to location of routes (Alt) None identified. | |
| | **Marine** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 2,980 | | | 331 | Yes | Consumption | MMBTU | 47,147 | | |
| | Diesel | 551 | | | | Yes | Consumption | MMBTU | 7,141 | Rec - USE NYSDEC 2007 data from the state emission inventory for the small and pleasure craft categories reported by county (data on Wiggio). For commercial distillate and bunkers, No consensus method identified- please document methods used. | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 41 | | | | Yes | Consumption | MMBTU | 557 | | |
| | Residual Fuel Oil (#5 and #6) | 1,243 | | | | Yes | Consumption | MMBTU | 15,931 | | |
| | **Air** | | | | | | | | | | |
| | All Fuels (Jet and Aviation Gasoline) | | | 24,292 | | No | Consumption | MMBTU | 336,356 | Optional Scope 1- Estimate Landing and Take off Cycle emissions using a dispersion model such as EDMS, or with related data from the NYSDEC for the 2007 state emission inventory. Optional Scope 3, use FAA statistics on departure miles from regional airport, allocate jet fuel use to it, then allocate to counties by fraction of population served | |
| | **Off-road Mobile** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 17,122 | | | 1,902 | Yes | Consumption | MMBTU | 270,855 | | |
| | Diesel | 22,155 | | | | Yes | Consumption | MMBTU | 287,193 | | |
| | Natural Gas | 79 | | | | Yes | Consumption | MMBTU | 1,466 | | |
| | Propane / LPG | 945 | | | | Yes | Consumption | MMBTU | 14,715 | Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine. | |
| **Waste Management** | **Solid Waste Management** | | | | | | | | | | |
| | Landfill Gas | - | | 10,316 | | Yes - ONLY Scope 3 | MSW+CD Generated | Tonnes | 44,112 | This is fugitive CH4 emissions from landfills. There are two required Scopes. Scope 1 - Estimate of actual emissions in regional boundary. (rec) use MMR or Title 5 (annual landfill reporting) data directly for facilities (data on Wiggio). For recently closed landfills or for areas without reported data, use a First Order Decay model to estimate emissions. Scope 3- emissions footprint attributed to current waste generation regardless of where it is treated. (rec) Estimate county level MSW and C/D waste generation and apply a representative FOD model with prevailing CH4 captures rates forward-casted 50 years to estimate the footprint. | |
| | MSW incineration (non grid connected) | - | | - | | Yes | MSW+CD Processed | Tonnes | - | Rec - for any MSW incinerated that does not generate grid connected power, compute emissions. MSW CO2 emissions split. 44% shall be reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1 | |
| | **Sewage Treatment** | | | | | | MSW Sent for Incineration | Tonnes | - | | |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Related GHG Metrics / Activity Data: Metric | Unit | Value | Protocol Compliance Report: Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Central WWTPs and Septic Systems | 4,782 | | | | Yes | MSW incinerated in Boundary | Tonnes | - | Determine population covered by WWTPs. (Rec)- Use the ICLEI Local Government Operations Protocol and apply to all facilities in the region. (Alt) use methods as described in the EPA 2009 Draft GHG guidance to translate populations served into emissions using default data. Determine population covered by Septic Systems, and apply the default emissions / capita as described in the ICLEI Local Government Operations Protocol. | |
| **Agriculture** | **Livestock** | | | | | | | | | | |
| | Enteric Fermentation | 6,210 | | | | Yes | | | | | |
| | Manure management | 1,216 | | | | Yes | | | | | |
| | **Crop Production and Soil Management** | | | | | | | | | | |
| | Use of Fertilizer | 6,707 | | | | Yes | | | | (Rec) Methods as described in the EPA 2009 guidance and executed in the EPA's State Inventory Tool. Use locally resolved fertilizer, crop, and livestock population from either the 2007 Ag census or the US NASS system to get county-level data and make calculations for each county. | |
| | Crop Residue Incineration | | | | | No | | | | | |
| **Land Use and Forestry** | | | | | | | | | | | |
| | Urban Forest Annual Reserve | | | | | No | | | | Optional Source and Sink. Use methods described in the EPA 2009 Guidance. Use local forest inventory data, or use the US Forest Services online inventory tool for forests. For carbon stock factors use the National Council for Air and Stream Improvement's Carbon On-Line Estimator. (NCASI 2008) Use the | |
| | Forest Carbon Reserve (Change) | | | | | No | | | | | |
| Grand Totals | Gross Totals | 3,547,481 | 105,446 | 34,607 | 95,703 | | | | | Sum Totals in columns for all EXCEPT ANY FORESTRY SINKS. Totals in the Scope 1 column can be a considered a physical roll up of emissions that occur in boundary, and is analogous to reporting that is done for state and federal GHG inventories, and for air quality management. | |
| | Net Totals | | | | | | | | | Value above MINUS and reported optional forestry sinks. | |

## Regional GHG Emissions Roll Up Report - Year: 2010

**(all emissions in Column D, when summed will equal the total County or Region protocol compliant GHG emissions estimate)**

**Region / County Name** Greene

**Color Code**

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | CO2e | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | |
| | Electricity / Steam | 49,939 | 49,120 | 113 | 707 | | | |
| | Natural Gas | 7,434 | 7,427 | 3 | 4 | | | |
| | Propane / LPG | 12,438 | 12,389 | 12 | 37 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 69,855 | 69,621 | 59 | 175 | | | |
| | Wood | 135 | - | 34 | 101 | | | |
| | Coal | 526 | 522 | 1 | 3 | | | |
| | **Commercial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 43,811 | 43,093 | 99 | 620 | | | |
| | Natural Gas | 4,106 | 4,102 | 2 | 2 | | | |
| | Propane / LPG | 3,245 | 3,232 | 3 | 10 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 22,904 | 22,827 | 19 | 57 | | | |
| | Residual Fuel Oil (#5 and #6) | 22,496 | 22,421 | 19 | 56 | | | |
| | Coal | 44 | 44 | 0 | 0 | | | |
| | Wood | 29 | - | 7 | 22 | | | |
| | **Industrial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 6,407 | 6,302 | 14 | 91 | | | |
| | Natural Gas | 2,220 | 2,217 | 1 | 1 | | | |
| | Propane / LPG | 58 | 58 | 0 | 0 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 1,955 | 1,949 | 2 | 5 | | | |
| | Residual Fuel Oil (#5 and #6) | 158 | 157 | 0 | 0 | | | |
| | Coal | 133,415 | 132,384 | 327 | 703 | | | |
| | Petroleum Coke | 24,623 | 24,563 | 15 | 45 | | | |
| | Motor Gasoline (E-10) | 383 | 381 | 0 | 1 | | | |
| | Other Oils | 826 | 824 | 1 | 2 | | | |

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | CO2e | | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| | Wood | 2 | | | 1 | 1 | | | |
| | **Energy Generation and Supply** | | | | | | | | |
| | Electricity T/D Losses | 5,288 | | 5,202 | 12 | 75 | | | |
| | Natural Gas T/D Losses | 320,606 | | | 320,606 | | | | |
| | Use of SF6 in the Utility Industry | 1,371 | | | | | | | 1,371 |
| | **Industrial Processes** | | | | | | | | |
| | Cement Production | 160,108 | | 160,108 | - | | | | |
| | Iron and Steel Production | - | | - | - | | | | |
| | Aluminum Production | - | | - | | | | | |
| | Pulp and Paper Manufacturing | - | | - | - | | | | |
| | Limestone Use | - | | - | - | | | | |
| | Soda Ash Use | - | | - | - | | | | |
| | Semi-Conductor Manufacturing | - | | | | | | | |
| | Chemical Manufacturing | - | | | | | | | |
| | **Product Use (ODS Substitues)** | | | | | | | | |
| | All Refrigerants- except utility SF6 | 18,270 | | | | | | 18,270 | |
| **Transportation Energy** | **On-road** | | | | | | | | |
| | Motor Gasoline (E-10) | 284,415 | | 277,167 | 432 | 6,817 | | | |
| | Diesel | 64,027 | | 63,928 | 40 | 58 | | | |
| | Ethanol | 725 | | | 43 | 682 | | | |
| | Biodiesel | - | | | | | | | |
| | **Rail** | | | | | | | | |
| | Diesel | 8,197 | | 8,119 | 13 | 64 | | | |
| | Electricity Consumption | | | | | | | | |
| | **Marine** | | | | | | | | |
| | Motor Gasoline (E-10) | 3,047 | | 2,980 | 7 | 60 | | | |
| | Diesel | 551 | | 540 | 1 | 10 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 41 | | 40 | 0 | 1 | | | |
| | Residual Fuel Oil (#5 and #6) | 1,243 | | 1,218 | 2 | 22 | | | |
| | **Off-road Mobile** | | | | | | | | |
| | Motor Gasoline (E-10) | 17,503 | | 17,122 | 38 | 342 | | | |
| | Diesel | 22,155 | | 21,720 | 43 | 391 | | | |

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | CO2e | | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| | Natural Gas | 79 | | 78 | 0 | 1 | | | |
| | Propane / LPG | 945 | | 927 | 2 | 17 | | | |
| **Waste Management** | **Solid Waste Management** | | | | | | | | |
| | Landfill Gas | 10,316 | | | 10,316 | | | | |
| | MSW incineration (non grid connected) | - | | - | - | - | | | |
| | **Sewage Treatment** | | | | | | | | |
| | Central WWTPs and Septic Systems | 4,782 | | | 4,782 | | | | |
| **Agriculture** | **Livestock** | | | | | | | | |
| | Enteric Fementation | 6,210 | | | 6,210 | | | | |
| | Manure management | 1,216 | | | 831 | 385 | | | |
| | **Crop Production and Soil Management** | | | | | | | | |
| | Use of Fertilizer | 6,707 | | | | 6,707 | | | |
| | Crop Residue Incineration | - | | - | - | - | | | |
| **Grand Totals** | | 1,344,809 | | 962,782 | 344,111 | 18,274 | | 18,270 | 1,371 |

**Regional GHG Emissions By Source and Sector**
**Year: 2010**

| Region / County Name | Rensselaer |
|---|---|

**Color Code**

| | |
|---|---|
| | REQUIRED, though some data may be zero or considered to small to count |
| | OPTIONAL |
| | DO NOT Report Data in these cells |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence Yes | Adherence No | Brief Description of Method and Issues |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 112,065 | | | Yes | Consumption | MMBTU | 1,665,708 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | | |
| | Natural Gas | 199,843 | | | | Yes | Consumption | MMBTU | 3,765,499 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | | |
| | Propane / LPG | 24,957 | | | | Yes | Consumption | MMBTU | 394,713 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 100,955 | | | | Yes | Consumption | MMBTU | 1,360,421 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Wood | 249 | | | 93,747 | Yes | Consumption | MMBTU | 999,438 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Coal | 747 | | | | Yes | Consumption | MMBTU | 7,937 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | **Commercial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 126,877 | | | Yes | Consumption | MMBTU | 1,885,866 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | | |
| | Natural Gas | 101,826 | | | | Yes | Consumption | MMBTU | 1,918,637 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | | |
| | Propane / LPG | 6,008 | | | | Yes | Consumption | MMBTU | 95,019 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 30,540 | | | | Yes | Consumption | MMBTU | 411,545 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Residual Fuel Oil (#5 and #6) | 29,996 | | | | Yes | Consumption | MMBTU | 398,095 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Coal | 58 | | | | Yes | Consumption | MMBTU | 615 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Wood | 50 | | | 18,876 | Yes | Consumption | MMBTU | 201,234 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | **Industrial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 19,798 | | | Yes | Consumption | MMBTU | 294,276 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) allocate SEDS EIA data based allocated by industrial employment | | | |
| | Natural Gas | 13,801 | | | | Yes | Consumption | MMBTU | 260,048 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Propane / LPG | 2,957 | | | | Yes | Consumption | MMBTU | 46,766 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 1,832 | | | | Yes | Consumption | MMBTU | 24,686 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Residual Fuel Oil (#5 and #6) | 3,961 | | | | Yes | Consumption | MMBTU | 52,562 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Coal | 3,987 | | | | Yes | Consumption | MMBTU | 42,359 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Petroleum Coke | - | | | | Yes | Consumption | MMBTU | - | | | | |
| | Motor Gasoline (E-10) | 1,182 | | | | Yes | Consumption | MMBTU | 16,778 | | | | |
| | Other Oils | 2,553 | | | | Yes | Consumption | MMBTU | 33,392 | | | | |
| | Wood | 6 | | | 2,337 | Yes | Consumption | MMBTU | 24,917 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | **Energy Generation and Supply** | | | | | | | | | | | | |
| | Coal | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Natural Gas | 498,444 | | | | No | Consumption | MMBTU | 9,391,853 | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 268 | | | | No | Consumption | MMBTU | 3,607 | reported. For overlap, prioritize EIA 923 Database. | | | |
| | Residual Fuel Oil (#5 and #6) | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Wood / Biomass | - | | | - | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. Wood CO2 emissions reported optionally as biogenic CO2, Ch4 and N2 Emissions required to be reported to Scope 1 | | | |
| | MSW | - | | | - | No | MSW Combusted | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. MSW CO2 emissions split as 44% reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1. | | | |
| | Landfill Gas | - | | | - | No | Consumption | | - | | | | |

| | DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence |
| | Electricity T/D Losses | | 13,662 | | | Yes | Losses | MMBTU | 203,061 | (Rec) - Acquire utility specific estimate of T/D (in %) and apply that to all consumption (res/commercial/industrial). Report emissions as Scope 2 using regional EGRID emission factors consistent with all Scope 2 calculations. (Alt) use a statewide average T/D loss of 5.28% as documented by EPA's EGRID reporting for New York. | |
| | Natural Gas T/D Losses | 111,844 | | | | Yes | Losses | MMBTU | 276,049 | (Rec) - Acquire utility specific estimate of T/D (in %), compute as percentage of total residential/commercial/industrial/energy generation. Report as Scope 1 CH4 emissions. (Alt) use a statewide average of 1.8% as documented by National Grid in 2010 PSC Reporting. | |
| | Use of SF6 in the Utility Industry | 3,543 | | | | Yes | Consumption | MMBTU | | (Rec) - acquire utility specific estimate and report as SF6. (Alt) Apportion NYSERDA 2009 Emission Inventory Total for the state to counties based ration of EIA reported total electricity demand to computed regional or county demand for all sectors. | |
| | **Industrial Processes** | | | | | | | | | | |
| | Cement Production | - | | | | Yes | | | | | |
| | Iron and Steel Production | - | | | | Yes | | | | | |
| | Aluminum Production | - | | | | Yes | | | | | |
| | Pulp and Paper Manufacturing | - | | | | Yes | | | | | |
| | Limestone Use | - | | | | Yes | | | | (Rec) Direct Allocation from from EPA MMR only. Small Sources to not to be included at this time. | |
| | Soda Ash Use | - | | | | Yes | | | | | |
| | Semi-Conductor Manufacturing | - | | | | Yes | | | | | |
| | Glass Production | - | | | | Yes | | | | | |
| | Chemical Manufacturing | - | | | | Yes | | | | | |
| | **Product Use (Ozone Depleting Substances)** | | | | | | | | | | |
| | All Refrigerants- except SF6 | 59,177 | | | | Yes | | | | (Rec) Use EPA 2009 Draft Guidance method. Allocate national per/capita emissions to counties based on population. Methods include mobile refrigeration | |
| **Transportation Energy** | **On-road** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 583,404 | | | 63,134 | Yes | Consumption | MMBTU | 9,592,294 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions. | |
| | Diesel | 106,266 | | | | Yes | Consumption | MMBTU | 1,402,967 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions on the ethanol line item. | |
| | Ethanol (E-85) | | | | | No | Consumption | MMBTU | | Optional- Include regional E-85 consumption if you have it, and debit against your gasoline estimate create using VMT. Allocate 15% as gasoline to be reported as Scope 1, and 85% as ethanol to be reported as optional biogenic. | |
| | Biodiesel | | | | | No | Consumption | MMBTU | | Optional- Include regional biodiesel consumption if you have it, and debit against your diesel estimate create using VMT. Because biodiesel blends change, allocate option biogenic component on this line item only, and retain the diesel fraction on the diesel line item. | |
| | Electricity Consumption | | | | | No | Consumption | MMBTU | | Today this will be zero, but as NYSERDA pushes to electrify on-road transportation we will want to report here, debiting against electricity consumption in the other sectors as appropriate. | |
| | **Rail** | | | | | | | | | | |
| | Diesel | 24,952 | | | | Yes | Consumption | MMBTU | 326,791 | Freight and Passenger. (Rec) Use direct provider fuel consumption data allocated spatially to location of routes (Alt) Use Nyserda 2002 estimates of Diesel consumption by county directly. | |
| | Electricity Consumption | | 0 | | | Yes | Consumption | MMBTU | - | Passenger and Commuter (Rec) Use direct provider electricity consumption data allocated spatially to location of routes (Alt) None identified. | |
| | **Marine** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 3,312 | | | 368 | Yes | Consumption | MMBTU | 52,386 | | |
| | Diesel | 612 | | | | Yes | Consumption | MMBTU | 7,935 | Rec - USE NYSDEC 2007 data from the state emission inventory for the small and pleasure craft categories reported by county (data on Wiggio). For commercial distillate and bunkers, No consensus method identified- please document methods used. | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 36 | | | | Yes | Consumption | MMBTU | 481 | | |
| | Residual Fuel Oil (#5 and #6) | 1,073 | | | | Yes | Consumption | MMBTU | 13,758 | | |
| | **Air** | | | | | | | | | | |
| | All Fuels (Jet and Aviation Gasoline) | | | 78,682 | | No | Consumption | MMBTU | 1,089,473 | Optional Scope 1- Estimate Landing and Take off Cycle emissions using a dispersion model such as EDMS, or with related data from the NYSDEC for the 2007 state emission inventory. Optional Scope 3, use FAA statistics on departure miles from regional airport, allocate jet fuel use to it, then allocate to counties by fraction of population served | |
| | **Off-road Mobile** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 15,769 | | | 1,752 | Yes | Consumption | MMBTU | 249,443 | | |
| | Diesel | 39,321 | | | | Yes | Consumption | MMBTU | 509,725 | | |
| | Natural Gas | 303 | | | | Yes | Consumption | MMBTU | 5,608 | | |
| | Propane / LPG | 3,695 | | | | Yes | Consumption | MMBTU | 57,511 | Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine. | |
| **Waste Management** | **Solid Waste Management** | | | | | | | | | | |
| | Landfill Gas | - | | 33,303 | | Yes - ONLY Scope 3 | MSW+CD Generated | Tonnes | 142,879 | This is fugitive CH4 emissions from landfills. There are two required Scopes. Scope 1 - Estimate of actual emissions in regional boundary. (rec) use MMR or Title 5 (annual landfill reporting) data directly for facilities (data on Wiggio). For recently closed landfills or for areas without reported data, use a First Order Decay model to estimate emissions. Scope 3- emissions footprint attributed to current waste generation regardless of where it is treated. (rec) Estimate county level MSW and C/D waste generation and apply a representative FOD model with prevailing CH4 captures rates forward-casted 50 years to estimate the footprint. | |
| | MSW incineration (non grid connected) | - | | 190 | | Yes | MSW+CD Processed | Tonnes | - | Rec - for any MSW incinerated that does not generate grid connected power, compute emissions. MSW CO2 emissions split. 44% shall be reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1 | |
| | **Sewage Treatment** | | | | | | MSW Sent for Incineration | Tonnes | 469 | | |
| | Central WWTPs and Septic Systems | 15,489 | | | | Yes | MSW incinerated in Boundary | Tonnes | - | Determine population covered by WWTPs. (Rec)- Use the ICLEI Local Government Operations Protocol and apply to all facilities in the region. (Alt) use methods as described in the EPA 2009 Draft GHG guidance to translate populations served into emissions using default data. Determine population covered by Septic Systems, and apply the default emissions / capita as described in the ICLEI Local Government Operations Protocol. | |
| **Agriculture** | **Livestock** | | | | | | | | | | |
| | Enteric Fermentation | 23,995 | | | | Yes | | | | | |
| | Manure management | 6,574 | | | | Yes | | | | (Rec) Methods as described in the EPA 2009 guidance and executed in the EPA's State Inventory Tool. Use locally resolved fertilizer, crop, and livestock population from either the 2007 Ag census or the US NASS system to get county-level data and make calculations for each county. | |
| | **Crop Production and Soil Management** | | | | | | | | | | |
| | Use of Fertilizer | 18,934 | | | | Yes | | | | | |
| | Crop Residue Incineration | | | | | No | | | | | |
| **Land Use and Forestry** | | | | | | | | | | | |
| | Urban Forest Annual Reserve | | | | | No | | | | Optional Source and Sink. Use methods described in the EPA 2009 Guidance. Use local forest inventory data, or use the US Forest Services online inventory tool for forests. For carbon stock factors use the National Council for Air and Stream Improvement's Carbon On-Line Estimator. | |
| | Forest Carbon Reserve (Change) | | ) | | | No | | | | (NCASI 2008) Use the | |

| | | | | | |
|---|---|---|---|---|---|
| Grand Totals | Gross Totals | 2,042,519 | 272,403 | 112,175 | 180,214 |
| | Net Totals | | | | |

Sum Totals in columns for all EXCEPT ANY FORESTRY SINKS. Totals in the Scope 1 column can be a considered a physical roll up of emissions that occur in boundary, and is analogous to reporting that is done for state and federal GHG inventories, and for air quality management.
Value above MINUS and reported optional forestry sinks.

## Regional GHG Emissions Roll Up Report - Year: 2010

**(all emissions in Column D, when summed will equal the total County or Region protocol compliant GHG emissions estimate)**

**Region / County Name Rensselaer**

**Color Code**

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | CO2e | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | |
| | Electricity / Steam | 112,065 | 110,227 | 253 | 1,586 | | | |
| | Natural Gas | 199,843 | 199,647 | 79 | 117 | | | |
| | Propane / LPG | 24,957 | 24,859 | 25 | 73 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 100,955 | 100,617 | 86 | 253 | | | |
| | Wood | 249 | - | 63 | 186 | | | |
| | Coal | 747 | 741 | 2 | 4 | | | |
| | **Commercial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 126,877 | 124,796 | 286 | 1,795 | | | |
| | Natural Gas | 101,826 | 101,726 | 40 | 59 | | | |
| | Propane / LPG | 6,008 | 5,984 | 6 | 18 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 30,540 | 30,438 | 26 | 77 | | | |
| | Residual Fuel Oil (#5 and #6) | 29,996 | 29,897 | 25 | 74 | | | |
| | Coal | 58 | 57 | 0 | 0 | | | |
| | Wood | 50 | - | 13 | 37 | | | |
| | **Industrial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 19,798 | 19,473 | 45 | 280 | | | |
| | Natural Gas | 13,801 | 13,788 | 5 | 8 | | | |
| | Propane / LPG | 2,957 | 2,945 | 3 | 9 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 1,832 | 1,826 | 2 | 5 | | | |
| | Residual Fuel Oil (#5 and #6) | 3,961 | 3,947 | 3 | 10 | | | |
| | Coal | 3,987 | 3,956 | 10 | 21 | | | |
| | Petroleum Coke | - | - | - | - | | | |
| | Motor Gasoline (E-10) | 1,182 | 1,178 | 1 | 3 | | | |
| | Other Oils | 2,553 | 2,545 | 2 | 6 | | | |

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | CO2e | | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| | Wood | 6 | | | 2 | 5 | | | |
| | **Energy Generation and Supply** | | | | | | | | |
| | Electricity T/D Losses | 13,662 | | 13,437 | 31 | 193 | | | |
| | Natural Gas T/D Losses | 111,844 | | | 111,844 | | | | |
| | Use of SF6 in the Utility Industry | 3,543 | | | | | | | 3,543 |
| | **Industrial Processes** | | | | | | | | |
| | Cement Production | - | | - | - | | | | |
| | Iron and Steel Production | - | | - | - | | | | |
| | Aluminum Production | - | | - | | | | | |
| | Pulp and Paper Manufacturing | - | | - | - | | | | |
| | Limestone Use | - | | - | - | | | | |
| | Soda Ash Use | - | | - | - | | | | |
| | Semi-Conductor Manufacturing | - | | | | | | | |
| | Chemical Manufacturing | - | | | | | | | |
| | **Product Use (ODS Substitues)** | | | | | | | | |
| | All Refrigerants- except utility SF6 | 59,177 | | | | | | 59,177 | |
| **Transportation Energy** | **On-road** | | | | | | | | |
| | Motor Gasoline (E-10) | 583,404 | | 568,203 | 899 | 14,302 | | | |
| | Diesel | 106,266 | | 106,106 | 65 | 96 | | | |
| | Ethanol | 1,520 | | | 90 | 1,430 | | | |
| | Biodiesel | - | | | | | | | |
| | **Rail** | | | | | | | | |
| | Diesel | 24,952 | | 24,715 | 41 | 196 | | | |
| | Electricity Consumption | | | | | | | | |
| | **Marine** | | | | | | | | |
| | Motor Gasoline (E-10) | 3,385 | | 3,312 | 7 | 66 | | | |
| | Diesel | 612 | | 600 | 1 | 11 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 36 | | 35 | 0 | 1 | | | |
| | Residual Fuel Oil (#5 and #6) | 1,073 | | 1,052 | 2 | 19 | | | |
| | **Off-road Mobile** | | | | | | | | |
| | Motor Gasoline (E-10) | 16,119 | | 15,769 | 35 | 315 | | | |
| | Diesel | 39,321 | | 38,550 | 77 | 694 | | | |

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | CO2e | | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| | Natural Gas | 303 | | 298 | 1 | 5 | | | |
| | Propane / LPG | 3,695 | | 3,623 | 7 | 65 | | | |
| **Waste Management** | **Solid Waste Management** | | | | | | | | |
| | Landfill Gas | 33,303 | | | 33,303 | | | | |
| | MSW incineration (non grid connected) | 190 | | 186 | 1 | 3 | | | |
| | **Sewage Treatment** | | | | | | | | |
| | Central WWTPs and Septic Systems | 15,489 | | | 15,489 | | | | |
| **Agriculture** | **Livestock** | | | | | | | | |
| | Enteric Fementation | 23,995 | | | 23,995 | | | | |
| | Manure management | 6,574 | | | 4,607 | 1,967 | | | |
| | **Crop Production and Soil Management** | | | | | | | | |
| | Use of Fertilizer | 18,934 | | | | 18,934 | | | |
| | Crop Residue Incineration | - | | - | - | - | | | |
| **Grand Totals** | | 1,851,648 | | 1,554,534 | 191,472 | 42,922 | | 59,177 | 3,543 |

**Regional GHG Emissions By Source and Sector**
**Year: 2010**

| Region / County Name | Saratoga |
|---|---|

**Color Code**

| | |
|---|---|
| | REQUIRED, though some data may be zero or considered to small to count |
| | OPTIONAL |
| | DO NOT Report Data in these cells |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence Yes | Adherence No | Brief Description of Method and Issues |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 160,609 | | | Yes | Consumption | MMBTU | 2,387,251 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | | |
| | Natural Gas | 336,458 | | | | Yes | Consumption | MMBTU | 6,339,646 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | | |
| | Propane / LPG | 49,890 | | | | Yes | Consumption | MMBTU | 789,038 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 98,747 | | | | Yes | Consumption | MMBTU | 1,330,655 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Wood | 306 | | | 115,161 | Yes | Consumption | MMBTU | 1,227,731 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Coal | 888 | | | | Yes | Consumption | MMBTU | 9,432 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | **Commercial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 204,811 | | | Yes | Consumption | MMBTU | 3,044,253 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | | |
| | Natural Gas | 193,965 | | | | Yes | Consumption | MMBTU | 3,654,761 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | | |
| | Propane / LPG | 13,588 | | | | Yes | Consumption | MMBTU | 214,907 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 33,798 | | | | Yes | Consumption | MMBTU | 455,442 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Residual Fuel Oil (#5 and #6) | 33,196 | | | | Yes | Consumption | MMBTU | 440,558 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Coal | 78 | | | | Yes | Consumption | MMBTU | 827 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Wood | 70 | | | 26,235 | Yes | Consumption | MMBTU | 279,687 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | **Industrial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 33,027 | | | Yes | Consumption | MMBTU | 490,899 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) allocate SEDS EIA data based allocated by industrial employment | | | |
| | Natural Gas | 155,790 | | | | Yes | Consumption | MMBTU | 2,935,439 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Propane / LPG | 298 | | | | Yes | Consumption | MMBTU | 4,711 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 49,675 | | | | Yes | Consumption | MMBTU | 669,394 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Residual Fuel Oil (#5 and #6) | 814 | | | | Yes | Consumption | MMBTU | 10,807 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Coal | 6,651 | | | | Yes | Consumption | MMBTU | 70,662 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Petroleum Coke | - | | | | Yes | Consumption | MMBTU | - | | | | |
| | Motor Gasoline (E-10) | 1,972 | | | | Yes | Consumption | MMBTU | 27,988 | | | | |
| | Other Oils | 4,260 | | | | Yes | Consumption | MMBTU | 55,703 | | | | |
| | Wood | 10 | | | 3,899 | Yes | Consumption | MMBTU | 41,566 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | **Energy Generation and Supply** | | | | | | | | | | | | |
| | Coal | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Natural Gas | 263,920 | | | | No | Consumption | MMBTU | 4,972,867 | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | - | | | | No | Consumption | MMBTU | - | reported. For overlap, prioritize EIA 923 Database. | | | |
| | Residual Fuel Oil (#5 and #6) | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Wood / Biomass | - | | | - | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. Wood CO2 emissions reported optionally as biogenic CO2, Ch4 and N2 Emissions required to be reported to Scope 1 | | | |
| | MSW | - | | | - | No | MSW Combusted | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. MSW CO2 emissions split as 44% reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1. | | | |
| | Landfill Gas | - | | | - | No | Consumption | | - | | | | |
| | Electricity T/D Losses | | 21,038 | | | Yes | Losses | MMBTU | 312,703 | (Rec) - Acquire utility specific estimate of T/D (in %) and apply that to all consumption (res/commercial/industrial). Report emissions as Scope 2 using regional EGRID emission factors consistent with all Scope 2 calculations. (Alt) use a statewide average T/D loss of 5.28% as documented by EPA's EGRID reporting for New York. | | | |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence |
| | Natural Gas T/D Losses | 130,562 | | | | Yes | Losses | MMBTU | 322,249 | (Rec) - Acquire utility specific estimate of T/D (in %), compute as percentage of total residential/commercial/industrial/energy generation. Report as Scope 1 CH4 emissions. (Alt) use a statewide average of 1.8% as documented by National Grid in 2010 PSC Reporting. | |
| | Use of SF6 in the Utility Industry | 5,455 | | | | Yes | Consumption | MMBTU | | (Rec) - acquire utility specific estimate and report as SF6. (Alt) Apportion NYSERDA 2009 Emission Inventory Total for the state to counties based ration of EIA reported total electricity demand to computed regional or county demand for all sectors. | |
| | **Industrial Processes** | | | | | | | | | | |
| | Cement Production | - | | | | Yes | | | | | |
| | Iron and Steel Production | - | | | | Yes | | | | | |
| | Aluminum Production | - | | | | Yes | | | | | |
| | Pulp and Paper Manufacturing | - | | | | Yes | | | | | |
| | Limestone Use | - | | | | Yes | | | | (Rec) Direct Allocation from from EPA MMR only. Small Sources to not to be included at this time. | |
| | Soda Ash Use | - | | | | Yes | | | | | |
| | Semi-Conductor Manufacturing | - | | | | Yes | | | | | |
| | Glass Production | - | | | | Yes | | | | | |
| | Chemical Manufacturing | - | | | | Yes | | | | | |
| | **Product Use (Ozone Depleting Substances)** | | | | | | | | | | |
| | All Refrigerants- except SF6 | 81,514 | | | | Yes | | | | (Rec) Use EPA 2009 Draft Guidance method. Allocate national per/capita emissions to counties based on population. Methods include mobile refrigeration | |
| **Transportation Energy** | **On-road** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 1,101,457 | | | 119,190 | Yes | Consumption | MMBTU | 18,109,221 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions. | |
| | Diesel | 198,041 | | | | Yes | Consumption | MMBTU | 2,614,621 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions on the ethanol line item. | |
| | Ethanol (E-85) | | | | | No | Consumption | MMBTU | | Optional- Include regional E-85 consumption if you have it, and debit against your gasoline estimate create using VMT. Allocate 15% as gasoline to be reported as Scope 1, and 85% as ethanol to be reported as optional biogenic. | |
| | Biodiesel | | | | | No | Consumption | MMBTU | | Optional- Include regional biodiesel consumption if you have it, and debit against your diesel estimate create using VMT. Because biodiesel blends change, allocate option biogenic component on this line item only, and retain the diesel fraction on the diesel line item. | |
| | Electricity Consumption | | | | | No | Consumption | MMBTU | | Today this will be zero, but as NYSERDA pushes to electrify on-road transportation we will want to report here, debiting against electricity consumption in the other sectors as appropriate. | |
| | **Rail** | | | | | | | | | | |
| | Diesel | 13,339 | | | | Yes | Consumption | MMBTU | 174,696 | Freight and Passenger. (Rec) Use direct provider fuel consumption data allocated spatially to location of routes (Alt) Use Nyserda 2002 estimates of Diesel consumption by county directly. | |
| | Electricity Consumption | | 0 | | | Yes | Consumption | MMBTU | - | Passenger and Commuter (Rec) Use direct provider electricity consumption data allocated spatially to location of routes (Alt) None identified. | |
| | **Marine** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 9,162 | | | 1,018 | Yes | Consumption | MMBTU | 144,934 | | |
| | Diesel | 1,693 | | | | Yes | Consumption | MMBTU | 21,952 | Rec - USE NYSDEC 2007 data from the state emission inventory for the small and pleasure craft categories reported by county (data on Wiggio). For commercial distillate and bunkers, No consensus method identified- please document methods used. | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 0 | | | | Yes | Consumption | MMBTU | 0 | | |
| | Residual Fuel Oil (#5 and #6) | 1 | | | | Yes | Consumption | MMBTU | 10 | | |
| | **Air** | | | | | | | | | | |
| | All Fuels (Jet and Aviation Gasoline) | | | 108,381 | | No | Consumption | MMBTU | 1,500,706 | Optional Scope 1- Estimate Landing and Take off Cycle emissions using a dispersion model such as EDMS, or with related data from the NYSDEC for the 2007 state emission inventory. Optional Scope 3, use FAA statistics on departure miles from regional airport, allocate jet fuel use to it, then allocate to counties by fraction of population served | |
| | **Off-road Mobile** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 28,867 | | | 3,207 | Yes | Consumption | MMBTU | 456,643 | | |
| | Diesel | 75,959 | | | | Yes | Consumption | MMBTU | 984,659 | | |
| | Natural Gas | 561 | | | | Yes | Consumption | MMBTU | 10,371 | | |
| | Propane / LPG | 6,806 | | | | Yes | Consumption | MMBTU | 105,919 | Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine. | |
| **Waste Management** | **Solid Waste Management** | | | | | | | | | | |
| | Landfill Gas | - | | 32,778 | | Yes - ONLY Scope 3 | MSW+CD Generated | Tonnes | 196,811 | This is fugitive CH4 emissions from landfills. There are two required Scopes. Scope 1 - Estimate of actual emissions in regional boundary. (rec) use MMR or Title 5 (annual landfill reporting) data directly for facilities (data on Wiggio). For recently closed landfills or for areas without reported data, use a First Order Decay model to estimate emissions. Scope 3- emissions footprint attributed to current waste generation regardless of where it is treated. (rec) Estimate county level MSW and C/D waste generation and apply a representative FOD model with prevailing CH4 captures rates forward-casted 50 years to estimate the footprint. | |
| | MSW incineration (non grid connected) | - | | 22,983 | | Yes | MSW+CD Processed | Tonnes | - | Rec - for any MSW incinerated that does not generate grid connected power, compute emissions. MSW CO2 emissions split. 44% shall be reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1 | |
| | **Sewage Treatment** | | | | | | MSW Sent for Incineration | Tonnes | 56,647 | | |
| | Central WWTPs and Septic Systems | 21,335 | | | | Yes | MSW incinerated in Boundary | Tonnes | - | Determine population covered by WWTPs. (Rec)- Use the ICLEI Local Government Operations Protocol and apply to all facilities in the region. (Alt) use methods as described in the EPA 2009 Draft GHG guidance to translate populations served into emissions using default data. Determine population covered by Septic Systems, and apply the default emissions / capita as described in the ICLEI Local Government Operations Protocol. | |
| **Agriculture** | **Livestock** | | | | | | | | | | |
| | Enteric Fermentation | 33,730 | | | | Yes | | | | | |
| | Manure management | 10,993 | | | | Yes | | | | | |
| | **Crop Production and Soil Management** | | | | | | | | | (Rec) Methods as described in the EPA 2009 guidance and executed in the EPA's State Inventory Tool. Use locally resolved fertilizer, crop, and livestock popul | |
| | Use of Fertilizer | 16,704 | | | | Yes | | | | | |
| | Crop Residue Incineration | | | | | No | | | | | |
| **Land Use and Forestry** | | | | | | | | | | | |
| | Urban Forest Annual Reserve | | | | | No | | | | Optional Source and Sink. Use methods described in the EPA 2009 Guidance. Use local forest inventory data, or use the US Forest Services online inventory tool for forests. For carbon stock factors use the National Council for Air and Stream Improvement's Carbon On-Line Estimator. | |
| | Forest Carbon Reserve (Change) | | ) | | | No | | | | (NCASI 2008) Use the | |
| Grand Totals | Gross Totals | 2,980,553 | 419,485 | 164,142 | 268,710 | | | | | Sum Totals in columns for all EXCEPT ANY FORESTRY SINKS. Totals in the Scope 1 column can be a considered a physical roll up of emissions that occur in boundary, and is analogous to reporting that is done for state and federal GHG inventories, and for air quality management. | |
| | Net Totals | | | | | | | | | Value above MINUS and reported optional forestry sinks. | |

## Regional GHG Emissions Roll Up Report -- Year: 2010

**(all emissions in Column D, when summed will equal the total County or Region protocol compliant GHG emissions estimate)**

**Region / County Name** Saratoga

**Color Code**

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | CO2e | | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | |
| | Electricity / Steam | 160,609 | | 157,974 | 362 | 2,273 | | | |
| | Natural Gas | 336,458 | | 336,128 | 133 | 197 | | | |
| | Propane / LPG | 49,890 | | 49,694 | 50 | 147 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 98,747 | | 98,415 | 84 | 248 | | | |
| | Wood | 306 | | - | 77 | 228 | | | |
| | Coal | 888 | | 881 | 2 | 5 | | | |
| | **Commercial Energy Consumption** | | | | | | | | |
| | Electricity / Steam | 204,811 | | 201,451 | 462 | 2,898 | | | |
| | Natural Gas | 193,965 | | 193,775 | 77 | 113 | | | |
| | Propane / LPG | 13,588 | | 13,535 | 14 | 40 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 33,798 | | 33,684 | 29 | 85 | | | |
| | Residual Fuel Oil (#5 and #6) | 33,196 | | 33,086 | 28 | 82 | | | |
| | Coal | 78 | | 77 | 0 | 0 | | | |
| | Wood | 70 | | - | 18 | 52 | | | |
| | **Industrial Energy Consumption** | | | | | | | | |
| | Electricity / Steam | 33,027 | | 32,485 | 75 | 467 | | | |
| | Natural Gas | 155,790 | | 155,637 | 62 | 91 | | | |
| | Propane / LPG | 298 | | 297 | 0 | 1 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 49,675 | | 49,508 | 42 | 125 | | | |
| | Residual Fuel Oil (#5 and #6) | 814 | | 812 | 1 | 2 | | | |
| | Coal | 6,651 | | 6,600 | 16 | 35 | | | |
| | Petroleum Coke | - | | - | - | - | | | |
| | Motor Gasoline (E-10) | 1,972 | | 1,965 | 2 | 5 | | | |
| | Other Oils | 4,260 | | 4,246 | 4 | 10 | | | |
| | Wood | 10 | | | 3 | 8 | | | |

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | CO2e | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| | **Energy Generation and Supply** | | | | | | | |
| | Electricity T/D Losses | 21,038 | 20,693 | 47 | 298 | | | |
| | Natural Gas T/D Losses | 130,562 | | 130,562 | | | | |
| | Use of SF6 in the Utility Industry | 5,455 | | | | | | 5,455 |
| | **Industrial Processes** | | | | | | | |
| | Cement Production | - | - | - | | | | |
| | Iron and Steel Production | - | - | - | | | | |
| | Aluminum Production | - | - | | | | | |
| | Pulp and Paper Manufacturing | - | - | - | | | | |
| | Limestone Use | - | - | - | | | | |
| | Soda Ash Use | - | - | - | | | | |
| | Semi-Conductor Manufacturing | - | | | | | | |
| | Chemical Manufacturing | - | | | | | | |
| | **Product Use (ODS Substitues)** | | | | | | | |
| | All Refrigerants- except utility SF6 | 81,514 | | | | | 81,514 | |
| **Transportation Energy** | **On-road** | | | | | | | |
| | Motor Gasoline (E-10) | 1,101,457 | 1,072,707 | 1,698 | 27,052 | | | |
| | Diesel | 198,041 | 197,743 | 120 | 178 | | | |
| | Ethanol | 2,875 | | 170 | 2,705 | | | |
| | Biodiesel | - | | | | | | |
| | **Rail** | | | | | | | |
| | Diesel | 13,339 | 13,212 | 22 | 105 | | | |
| | Electricity Consumption | | | | | | | |
| | **Marine** | | | | | | | |
| | Motor Gasoline (E-10) | 9,366 | 9,162 | 20 | 183 | | | |
| | Diesel | 1,693 | 1,660 | 3 | 30 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 0 | 0 | 0 | 0 | | | |
| | Residual Fuel Oil (#5 and #6) | 1 | 1 | 0 | 0 | | | |
| | **Off-road Mobile** | | | | | | | |
| | Motor Gasoline (E-10) | 29,509 | 28,867 | 64 | 577 | | | |
| | Diesel | 75,959 | 74,469 | 149 | 1,340 | | | |
| | Natural Gas | 561 | 550 | 1 | 10 | | | |

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | CO2e | | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| | Propane / LPG | 6,806 | | 6,672 | 13 | 120 | | | |
| **Waste Management** | **Solid Waste Management** | | | | | | | | |
| | Landfill Gas | 32,778 | | | 32,778 | | | | |
| | MSW incineration (non grid connected) | 22,983 | | 22,481 | 170 | 332 | | | |
| | **Sewage Treatment** | | | | | | | | |
| | Central WWTPs and Septic Systems | 21,335 | | | 21,335 | | | | |
| **Agriculture** | **Livestock** | | | | | | | | |
| | Enteric Fementation | 33,730 | | | 33,730 | | | | |
| | Manure management | 10,993 | | | 7,778 | 3,215 | | | |
| | **Crop Production and Soil Management** | | | | | | | | |
| | Use of Fertilizer | 16,704 | | | | 16,704 | | | |
| | Crop Residue Incineration | - | | - | - | - | | | |
| **Grand Totals** | | 3,195,600 | | 2,818,468 | 230,201 | 59,961 | | 81,514 | 5,455 |

**Regional GHG Emissions By Source and Sector**
**Year: 2010**

| Region / County Name | Schenectady |
|---|---|

**Color Code**

| | |
|---|---|
| | REQUIRED, though some data may be zero or considered to small to count |
| | OPTIONAL |
| | DO NOT Report Data in these cells |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence Yes | Adherence No | Brief Description of Method and Issues |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 109,011 | | | Yes | Consumption | MMBTU | 1,620,303 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | | |
| | Natural Gas | 295,535 | | | | Yes | Consumption | MMBTU | 5,568,574 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | | |
| | Propane / LPG | 9,601 | | | | Yes | Consumption | MMBTU | 151,849 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 39,378 | | | | Yes | Consumption | MMBTU | 530,631 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Wood | 57 | | | 21,359 | Yes | Consumption | MMBTU | 227,707 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | Coal | 196 | | | | Yes | Consumption | MMBTU | 2,082 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | | |
| | **Commercial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 144,833 | | | Yes | Consumption | MMBTU | 2,152,753 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | | |
| | Natural Gas | 182,976 | | | | Yes | Consumption | MMBTU | 3,447,696 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | | |
| | Propane / LPG | 2,808 | | | | Yes | Consumption | MMBTU | 44,418 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 14,475 | | | | Yes | Consumption | MMBTU | 195,052 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Residual Fuel Oil (#5 and #6) | 14,217 | | | | Yes | Consumption | MMBTU | 188,678 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Coal | 18 | | | | Yes | Consumption | MMBTU | 196 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | Wood | 14 | | | 5,226 | Yes | Consumption | MMBTU | 55,710 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | | |
| | **Industrial Energy Consumption** | | | | | | | | | | | | |
| | Electricity / Steam | | 36,414 | | | Yes | Consumption | MMBTU | 541,242 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) allocate SEDS EIA data based allocated by industrial employment | | | |
| | Natural Gas | 104,035 | | | | Yes | Consumption | MMBTU | 1,960,269 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Propane / LPG | 337 | | | | Yes | Consumption | MMBTU | 5,327 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 4,005 | | | | Yes | Consumption | MMBTU | 53,964 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Residual Fuel Oil (#5 and #6) | 6,467 | | | | Yes | Consumption | MMBTU | 85,833 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Coal | 7,333 | | | | Yes | Consumption | MMBTU | 77,908 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | Petroleum Coke | - | | | | Yes | Consumption | MMBTU | - | | | | |
| | Motor Gasoline (E-10) | 2,175 | | | | Yes | Consumption | MMBTU | 30,858 | | | | |
| | Other Oils | 4,742 | | | | Yes | Consumption | MMBTU | 62,007 | | | | |
| | Wood | 11 | | | 4,299 | Yes | Consumption | MMBTU | 45,828 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | | |
| | **Energy Generation and Supply** | | | | | | | | | | | | |
| | Coal | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Natural Gas | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | - | | | | No | Consumption | MMBTU | - | reported. For overlap, prioritize EIA 923 Database. | | | |
| | Residual Fuel Oil (#5 and #6) | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | | |
| | Wood / Biomass | - | | - | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. Wood CO2 emissions reported optionally as biogenic CO2, Ch4 and N2 Emissions required to be reported to Scope 1 | | | |
| | MSW | - | | - | | No | MSW Combusted | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. MSW CO2 emissions split as 44% reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1. | | | |
| | Landfill Gas | - | | - | | No | Consumption | | - | | | | |
| | Electricity T/D Losses | | 15,326 | | | Yes | Losses | MMBTU | 227,795 | (Rec) - Acquire utility specific estimate of T/D (in %) and apply that to all consumption (res/commercial/industrial). Report emissions as Scope 2 using regional EGRID emission factors consistent with all Scope 2 calculations. (Alt) use a statewide average T/D loss of 5.28% as documented by EPA's EGRID reporting for New York. | | | |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence |
| | Natural Gas T/D Losses | 80,051 | | | | Yes | Losses | MMBTU | 197,578 | (Rec) - Acquire utility specific estimate of T/D (in %), compute as percentage of total residential/commercial/industrial/energy generation. Report as Scope 1 CH4 emissions. (Alt) use a statewide average of 1.8% as documented by National Grid in 2010 PSC Reporting. | |
| | Use of SF6 in the Utility Industry | 3,974 | | | | Yes | Consumption | MMBTU | | (Rec) - acquire utility specific estimate and report as SF6. (Alt) Apportion NYSERDA 2009 Emission Inventory Total for the state to counties based ration of EIA reported total electricity demand to computed regional or county demand for all sectors. | |
| | **Industrial Processes** | | | | | | | | | | |
| | Cement Production | - | | | | Yes | | | | | |
| | Iron and Steel Production | - | | | | Yes | | | | | |
| | Aluminum Production | - | | | | Yes | | | | | |
| | Pulp and Paper Manufacturing | - | | | | Yes | | | | | |
| | Limestone Use | - | | | | Yes | | | | (Rec) Direct Allocation from from EPA MMR only. Small Sources to not to be included at this time. | |
| | Soda Ash Use | - | | | | Yes | | | | | |
| | Semi-Conductor Manufacturing | - | | | | Yes | | | | | |
| | Glass Production | - | | | | Yes | | | | | |
| | Chemical Manufacturing | - | | | | Yes | | | | | |
| | **Product Use (Ozone Depleting Substances)** | | | | | | | | | | |
| | All Refrigerants- except SF6 | 57,431 | | | | Yes | | | | (Rec) Use EPA 2009 Draft Guidance method. Allocate national per/capita emissions to counties based on population. Methods include mobile refrigeration | |
| **Transportation Energy** | **On-road** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 430,868 | | | 46,622 | Yes | Consumption | MMBTU | 7,083,561 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions. | |
| | Diesel | 74,519 | | | | Yes | Consumption | MMBTU | 983,829 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions on the ethanol line item. | |
| | Ethanol (E-85) | | | | | No | Consumption | MMBTU | | Optional- Include regional E-85 consumption if you have it, and debit against your gasoline estimate create using VMT. Allocate 15% as gasoline to be reported as Scope 1, and 85% as ethanol to be reported as optional biogenic. | |
| | Biodiesel | | | | | No | Consumption | MMBTU | | Optional- Include regional biodiesel consumption if you have it, and debit against your diesel estimate create using VMT. Because biodiesel blends change, allocate option biogenic component on this line item only, and retain the diesel fraction on the diesel line item. | |
| | Electricity Consumption | | | | | No | Consumption | MMBTU | | Today this will be zero, but as NYSERDA pushes to electrify on-road transportation we will want to report here, debiting against electricity consumption in the other sectors as appropriate. | |
| | **Rail** | | | | | | | | | | |
| | Diesel | 23,088 | | | | Yes | Consumption | MMBTU | 302,380 | Freight and Passenger. (Rec) Use direct provider fuel consumption data allocated spatially to location of routes (Alt) Use Nyserda 2002 estimates of Diesel consumption by county directly. | |
| | Electricity Consumption | | 0 | | | Yes | Consumption | MMBTU | - | Passenger and Commuter (Rec) Use direct provider electricity consumption data allocated spatially to location of routes (Alt) None identified. | |
| | **Marine** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 993 | | | 110 | Yes | Consumption | MMBTU | 15,716 | | |
| | Diesel | 184 | | | | Yes | Consumption | MMBTU | 2,380 | Rec - USE NYSDEC 2007 data from the state emission inventory for the small and pleasure craft categories reported by county (data on Wiggio). For commercial distillate and bunkers, No consensus method identified- please document methods used. | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 0 | | | | Yes | Consumption | MMBTU | 0 | | |
| | Residual Fuel Oil (#5 and #6) | 1 | | | | Yes | Consumption | MMBTU | 10 | | |
| | **Air** | | | | | | | | | | |
| | All Fuels (Jet and Aviation Gasoline) | | | 76,361 | | No | Consumption | MMBTU | 1,057,342 | Optional Scope 1- Estimate Landing and Take off Cycle emissions using a dispersion model such as EDMS, or with related data from the NYSDEC for the 2007 state emission inventory. Optional Scope 3, use FAA statistics on departure miles from regional airport, allocate jet fuel use to it, then allocate to counties by fraction of population served | |
| | **Off-road Mobile** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 11,137 | | | 1,237 | Yes | Consumption | MMBTU | 176,180 | | |
| | Diesel | 26,669 | | | | Yes | Consumption | MMBTU | 345,718 | | |
| | Natural Gas | 422 | | | | Yes | Consumption | MMBTU | 7,789 | | |
| | Propane / LPG | 5,976 | | | | Yes | Consumption | MMBTU | 93,001 | Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine. | |
| **Waste Management** | **Solid Waste Management** | | | | | | | | | | |
| | Landfill Gas | - | | 32,428 | | Yes - ONLY Scope 3 | MSW+CD Generated | Tonnes | 138,666 | This is fugitive CH4 emissions from landfills. There are two required Scopes. Scope 1 - Estimate of actual emissions in regional boundary. (rec) use MMR or Title 5 (annual landfill reporting) data directly for facilities (data on Wiggio). For recently closed landfills or for areas without reported data, use a First Order Decay model to estimate emissions. Scope 3- emissions footprint attributed to current waste generation regardless of where it is treated. (rec) Estimate county level MSW and C/D waste generation and apply a representative FOD model with prevailing CH4 captures rates forward-casted 50 years to estimate the footprint. | |
| | MSW incineration (non grid connected) | - | | - | | Yes | MSW+CD Processed | Tonnes | - | Rec - for any MSW incinerated that does not generate grid connected power, compute emissions. MSW CO2 emissions split. 44% shall be reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1 | |
| | **Sewage Treatment** | | | | | | MSW Sent for Incineration | Tonnes | - | | |
| | Central WWTPs and Septic Systems | 15,032 | | | | Yes | MSW incinerated in Boundary | Tonnes | - | Determine population covered by WWTPs. (Rec)- Use the ICLEI Local Government Operations Protocol and apply to all facilities in the region. (Alt) use methods as described in the EPA 2009 Draft GHG guidance to translate populations served into emissions using default data. Determine population covered by Septic Systems, and apply the default emissions / capita as described in the ICLEI Local Government Operations Protocol. | |
| **Agriculture** | **Livestock** | | | | | | | | | | |
| | Enteric Fermentation | 2,083 | | | | Yes | | | | | |
| | Manure management | 300 | | | | Yes | | | | (Rec) Methods as described in the EPA 2009 guidance and executed in the EPA's State Inventory Tool. Use locally resolved fertilizer, crop, and livestock population from either the 2007 Ag census or the US NASS system to get county-level data and make calculations for each county. | |
| | **Crop Production and Soil Management** | | | | | | | | | | |
| | Use of Fertilizer | 1,984 | | | | Yes | | | | | |
| | Crop Residue Incineration | | | | | No | | | | | |
| **Land Use and Forestry** | | | | | | | | | | | |
| | Urban Forest Annual Reserve | | | | | No | | | | Optional Source and Sink. Use methods described in the EPA 2009 Guidance. Use local forest inventory data, or use the US Forest Services online inventory tool for forests. For carbon stock factors use the National Council for Air and Stream Improvement's Carbon On-Line Estimator. | |
| | Forest Carbon Reserve (Change) | | | | | No | | | | (NCASI 2008) Use the | |
| Grand Totals | Gross Totals | 1,423,093 | 305,583 | 108,789 | 78,853 | | | | | Sum Totals in columns for all EXCEPT ANY FORESTRY SINKS. Totals in the Scope 1 column can be a considered a physical roll up of emissions that occur in boundary, and is analogous to reporting that is done for state and federal GHG inventories, and for air quality management. | |
| | Net Totals | | | | | | | | | Value above MINUS and reported optional forestry sinks. | |

## Regional GHG Emissions Roll Up Report - Year: 2010

**(all emissions in Column D, when summed will equal the total County or Region protocol compliant GHG emissions estimate)**

**Region / County Name** Schenectady

**Color Code**

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | CO2e | | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | |
| | Electricity / Steam | 109,011 | | 107,222 | 246 | 1,542 | | | |
| | Natural Gas | 295,535 | | 295,246 | 117 | 173 | | | |
| | Propane / LPG | 9,601 | | 9,563 | 10 | 28 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 39,378 | | 39,245 | 33 | 99 | | | |
| | Wood | 57 | | - | 14 | 42 | | | |
| | Coal | 196 | | 194 | 0 | 1 | | | |
| | **Commercial Energy Consumption** | | | | | | | | |
| | Electricity / Steam | 144,833 | | 142,457 | 327 | 2,049 | | | |
| | Natural Gas | 182,976 | | 182,797 | 72 | 107 | | | |
| | Propane / LPG | 2,808 | | 2,797 | 3 | 8 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 14,475 | | 14,426 | 12 | 36 | | | |
| | Residual Fuel Oil (#5 and #6) | 14,217 | | 14,170 | 12 | 35 | | | |
| | Coal | 18 | | 18 | 0 | 0 | | | |
| | Wood | 14 | | - | 4 | 10 | | | |
| | **Industrial Energy Consumption** | | | | | | | | |
| | Electricity / Steam | 36,414 | | 35,816 | 82 | 515 | | | |
| | Natural Gas | 104,035 | | 103,933 | 41 | 61 | | | |
| | Propane / LPG | 337 | | 335 | 0 | 1 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 4,005 | | 3,991 | 3 | 10 | | | |
| | Residual Fuel Oil (#5 and #6) | 6,467 | | 6,446 | 5 | 16 | | | |
| | Coal | 7,333 | | 7,277 | 18 | 39 | | | |
| | Petroleum Coke | - | | - | - | - | | | |
| | Motor Gasoline (E-10) | 2,175 | | 2,167 | 2 | 6 | | | |
| | Other Oils | 4,742 | | 4,726 | 4 | 12 | | | |
| | Wood | 11 | | | 3 | 9 | | | |

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | CO2e | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| | **Energy Generation and Supply** | | | | | | | |
| | Electricity T/D Losses | 15,326 | 15,074 | 35 | 217 | | | |
| | Natural Gas T/D Losses | 80,051 | | 80,051 | | | | |
| | Use of SF6 in the Utility Industry | 3,974 | | | | | | 3,974 |
| | **Industrial Processes** | | | | | | | |
| | Cement Production | - | - | - | | | | |
| | Iron and Steel Production | - | - | - | | | | |
| | Aluminum Production | - | - | | | | | |
| | Pulp and Paper Manufacturing | - | - | - | | | | |
| | Limestone Use | - | - | - | | | | |
| | Soda Ash Use | - | - | - | | | | |
| | Semi-Conductor Manufacturing | - | | | | | | |
| | Chemical Manufacturing | - | | | | | | |
| | **Product Use (ODS Substitues)** | | | | | | | |
| | All Refrigerants- except utility SF6 | 57,431 | | | | | 57,431 | |
| **Transportation Energy** | **On-road** | | | | | | | |
| | Motor Gasoline (E-10) | 430,868 | 419,597 | 667 | 10,603 | | | |
| | Diesel | 74,519 | 74,407 | 45 | 67 | | | |
| | Ethanol | 1,127 | | 67 | 1,060 | | | |
| | Biodiesel | - | | | | | | |
| | **Rail** | | | | | | | |
| | Diesel | 23,088 | 22,869 | 38 | 182 | | | |
| | Electricity Consumption | | | | | | | |
| | **Marine** | | | | | | | |
| | Motor Gasoline (E-10) | 1,016 | 993 | 2 | 20 | | | |
| | Diesel | 184 | 180 | 0 | 3 | | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 0 | 0 | 0 | 0 | | | |
| | Residual Fuel Oil (#5 and #6) | 1 | 1 | 0 | 0 | | | |
| | **Off-road Mobile** | | | | | | | |
| | Motor Gasoline (E-10) | 11,385 | 11,137 | 25 | 223 | | | |
| | Diesel | 26,669 | 26,147 | 52 | 471 | | | |
| | Natural Gas | 422 | 413 | 1 | 7 | | | |

| DRAFT Roll Up Report CGC. Emissions in MTCDE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | CO2e | | CO2 | CH4 | N2O | PFC | HFC | SF6 |
| | Propane / LPG | 5,976 | | 5,858 | 12 | 105 | | | |
| **Waste Management** | **Solid Waste Management** | | | | | | | | |
| | Landfill Gas | 32,428 | | | 32,428 | | | | |
| | MSW incineration (non grid connected) | - | | - | - | - | | | |
| | **Sewage Treatment** | | | | | | | | |
| | Central WWTPs and Septic Systems | 15,032 | | | 15,032 | | | | |
| **Agriculture** | **Livestock** | | | | | | | | |
| | Enteric Fementation | 2,083 | | | 2,083 | | | | |
| | Manure management | 300 | | | 199 | 102 | | | |
| | **Crop Production and Soil Management** | | | | | | | | |
| | Use of Fertilizer | 1,984 | | | | 1,984 | | | |
| | Crop Residue Incineration | - | | - | - | - | | | |
| **Grand Totals** | | 1,762,500 | | 1,549,505 | 131,746 | 19,843 | | 57,431 | 3,974 |

**Regional GHG Emissions By Source and Sector**
**Year: 2010**

| Region / County Name | Warren |
|---|---|

**Color Code**

| | |
|---|---|
| | REQUIRED, though some data may be zero or considered to small to count |
| | OPTIONAL |
| | DO NOT Report Data in these cells |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence Yes No | Brief Description of Method and Issues |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | | | |
| | Electricity / Steam | | 54,450 | | | Yes | Consumption | MMBTU | 818,800 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | |
| | Natural Gas | 46,658 | | | | Yes | Consumption | MMBTU | 875,893 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | |
| | Propane / LPG | 14,765 | | | | Yes | Consumption | MMBTU | 239,260 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 35,639 | | | | Yes | Consumption | MMBTU | 478,633 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | |
| | Wood | 1,244 | | | 59,107 | Yes | Consumption | MMBTU | 630,136 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | |
| | Coal | 17 | | | | Yes | Consumption | MMBTU | 102 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | |
| | **Commercial Energy Consumption** | | | | | | | | | | | |
| | Electricity / Steam | | 29,913 | | | Yes | Consumption | MMBTU | 449,823 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | |
| | Natural Gas | 45,204 | | | | Yes | Consumption | MMBTU | 848,604 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | |
| | Propane / LPG | - | | | | Yes | Consumption | MMBTU | - | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | - | | | | Yes | Consumption | MMBTU | - | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | |
| | Residual Fuel Oil (#5 and #6) | - | | | | Yes | Consumption | MMBTU | - | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | |
| | Coal | - | | | | Yes | Consumption | MMBTU | - | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | |
| | Wood | - | | | | Yes | Consumption | MMBTU | - | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | |
| | **Industrial Energy Consumption** | | | | | | | | | | | |
| | Electricity / Steam | | 45,655 | | | Yes | Consumption | MMBTU | 686,555 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) allocate SEDS EIA data based allocated by industrial employment | | |
| | Natural Gas | 102,089 | | | | Yes | Consumption | MMBTU | 1,916,487 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | |
| | Propane / LPG | - | | | | Yes | Consumption | MMBTU | - | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 8,450 | | | | Yes | Consumption | MMBTU | 113,874 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | |
| | Residual Fuel Oil (#5 and #6) | 3,106 | | | | Yes | Consumption | MMBTU | 42,215 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | |
| | Coal | 123,284 | | | | Yes | Consumption | MMBTU | 1,302,704 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | |
| | Petroleum Coke | - | | | | Yes | Consumption | MMBTU | - | | | |
| | Motor Gasoline (E-10) | - | | | | Yes | Consumption | MMBTU | - | | | |
| | Other Oils | - | | | | Yes | Consumption | MMBTU | - | | | |
| | Wood | - | | | | Yes | Consumption | MMBTU | - | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | |
| | **Energy Generation and Supply** | | | | | | | | | | | |
| | Coal | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | |
| | Natural Gas | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | - | | | | No | Consumption | MMBTU | - | reported. For overlap, prioritize EIA 923 Database. | | |
| | Residual Fuel Oil (#5 and #6) | 2,330 | | | | No | Consumption | MMBTU | 30,920 | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | |
| | Wood / Biomass | 3,490 | | | 433,067 | No | Consumption | MMBTU | 4,616,914 | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. Wood CO2 emissions reported optionally as biogenic CO2, Ch4 and N2 Emissions required to be reported to Scope 1 | | |
| | MSW | - | | | | No | MSW Combusted | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. MSW CO2 emissions split as 44% reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1. | | |
| | Landfill Gas | - | | | | No | Consumption | | - | | | |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence |
| | Electricity T/D Losses | | 6,865 | | | Yes | Losses | MMBTU | 103,233 | (Rec) - Acquire utility specific estimate of T/D (in %) and apply that to all consumption (res/commercial/industrial). Report emissions as Scope 2 using regional EGRID emission factors consistent with all Scope 2 calculations. (Alt) use a statewide average T/D loss of 5.28% as documented by EPA's EGRID reporting for New York. | |
| | Natural Gas T/D Losses | 26,539 | | | | Yes | Losses | MMBTU | 65,538 | (Rec) - Acquire utility specific estimate of T/D (in %), compute as percentage of total residential/commercial/industrial/energy generation. Report as Scope 1 CH4 emissions. (Alt) use a statewide average of 1.8% as documented by National Grid in 2010 PSC Reporting. | |
| | Use of SF6 in the Utility Industry | - | | | | Yes | Consumption | MMBTU | - | (Rec) - acquire utility specific estimate and report as SF6. (Alt) Apportion NYSERDA 2009 Emission Inventory Total for the state to counties based ration of EIA reported total electricity demand to computed regional or county demand for all sectors. | |
| | **Industrial Processes** | | | | | | | | | | |
| | Cement Production | 321,965 | | | | Yes | | | | | |
| | Iron and Steel Production | - | | | | Yes | | | | | |
| | Aluminum Production | - | | | | Yes | | | | | |
| | Pulp and Paper Manufacturing | 2,520 | | | 109,128 | Yes | | | | | |
| | Limestone Use | - | | | | Yes | | | | (Rec) Direct Allocation from from EPA MMR only. Small Sources to not to be included at this time. | |
| | Soda Ash Use | - | | | | Yes | | | | | |
| | Semi-Conductor Manufacturing | - | | | | Yes | | | | | |
| | Glass Production | - | | | | Yes | | | | | |
| | Chemical Manufacturing | - | | | | Yes | | | | | |
| | **Product Use (Ozone Depleting Substances)** | | | | | | | | | | |
| | All Refrigerants- except SF6 | 24,839 | | | | Yes | | | | (Rec) Use EPA 2009 Draft Guidance method. Allocate national per/capita emissions to counties based on population. Methods include mobile refrigeration | |
| **Transportation Energy** | **On-road** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 351,315 | | | | Yes | Consumption | MMBTU | 5,128,421 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions. | |
| | Diesel | 69,066 | | | | Yes | Consumption | MMBTU | 931,275 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions on the ethanol line item. | |
| | Ethanol (E-85) | | | | | No | Consumption | MMBTU | | Optional- Include regional E-85 consumption if you have it, and debit against your gasoline estimate create using VMT. Allocate 15% as gasoline to be reported as Scope 1, and 85% as ethanol to be reported as optional biogenic. | |
| | Biodiesel | | | | | No | Consumption | MMBTU | | Optional- Include regional biodiesel consumption if you have it, and debit against your diesel estimate create using VMT. Because biodiesel blends change, allocate option biogenic component on this line item only, and retain the diesel fraction on the diesel line item. | |
| | Electricity Consumption | | | | | No | Consumption | MMBTU | | Today this will be zero, but as NYSERDA pushes to electrify on-road transportation we will want to report here, debiting against electricity consumption in the other sectors as appropriate. | |
| | **Rail** | | | | | | | | | | |
| | Diesel | 355 | | | | Yes | Consumption | MMBTU | 4,790 | Freight and Passenger. (Rec) Use direct provider fuel consumption data allocated spatially to location of routes (Alt) Use Nyserda 2002 estimates of Diesel consumption by county directly. | |
| | Electricity Consumption | | 0 | | | Yes | Consumption | MMBTU | - | Passenger and Commuter (Rec) Use direct provider electricity consumption data allocated spatially to location of routes (Alt) None identified. | |
| | **Marine** | | | | | | | | | | |
| | *ALL FUELS* | 21,135 | | | | Yes | Consumption | MMBTU | 300,985 | | |
| | *Diesel* | NA | | | | Yes | Consumption | MMBTU | NA | Rec - USE NYSDEC 2007 data from the state emission inventory for the small and pleasure craft categories reported by county (data on Wiggio). For commercial distillate and bunkers, No consensus method identified- please document methods used. | |
| | *Distillate Fuel Oil (#1, #2, #4, Kerosene)* | NA | | | | Yes | Consumption | MMBTU | NA | | |
| | *Residual Fuel Oil (#5 and #6)* | NA | | | | Yes | Consumption | MMBTU | NA | | |
| | **Air** | | | | | | | | | | |
| | All Fuels (Jet and Aviation Gasoline) | | | | | No | Consumption | MMBTU | | Optional Scope 1- Estimate Landing and Take off Cycle emissions using a dispersion model such as EDMS, or with related data from the NYSDEC for the 2007 state emission inventory. Optional Scope 3, use FAA statistics on departure miles from regional airport, allocate jet fuel use to it, then allocate to counties by fraction of population served | |
| | **Off-road Mobile** | | | | | | | | | | |
| | *ALL FUELS* | 62,901 | | | | Yes | Consumption | MMBTU | 895,775 | | |
| | *Diesel* | NA | | | | Yes | Consumption | MMBTU | NA | | |
| | *Natural Gas* | NA | | | | Yes | Consumption | MMBTU | NA | | |
| | *Propane / LPG* | NA | | | | Yes | Consumption | MMBTU | NA | Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine. | |
| **Waste Management** | **Solid Waste Management** | | | | | | | | | | |
| | Landfill Gas | - | 426 | | | Yes - ONLY Scope 3 | MSW+CD Generated | Tonnes | 3,597 | This is fugitive CH4 emissions from landfills. There are two required Scopes. Scope 1 - Estimate of actual emissions in regional boundary. (rec) use MMR or Title 5 (annual landfill reporting) data directly for facilities (data on Wiggio). For recently closed landfills or for areas without reported data, use a First Order Decay model to estimate emissions. Scope 3- emissions footprint attributed to current waste generation regardless of where it is treated. (rec) Estimate county level MSW and C/D waste generation and apply a representative FOD model with prevailing CH4 captures rates forward-casted 50 years to estimate the footprint. | |
| | MSW incineration (non grid connected) | - | 10,880 | | | Yes | MSW+CD Processed | Tonnes | | Rec - for any MSW incinerated that does not generate grid connected power, compute emissions. MSW CO2 emissions split. 44% shall be reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1 | |
| | **Sewage Treatment** | | | | | | MSW Sent for Incineration | Tonnes | 33,953 | | |
| | Central WWTPs and Septic Systems | 7,174 | | | | Yes | MSW incinerated in Boundary | Tonnes | | Determine population covered by WWTPs. (Rec)- Use the ICLEI Local Government Operations Protocol and apply to all facilities in the region. (Alt) use methods as described in the EPA 2009 Draft GHG guidance to translate populations served into emissions using default data. Determine population covered by Septic Systems, and apply the default emissions / capita as described in the ICLEI Local Government Operations Protocol. | |
| **Agriculture** | **Livestock** | | | | | | | | | | |
| | Enteric Fermentation | 5,752 | | | | Yes | | | | | |
| | Manure management | 1,067 | | | | Yes | | | | (Rec) Methods as described in the EPA 2009 guidance and executed in the EPA's State Inventory Tool. Use locally resolved fertilizer, crop, and livestock popula | |
| | **Crop Production and Soil Management** | | | | | | | | | | |
| | Use of Fertilizer | 4,075 | | | | Yes | | | | | |
| | Crop Residue Incineration | | | | | No | | | | | |
| **Land Use and Forestry** | | | | | | | | | | | |
| | Urban Forest Annual Reserve | | | | | No | | | | Optional Source and Sink. Use methods described in the EPA 2009 Guidance. Use local forest inventory data, or use the US Forest Services online inventory tool | |
| | Forest Carbon Reserve (Change) | | | | | No | | | | | |
| Grand Totals | Gross Totals | 1,278,709 | 136,883 | 11,306 | 601,302 | | | | | Sum Totals in columns for all EXCEPT ANY FORESTRY SINKS. Totals in the Scope 1 column can be a considered a physical roll up of emissions that occur in boundary, and is analogous to reporting that is done for state and federal GHG inventories, and for air quality management. | |
| | Net Totals | | | | | | | | | Value above MINUS and reported optional forestry sinks. | |

**REDC GHG Emissions Roll Up Report**
**Year: 2010**
**(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)**

| REDC / County Name | Warren County |
|---|---|

**Color Code**

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count
Report NO Data in cell

**DRAFT Roll Up Report CGC. Emissions in MTCDE**

| | | CO2e | CO2 | CH4 | N2O | PFC | HFC | SF6 |
|---|---|---|---|---|---|---|---|---|
| **Built Environment** | **Residential Energy Consumption** | | | | | | | |
| | Electricity / Steam | 54,450 | 54,185 | 37 | 228 | | | |
| | Natural Gas | 46,658 | 46,440 | 55 | 163 | | | |
| | Propane / LPG | 14,765 | 14,705 | 15 | 45 | | | |
| | Distillate Fuel Oil (#1, #2, Kerosene) | 35,639 | 35,426 | 106 | 107 | | | |
| | Coal | 17 | 10 | 0 | 7 | | | |
| | Wood | 1,244 | - | 424 | 820 | | | |
| | **Commercial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 29,913 | 29,767 | 20 | 126 | | | |
| | Natural Gas | 45,204 | 44,993 | 53 | 158 | | | |
| | Propane / LPG | - | - | - | - | | | |
| | Distillate Fuel Oil (#1, #2, Kerosene) | - | - | - | - | | | |
| | Residual Fuel Oil (#4 and #6) | - | - | - | - | | | |
| | Coal | - | - | - | - | | | |
| | Wood | - | - | - | - | | | |
| | **Industrial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 45,655 | 45,433 | 31 | 191 | | | |
| | Natural Gas | 102,089 | 101,612 | 121 | 356 | | | |
| | Propane / LPG | - | - | - | - | | | |
| | Distillate Fuel Oil (#1, #2, Kerosene) | 8,450 | 8,422 | 7 | 21 | | | |
| | Residual Fuel Oil (#4 and #6) | 3,106 | 3,095 | 3 | 8 | | | |
| | Coal | 123,284 | 122,337 | 301 | 646 | | | |
| | Wood | - | | - | - | | | |
| | **Energy Generation and Supply** | | | | | | | |
| | Electricity T/D Losses | 6,865 | 6,831 | 5 | 29 | | | |
| | Natural Gas T/D Losses | 26,539 | | 26,539 | | | | |
| | Use of SF6 in the Utility Industry | - | | | | | | - |
| | **Industrial Processes** | | | | | | | |
| | Cement Production | 321,965 | 321,178 | 250 | 537 | | | |
| | Iron and Steel Production | - | - | - | | | | |
| | Aluminum Production | - | - | | | - | | |
| | Paper and Pulp | 2,520 | 886 | 728 | 1,792 | | | |
| | Limestone Use | - | - | - | | | | |
| | Soda Ash Use | - | - | - | | | | |
| | Semi-Conductor Manufacturing | - | | | | - | - | - |
| | Chemical Manufacturing | - | - | - | | | | |
| | **Product Use (ODS Substitues)** | | | | | | | |
| | All Refrigerants- except utility SF6 | 24,389 | | | | 1,575 | 22,814 | |
| **Transportation Energy** | **On-road** | | | | | | | |
| | Motor Gasoline (E-10) | 351,314 | 345,894 | 376 | 5,044 | | | |
| | Diesel | 69,066 | 68,901 | 92 | 73 | | | |
| | Ethanol | - | | - | - | | | |
| | Biodiesel | - | | - | - | | | |
| | **Rail** | | | | | | | |
| | Diesel | 355 | 354 | 0 | 1 | | | |
| | Electricity Consumption | | - | - | - | | | |
| | **Marine** | | | | | | | |
| | All Fuels (Diesel and Gasoline) | 21,135 | 21,135 | NA | NA | | | |
| | *Distillate* | - | - | - | - | | | |
| | *Residual Fuel Oil* | - | - | - | - | | | |
| | **Off-road Mobile** | | | | | | | |
| | All Fuels (Diesel and Gasoline) | 62,901 | 62,901 | NA | NA | | | |
| **Waste Management** | **Solid Waste Management** | | | | | | | |
| | Landfill Methane (Scope 3) | 426 | | 426 | | | | |
| | MSW incineration (non grid connected) | 10,880 | 10,303 | 211 | 366 | | | |
| | **Sewage Treatment** | | | | | | | |
| | Central WWTPs and Septic Systems | 7,174 | | 7,155 | 19 | | | |
| **Agriculture** | **Livestock** | | | | | | | |
| | Enteric Fementation | 5,752 | | 5,752 | | | | |
| | Manure management | 1,067 | | 705 | 362 | | | |
| | **Crop Production and Soil Management** | | | | | | | |
| | Use of Fertilizer | 4,075 | | | 4,075 | | | |
| | Crop Residue Incineration | - | - | - | - | | | |
| **Grand Totals** | | 1,426,897 | 1,344,808 | 43,412 | 15,174 | 1,575 | 22,814 | - |

**Regional GHG Emissions By Source and Sector**
**Year: 2010**

| Region / County Name | Washington |
|---|---|

**Color Code**

| | |
|---|---|
| | REQUIRED, though some data may be zero or considered to small to count |
| | OPTIONAL |
| | DO NOT Report Data in these cells |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | | | | | Rolled Up? | Related GHG Metrics / Activity Data | | | Protocol Compliance Report | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Scope 1 | Scope 2 | Scope 3 | Biogenic | | Metric | Unit | Value | Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence Yes | No Brief Description of Method and Issues |
| **Built Environment** | **Residential Energy Consumption** | | | | | | | | | | | |
| | Electricity / Steam | | 39,838 | | | Yes | Consumption | MMBTU | 599,072 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | |
| | Natural Gas | 16,083 | | | | Yes | Consumption | MMBTU | 301,919 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size | | |
| | Propane / LPG | 15,059 | | | | Yes | Consumption | MMBTU | 244,029 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 45,254 | | | | Yes | Consumption | MMBTU | 607,760 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | |
| | Wood | 2,451 | | | 116,487 | Yes | Consumption | MMBTU | 1,241,866 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | |
| | Coal | 13 | | | | Yes | Consumption | MMBTU | 76 | (Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size | | |
| | **Commercial Energy Consumption** | | | | | | | | | | | |
| | Electricity / Steam | | 60,427 | | | Yes | Consumption | MMBTU | 908,685 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | |
| | Natural Gas | 47,009 | | | | Yes | Consumption | MMBTU | 882,479 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method. | | |
| | Propane / LPG | 4,477 | | | | Yes | Consumption | MMBTU | 72,467 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 22,179 | | | | Yes | Consumption | MMBTU | 294,619 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | |
| | Residual Fuel Oil (#5 and #6) | 15,827 | | | | Yes | Consumption | MMBTU | 210,056 | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | |
| | Coal | - | | | | Yes | Consumption | MMBTU | - | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | |
| | Wood | - | | | | Yes | Consumption | MMBTU | - | (Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only. | | |
| | **Industrial Energy Consumption** | | | | | | | | | | | |
| | Electricity / Steam | | 20,661 | | | Yes | Consumption | MMBTU | 310,697 | (Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) allocate SEDS EIA data based allocated by industrial employment | | |
| | Natural Gas | 15,167 | | | | Yes | Consumption | MMBTU | 284,717 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | |
| | Propane / LPG | 801 | | | | Yes | Consumption | MMBTU | 12,983 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | 7,333 | | | | Yes | Consumption | MMBTU | 98,834 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | |
| | Residual Fuel Oil (#5 and #6) | 9,132 | | | | Yes | Consumption | MMBTU | 121,200 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | |
| | Coal | - | | | | Yes | Consumption | MMBTU | - | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | |
| | Petroleum Coke | - | | | | Yes | Consumption | MMBTU | - | | | |
| | Motor Gasoline (E-10) | - | | | | Yes | Consumption | MMBTU | - | | | |
| | Other Oils | - | | | | Yes | Consumption | MMBTU | - | | | |
| | Wood | 451 | | | 21,421 | Yes | Consumption | MMBTU | 228,368 | (Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations. | | |
| | **Energy Generation and Supply** | | | | | | | | | | | |
| | Coal | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | |
| | Natural Gas | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | |
| | Distillate Fuel Oil (#1, #2, #4, Kerosene) | - | | | | No | Consumption | MMBTU | - | reported. For overlap, prioritize EIA 923 Database. | | |
| | Residual Fuel Oil (#5 and #6) | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. For overlap, prioritize EIA 923 Database. | | |
| | Wood / Biomass | - | | | | No | Consumption | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. Wood CO2 emissions reported optionally as biogenic CO2, Ch4 and N2 Emissions required to be reported to Scope 1 | | |
| | MSW | 55,294 | | | 92,088 | No | MSW Combusted | MMBTU | - | (Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. MSW CO2 emissions split as 44% reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1. | | |
| | Landfill Gas | - | | | | No | Consumption | | - | | | |
| | Electricity T/D Losses | | 6,385 | | | Yes | Losses | MMBTU | 5,069 | (Rec) - Acquire utility specific estimate of T/D (in %) and apply that to all consumption (res/commercial/industrial). Report emissions as Scope 2 using regional EGRID emission factors consistent with all Scope 2 calculations. (Alt) use a statewide average T/D loss of 5.28% as documented by EPA's EGRID reporting for New York. | | |

| DRAFT Reporting Template CGC. Emissions in MTCDE | | Scope 1 | Scope 2 | Scope 3 | Biogenic | Rolled Up? | Related GHG Metrics / Activity Data: Metric | Unit | Value | Protocol Compliance Report: Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative | Adherence |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Natural Gas T/D Losses | 10,708 | | | | Yes | Losses | MMBTU | 26,444 | (Rec) - Acquire utility specific estimate of T/D (in %), compute as percentage of total residential/commercial/industrial/energy generation. Report as Scope 1 CH4 emissions. (Alt) use a statewide average of 1.8% as documented by National Grid in 2010 PSC Reporting. | |
| | Use of SF6 in the Utility Industry | | | | | Yes | Consumption | MMBTU | - | (Rec) - acquire utility specific estimate and report as SF6. (Alt) Apportion NYSERDA 2009 Emission Inventory Total for the state to counties based ration of EIA reported total electricity demand to computed regional or county demand for all sectors. | |
| | **Industrial Processes** | | | | | | | | | | |
| | Cement Production | - | | | | Yes | | | | | |
| | Iron and Steel Production | - | | | | Yes | | | | | |
| | Aluminum Production | - | | | | Yes | | | | | |
| | Pulp and Paper Manufacturing | - | | | | Yes | | | | | |
| | Limestone Use | - | | | | Yes | | | | (Rec) Direct Allocation from from EPA MMR only. Small Sources to not to be included at this time. | |
| | Soda Ash Use | - | | | | Yes | | | | | |
| | Semi-Conductor Manufacturing | - | | | | Yes | | | | | |
| | Glass Production | - | | | | Yes | | | | | |
| | Chemical Manufacturing | - | | | | Yes | | | | | |
| | **Product Use (Ozone Depleting Substances)** | | | | | | | | | | |
| | All Refrigerants- except SF6 | 23,464 | | | | Yes | | | | (Rec) Use EPA 2009 Draft Guidance method. Allocate national per/capita emissions to counties based on population. Methods include mobile refrigeration | |
| **Transportation Energy** | **On-road** | | | | | | | | | | |
| | Motor Gasoline (E-10) | 225,628 | | | | Yes | Consumption | MMBTU | 3,294,991 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions. | |
| | Diesel | 39,496 | | | | Yes | Consumption | MMBTU | 532,555 | (Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions on the ethanol line item. | |
| | Ethanol (E-85) | | | | | No | Consumption | MMBTU | | Optional- Include regional E-85 consumption if you have it, and debit against your gasoline estimate create using VMT. Allocate 15% as gasoline to be reported as Scope 1, and 85% as ethanol to be reported as optional biogenic. | |
| | Biodiesel | | | | | No | Consumption | MMBTU | | Optional- Include regional biodiesel consumption if you have it, and debit against your diesel estimate create using VMT. Because biodiesel blends change, allocate option biogenic component on this line item only, and retain the diesel fraction on the diesel line item. | |
| | Electricity Consumption | | | | | No | Consumption | MMBTU | | Today this will be zero, but as NYSERDA pushes to electrify on-road transportation we will want to report here, debiting against electricity consumption in the other sectors as appropriate. | |
| | **Rail** | | | | | | | | | | |
| | Diesel | 8,714 | | | | Yes | Consumption | MMBTU | 117,426 | Freight and Passenger. (Rec) Use direct provider fuel consumption data allocated spatially to location of routes (Alt) Use Nyserda 2002 estimates of Diesel consumption by county directly. | |
| | Electricity Consumption | | 0 | | | Yes | Consumption | MMBTU | - | Passenger and Commuter (Rec) Use direct provider electricity consumption data allocated spatially to location of routes (Alt) None identified. | |
| | **Marine** | | | | | | | | | | |
| | *ALL FUELS* | 3,544 | | | | Yes | Consumption | MMBTU | 50,476 | | |
| | *Diesel* | NA | | | | Yes | Consumption | MMBTU | NA | | |
| | *Distillate Fuel Oil (#1, #2, #4, Kerosene)* | NA | | | | Yes | Consumption | MMBTU | NA | Rec - USE NYSDEC 2007 data from the state emission inventory for the small and pleasure craft categories reported by county (data on Wiggio). For commercial distillate and bunkers, No consensus method identified- please document methods used. | |
| | *Residual Fuel Oil (#5 and #6)* | NA | | | | Yes | Consumption | MMBTU | NA | | |
| | **Air** | | | | | | | | | | |
| | All Fuels (Jet and Aviation Gasoline) | | | | | No | Consumption | MMBTU | | Optional Scope 1- Estimate Landing and Take off Cycle emissions using a dispersion model such as EDMS, or with related data from the NYSDEC for the 2007 state emission inventory. Optional Scope 3, use FAA statistics on departure miles from regional airport, allocate jet fuel use to it, then allocate to counties by fraction of population served | |
| | **Off-road Mobile** | | | | | | | | | | |
| | *ALL FUELS* | 37,373 | | | | Yes | Consumption | MMBTU | 518,415 | | |
| | *Diesel* | NA | | | | Yes | Consumption | MMBTU | NA | | |
| | *Natural Gas* | NA | | | | Yes | Consumption | MMBTU | NA | | |
| | *Propane / LPG* | NA | | | | Yes | Consumption | MMBTU | NA | Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine. | |
| **Waste Management** | **Solid Waste Management** | | | | | | | | | | |
| | Landfill Gas | - | | 392 | | Yes - ONLY Scope 3 | MSW+CD Generated | Tonnes | 6,447 | This is fugitive CH4 emissions from landfills. There are two required Scopes. Scope 1 - Estimate of actual emissions in regional boundary. (rec) use MMR or Title 5 (annual landfill reporting) data directly for facilities (data on Wiggio). For recently closed landfills or for areas without reported data, use a First Order Decay model to estimate emissions. Scope 3- emissions footprint attributed to current waste generation regardless of where it is treated. (rec) Estimate county level MSW and C/D waste generation and apply a representative FOD model with prevailing CH4 captures rates forward-casted 50 years to estimate the footprint. | |
| | MSW incineration (non grid connected) | - | | 6,029 | | Yes | MSW+CD Processed | Tonnes | | Rec - for any MSW incinerated that does not generate grid connected power, compute emissions. MSW CO2 emissions split. 44% shall be reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1 | |
| | **Sewage Treatment** | | | | | | MSW Sent for Incineration | Tonnes | 18,814 | | |
| | Central WWTPs and Septic Systems | 8,447 | | | | Yes | MSW incinerated in Boundary | Tonnes | | Determine population covered by WWTPs. (Rec)- Use the ICLEI Local Government Operations Protocol and apply to all facilities in the region. (Alt) use methods as described in the EPA 2009 Draft GHG guidance to translate populations served into emissions using default data. Determine population covered by Septic Systems, and apply the default emissions / capita as described in the ICLEI Local Government Operations Protocol. | |
| **Agriculture** | **Livestock** | | | | | | | | | | |
| | Enteric Fermentation | 89,649 | | | | Yes | | | | | |
| | Manure management | 30,072 | | | | Yes | | | | (Rec) Methods as described in the EPA 2009 guidance and executed in the EPA's State Inventory Tool. Use locally resolved fertilizer, crop, and livestock population from either the 2007 Ag census or the US NASS system to get county-level data and make calculations for each county. | |
| | **Crop Production and Soil Management** | | | | | | | | | | |
| | Use of Fertilizer | 28,441 | | | | Yes | | | | | |
| | Crop Residue Incineration | | | | | No | | | | | |
| **Land Use and Forestry** | | | | | | | | | | | |
| | Urban Forest Annual Reserve | | | | | No | | | | Optional Source and Sink. Use methods described in the EPA 2009 Guidance. Use local forest inventory data, or use the US Forest Services online inventory tool for forests. For carbon stock factors use the National Council for Air and Stream Improvement's Carbon On-Line Estimator. | |
| | Forest Carbon Reserve (Change) | | | | | No | | | | (NCASI 2008) Use the | |
| Grand Totals | Gross Totals | 706,772 | 127,311 | 6,421 | 229,996 | | | | | Sum Totals in columns for all EXCEPT ANY FORESTRY SINKS. Totals in the Scope 1 column can be a considered a physical roll up of emissions that occur in boundary, and is analogous to reporting that is done for state and federal GHG inventories, and for air quality management. | |
| | Net Totals | | | | | | | | | Value above MINUS and reported optional forestry sinks. | |

**REDC GHG Emissions Roll Up Report**
**Year: 2010**
**(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)**

| REDC / County Name | Washington County |
|---|---|

**Color Code**

| | |
|---|---|
| | REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count |
| | Report NO Data in cell |

**DRAFT Roll Up Report CGC. Emissions in MTCDE**

| | | CO2e | CO2 | CH4 | N2O | PFC | HFC | SF6 |
|---|---|---|---|---|---|---|---|---|
| **Built Environment** | **Residential Energy Consumption** | | | | | | | |
| | Electricity / Steam | 39,838 | 39,644 | 27 | 167 | | | |
| | Natural Gas | 16,083 | 16,008 | 19 | 56 | | | |
| | Propane / LPG | 15,059 | 14,998 | 15 | 46 | | | |
| | Distillate Fuel Oil (#1, #2, Kerosene) | 45,254 | 44,984 | 134 | 136 | | | |
| | Coal | 13 | 7 | 0 | 6 | | | |
| | Wood | 2,451 | - | 834 | 1,617 | | | |
| | **Commercial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 60,427 | 60,133 | 40 | 254 | | | |
| | Natural Gas | 47,009 | 46,789 | 56 | 164 | | | |
| | Propane / LPG | 4,472 | 4,454 | 5 | 13 | | | |
| | Distillate Fuel Oil (#1, #2, Kerosene) | 22,179 | 22,105 | 19 | 55 | | | |
| | Residual Fuel Oil (#4 and #6) | 15,827 | 15,775 | 13 | 39 | | | |
| | Coal | - | - | - | - | | | |
| | Wood | - | - | - | - | | | |
| | **Industrial Energy Consumption** | | | | | | | |
| | Electricity / Steam | 20,661 | 20,561 | 14 | 86 | | | |
| | Natural Gas | 15,167 | 15,096 | 18 | 53 | | | |
| | Propane / LPG | 801 | 798 | 1 | 2 | | | |
| | Distillate Fuel Oil (#1, #2, Kerosene) | 7,334 | 7,310 | 6 | 18 | | | |
| | Residual Fuel Oil (#4 and #6) | 9,132 | 9,102 | 8 | 22 | | | |
| | Coal | - | - | - | - | | | |
| | Wood | 451 | | 154 | 297 | | | |
| | **Energy Generation and Supply** | | | | | | | |
| | Electricity T/D Losses | 6,385 | 6,354 | 4 | 27 | | | |
| | Natural Gas T/D Losses | 10,708 | | 10,708 | | | | |
| | Use of SF6 in the Utility Industry | - | | | | | | - |
| | **Industrial Processes** | | | | | | | |
| | Cement Production | - | - | - | | | | |
| | Iron and Steel Production | - | - | - | | | | |
| | Aluminum Production | - | - | | | - | | |
| | Paper and Pulp | - | - | - | | | | |
| | Limestone Use | - | - | - | | | | |
| | Soda Ash Use | - | - | - | | | | |
| | Semi-Conductor Manufacturing | - | | | | - | - | - |
| | Chemical Manufacturing | - | - | - | | | | |
| | **Product Use (ODS Substitues)** | | | | | | | |
| | All Refrigerants- except utility SF6 | 23,464 | | | | 1,515 | 21,949 | |
| **Transportation Energy** | **On-road** | | | | | | | |
| | Motor Gasoline (E-10) | 225,627 | 222,146 | 241 | 3,240 | | | |
| | Diesel | 39,496 | 39,401 | 53 | 42 | | | |
| | Ethanol | - | | - | - | | | |
| | Biodiesel | - | | - | - | | | |
| | **Rail** | | | | | | | |
| | Diesel | 8,714 | 8,685 | 7 | 22 | | | |
| | Electricity Consumption | | - | - | - | | | |
| | **Marine** | | | | | | | |
| | All Fuels (Diesel and Gasoline) | 3,544 | 3,544 | NA | NA | | | |
| | *Distillate* | 0 | - | - | - | | | |
| | *Residual Fuel Oil* | 0 | - | - | - | | | |
| | **Off-road Mobile** | | | | | | | |
| | All Fuels (Diesel and Gasoline) | 37,373 | 37,373 | NA | NA | | | |
| **Waste Management** | **Solid Waste Management** | | | | | | | |
| | Landfill Methane (Scope 3) | 392 | | 392 | | | | |
| | MSW incineration (non grid connected) | 6,029 | 5,709 | 117 | 203 | | | |
| | **Sewage Treatment** | | | | | | | |
| | Central WWTPs and Septic Systems | 8,447 | | 8,438 | 9 | | | |
| **Agriculture** | **Livestock** | | | | | | | |
| | Enteric Fementation | 89,649 | | 89,649 | | | | |
| | Manure management | 30,072 | | 21,385 | 8,687 | | | |
| | **Crop Production and Soil Management** | | | | | | | |
| | Use of Fertilizer | 28,441 | | | 28,441 | | | |
| | Crop Residue Incineration | - | - | - | - | | | |
| **Grand Totals** | | 840,499 | 640,976 | 132,357 | 43,702 | 1,515 | 21,949 | - |

# Cleaner, Greener Regional Sustainability Plan for the Capital Region
# STAKEHOLDER ENGAGEMENT STRATEGY

The sustainability planning process will need to engage various stakeholder groups so that the plan reflects a shared vision for a more sustainable community. A variety of strategies and tactics will be used to guide public outreach and engagement through all phases of the planning process. The success of various outreach and engagement techniques will be evaluated as the process continues and this public engagement strategy will be revised as needed to address any outreach gaps and provide capacity building where it is identified as necessary.

The planning area is comprised of eight counties: Albany; Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren; and Washington.

Through this process, we will:

- Engage the general public on a grassroots level;
- Work with existing outreach avenues, including Chambers of Commerce and economic development agencies, to gain participation from members of the business community; and
- Utilize traditional media and social media outlets to broadcast information and encourage public participation.

## Target Audiences

The goal of the plan is to provide as many opportunities as possible for stakeholders and members of the public to offer comment and give feedback at every step of the planning process. Stakeholders include:

- General public
- Businesses
- Non-profit and community-based organizations
- Non-governmental organizations
- Educational institutions (K-12 and higher education)
- Elected officials
- Social advocacy groups
- Sector-based groups and associations
- Organized labor
- State and municipal workforces

Various media and messaging vehicles will be used to reach these target audiences, including:

- An interactive project website
- Other community websites

- Chambers of Commerce and Economic Development agencies e-mail listservs/e-newsletters
- Press releases to local print, radio, and TV media
- Advertisements (online, print, radio)
- Public service announcements on cable TV public access channels
- Agency newsletters
- Notices in newspapers
- Social media
- Personal engagement through Chambers of Commerce, county planning departments, and economic development agencies
- Media interviews and editorial board visits

## Tactics

***Media Outreach:***
We will leverage traditional and social media to promote the project and to reach the region's diverse populations, because public participation is critical to our success. Media outreach will encompass the following types of media:

- Owned (project website)
- Earned (media coverage of planning process)
- Shared (social media, including Twitter, Facebook and LinkedIn)
- Paid (possible paid advertising online, print, radio, and outdoor)

The initiative was announced during a news conference on April 22, 2012 (Earth Day).

***The Project's Public Website:***
The website will be a crucial communication tool and will be used as the primary resource for information and status of the project. It will be informative, providing sustainability-related data and targets from relevant sources. It will be interactive, in that it will allow the public to provide input directly to the Governing Committee, will sync to social media outlets, and will encourage the public to participate in various surveys/idea mixers and attend public forums/workshops.

***Public Surveys and Online Open Houses:***
Community members will be encouraged to participate in one or both of two online engagement tools: online open houses (tied to the Crowdbrite tool) and online surveys. The public will be notified of one or both through various means, potentially including print ads, social media, e-mail, and earned media. Online engagement will cover a broad range of critical issues that will inform the planning team in the development of the Sustainability Plan.

***Public Forums:***
Public forums will provide an opportunity for the Governing Committee to obtain input from across the region on regional economic development issues, be informed by specific community stakeholders or experts, share information on progress to date, and obtain

input at critical milestones in the development of the Sustainability Plan.
Two rounds of public forums will be held, with anticipated participation from the eight counties of the study area. Residents, community, and business stakeholders will have the ability to gather information, voice opinions, and ask questions. Input from each of the public forums will be summarized to provide the planning team with a meaningful summary of the ideas gathered at the meeting.

***Virtual Focus Groups:***
We will engage critical internal stakeholders through webcasts: one for Chambers of Commerce; one for economic development agencies; and one for county planners. Through this mechanism, we will gain critical ideas and insights, and also encourage participants to become ambassadors to help spread ideas and seek feedback in their communities.

***Outreach to Specific Community Leaders and Attendance at Community Events:***
We recognize that key organizations, individual stakeholders, and individual business leaders can provide valuable information for this planning effort. We will participate in pre-existing events (Chamber Business Expos, etc.) as appropriate, identifying the most appropriate team members to attend.

***Use of Existing Networks:***
Given the size and diversity of the region, we also will engage the public through the existing networks established by state, county, and local governments, regional economic development and community organizations, and the region's Chambers of Commerce. We will use established local networks to engage the public, and using those networks will further encourage meaningful public involvement.

## Detailed Execution Plan

The detailed execution plan below specifies the tasks, deadlines, responsibilities and budget required in order to effectively engage stakeholders in the eight counties.

***General***

- Create a matrix identifying the wide range of constituencies and stakeholders that may need to be included in the Capital Region process. The matrix helps highlight any key stakeholder groups and constituencies that are not yet represented (or adequately represented) in the process.
    - Create the initial matrix. *PlaceMatters.* July 11.
    - Review and populate the matrix to identify any key stakeholders/constituencies that should be more energetically engaged prior for the first round of forums. *CHA, VHB, Executive Committee.* July 16.
- Website.
    - Set up a public website for the project. *PlaceMatters*. DONE
    - Maintain updated information on the site about the status of the project. *Team.* ONGOING

    - Through the website, invite people to offer comments, ask questions, and sign up for the email updates. ONGOING
- Email update system.
    - Set up an email update system using MailChimp. *PlaceMatters.* DONE
    - Distribute emails about once/month during the project with updates on the project and information about upcoming opportunities to participate. *PlaceMatters.*
        - July 10
        - mid-August
        - mid-September
        - mid-October
        - mid-November
        - mid-December
- Outreach database.
    - Create the database. *Behan and Team.* DONE
    - Email everyone inviting them to sign up for the email updates. *PlaceMatters.* DONE
- Social media.
    - Create Facebook and Twitter pages. *PlaceMatters.* DONE
    - Create a plan for posting on those pages. *PlaceMatters*. July 11
    - Regularly update the Facebook page and post information through Twitter. *Behan?* Ongoing
- Crowdbrite.
    - Set up the Crowdbrite tool. *PlaceMatters/Crowdbrite.*
    - Conduct a training webinar for the project team, canvas captains, and technical committee members before each set of forums.
        - July. PlaceMatters/Crowdbrite. DONE
        - September/October. *PlaceMatters/Crowdbrite.* Date TBD.
    - Establish canvas captains. *PlaceMatters/Crowdbrite.* July 9?
    - Create one or several simple introductory/promotional videos. *PlaceMatters and Crowdbrite.* July 20.

***Executive Committee***

- Create Executive Committee and hold kickoff event. DONE

***Technical Committees***

- Create technical committees focused on each of the eight topic areas: climate adaptation; economic development; energy; food; land use/livability; solid waste; transportation; and water. DONE
- Schedule a series of technical committee meetings interspersed between the public forums to generate ideas for the public forums and to consider ideas generated during the public forms. *CHA and VHB.* ONGOING.

***Forums***

- Ask every member of each technical committee to email their own contacts/lists

inviting people to attend one of the July forums and to sign up for the email updates. *CHA and VHB.*
    - July 9 (July forums)
    - about two weeks prior to the fall forums
- Post information on Facebook and Twitter about the upcoming forums. *Behan*? See the social media plan for details.
- One week before each forum, invite the technical committees to begin posting on the canvases. *CHA and VHB (with Crowdbrite).* July 17.
- Conduct the three forums. CHA, VHB, PlaceMatters, and Crowdbrite. July 23-25.
- Create "online open house" following each set of forums for continued public input. *PlaceMatters/Crowdbrite.* By July 23.
- Summarize the public input after each set of forums.
    - July. *PlaceMatters/Crowdbrite.* Approximately 1-2 weeks after the forums (depending on the timing of the online open house).
    - September/October. *PlaceMatters/Crowdbrite.* Approximately 1-2 weeks after the forums (depending on the timing of the online open house).
- Gather regional demographic information (CHA and VHB) and analyze participants' demographics (PlaceMatters) after each round of forums to identify any specific groups that may be underrepresented.
- Summarize all of the public input after the last forum.
    - Create an internal, complete summary of all the public input. *PlaceMatters/Crowdbrite.* Within two weeks of the end of the last forum.
    - Create a public reporting-out summary of all the public input. *PlaceMatters/Crowdbrite.* Within two weeks of the end of the last forum.

***Public Participation Matrix: Key Categories***

- Elected Officials
    - counties
    - cities, boroughs, and townships
    - other elected bodies (e.g., school boards)
    - state legislators
- Local Government (staff from county, city, borough, township, and other bodies)
    - economic development
    - fire and EMS departments
    - health departments
    - housing authorities
    - law enforcement agencies
    - MPOs/RPAs
    - parks and recreation departments
    - planning departments
    - private utility providers
    - public works
    - social services/senior services
    - transportation districts
    - utility/water/wastewater/solid waste districts and other special districts

    - veterans services
- State Government
    - [fill this in]
- Hospitals
    - [fill this in]
- Real Estate and Property Developers
    - [fill this in]
- Financial Institutions
    - banks and credit unions
    - investment sector
    - other financial institutions
- Large Businesses
    - [fill this in: all key sectors]
- Small Businesses
    - [fill this in: all key sectors]
- Agriculture and Vineyards
- Tourism
    - Visitors Bureaus
    - convention boards
    - tourism associations
- Economic Development
    - Chambers of Commerce
    - economic development agencies and councils
    - business associations
    - workforce development
    - industry associations
- Non-Profit/Community Organizations
    - community foundations
    - service-oriented organizations
    - housing organizations
    - arts and culture organizations
    - education organizations
    - civic organizations
    - activity-based organizations
    - advocacy organizations
    - leadership development organizations
    - youth groups
    - HOAs/neighborhood associations
- Faith Community
    - individual churches/denominations
    - partnerships among multiple churches/denominations
    - independent faith-based collaborations

In addition, there are some particular constituencies/stakeholders that need to be engaged in the process. These include:

- African-American community
- Latino community
- ethnic/cultural/immigrant communities
- youth
- seniors
- low-income
- veterans
- rural residents

| | |
|---|---|
| polticial parochialism | Group 1 |
| lack of investment in infrastructure | Group 1 |
| regulatory & utility tariff structure for developing hydro | Group 1 |
| aging infrastructure | Group 1 |
| lack of broadband in rural areas | Group 1 |
| lack of investment for restoring housing and buildings | Group 1 |
| lack of unified regional identity | Group 1 |
| lack of regional solid waste management | Group 1 |
| Inefficient government | Group 2 |
| state capital | Group 2 |
| Diversity of the region and its spread out | Group 2 |
| loss of industrial backbone | Group 2 |
| Distribution of exports with respect to agricultural communities | Group 2 |
| Lack of broadband connectivity and the speed at which it is delivered | Group 2 |
| Do not have density for mass transit | Group 2 |
| Decaying, obsolete and lacking infrastructure | Group 2 |
| Sprawl | Group 2 |
| loss of traditional village community centers and their local businesses | Group 2 |
| High concentration of poverty in both urban and rural communities | Group 2 |
| High taxes hinder growth and development | Group 2 |
| High utility costs | Group 2 |
| High emissions per capita | Group 2 |
| Unorganized waste management system | Group 2 |
| Regulations | Group 2 |
| Weak education systems in urban cores | Group 2 |
| Urban brownfields and lead issues | Group 2 |
| state agencies - being capital region, government focused jobs- some sustainability. also a challenge for northern regions | Group 3 |
| rail system | Group 3 |
| rail underutilized | Group 3 |
| repopulate urban areas, save natural resources- but old utility systems/infrastructure | Group 3 |
| dont market historical strengths as much as should | Group 3 |
| rush hour on the NOrthway | Group 3 |
| suburban sprawl | Group 3 |

| | |
|---|---|
| maintain educated youth. No jobs, no broadband, limited cell service | Group 3 |
| need more wifi capability in region and on rail | Group 3 |
| perception that we are the rust belt, schools not up to par, that region has high taxes | Group 3 |
| aging infrastructure | Group 3 |
| infrastructure projects are significant costs | Group 3 |
| costs of electrcity | Group 3 |
| incorporate existing population into the new high tech indsustry | Group 3 |

# Capital Region Sustainability Plan
## July 2012 Public Forum Results

The Capital Region planning area is comprised of eight counties: Albany; Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren; and Washington.

Three public forums were held in July 2012 across the region to get feedback on draft goals and strategies and to place ideas on maps representing their communities. More than 150 people participated, helped to identify more than 300 existing and proposed projects on county and town maps in the region.

The following charts summarize the results of keypad polling sessions in which participants voted for their preferred answer during a full group presentation. Detailed results are available at http://www.sustainablecapitalregion.org.

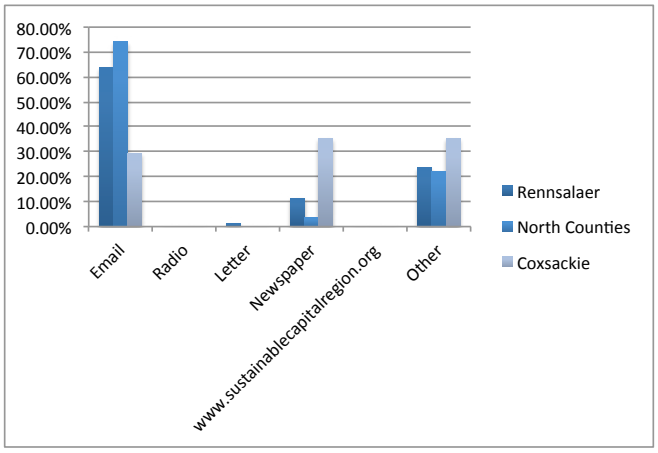
CAPITAL REGION SUSTAINABILITY PLAN
Cleaner Greener Communities

CLEANER GREENER COMMUNITIES

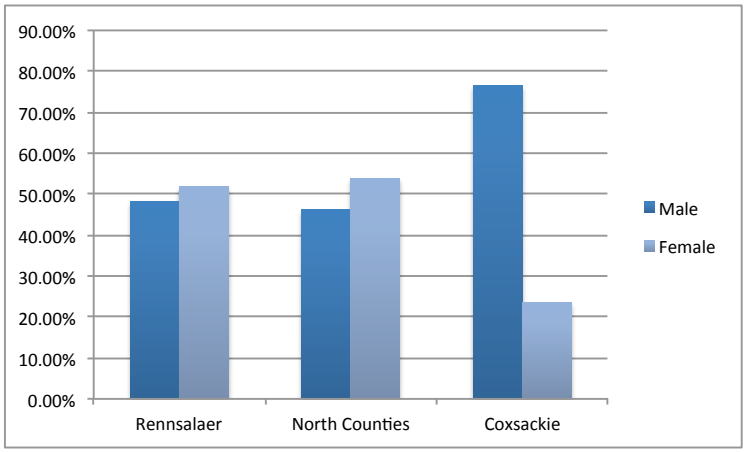
*Prepared by:*

PlaceMatters.

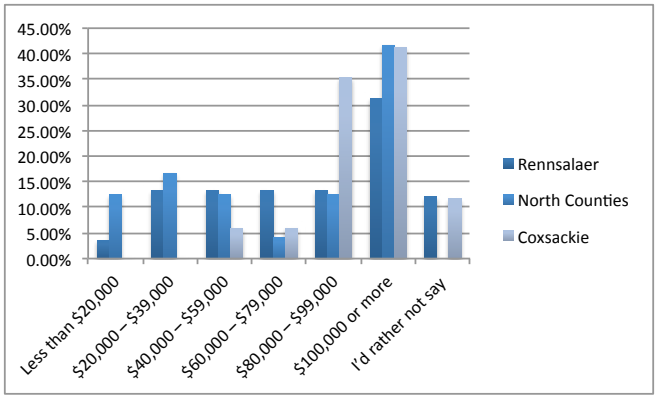
1.) How did you hear about today's meeting? (multiple choice)



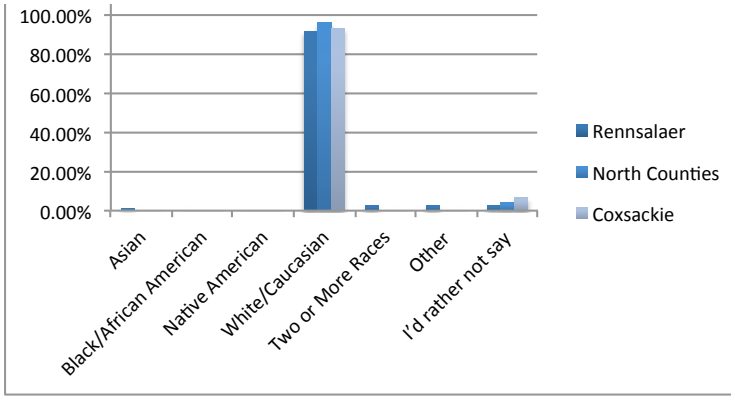

2.) What is your gender? (multiple choice)



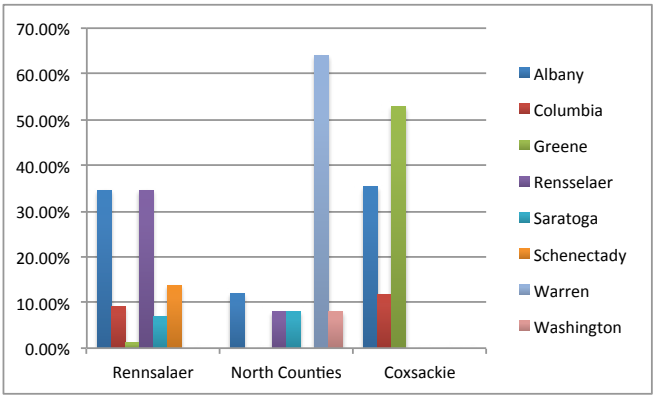

4.) What is your annual household income? (multiple choice)



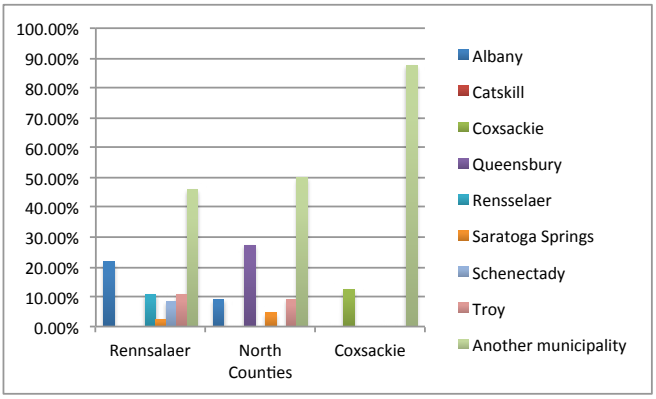

5.) How do you identify yourself? (multiple choice)



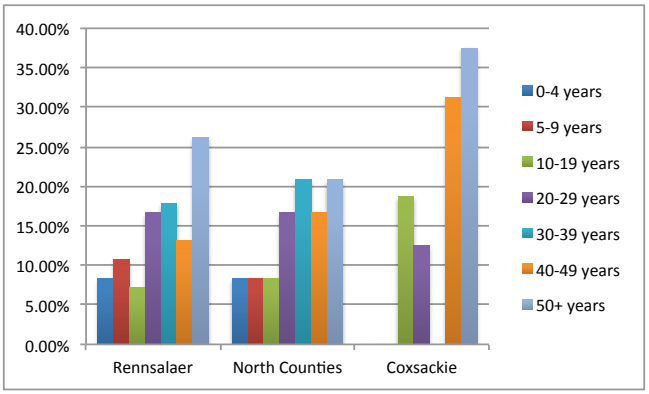
6.) What county do you live in? (multiple choice)



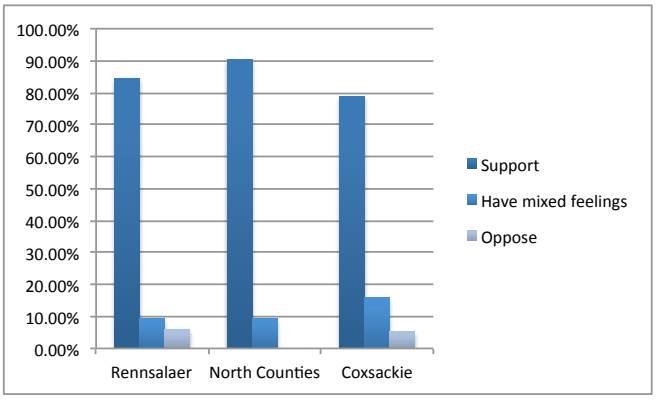

7.) Do you live in one of these municipalities? (multiple choice)



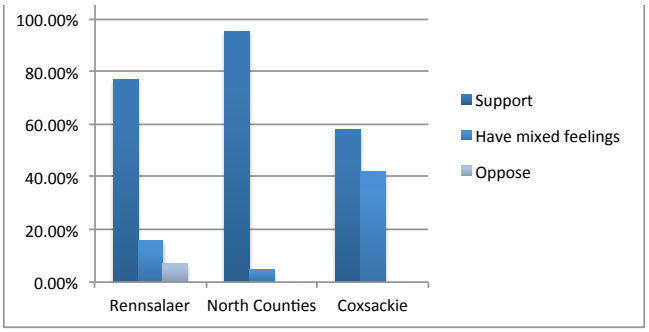

8.) How long have you lived in the region? (multiple choice)



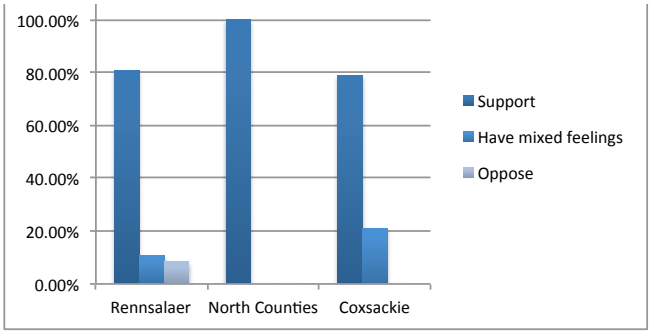

9.) Our vision includes well-developed multi-modal transportation options (roads, rail, bus, bike/ped). (multiple choice)



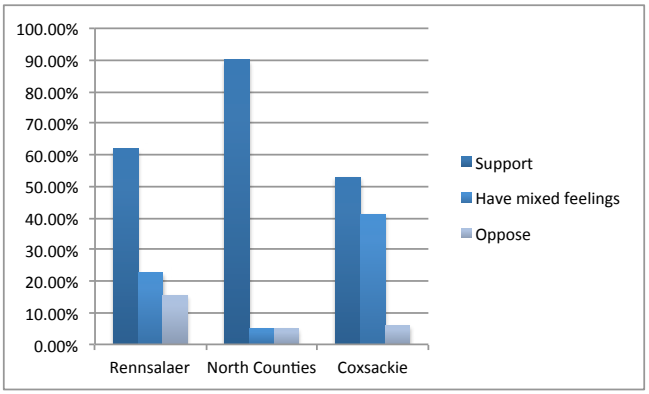

10.) Our vision includes vibrant and restored urban centers. (multiple choice)



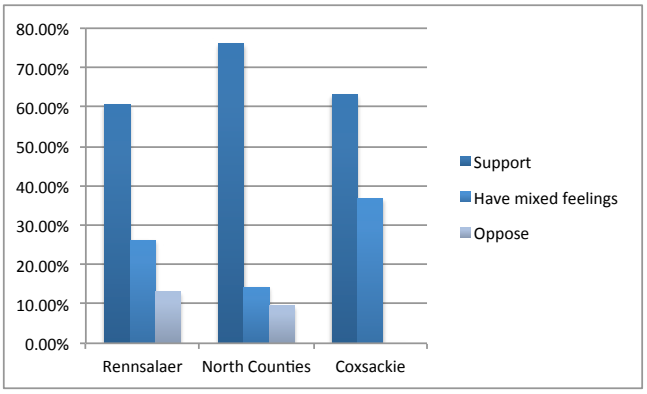

11.) Our vision includes food security and a strong agricultural economy. (multiple choice)



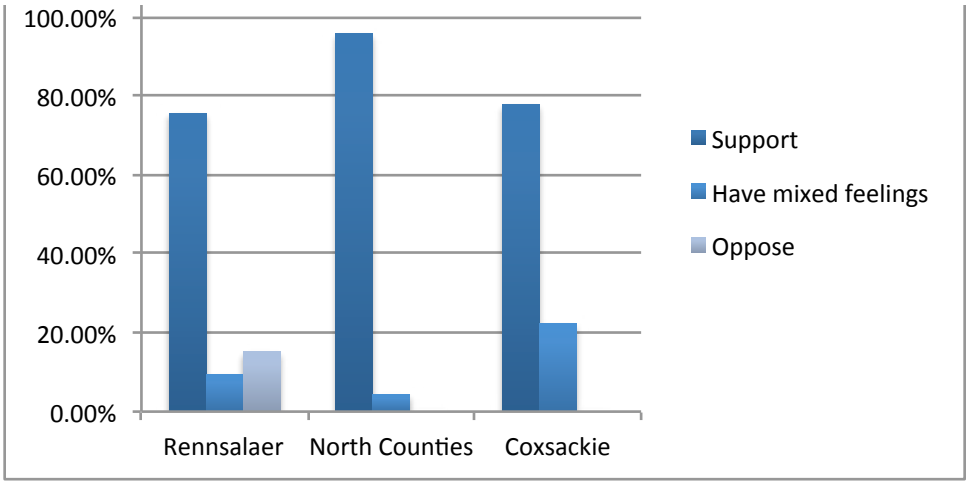
12.) Our vision includes a robust economy with a reputation for sustainability that is created through contributions from both the private and public sector. (multiple choice)




13.) Our vision includes an abundance of diverse job opportunities and less dependency on public jobs (i.e., a better balance with private jobs). (multiple choice)




14.) Our vision includes improving and innovating economic development while preserving rural and natural resource assets. (multiple choice)



**Crowdbrite Matrix**

The following matrix collected public comments on the eight focus areas. The comments focus on goals and strategies that should be incorporated into the Sustainability Plan.

# Cleaner Greener Communities:
## Capital District Regional Sustainability Plan

CLEANER GREENER COMMUNITIES A program of Open FOR BUSINESS

crowdbrite Collaborate | Design | Create

PlaceMatters.

Instructions

## Climate Adaptation

GUIDANCE: photos 900 px wide

(CA)Carbon Tax with revenue to be distributed to local communities (CC)

(CA): Preserve and enhance the region's ability to provide basic services ? sewer, water, power, and ecosystem services ? in the face of increased flooding risks, extreme heat, and other impacts of climate change.

(CA): Minimize the impacts of climate change on the most vulnerable populations and ecosystems.

(CA): Build capacity for agencies, governments, institutions, and individuals to adapt to a changing climate.

(CA) Assisting special municipalities with flood plain management. (SC)

(CA) Organize public 'fire drills' for extreme weather events floods, crop failures and hurricanes (CC)

(CA) Education for code enforcement officials and the general public on building code standards that minimize vulnerability to extreme weather, flooding, etc.

(CA) Increase funding for mitigation projects in the eight county's Hazard Mitigation Plans.

(CA) Disaster relief monies for municipalities affected by weather events. (SC)

(CA) Programs to purchase housing and relocate vulnerable populations in floodplains and other vulnerable areas.

(CA) Develop more accurate flood maps based on current best and worst case climate change scenarios.

(CA) Increased use of green infrastructure practices - specifically for flood management.(SC)

(CA) Reduce CO2 emissions - energy descent plans -- home, school, church, municipality (CC)

(CA) Increased use of green infrastructure practices - specifically for flood management.(SC)

(CA) Financial incentives and educational information re: availability of solar applications. (CC)

(CA) zone new development away from most vulnerable areas, ex flood plains (CC)

## Energy

(E) Educate children in middle and high school about environmentally friendly systems organizations and resources (CC)

(E) Zoning and other incentives (tax credits) to site windmills solar electric solar thermal energy supplies (CC)

(E) Quantify costs of pollution in terms of health consequences (CC)

(E) New construction building efficiency code changes

(E) Reduce baseline energy consumption X% by 2020.

(E) Decrease the region's consumption of fossil fuels 20% from 1990 levels by 2020.

(E) Reduce region's consumption of non-renewable energy

(E) Increase the share of renewable energy in the region

(E) mass broadband for capital region/State and corporate policies to encourage telecommuting (CC)

(E) Increase the share of renewable energy generation in the region to 15% by 2015, with additional increases to reach 30% by 2020.

Low interest loans for Renewable Energy and efficiency projects

(G/LU) private development requirement for meeting LEED codes (CC)

(E) ? developing the infrastructure and social capital to adapt to a future energy economy with a constrained supply

(E) ? Ensuring the resiliency of the region's economy by encouraging and supporting renewable energy infrastructure

(E) Every new construction project should be assessed for solar (CC)

(E) EDUCATION (CC)

(E) Establish/increase a renewable energy credit program in NYS (CC)

Performance Contracting to fund Energy Conservation Proj... Public Buildings

Lighting Retrofits for schools. NJBPU covers 100% cost to move from T12 to T8 lights in K-12 schools.

(E) ? supplying the energy needs of the region today in a way that reduces the negative environmental impacts, social inequities, and economic hardship on future generations

(E)? Developing renewable energy sources that reduce the amount of emissions from combustion of fossil fuels

(E) high... high...

(E) and (SW) Anaerobic digesters for farms to produce energy and heat and to capture methane.

(E/CA/T) Install floor on fuel costs (gasoline) that is escalated by __% per year. Will promote less driving and core land use) (CC)

(E) (CA) (T) Install floor on fuel costs (gasoline) that is escalated by __% per year. Will promote less driving and core land use) (CC)

Flickr user suba...

## Transportation

(T) Improve freight intermodal connections.

Government needs to build transit

(T) Incentivize mode shift.

(T) Make region a more attractive place to live.

Maintain and enhance the region's mobility for all users

(T) Add to school curriculum! More education on public transit and communities in general (SC)

(T) Affordable public transit (SC)

(T) Significanly increase bicycle transportation opportunities - bike lanes, dedicated facilities, etc. (CC)

(T) Promote "discount cards" for bicycle users and pedestrians (CC)

(T) Install charging stations for electric vehicles.

(T) Increase tax on Mobil Oil (SC)

(T) Enact regulations to discourage sprawl (SC)

## Economic Development

(ED) Target cities and villages-through such strate... transit-oriented and mixed... development and land recyc... increase community revitali... reduce poverty, improve the e... of public works investments... safeguard our rural and agri... resources.

(ED) Permaculture technology (CC)

(ED) alternative energy systems (CC)

(ED) alter public policies with easy incentive based platforms for private enterprise to utilize (CC)

(ED) Align state, regional, and local policies and funding to remove barriers to collaboration and shared services, increase the opportunities to leverage funding, and improve accountability and effectiveness of all levels of government.

(ED) Capitalize on knowledge and innovation offered by the region's 16 universities and the technology offered by the private sector to advance our green economy to the forefront nationally.

(ED) Develop affordable business education programs to assist small new businesses in low income areas or in transition (CC)

(ED) Capitalize on knowledge and innovation offered by the Region?s 16 universities and the technology offered by the private sector to advance our green economy to the forefront nationally by becoming more energy efficient, increasing production and use of renewable energy sources, creating green buildings, increasing recycling, creating Complete Streets, and reducing greenhouse gas emissions.

(ED)Economic development should focus on the region?s 43 cities and villages?through such strategies as transit-oriented, mixed-use development and land recycling?to increase community revitalization, reduce poverty, improve the efficiency of public works investments, and safeguard our rural and agricultural resources.

(ED) Grow the region's agricultural economy by expanding and strengthening the agricultural infrastructure. Highlight and celebrate agriculture's positive social, environmental, and economic benefits as part of the region's heritage, community, environment, and business climate.

(ED) Develop green revolving loan funds for investing in energy retrofits, etc... (CC)

(ED) Expand economic opportunities to support a socially and economically diverse population by focusing on small business growth, neighborhood revitalization, expanding our agricultural economy, and reducing urban and rural poverty.

Wikimedia Commons

## Solid Waste

(SW) Recycling programs should be improved to more effectively divert designated recyclables from disposal.

(SW) Develop new facilities and capacity to recover food waste and other organics.

(SW) To improve reuse, reduction, and recycling, material management strategies should be developed on the regional and local level.

(SW) Develop more local capacity to reduce and recycle Construction and Demolition (C&D) debris management (particularly for components other than asphalt and concrete).

(SW) Eduction from schools- public forums on composting organics, recyclable materials (bottled water), programs. (CC)

(SW) Promote Solid Waste Shared Services Best Practices (CC)

(SW) All plastic - Compostable (CC)

(SW) Use education to have a well-educated citizenry on waste issues (CC)

(SW)Plastic bag initiative - illegal tax (CC)

(SW) Revolving Bridge Loans for EPF Municipal Waste Reduction and Recycling Projects (MWRRP) - The State has a 50% matching grant for municipal waste prevention, composting or recycling projects. These projects can be capital projects or education projects that can involve hiring staff or consultants. The problem with the program is that it is a stand in line program and currently the line is three to five years long. If a revolving bridge loan fund could be established for Capital Region municipalities it would allow

(SW) Region-wide uniform reycycled material list (CC)

## Land Use & Livable Communities

(LU) Goal: Preserve and protect the region?s natural resources, agricultural land and cultural heritage, and effectively manage publicly accessible open space for recreational opportunities.

(LU) Goal: Encourage investment and redevelopment in existing population and employment centers, including cities, town centers, villages and hamlets in order to promote vibrant, walkable, transit-oriented neighborhoods and business areas.

(LU) Goal: Promote diverse, energy efficient and healthy housing options for all residents of the region, including housing for vulnerable populations such as the elderly, the disabled, and low-income populations.

(LU) Reclaim brownfield sites. (SC)

(LU) Promote green site development to reduce off site impacts and impacts to downstream communities (CC)

(LU) County-wide inventory of natural resources (SC)

(LU) Reduce sprawl, create vibrant centers to reduce development pressure on rural areas(SC)

(LU) Increase minimum energy efficiency in municipcal building codes standards for new and major rehabilitation (SC)

(LU) The Stewardship at Millbrook Road - an example of a new residential development, that "overcomes the shortcomings of recent developments and their negative impact on the surrounding countryside." <a>http://www.theblue...</a>

(LU) Encourage churches and other community building organization (CC)

(LU) Update land use regs & review with regional intermunicipal outcomes . Support preservation on periphery & encourage density/intensity at the core. (CC)

(LU) Needs to a balanced growth (CC)

## Food Systems

(FS) Capital District Community Gardens uses the Veggie Mobile to provide urban neighborhoods with access to fresh produce. (CC) <a>http://www.cdcg.or...</a>

(FS) Prioritize the protection of agricultural land.

(FS) Increase the volume of organically produced food

Goal: Increase distribution of locally produced foods with a variety of distributors and food stores, including large chain grocery stores and corner stores

(FS) Create system-wide... reduce and reuse foo...

(FS) setting aside food i... of nationwide famine. (ex... in Bible) (CC)

(FS) Capital District Community Gardens uses the Veggie Mobile to provide urban neighborhoods with access to fresh produce. (SC) <a></a><a href="http://www.cdcg.or...</a>" target="_blank" rel="nofollow">http://www.cdcg.or...</a>

(FS) Capital District Community Gardens uses the Veggie Mobile to provide urban neighborhoods with access to fresh produce. (CC) <a>http://www.cdcg.or...</a>

(FS) Maximize... appropria...

(FS) Label GMO foods (CC)

...ce the capacity and ...ocessing facilities for ...uce and other local ...products, including ...ing facilities.

(FS) Augment access to fresh produce for residents across the Capital District from urban neighborhoods to rural settings

...benefits of eating health... foods

(FS) Give funds to local co-ops that involve the community and local food (SC)

R... bicycle compost delivery project employing neighborhood youth, while diverting household and restaurant food and yard waste back into the ground on an urban farm all by way of the transportation of the future. http://www.kickstarter.com/projects/collardcitygrowers/food-cycle-building-soil-with-pedal-power

(FS) Coordinate purchase of local food for multiple school districts (SC)

(FS) Create distribution systems from farms to inner cities (SC)

(FS) Develop opportunities to create small grocery and co-ops in rural communities (CC)

(FS) Create a variet... and storage options... seasonal food optio... weather co...

(FS) Public Private Partnerships to make goal 9 work ( chain stores, schools, farms) Requires infrastructure and transportation (CC)

(FS) Investment in Ag infrastructure (4 votes) (CC)

(FS) Encourage opportunity to encourage incentivize farming and agriculture by "younger" farmers (CC)

...urban neighborhoods with access to fresh produce. http://www.cdcg.org/VeggieMobile.html

## Water

(W Supply) Maintain and improve the availability and reliability of the potable water supply

(W Supply) Maintain or reduce water consumption to ensure adequate supply for all users

(W Sewer) Protect water quality of streams, rivers, lakes and groundwater to ensure adequate supplies of water for drinking, recreation and wildlife

(W Sewer) Reduce energy consumption and maintenance costs

Promote use of alternative, biological-based wastewater treatment methods (eg: Living Machines (see www.livingmachines.com, and the Darrow School system: http://www.ecoliteracy.org/schools/stories/darrow-school)

(WS) Infrastructure funding bank system (CC)

(W Stormwater) Minimize the use of grey infrastructure by maximizing use of both natural systems and when necessary the construction of green infrastructure

(W Stormwater) Ensure that all downstream areas are appropriately protected from the impacts of stormwater runoff

(W Protect Water Resources) Maintain and improve water quality and quantity for recreation and habitat

(W) Require municipalities to develop hazard mitigation plans to submit to FEMA (CC)

(W) Water should not be government controlled, except for pollution problems. It should be free for all to use. No foreign entities should interfere with with ocean, rivers and lakes. (CC)

(W) Plan to improve and create appropriate infrastructure (SC)

(W) Plan to improve and create appropriate infrastructure (SC)

(W) Plan to improve and create appropriate infrastructure (SC)

(W) County-wide intermunicipal inventory of water systems and resources (SC)

(W) Reduced use of road salt in water. (SC)

(WS) Reduce administrative costs of borrowing infrastructure improvements (CC)

(W) Use gas from Waste water sludge for power at WWTPs (CC)

(W) Ban Hydrofracking (CC)

The Doane Stuart School in Rensselaer is installing a green roof to capture stormwater and to use an an educational tool

## Governance

## Cross-cutting Sustainability Actions

### Sustainability Matrix

#### Goals

To capture public ideas for goals and strategies for the eight Cleaner Greener Communities focus areas. To identify best practices for implementation.

#### Objectives

1)

#### Legend

Goals

Strategies

Best Practices

Metrics

Other

## Introduction and Background

The Cleaner, Greener Communities Program was announced by Governor Andrew M. Cuomo in his 2011 State of the State address. The Program empowers regions to create more sustainable communities by funding smart development practices. Planning teams are partnering with public and private experts across a wide range of fields, along with community residents, to lead the development of regional sustainability plans and to implement the projects that will significantly improve the economic and environmental health of their areas. This effort will guide integrated, sustainable solution -- from statewide investments to regional decision-making on land use, housing, transportation, infrastructure, energy, and environmental practices -- to improve our quality of life.

## Public Outreach Meetings

The Capital Region planning area is comprised of eight counties: Albany; Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren and Washington.

Three public forums were held in July 2012 across the region to get feedback on draft goals and strategies and to place ideas on maps representing their communities. More than 150 people participated, helped to identify more than 300 existing and proposed projects on county and town maps in the region.

Eight focus areas have been identified and draft goals have been created by project technical teams to help guide the project:

- climate adaptation
- energy
- transportation
- economic development
- solid waste
- land use/livable communities
- food systems
- water

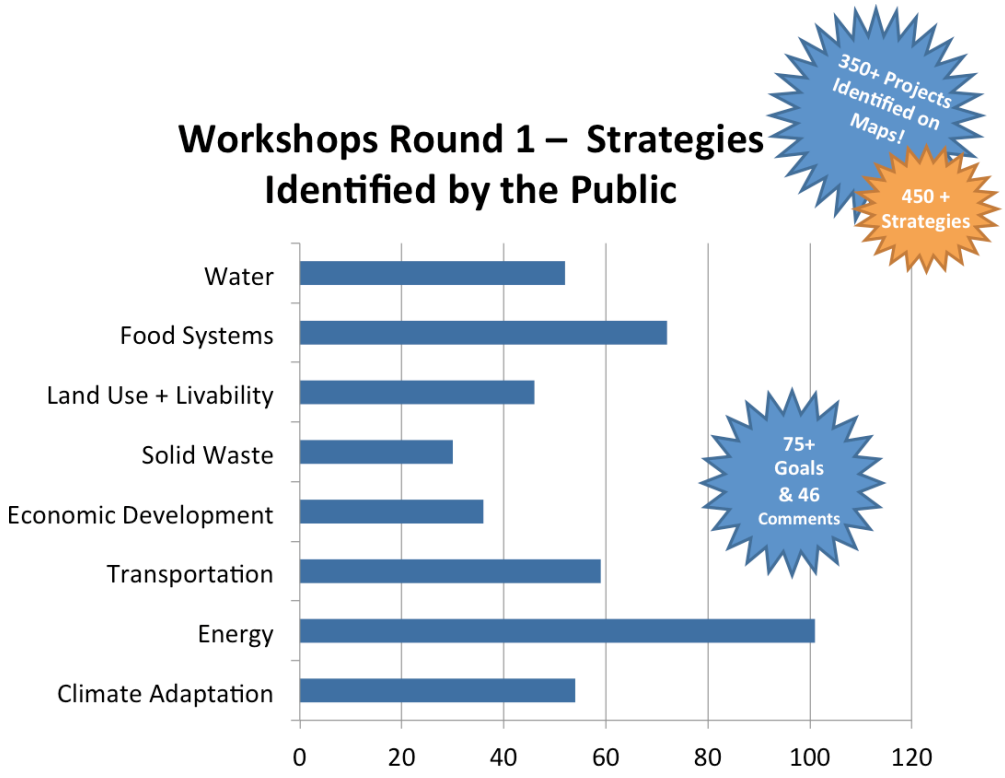
Working in teams, participants at the workshops provided important feedback on proposed goals, including suggestions to improve them and also crafting 75 new potential goals. Over 300 strategies were also developed across the eight focus areas to move the region to a more prosperous and sustainable future.

Two dozen residents of the Capital Region's southern counties participated in a public forum in Coxsackie on July 23. One hundred residents of the Capital Region's central counties participated in a public forum in Renneslear on July 24 and another two dozen residents of the Capital Region's northern counties participated in a public forum in Queensbury on July 25. Many contributed ideas for best practices and suggestions for improving sustainability in the Capital Region.

Participants were also encouraged to add other ideas, responses included the need to work together across the region to be successful and a number of recommendations to improve education and build capacity for change.

## Top Strategies Identified at the Workshops

- Build capacity for agencies, governments, institutions, and individuals to adapt to a changing climate.
- Promote HOV, ride shares and public transit.
- Transit-oriented design, affordable public transit and improved bike and trail networks.
- Promote Buy Local Food and Buy Local Forest Products to support agricultural and forested land use.
- Give funds to local co-ops that involve the community and local food. Coordinate purchase of local food for multiple school districts and create distribution systems from farms to inner cities
- Reduce sprawl, create vibrant centers to reduce development pressure on rural areas

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## We want your ideas!

This open process is one of the first crowdsourced ideas as part of the Cleaner, Greener Communities Program. Some of the best ideas are already being discussed and planned in local communities.

During the workshops teams were asked to contribute their ideas on a giant paper matrix. These ideas were transcribed in real-time into an online platform called Crowdbrite. A separate matrix was created for each of the first round of public workshops. To get things started almost 50 goals were identified by technical teams for public feedback. From the three public workshops 75 new goals were added (most of them at the central counties workshop). There was strong support for the existing goals including over 40 suggestions for improvements. A large focus of the workshops was to identify new strategies that would help to implement the goals - a total of 266 strategies were identified (52 south, 157 central, 57 north) across all 8 focus areas. Participants were also asked to identify Best Practices and examples that we can learn from - more than 20 were identified across all workshops.

The public is encouraged to go to the project website http://sustainablecapitalregion.org to share ideas on maps through the "online open house" until August 31. You will be able to use virtual sticky notes to add and comment on the ideas. The technical committees will consider all of the input as they refine the goals and strategies and develop a draft Capital Region Sustainability Plan. A second round of public forums is being scheduled this fall to provide an opportunity for public input on that draft plan.

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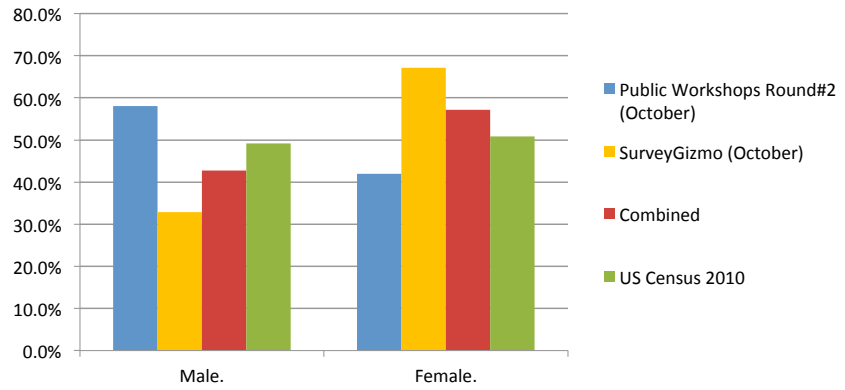
PlaceMatters.

Session Name: Public Workshops Round#2 & SurveyGizmo Combined Demographics
Date Created: 10/30/2012

## Results By Question

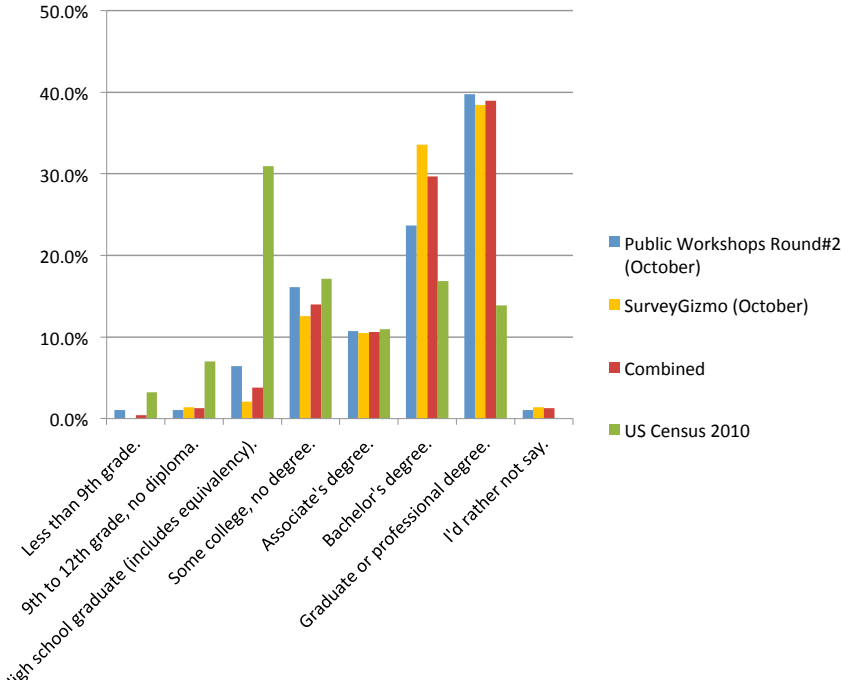
2.) What is your gender? (Demographic Assignment)

| | Responses (count) | | | |
|---|---|---|---|---|
| | Public Workshops Round#2 (October) | SurveyGizmo (October) | Combined | US Census 2010 |
| Male. | 58.1% | 32.9% | 42.8% | 49.2% |
| Female. | 41.9% | 67.1% | 57.2% | 50.8% |
| Totals | 100.0% | 100.0% | 100.0% | 100.0% |



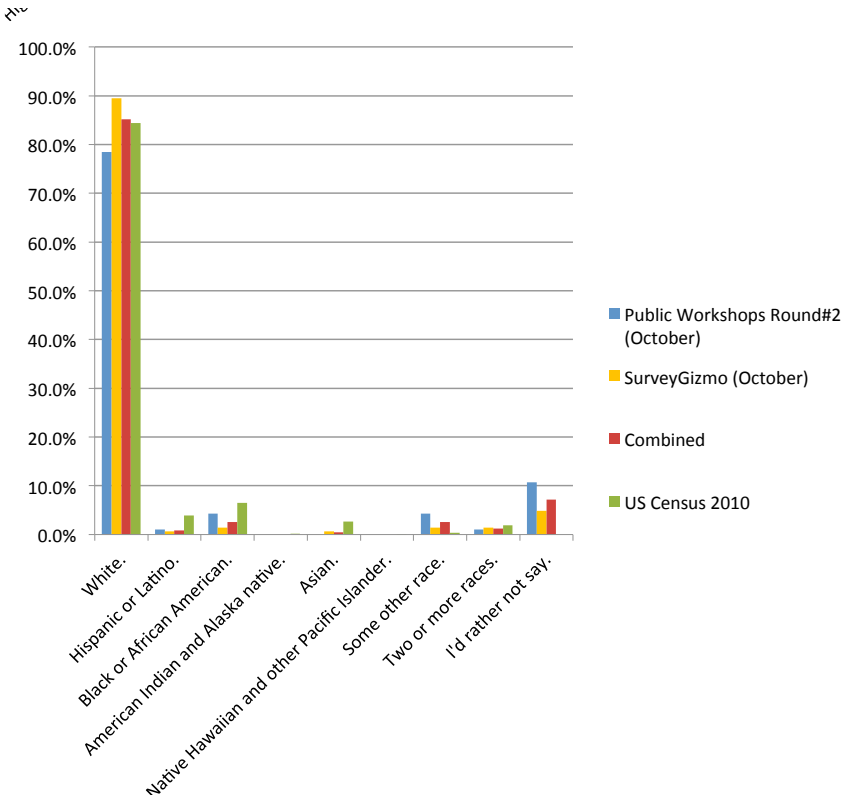

3.) What is your highest level of education? (Demographic Assignment)

| | Responses (count) | | | |
|---|---|---|---|---|
| | Public Workshops Round#2 (October) | SurveyGizmo (October) | Combined | US Census 2010 |
| Less than 9th grade. | 1.1% | 0.0% | 0.4% | 3.2% |
| 9th to 12th grade, no diploma. | 1.1% | 1.4% | 1.3% | 7.0% |
| High school graduate (includes | 6.5% | 2.1% | 3.8% | 30.9% |
| Some college, no degree. | 16.1% | 12.6% | 14.0% | 17.1% |
| Associate's degree. | 10.8% | 10.5% | 10.6% | 11.0% |
| Bachelor's degree. | 23.7% | 33.6% | 29.7% | 16.9% |
| Graduate or professional | 39.8% | 38.5% | 39.0% | 13.9% |
| I'd rather not say. | 1.1% | 1.4% | 1.3% | NA |
| Totals | 100.0% | 100.0% | 100.0% | 100.0% |



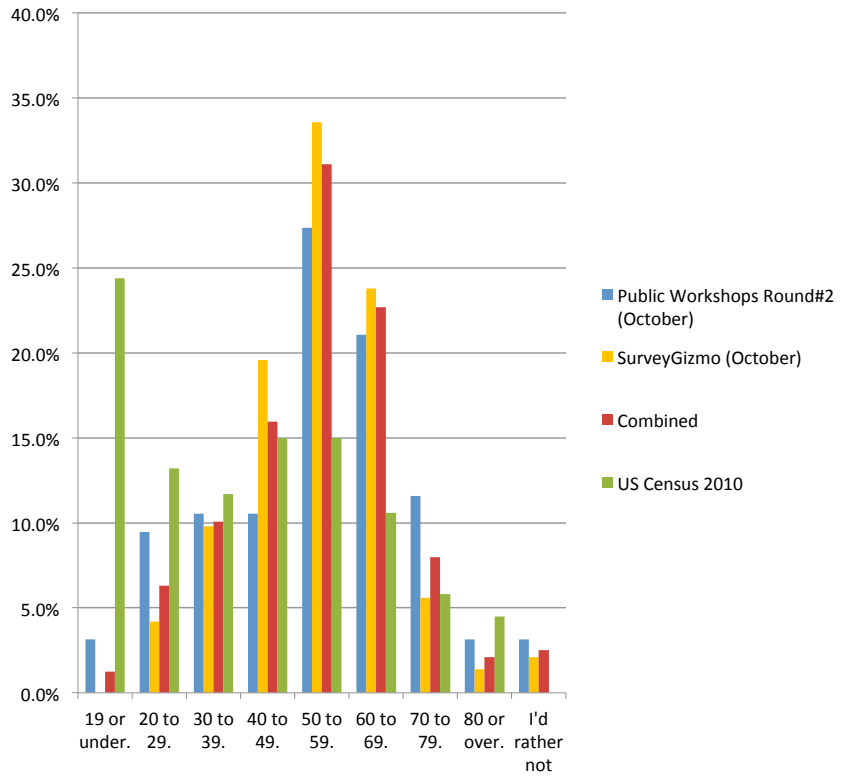
4.) How do you identify yourself? (Demographic Assignment)

| | Responses (count) | | | |
|---|---|---|---|---|
| | Public Workshops Round#2 (October) | SurveyGizmo (October) | Combined | US Census 2010 |
| White. | 78.5% | 89.5% | 85.2% | 84.4% |
| Hispanic or Latino. | 1.1% | 0.7% | 0.8% | 3.9% |
| Black or African American. | 4.3% | 1.4% | 2.5% | 6.5% |
| American Indian and Alaska native. | 0.0% | 0.0% | 0.0% | 0.2% |
| Asian. | 0.0% | 0.7% | 0.4% | 2.7% |
| Native Hawaiian and other Pacific | 0.0% | 0.0% | 0.0% | 0.0% |
| Some other race. | 4.3% | 1.4% | 2.5% | 0.4% |
| Two or more races. | 1.1% | 1.4% | 1.3% | 1.9% |
| I'd rather not say. | 10.8% | 4.9% | 7.2% | NA |
| Totals | 100.0% | 100.0% | 100.0% | 100.0% |



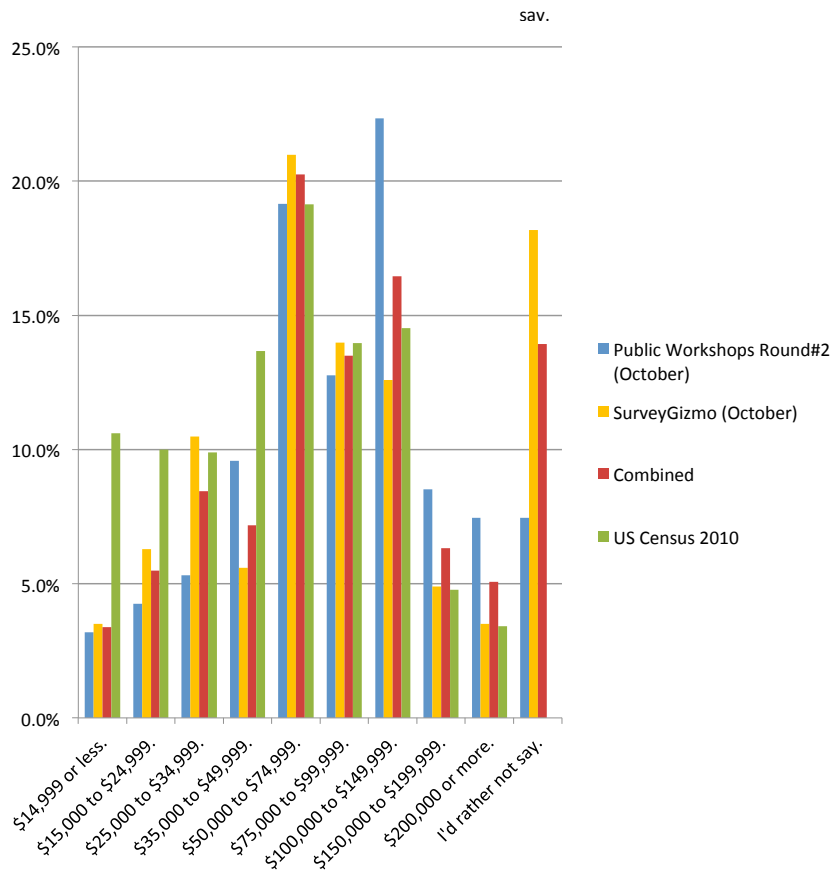
5.) How old are you? (Demographic Assignment)

| | Responses (count) | | | |
|---|---|---|---|---|
| | Public Workshops Round#2 (October) | SurveyGizmo (October) | Combined | US Census 2010 |
| 19 or under. | 3.2% | 0.0% | 1.3% | 24.4% |
| 20 to 29. | 9.5% | 4.2% | 6.3% | 13.2% |
| 30 to 39. | 10.5% | 9.8% | 10.1% | 11.7% |
| 40 to 49. | 10.5% | 19.6% | 16.0% | 15.0% |
| 50 to 59. | 27.4% | 33.6% | 31.1% | 15.0% |
| 60 to 69. | 21.1% | 23.8% | 22.7% | 10.6% |
| 70 to 79. | 11.6% | 5.6% | 8.0% | 5.8% |
| 80 or over. | 3.2% | 1.4% | 2.1% | 4.5% |
| I'd rather not say. | 3.2% | 2.1% | 2.5% | NA |
| Totals | 100.0% | 100.0% | 100.0% | 100.2% |



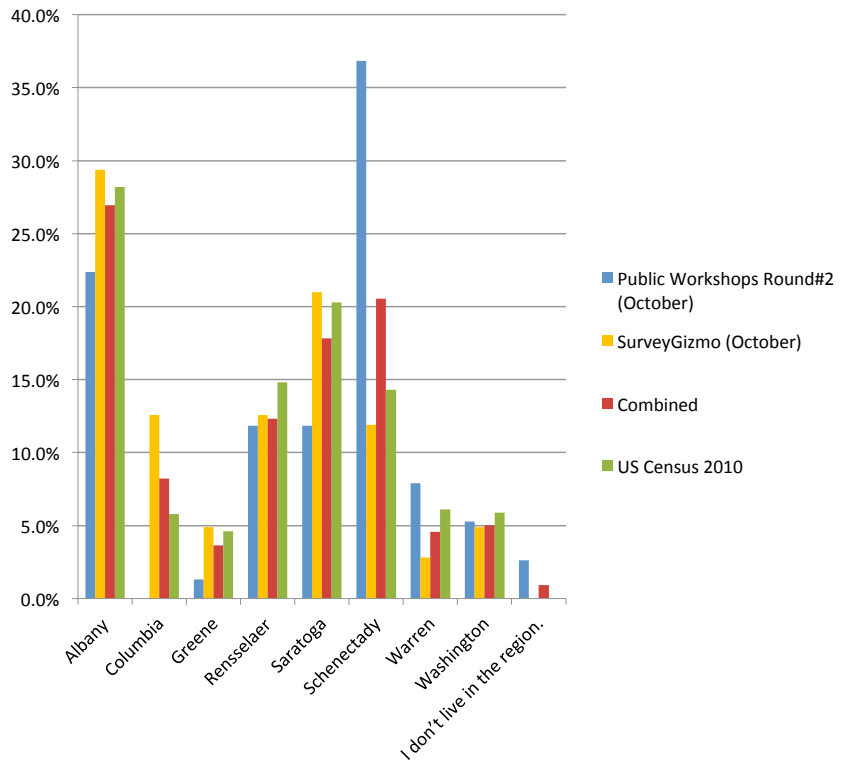
6.) What is your annual household income? (Demographic Assignment)

| | Responses (count) | | | |
|---|---|---|---|---|
| | Public Workshops Round#2 (October) | SurveyGizmo (October) | Combined | US Census 2010 |
| $14,999 or less. | 3.2% | 3.5% | 3.4% | 10.6% |
| $15,000 to $24,999. | 4.3% | 6.3% | 5.5% | 10.0% |
| $25,000 to $34,999. | 5.3% | 10.5% | 8.4% | 9.9% |
| $35,000 to $49,999. | 9.6% | 5.6% | 7.2% | 13.7% |
| $50,000 to $74,999. | 19.1% | 21.0% | 20.3% | 19.1% |
| $75,000 to $99,999. | 12.8% | 14.0% | 13.5% | 14.0% |
| $100,000 to $149,999. | 22.3% | 12.6% | 16.5% | 14.5% |
| $150,000 to $199,999. | 8.5% | 4.9% | 6.3% | 4.8% |
| $200,000 or more. | 7.4% | 3.5% | 5.1% | 3.4% |
| I'd rather not say. | 7.4% | 18.2% | 13.9% | NA |
| Totals | 100.0% | 100.0% | 100.0% | 100.0% |



7.) What county do you live in? (Multiple Choice)

| | Responses (count) | | | |
|---|---|---|---|---|
| | Public Workshops Round#2 (October) | SurveyGizmo (October) | Combined | US Census 2010 |
| Albany | 22.4% | 29.4% | 26.9% | 28.2% |
| Columbia | 0.0% | 12.6% | 8.2% | 5.8% |
| Greene | 1.3% | 4.9% | 3.7% | 4.6% |
| Rensselaer | 11.8% | 12.6% | 12.3% | 14.8% |
| Saratoga | 11.8% | 21.0% | 17.8% | 20.3% |
| Schenectady | 36.8% | 11.9% | 20.5% | 14.3% |
| Warren | 7.9% | 2.8% | 4.6% | 6.1% |
| Washington | 5.3% | 4.9% | 5.0% | 5.9% |
| I don't live in the region. | 2.6% | 0.0% | 0.9% | NA |
| Totals | 100.0% | 100.0% | 100.0% | 100.0% |



**Crowdbrite Canvases**

The following summarizes public comments on the draft list of sustainability initiatives. The comments were collected at the second round of public workshops in October 2012

Pictures of Poster Boards From Oct 1, 2, and 3 events. Oct 1 photo shows 2 boards combined.

CAPITAL REGION SUSTAINABILITY PLAN
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# Climate Adaptation

Indicate your level of support

| Initiative | Summary | Place Your Comments Here |
|---|---|---|
| **Implement a tree planting program.** | This strategy could allow the region to institutionalize, and enhance any of the region's tree planting programs, as well as apply for joint funding to expand programs to other areas in need. | Oct 1 Votes- Notes: Tree planting prog.: No Support-2; Moderate-1; High-14<br>Oct 2 Votes&Notes: Tree planting prog.: No Support-0; Moderate-0; High-1<br>Oct 3 Votes: Tree planting prog.: No Support-1; Moderate-0; High-4<br>Oct 11 - Establish a regional Urban and Community Forestry Program to plant low-pollen trees and shrubs through the Hudson-Mohawk Resource Conservation and Development Council hiring of a forester/arborist. This position would also to coordinate any federal and state government funding programs toward a strategic drainage basin tree, shrub, wildflower and grass planting project. School districts need to consider integrating a K-12 Earth Day science program as a component of the biology/science curriculum to educate<br>Implement a tree planting program |
| **Establish a Regional Climate Change Collaborative.** | This collaborative would include local and county governments, institutions and non-profits who share a common goal of reducing energy use and GHG emissions, and adapting to the impacts of climate change, will help share ideas and strategies among the group. It will also allow for communities and organizations to work together on programs and initiatives and share resources. | Oct 1 Votes- Notes: Regional climate change collaborative: No Support-7; Moderate-2; High-11<br>Oct 2 Votes: Reg?l climate change collaborative: No Support-0; Moderate-0; High-4<br>Oct 3 Votes: Reg?l climate change collaborative: No Support-5; Moderate-0; High-3<br>What's GHG? A greenhouse gas (sometimes abbreviated GHG) is a gas in an atmosphere that absorbs and emits radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect.<br>Oct 11 - Establish a Regional College Cooperative Services Board -NYS Education Law Section 496, for institutions of higher education to cooperate and coordinate with government and business the application to the National Science Foundation programs: Climate Change Education; Climate Change Education Partnership; Science, Engineering and Education for Sustainability; Research Coordination Networks; Facilitating Research at Primarily Undergraduate Institutions; Research Experiences fo |
| **Promote green infrastructure.** | Promote green infrastructure and efficient stormwater management, including green roofs, through zoning, incentives, and best management practices. This would include guidance on how to create a green roofs for schools policy. | Oct 1 Votes- Notes: Promote green infrastructure: No Support-2; Moderate ? 2; High-7<br>Oct 2 Votes: Promote green infrastructure: No Support-0; Moderate-0; High-3<br>Oct 3 Votes: Promote green infrastructure: No Support-5; Moderate-0; High-3<br>Implement tax breaks at the local level that phase out over time for residents to institute green construction. For example, purchasing new windows or insulation will reduce energy needs but also raises and individuals tax bill. It is counter productive.<br>Green infrastructure can be sooo much more than green roofs!!! Avoid being content with "cosmetic" greenness... |
| **Include climate change in SEQR reviews.** | Local governments should incorporate climate change considerations in the SEQR reviews of proposed projects. | Oct 1 Votes- Notes: Include climate change in SEQR reviews: No Support-2; Moderate-1; High-9<br>Oct 2 Votes: Include climate change in SEQR reviews: No Support-0; Mod-0; High-2<br>Oct 3 Votes: Include climate change in SEQR reviews: No Support-6; Moderate-0; High-<br>WHAT's SEQR? New York's State Environmental Quality Review Act (SEQR) requires all state and local government agencies to consider environmental impacts along with social and economic factors during discretionary decision-making. |
| **Develop guidance document on how to integrate climate change impacts into existing plans and processes.** | The guidance document would provide an overview of how to include climate change impacts in existing plans via an appendix or amendment or include climate change during the next planning process. Could include master/comprehensive plans, waterfront plans, emergency management/hazard mitigation plans, public health plans, transportation plans, agriculture preservation plans, neighborhood plans, etc. | Oct 1 Votes- Notes: Guidance doc on climate change impacts integration in plans: No Support ? 2; Moderate-3; High-4<br>Oct 2 Votes: Doc on integrating climate change in plans: No Support-0; Mod-0; High-2<br>Oct 3 Votes: Doc on integrating climate change in plans: No Support-5; Mod-0; High-6 |
| **Create floodplain ordinances.** | Communities should update zoning and/or building codes or establish flood overlay zones to manage future development in the floodplain. | Oct 1 Votes- Notes: Create floodplain ordinances: No Support-0; Moderate-1; High-11<br>Oct 2 Votes: Create floodplain ordinances: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Create floodplain ordinances: No Support-1; Moderate-1; High-3 |
| **Protect and enhance critical habitat, floodplains, and wetlands that are under threat from climate change.** | Local entities can work, possibly through a Land Bank mechanism, to create easements, TDR, or buyout programs for purchasing development vulnerable areas in order to protect and restore these lands. | Oct 1 Votes- Notes: Protect & enhance threatened habitat, floodplains & wetlands: No Support-1; Moderate-2; High-9<br>Oct 2 Votes&Notes: Protect habitat, floodplains & wetlands: No Support-0; Mod-0; High-1<br>Oct 3 Votes: Protect habitat, floodplains & wetlands: No Support-4; Moderate-0; High-3<br>Oct 11 - Small watershed planning within the Mohawk-Hudson River Basin by municipalities coordinating their Unified Haward Mitigation plans in conjunction with the Erie Canal Corporation with other programs such as: Nonpoint Source Pollution Control; Wetlands Program Development Grants; Snagging and Clearing for Flood Control; Watershed Protection and Flood Prevention Program; Watershed Rehabilitation Program; municipal governments inclusion of conservation easement tax credits for landowners willing to participate in the |
| **Conduct local vulnerability assessments and adaptation planning.** | Local governments should conduct vulnerability assessments that include mapping of potentially vulnerable infrastructure and identification of sensitive populations. The assessment would provide communities guidance on how to avoid planning projects that would be vulnerable to climate change. | Oct 1 Votes-Notes: Local vulnerability assessments & adaptation planning: No Support-2; Moderate-1; High-8<br>Oct 2 Votes: Local assessments & adaptation planning: No Support-0; Moderate-0; High-2<br>Oct 3 Votes: Local assessments & adaptation planning: No Support-4; Moderate-0; High-5<br>Oct 11 - It is essential to "protect the health, safety and welfare"" of our neighbors through an inter-municipal assessment of vulnerable groups. Local emergency medical service units need to know the location of the citizens most vulnerable, such as cardiovascular, respiratory-related illness, and mental illness conditions in order to provide effective and timely coordination during disasters. The establishment of Aging and Disability Resource Centers in collaboration with medical institutions of higher education to apply to the National |
| **Expand participation in NYS ISO's demand response program.** | Further incentivize the NYS ISO's demand response programs so that participation increases. | Oct 1 Votes-Notes: Expand participation in NYS ISO's demand response program: No Support-1; Moderate ? 2; High-2<br>Oct 2 Votes: Expand NYS ISO's demand response program: No Support-0; Mod-0; High-1<br>Oct 3 Votes: Expand NYS ISO's demand response program: No Support-4; Mod-1; High-1<br>What are ISO's? An Independent System Operator (ISO) is an organization formed at the direction or recommendation of the Federal Energy Regulatory Commission (FERC). In the areas where an ISO is formed, it controls, coordinates and monitors the operation of the electrical power system, usually within a single US State, but sometimes encompassing multiple states. |

Level of Support: No Support | Moderate Support | High Support

## Climate Adaptation

### Objectives

1)

### Legend

- No Support
- Moderate Support
- High Support
- Comments

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# Economic Development

Indicate your level of support

| Initiative | Summary | Place Your Comments Here |
|---|---|---|
| **Create a green alliance between government and businesses.** | Government and industry sectors develop partnership to promote green building, energy and other sustainable enterprises and promotes awareness of services, marketing, business directories, networking and team-building capacity. | Oct 1 Votes-Notes: Green alliance btwn gov't & businesses: No Support-5; Moderate-3; High-10<br>Oct 2 Votes&Notes: Green alliance btwn gov't & businesses: No Support-0; Moderate-1; High-2<br>Oct 3 Votes: Green alliance btwn gov't & businesses: No Support-3; Mod-0; High-3<br>This is already done chambers. Why re-cre<br>This is a good idea. We need to incentive small businesses and individuals to buy and fix up housing in our inner cities.<br>This has been done and as far as I know still is a functioning group. |
| **Establish model zoning code for the region that directs growth and promotes sustainability.** | Develop model zoning ordinance to direct growth to appropriate locations, and to promote sustainability through provisions related to energy conservation, protection and expansion of agriculture, green infrastructure, urban agriculture, transit-oriented development, etc. | Oct 1 Votes: Model zoning promoting sustainability: No Support-9; Moderate-3; High-18<br>Oct 2 Votes&Notes: Model zoning code promoting sustainability: No Support-0; Mod-0; High-6<br>Oct 3 Votes: Model zoning code promoting sustainability: No Support-4; Mod-1; High-4<br>Create environmentally preferable purchasing policies for government agencies? Preferred vendors and purchasing process for green goods and services. |
| **Establish a regional sustainability resources and education website.** | Establish web portal to centralize educational resources and outreach materials around the region's sustainability efforts. | Oct 1 Votes: Reg?l sustainability website: No Support-4; Moderate-1; High-11<br>Oct 2 Votes&Notes: Reg?l sustainability website: No Support-0; Moderate-0; High-1<br>Oct 3 Votes: Reg?l sustainability website: No Support-1; Moderate-0; High-3 |
| **Create a regional consortium of non-profits.** | Develop a regional consortium of non-profit groups to provides these organizations a centralized resource in which to give and receive mutual support from other members. | Oct 1 Votes-Notes: Regional consortium of non-profits: No Support-3; Moderate-2; High-4<br>Oct 2 Votes&Notes: Reg?l consortium of non-profits: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Reg?l consortium of non-profits: No Support-3; Moderate-1; High-2<br>This is a good idea and there also needs to be more support of not-for-profits from the counties. In many cases, the counties and cities have been cutting funding that went to not-for-profits. The regional consortium should include members from each county so they can discuss how not-for-profits can work together across city and county lines. |
| **Establish a regional land bank.** | A regional land bank allows for quick and efficient acquisition of vacant, abandoned and tax delinquent properties and expedites redevelopment. | Oct 1 Votes-Notes: Regional land bank: No Support-5; Moderate-2; High-14<br>Oct 2 Votes&Notes: Reg?l land bank: No Support-0; Moderate-1; High-2<br>Oct 3 Votes: Reg?l land bank: No Support-5; Moderate-0; High-4 |
| **Implement a "Buy Local" campaign.** | Implement comprehensive "buy local" campaign designed to encourage residents, businesses and government to shop and buy local goods. | Oct 1 Votes-Notes: "Buy Local" campaign: No Support-4; Moderate-2; High-13<br>Oct 2 Votes&Notes: "Buy Local" campaign: No Support-0; Moderate-1; High-3<br>Oct 3 Votes: "Buy Local" campaign: No Support-0; Moderate-0; High-6<br>Has been done and expanded upon by Local First of the Capital Region. localift.org also has info. on a small business focused symposium. |
| **Establish a financial literacy program.** | Establish financial literacy programs to educate small business owners and low income and minority populations to behavioral and financial strategies that promote responsible decision making. | Oct 1 Votes-Notes: Financial literacy program: No Support-5; Moderate-3; High-10<br>Oct 2 Votes&Notes: Financial literacy program: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Financial literacy program: No Support-1; Moderate-0; High-6 |
| **Expand NYSERDA's green jobs training to include green infrastructure design, installation, and maintenance.** | NYSERDA's green jobs training (training on how to install solar, etc.) and demand side management should be expanded to include green infrastructure design and maintenance in green jobs training. | Oct 1 Votes-Notes: NYSERDA's green jobs training: No Support-4 Moderate-2; High-6<br>Oct 2 Votes&Notes: NYSERDA's green jobs training: No Support-0; Mod-0; High-3<br>Oct 3 Votes: NYSERDA's green jobs training: No Support-0; Moderate-0; High-2<br>Green Job training shd be combined w/ placement, and focus on communities w/ greatest need for jobs.<br>More needs to be done to incentive green roofs for residents. |
| **Promote green leases.** | Green leases - commercial or residential - articulate the requirements of both the tenant and landlord for meeting green specifications. This initiative would establish a program to promote awareness of and educate both tenants and landlords and real estate professionals on how to execute effective green leases, which could be an attractive option for businesses in choosing where to locate. | Oct 1 Votes-Notes: Promote green leases: No Support-6; Moderate-1; High-3<br>Oct 2 Votes&Notes: Promote green leases: No Support-0; Moderate-0; High-1<br>Oct 3 Votes: Promote green leases: No Support-3; Moderate-0; High-1 |
| **Implement a small business incubator** | | Oct 3 Votes: Small<br>Small Business Incubator program |

Level of Support: No Support | Moderate Support | High Support

## Economic Development

### Objectives

1)

### Legend

- No Support
- Moderate Support
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- Comments

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# Energy

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Indicate your level of support

| Initiative | Summary | Place Your Comments Here |
|---|---|---|
| **Establish Green Districts.** | Establish a Green District Pilot to foster the next wave of innovation in sustainable building practices and enhance the Capital Region's Sustainability image. A Green District could be a commercial, residential, mixed use development or industrial park designed and built with a focus on sustainable materials, as well as attracting companies that produce such goods. | Oct 1 Votes&Notes: Establish Green Districts: No Support-5; Moderate-3; High-5<br>Oct 2 Votes: Establish Green Districts: No Support-0; Moderate-0; High-2<br>Oct 3 Votes: Establish Green Districts: No Support-2; Moderate-0; High-4<br>An energy green compatible well<br>Involve local colleges & universities in proposing innovations. |
| **Create a standard environmentally preferable purchasing (EPP) policy.** | An EPP establishes requirements for energy efficiency and waste minimization for products purchased by a local government. Many local governments have adopted such policies. A standard procurement policy could be drafted for adoption by communities throughout the Capital Region. | Oct 1 Votes&Notes: Env'lly Preferable Purchasing (EPP) policy: No Support-4; Moderate-0; High-4<br>Oct 2 Votes: Env'lly Preferable Purchasing (EPP) policy: No Support-0; Mod-1; High-0<br>Oct 3 Votes: Env'lly Preferable Purchasing (EPP) policy: No Support-1; Mod-0; High-2 |
| **Adopt a local energy-efficient building code.** | Currently, NYS has the Energy Conservation Construction Code of New York State -2010 (ECCCNYS). Local governments can adopt their own energy conservation requirements, so long as they are no less restrictive than the current NYSECCC. Local additions/changes to the code could include stricter energy efficiency requirements and/or green building standards. | Oct 1 Votes&Notes: Energy-efficient building code: No Support-4; Moderate-2; High-12<br>Oct 2 Votes: Energy-efficient building code: No Support-0; Moderate-0; High-2<br>Oct 3 Votes: Energy-efficient building code: No Support-3; Moderate-0; High-5 |
| **Establish Energy Efficiency and Renewable Energy Financing Districts (or PACE program).** | Property-Assessed Clean Energy (PACE) financing effectively allows property owners to borrow money to pay for energy improvements. The amount borrowed is typically repaid via a special assessment on the property over a period of up to 20 years. Can be a commercial or residential program, possibly addressing two of the target sectors. | Oct 1 Votes&Notes: Effic. & Renewable Financing Districts: No Support-2; Moderate-1; High-4<br>Oct 2 Votes: Effic. & Renewable Financing Districts: No Support-0; Moderate-0; High-3<br>Oct 3 Votes: Effic. & Renewable Financing Districts: No Support-6; Moderate-0; High-6 |
| **Engage in Power Purchase Agreements.** | Identify power purchase agreement opportunities to allow local governments to get the benefits of solar without the capital cost. PPAs allow local governments to avoid the maintenance costs associated with installing solar because a third-party developer installs, owns, and maintains a photovoltaic system on a municipally owned building or landfill. The host customer purchases the electrical output for a pre-determined period allowing local governments to benefit from renewable energy immediately after installation. | Oct 1 Votes&Notes: Engage in Power Purchase Agreements: No Support-4; Moderate-1; High-6<br>Oct 2 Votes: Engage in Power Purchase Agreements: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Engage in Power Purchase Agreements: No Support-2; Moderate-0; High-3<br>PPAs creates jobs and makes solar acceccible to those without capital. |
| **Implement a Smart Grid pilot program.** | A smart grid is a network for electricity transmission and distribution systems that uses two-way, state-of-the-art communications, advanced sensors, and specialized computers to improve the efficiency, reliability and safety of electricity delivery and use. | Oct 1 Votes&Notes: Implement a Smart Grid pilot prgm: No Support-1; Moderate-1; High-10<br>Oct 2 Votes&Notes: Implement a Smart Grid pilot program: No Support-0; Mod-0; High-3<br>Oct 3 Votes: Implement a Smart Grid pilot program: No Support-3; Moderate-0; High-3 |
| **Incentivize Combined Heat and Power District Energy Systems.** | Develop district energy systems and incentive programs to capture and utilize waste heat generated from other processes or operations. Allow the public right-of-way to be used for ground source heat wells, where appropriate, to provide heating and cooling to nearby buildings. | Oct 1 Votes: Combined Heat & Power Dist/Sys: No Support-3; Moderate-3; High-5<br>Oct 2 Votes: Combined Heat & Power Dist/Sys: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Combined Heat & Power Dist/Sys: No Support-2; Moderate-0; High-3<br>District heating makes possible annual cycle storage of thermal energy from summer to winter. |
| **Establish a local carbon tax.** | Adopt a municipal tax on carbon - either through utility bills or on fuel purchases - to disincentivize fossil fuel based energy consumption. Tax revenue could be put into a fund to support other climate action efforts. | Oct 1 Votes&Notes: Establish a local carbon tax: No Support-8; Moderate-3; High-8<br>Oct 2 Votes&Notes: Establish a local carbon tax: No Support-1; Mod-0; High-4<br>Oct 3 Votes: Establish a local carbon tax: No Support-6; Moderate-0; High-4 |
| **Lower or eliminate permitting fees for energy conservation or renewables.** | Expedite the implementation of renewable energy systems by lowering or eliminating local building permit fees. | Oct 1 Votes&Notes: Drop fees for energy cons & renewables: No Support-2; Moderate-1; High-3<br>Oct 2 Votes: Drop fees for energy cons & renewables: No Support-0; Moderate-0; High-2<br>Oct 3 Votes: Drop fees for energy cons & renewables: No Support-2; Mod-0; High-4 |
| | | Revolving loans should also be made |

## Energy

### Objectives

1)

### Legend

- No Support
- Moderate Support
- High Support
- Comments

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# Food Systems

Indicate your level of support

| Initiative | Summary | Place Your Comments Here |
|---|---|---|
| **Create/re-establish a Food Policy Council for the Capital District.** | Food policy councils operate at the city or county level, in collaboration with agriculture, higher education, technology, transportation and economy development organizations and institutions to promote the region's agriculture. The food policy council envisioned here would be one that would cover the entire Capital District 8-county region. The food policy council existed in another form some years ago but has been inactive since a key leader of the group retired. | Oct 1 Votes: Create Food Policy Council: No Support-8; Moderate-0; High-7<br>Oct 2 Votes: Create Food Policy Council: No Support-0; Moderate-1; High-0<br>Oct 3 Votes: Create Food Policy Council: No Support-2; Moderate-1; High-2<br>this could also be done in conjunction with a food waste prevention program. over 1/3 off all food is wasted. see example: <A>http://www.lovefoo...</A><br>The public school sector shd be a priority for food policy - teach students to grow and understand food, energy & health. |
| **Establish an initiative to create/increase "local food" transactions, especially between large grocery stores and farms.** | Work with the region's grocery stores, schools, and other large institutions, to encourage purchasing of local food from the region's farmers at equitable prices. This initiative would explore distribution networks within the region to assess how small to mid-size farms can gain access to the market opportunities provided by chain grocery stores as well as provide nutritional and educational advantages of a locally based food supply. | Oct 1 Votes&Notes: "local food" transacns btwn stores, farms: No Support-4; Moderate-1; High-19<br>Oct 2 Votes: "local food" transactions btwn stores & farms: No Support-0; Moderate-0; High-4<br>Oct 3 Votes: Increase "local food" transactions btwn stores & farms: No Support-1; Moderate-1; High-7 |
| **Create a food hub for regional food processing, storage, and distribution.** | A food hub is a facility that centralizes the business management structure to facilitate the aggregation, storage, processing, distribution, and/or marketing of locally/regionally produced food products. A food hub may provide the core services of a packing house (see below), and/or aggregate and distribute farm-packed cases. The strategy would be to either find and create a new food hub or augment the capacity and infrastructure at the current Menands market to provide infrastructure to locate a Food Hub at this location. | Oct 1 Votes&Notes: Food hub for regional processing & distrib.: No Support-6; Moderate-2; High-8<br>Oct 2 Votes&Notes: Food hub for Reg?l processing & distrib.: No Support-0; Mod-0; High-6<br>Oct.3 Votes: Food hub for Reg?l processing & distrib.: No Support-1; Moderate-0; High-4 |
| **Create a Regional Farmland Protection Plan.** | The plan would identify current and encourage future preservation and expansion of agricultural land for farming through the use of appropriate municipal land use tools, the purchase of development rights (PDR), and tax incentives. Ensure that zoning prioritizes the preservation of active and prime farmland over its potential use for commercial or residential development. In New York State, counties and municipalities are required to develop farmland protection plans that must be approved in order to qualify for state funding to implement these plans. | Oct 1 Votes&Notes: Regional Farmland Protection Plan: No Support-6; Moderate-0; High-18<br>Oct 2 Votes: Reg?l Farmland Protection Plan: No Support-1; Moderate-0; High-1<br>Oct 3 Votes: Reg?l Farmland Protection Plan: No Support-0; Moderate-2; High-2 |
| **Establish a regional gleaning and food recovery program.** | Work with farmers, institutions, and large grocery stores to recover and distribute unsold food for those in need. This may require education to these organizations as to what is legal to donate under the "Good Samaritan" law. This program would also incorporate a Food Donation program. | Votes&Notes: Reg?l gleaning & food recovery prgm: No Support-2; Moderate-0; High-10<br>Oct 2 Votes&Notes: Reg?l gleaning & food recovery prgm: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Reg?l gleaning & food recovery prgm: No Support-2; Moderate-2; High-3<br>could this also tie into waste issues and look at composting.<br>Along the lines of food waste, implement composting programs. |
| **Create a Regional Healthy Corner/ Convenience Store Network.** | Expand the Capital District Healthy Convenience Store Initiative to provide resources, education and funding to allow corner stores to upgrade their infrastructure to carry local, fresh produce. This initiative would also include working with local governments to revise zoning bylaws to allow more convenience/corner stores. Other resources include the Healthy Corner Stores Network (HCSN) which provides a forum for sharing best practices and lessons learned, as well as related research on helping "convert" small corner and convenience stores into places with healthful food options. | Oct 1 Votes: Regional Healthy Corner Store Network: No Support-4; Moderate-1; High-7<br>Oct 2 Votes&Notes: Reg?l Healthy Corner Store Network: No Support-0; Moderate-2; High-0<br>Oct 3 Votes: Reg?l Healthy Corner Store Network: No Support-1; Moderate-3; High-3 |
| **Build capacity for new and existing farmers by establishing a Farmers Support and Enhancement Program.** | Work collaboratively to build capacity for new and existing farmers through enhanced training opportunities for GAP certification, business development, and hands-on-assistance for regulatory hurdles. This initiative would include one-on-one guidance through GAP certification, a major hurdle for small farmers. | Oct 1 Votes: Farmers Support & Enhancement Program: No Support-3; Moderate-1; High-7<br>Oct 2 Votes&Notes: Farmers Support & Enhancement Program: No Support-0; Mod-0; High-3<br>Oct 3 Votes: Farmers Support & Enhancement Program: No Support-0; Moderate-0; High-6<br>What is GAP? Good Agricultural Practices (GAP) are specific methods which, when applied to agriculture, produce results that are in harmony with the values of the proponents of those practices. |
| **Create additional medium to small-sized processing facilities, including kitchen incubators, throughout the region.** | Build more small to mid-size processing facilities such as kitchen incubators where farmers and other entrepreneurs can process/prepare their foods for market. | Oct 1 Votes: Med to Sm-sized processing facilities: No Support-4; Moderate-4; High-6<br>Oct 2 Votes: Med to Sm-sized processing facilities: No Support-0; Moderate-0; High-3<br>Oct 3 Votes: Med to Sm-sized processing facilities: No Support-1; Moderate-1; High-5 |

Level of Support: No Support | Moderate Support | High Support

## Food Systems

### Objectives

1)

### Legend

- No Support
- Moderate Support
- High Suppport
- Comments

# Land Use and Livable Communities

Photographs of the poster boards from Oct 1, 2, and 3 events. October 1 photo shows 2 boards combined.

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Indicate your level of support

| Initiative | Summary | Place Your Comments Here |
|---|---|---|
| **Develop a regional greenway connectivity plan.** (No Support: 2; Moderate Support: 1; High Support: 8) | A Regional Greenway Plan would help bring existing planning efforts together to create a well connected network of green spaces and trails throughout the 8-county region. Funding of this regional plan, as well as the expansion and completion of the existing trail network and planned trails would help the region create a robust greenway system that ties together natural resources, recreation and cultural elements. | Oct 1 Votes: Reg?l greenway connectivity plan: No Support-4; Moderate-0; High-15<br>Oct 2 Votes: Reg?l greenway connectivity plan: No Support-0; Moderate-0; High-2<br>Oct 3 Votes: Reg?l greenway connectivity plan: No Support-5; Moderate-0; High-5 |
| **Develop and implement sustainability guidelines for historic buildings and districts.** (No Support: 1; Moderate Support: 6; High Support: 4) | Develop guidelines for implementing energy improvements, façade and signage improvements, and other green design and zoning practices that preserve and enhance the region's historic buildings and districts. | Oct 1 Votes: Sustainability guidelines for historic buildings: No Support-3; Moderate-2; High-7<br>Oct 2 Votes: Sustainability guidelines for historic buildings: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Sustainability guidelines for historic buildings: No Support-4; Moderate-0; High-6 |
| **Modify local codes and regulations to allow for sustainable, compact development.** (No Support: 2; Moderate Support: 2; High Support: 10) | Investigate changes to zoning and/or updates to local Comprehensive Plans and design guidelines to allow for compact, walkable, sustainable development. | Oct 1 Votes&Notes: Sustain'l, compact dev?t codes: No Support-7; Mod-1; High-19<br>Oct 2 Votes&Notes: Sustainable, compact dev?t codes: No Support-1; Moderate-0; High-2<br>Oct 3 Votes: Sustainable, compact dev?t codes: No Support-6; Moderate-0; High-7<br>codes/zoning for sustain clude population limits are useless. .<br>Economic incentives at all govt levels and favor compact development and discourage sprawl. |
| **Implement land conservation practices into land use planning and zoning.** (No Support: 2; Moderate Support: 1; High Support: 7) | Support land conservation in the region, including protection of sensitive lands and resources such as viable agriculture, aquifers, floodplains, and other green infrastructure, through practices such as conservation easements, transfer of development rights (TDR)/ purchase of development rights (PDR), conservation subdivision overlay districts, or property acquisitions. Communities should be encouraged to work together to establish joint programs for conservation. | Oct 1 Votes&Notes: Land conservatn in planning: No Support-4; Moderate-0; High-13<br>Oct 2 Votes&Notes: Land conservation in planning: No Support-0; Moderate-0; High-5<br>Oct 3 Votes: Land conservation in planning: No Support-5; Moderate-0; High-7<br>Comment: Merge this item with TOD below |
| **Prioritize Brownfield redevelopment.** (No Support: 1; Moderate Support: 1; High Support: 8) | Communities should clean up and redevelop brownfields as a priority in order to develop previously developed lands (many of which may be in existing population centers) and clean up polluted areas, thereby preserving natural resources. | Oct 1 Votes: Prioritize brownfield redev?t: No Support-0; Moderate-0; High-14<br>Oct 2 Votes&Notes: Prioritize brownfield redev?t: No Support-0; Moderate-0; High-2<br>Oct 3 Votes: Prioritize brownfield redev?t: No Support-3; Moderate-0; High-4 |
| **Update zoning for transit-oriented development (TOD).** (No Support: 1; Moderate Support: 1; High Support: 7) | Update zoning to be more 'transit-friendly' and incorporate mixed-use, mixed-income, compact, walkable developments along existing and proposed transit routes. | Oct 1 Votes&Notes: Zoning for Transit-Oriented Dev?t: No Support-4; Moderate-1; High-13<br>orporate the Thru the vicinity of ne neighborhoods into sportation plans. E by bike lane btw. Th 5 24 and 787/90. A propriate entry/exit llow good connect downtown busines residential.<br>Oct 2 Votes: Zoning for Transit-Oriented Dev?t: No Support-0; Moderate-0; High-2<br>Oct 3 Votes: Zoning for Transit-Oriented Dev?t: No Support-5; Moderate-0; High-3<br>Work to redesign inte traffic corridors to stre pedestrian ov<br>TOD over<br>Comment: Merge with compact development |
| **Repair and modernize existing infrastructure** (No Support: 1; Moderate Support: 1; High Support: 7) | Invest in repairs and modern upgrades to sustainable, green infrastructure that ensures the water, sewer, and mobility needs of pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities are met. | Oct 1 Votes: Modernize existing infrastructure: No Support-2; Moderate-4; High-19<br>Oct 2 Votes&Notes: Modernize existing infrastructure: No Support-0; Moderate-0; High-5<br>Oct 3 Votes: Repair & modernize existing infrastructure: No Support-5; Moderate-0; High-5<br>The Capital Regions infrastructure at the City level is in desperate need up upgrading. Sustainable design could be used to update and beautify parks and other public areas. For example, user semi permeable materials for walking areas around parks, etc... |
| **Promote sustainable and affordable housing.** (No Support: 1; Moderate Support: 1; High Support: 9) | Provide funding for communities to develop sustainable and affordable housing for senior, low-income, and/or special needs populations within walkable town, city, village and hamlet centers. Facilitate and support public/private partnerships, inclusionary zoning and encourage communities to provide incentives for private developers to provide this housing (bonuses, etc). | Oct 1 Votes: Sustainable & affordable housing: No Support-6; Moderate-1; High-16<br>Oct 2 Votes&Notes: Sustainable & affordable housing: No Support-1; Moderate-0; High-0<br>Oct 3 Votes: Sustainable & affordable housing: No Support-4; Moderate-0; High-4 |
| **Improve public access to waterfront areas.** (No Support: 1; Moderate Support: 2; High Support: 11) | Many of the region's waterfronts, including lakes, rivers, canals and streams, are underutilized due to a lack of public access. Important waters that played a significant role in the history of the region cross this 8-county area including the Hudson and Mohawk Rivers, and the lakes of the southern Adirondacks. | Oct 1 Votes: Public access to waterfront areas: No Support-4; Moderate-2; High-14<br>Oct 2 Votes: Public access to waterfront areas: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Public access to waterfront areas: No Support-3; Moderate-0; High-3 |

## Land Use and Livable Communities

Objectives

1)

Legend

- No Support
- Moderate Support
- High Support
- Comments

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# Solid Waste

Indicate your level of support

| Initiative | Summary | Place Your Comments Here |
|---|---|---|
| **Develop a Resource Recovery Park.** | Resource Recovery Park is the co-location of reuse, recycling, compost processing, manufacturing, and retail businesses in a central facility: a facility to which the public can bring all their wastes and recoverable materials at one time. | Oct 1 Votes&Notes: Resource Recovery Park: No Support-1; Moderate-1; High-8<br>Oct 2 Votes: Resource Recovery Park: No Support-0; Moderate-0; High-4<br>Oct 3 Votes: Resource Recovery Park: No Support-1; Moderate-0; High-4<br>Incineration, which is not included in RR summary, so votes for RR must NOT be taken as support for Incin.<br>The major benifit of a Recovery Park is that m<br>RRP summary doesn't mention incineration, so votes for RR can NOT be taken as support for Incineration. |
| **Improve and increase composting options.** | This would include food and yard wastes and would focus on improving and expanding current systems for Leaf and Yard Waste Composting as well as implementing a program for curbside collection of food waste from residential and commercial sources for composting or anaerobic digestion. | Oct 1 Votes: Composting: No Support-3; Moderate-3; High-8<br>Oct 2 Votes: Composting: No Support-0; Moderate-0; High-4<br>Oct 3 Votes: Composting: No Support-1; Moderate-0; High-4<br>Many of the upstream environmental benefits of composting are from getting the soil nutrients back into the community depending on feedstock and volumes (it may be great for biosolids, but not for food waste). A feasability study that includes life cycle analysis should be done as part of this.<br>Food waste makes up about 11% of the waste stream. This is a large portion of the waste stream that we are not diverting from disposal.<br>Methane from landfills is a MAJOR greenhouse contributor; diverting food waste shd be high priority. |
| **Adopt C&D waste reduction ordinance.** | Enact local laws or ordinances requiring that building construction, demolition and renovation, submit plans for the reduction and recycling of C&D debris. | Oct 1 Votes: C&D waste reduction ordinance: No Support-4; Moderate-0; High-7<br>Oct 2 Votes&Notes: C&D waste reduction ordinance: No Support-0; Moderate-0; High-1<br>Oct 3 Votes: C&D waste reduction ordinance: No Support-4; Moderate-1; High-2<br>This is easy and fair.<br>What is C&D debris? C&D debris is waste material generated during the construction and/or Demolition of buildings. |
| **Site and develop anaerobic digestion facilities in the region.** | Support the development of anaerobic digestion facilities that can accept food waste and other biosolids to generate energy. | Oct 1 Votes&Notes: Anaerobic digestion facilities: No Support-1; Moderate-2; High-12<br>Oct 2 Votes: Anaerobic digestion facilities in the region: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Anaerobic digestion facilities in the region: No Support-1; Moderate-1; High-3<br>Anaerobic digestion of sewage to create biogas and fertilizer is best done using separator toilets and a separated sewage system (solid/liquid).<br>is fits under the Improve and composting. If you read the ry the compostting initiative includes digestion. |
| **Implement single stream recycling.** | Increase recycling rates by collecting mixed papers with glass, metal, and plastic containers as a single stream of the most common residential recyclables. | Oct 1 Votes: Single stream recycling: No Support-3; Moderate-3; High-14<br>Oct 2 Votes: Single stream recycling: No Support-0; Moderate-0; High-1<br>Oct 3 Votes: Single stream recycling: No Support-4; Moderate-0; High-2<br>This is already being done throughout much of the project area and a facility to process single stream material currently exists in Albany. |
| **Implement volume-based user fees.** | Variable fee (Volume based) residential waste collection programs, also referred to as Pay as you Throw (PAYT) incentivizes recycling by disincentivizing high volume trash production. | Oct 1 Votes: Volume-based user fees: No Support-4; Moderate-4; High-5<br>Oct 2 Votes: Volume-based user fees: No Support-0; Moderate-1; High-2<br>Oct 3 Votes: Volume-based user fees: No Support-4; Moderate-0; High-2<br>This idea actually creates financial incentives for waste generators to produce less waste and divert as much as they can. This ideal is also very inexpensive for municipalites to implement and also costs most waste generators less if you count what they would have paid in waste utility fees, waste hauler service fees or taxes under traditional service payment schemes.<br>nd including a connection to reuse (and a reuse building supply retail tore) can create significant jobs and economic opportunities. |
| **Implement a waste inspection program.** | Inspections upon waste delivery to identify loads containing excessive recyclables. Follow-up education and enforcement actions are taken on haulers delivering excessive recyclables in order to reduce the amount of recyclable waste being sent to landfills. | Oct 1 Votes: Waste inspection program: No Support-3; Moderate-0; High-6<br>Oct 2 Votes: Waste inspection program: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Waste inspection program: No Support-3; Moderate-2; High-0 |
| **Establish a revolving loan fund to bridge recycling expenses.** | Establish a revolving loan fund that can be used as bridge loans for eligible recycling expenses under DEC's MWRR grant program, but whose reimbursement is delayed by the multi-year backlog in DEC's fund distribution. | Oct 1 Votes: Revolving loans to bridge recycling expenses: No Support-2; Mod-0; High-2<br>Oct 2 Votes: Revolving loans to bridge recycling expenses: No Support-0; Mod-0; High-0<br>Oct 3 Votes: Revolving loans to bridge recycling expenses: No Support-3; Mod-0; High-3<br>The MWRR Grant Program is a 50% matching grant program where the State funds 50% of the investment of municipalities in waste prevention, reuse, recycling or compostting projects. These projets can either be capital investments or education projects that can be in-house with municipal staff. The problem with the current program is that it is a first come first serve program and currently lack of funding of the program is causing delays of at least four years in the funding of projects. The bridge loan could solve the delay |
| **Partner with universities to facilitate innovation in waste technologies.** | Partner with Universities and other regional research institutions | Oct 1 Votes&Notes: Facilitate innovation in waste tech. w/ univ: No Support-3; Mod-3;<br>Oct 2 Votes: Facilitate innovation in waste tech. w/ univ: No Support-0; Moderate-0; High-2<br>Oct 3 Votes: Facilitate innovation in waste tech. w/ univ: No Support-0; Moderate-1; High-4<br>Get RPI involved in working with the community! |

Solid Waste

Objectives

1)

Legend

- No Support
- Moderate Support
- High Support
- Comments

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# Transportation

Indicate your level of support

| Initiative | Summary | Place Your Comments Here |
|---|---|---|
| **Establish car sharing programs throughout the region.** | Create a region-wide car sharing program or multiple local car sharing programs to reduce parking demand and the number of vehicles per driver. The program could include incentives such as priority parking spaces in downtown areas. Car share programs could also be extended to municipal fleets as a way to lower costs and decrease vehicle miles traveled. | Oct 1 Votes: Car sharing programs: No Support-7; Moderate-0; High-4<br>Oct 2 Votes: Car sharing programs: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Car sharing programs: No Support-2; Moderate-0; High-2 |
| **Implement a bicycle and pedestrian infrastructure improvement program.** | Expand bicycle and pedestrian networks within the region both through "spot" improvements and implementing bicycle and pedestrian plans within communities. | Oct 1 Votes: Bicycle & ped. infrastructure: No Support-1; Moderate-1; High-29<br>Oct 2 Votes: Bicycle & ped. infrastructure: No Support-0; Moderate-0; High-4<br>Oct 3 Votes: Bicycle & ped. infrastructure: No Support-0; Moderate-0; High-5<br>Prioritize crossings where pedestrians have been hit by vehicles. |
| **Improve transit service through technology improvements.** | Implement transit technology improvements such as transit signal priority, signal optimization, off-board fare collection, smartcard fare media, automatic vehicle location (AVL)/"NextBus" tracking systems to improve travel time, reliability, and overall user experience and to increase ridership. | Oct 1 Votes&Notes: Improve transit thru tech. improv: No Support-2; Moderate-2; High-9<br>Oct 2 Votes: Improve transit service through tech. improv: No Support-0; Mod-0; High-0<br>Oct 3 Votes: Improve transit service through tech. improv: No Support-2; Mod-1; High-4<br>Adopt a standard method for a bus nearing a transfer point to tell connecting bus of passenger(s) wanting to xfer. |
| **Develop and expand electric vehicle and alternative fuel infrastructure.** | Provide communities with funding assistance in implementing electric and alternative fuel infrastructure and equipment. The goal of this program would be to expand the range of alternative fuel infrastructure beyond the Albany urban core into more outlying urban areas. | Oct 1 Votes: Electric/alternative fuel vehicles infrastructure: No Support-6; Mod-1; High-13<br>Oct 2 Votes: Electric/alternative fuel vehicles infrastructure: No Support-0; Mod-3; High-0<br>Oct.3 Votes: Electric/alternative fuel vehicles infrastructure: No Support-4; Mod-2; High-4 |
| **Convert municipal fleets and transit vehicles to electric or other alternative fuels.** | Reduce municipal fleet emissions by converting to electric vehicles or other alternative fuels, and reduce transit agency/ operator emissions by converting fleets to hybrid buses or using other alternative fuel technologies. | Oct 1 Votes: Electric or alternative fuel transit vehicles: No Support-4; Mod-1; High-12<br>Oct 2 Votes: Electric or alternative fuel transit vehicles: No Support-0; Moderate-0; High-3<br>Oct 3 Votes: Electric or alternative fuel transit vehicles: No Support-5; Moderate-1; High-6 |
| **Optimize transportation system through alternative street design and advanced signal technology.** | Optimize a multi-modal transportation system through a variety of physical and technological improvements that will improve travel flow and reduce travel times for all modes. Improvements could include roundabouts, signal optimization, signal coordination, complete streets design, and energy efficient technology such as LED lighting in redesigns. | Oct 1 Votes: Alternative street design & signal technology: No Support-1; Moderate-3; High-7<br>Oct 2 Votes: Alternative street design & signal tech: No Support-0; Moderate-0; High-2<br>Oct 3 Votes: Alternative street design & signal technology: No Support-0; Moderate-1; High-2 |
| **Incentivize use of clean and fuel-efficient truck and freight technology.** | Provide incentives to encourage trucking and freight companies to upgrade or modify their fleets to be more energy efficient. This could include adding Auxiliary Power Units (APUs), bunk heaters, diesel particulate filters, or purchasing newer more energy efficient vehicles, or using alternative fuels. | Oct 1 Votes: Clean & fuel-efficient truck & freight tech.: No Support-3; Moderate-2; High-9<br>Oct 2 Votes: Clean & fuel-efficient truck & freight tech.: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Clean & fuel-efficient truck & freight tech.: No Support-4; Moderate-0; High-3 |
| **Create an interconnected regional transit system.** | Link independent transit services in the region to allow for seamless transfers between them to improve the overall viability of transit travel between communities and throughout the region. The development of new services and routes, intermodal facilities and unified fare media are methods to enable these connections. | Oct 1 Votes: Interconnected Req?l transit system: No Support-2; Mod-1; High-16<br>Oct 2 Votes: Interconnected Req?l transit system: No Support-0; Mod-0; High-5<br>Oct 3 Votes: Interconnected Req?l transit system: No Support-0; Mod-1; High-3<br>Incorporate the Thruway corridor in the vicinity of residential neighborhoods into alternative transportation plans. E.g. integrating a 2-way bike lane btw. Thruway exits 23 and 24 and 787/90, with numerous, appropriate entry/exit points, would allow good connection between downtown business district and residential areas<br>Require employers and developers offering free/subsidized parking to offer transit passes of equal value. |
| **Improve freight facility operations, infrastructure, and highway connection.** | Invest in technologies and apply operations methods that increase the efficiency of port/rail/truck intermodal transfers. Also invest in infrastructure improvements that reduce traffic | Oct 1 Votes: Improve freight operations, infrastructure: No Support-1; Moderate-1; High-11<br>Oct 2 Votes: Improve freight operations, infrastructure: No Support-0; Mod-0; High-1<br>Oct 3 Votes: Improve freight operations, infrastructure: No Support-1; Mod-1; High-4 |

Level of Support: No Support | Moderate Support | High Support

## Transportation

### Objectives

1)

### Legend

- No Support
- Moderate Support
- High Support
- Comments

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# Water

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Indicate your level of support

| Initiative | Summary | Place Your Comments Here |
|---|---|---|
| **Require use of a predictive model for stormwater management.** | A Predictive Model for stormwater management will compare various alternatives including “gray” (storm sewers, detention basins, etc.) and “green” (bioswales, rain gardens, treatment wetlands, etc.) infrastructure as well as existing natural systems to address stormwater quantity and quality. | Oct 1 Votes&Notes: Predictive modeling for stormwater mngt: No Support-4; Mod-3; High-7<br>Oct 2 Votes: Predictive modeling for stormwater mngt: No Support-0; Moderate-0; High-4<br>Oct 3 Votes: Predictive modeling for stormwater mngt: No Support-1; Moderate-0; High-3<br>1 Develop an Albany Basin Improvement Master Plan and Yearly Workplans to lay out, measure and track progress toward solving the CSO issues in the Hudson bbw. Troy and Albany. |
| **Develop an Asset Management Plan for water systems.** | Develop an Asset Management Plan that will assess and manage water loss and energy consumption in a municipal water system. This initiative will begin with an inventory and assessment of the existing system for a given area or municipality, followed by a capital improvement plan and an educational program. | Oct 1 Votes: Asset mngt Plan for water systems: No Support-4; Moderate-1; High-8<br>Oct 2 Votes: Asset mngt Plan for water systems: No Support-0; Moderate-0; High-3<br>Oct 3 Votes: Asset mngt Plan for water systems: No Support-2; Moderate-0; High-6 |
| **Develop an Asset Management Plan for sewer systems.** | An effective means of assessing and managing sewer loading, treatment and energy consumption in a municipal system is to conduct an Asset Management Plan. | Oct 1 Votes: Asset mngt Plan for sewer systems: No Support-1; Moderate-1; High-5<br>Oct 2 Votes: Asset mngt Plan for sewer systems: No Support-0; Moderate-0; High-0<br>Oct 3 Votes: Asset mngt Plan for sewer systems: No Support-1; Moderate-1; High-3 |
| **Conduct a watershed assessment for stormwater management.** | This initiative will inventory and assess the existing drainage network and stormwater systems, both natural and built. | Oct 1 Votes: Watershed assessm?t for stormwater mngt: No Support-3; Mod-2; High-10<br>Oct 2 Votes: Watershed assessm?t for stormwater mngt: No Support-0; Mod-0; High-1<br>Oct 3 Votes: Watershed assessm?t for stormwater mngt: No Support-1; Mod-0; High-3 |
| **Create a small grant program for innovative water quality projects.** | The intent of this program is to allow the general public to propose innovative projects to improve water quality that could be funded by existing grant programs. | Oct 1 Votes: Grant prgm for innovative water quality projects: No Support-3; Mod-1; High-6<br>Oct 2 Votes: Grant prgm for innovative water quality projects: No Support-0; Mod-0; High-2<br>Oct 3 Votes: Grant prgm for innovative water quality projects: No Support-3; Mod-0; High-5 |
| **Implement an invasive species management and outreach program.** | The focus of this initiative is to prevent the spread of invasive species by human activities through education and direct intervention. | Oct 1 Votes: Invasive species mngt & outreach program: No Support-5; Moderate-4; High-5<br>Oct 2 Votes: Invasive species mngt & outreach program: No Support-0; Moderate-0; High-1<br>Oct 3 Votes: Invasive species mngt & outreach program: No Support-4; Moderate-0; High-3 |
| **Create water/stormwater mgmt rating system for commercial and residential development.** | A green rating system would measure the extent to which homes and business practice conservation measures and utilize natural and sustainable means of maintaining both structures and the landscape. | Oct 1 Votes: Water/stormwater mngt rating sys for dev?t: No Support-4; Moderate-0; High-6<br>Oct 2 Votes: Water/stormwater mngt rating sys for dev?t: No Support-0; Moderate-0; High-1<br>Oct 3 Votes: Water/stormwater mngt rating sys for dev?t: No Support-4; Moderate-0; High-3 |
| **Revise municipal code to incorporate water/stormwater mgmt best practices.** | Develop a guidance document for communities to review their municipal codes for regulations that might inhibit the implementation of sustainability initiatives and best practices. | Oct 1 Votes: Add water mngt best practices in municipal code: No Support-3; Mod-3; High-9<br>Oct 2 Votes: Add water mngt best practices in municipal code: No Support-0; Mod-0; High-1<br>Oct 3 Votes: Add water mngt best practices in municipal code: No Support-5; Mod-0; High-5 |
| **Develop a purchasing consortium for** | | Oct 3 Votes: Purchasing |

Water

Objectives

1)

Legend

- No Support
- Moderate Support
- High Support
- Comments

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| | | | Oct 1 Group 1 | General comment: don't want tax payer funded committees for sustainability initiatives | | |
| | | | Oct 1 Group 16 | General comment: all initiatives are laudable goals, but have there been any cost estimates developed for each? | | |
| | | | | General comment: will municipalities have the expertise to implement the initiatives? Or will they be done by outside contractors? Or will local officials be trained? | | |
| | | | | General comment: concern about staffing requirements for implementation | | |
| | | | | General comment: what are the projected ongoing costs after the $90 million is spent? | | |
| | | | | General comment: some initiatives are projects that are going to be implemented already (such as SEQR coverage of climate change, green infrastructure promotion, flood plain ordinances), so the initiatives are a method for paying for unfunded mandates. | | |
| | | | | General comment: cap and trade the source of funding | | |
| | | | | General comment: some initiatives are very specific but others are overarching, so some could fall underneath others. There appears to be two levels of initiatives. Protection of habitat is one of the most important initiatives | | |
| | | | | General comment: need to spell out acronyms | | |
| | | | | General comment: expertise do not always get things right and concern is whether local officials are capable of implementing the projects, officials need to be trained. Education and continued support is needed for successful implementation. | | |
| | | | | General comment: climate adaptation should be focused on local or regional issues, such as flood plain planning, and not global temperature change. | | |
| 1 | Implement a tree planting program. | 1 | Oct 1 Group 1 | | $90 Million dollars should go towards actual projects such as Tree Planting, not committees or consultants | |
| | | | | | Local community organization and volunteer based activity | |
| | | | Oct 1 Group 16 | tree planting is a good idea but low priority | | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 3 | Promote green infrastructure. | 2 | Oct 1 Group 1 | | Provide incentives for green infrastructure. Make it reward based to add and not through zoning. | |
| | | | Oct 1 Group 7 | | streamline into local building codes, zoning | developers |
| | | | | | educate developers | IDAs and local ecomomic development agencies |
| | | | | | create revolving loan fund for green infrastucte through PILOT for cost of infrastucture (or expemption) paid back from tax savings until whole, then developer reaps cost savings | contractors |
| | | | | | offset fees | county and muni entities |
| | | | | | more robust stormwater managment to offset increased costs "down the pipe" a better assessment of the long term inpact. ie impervious surface impact on additional capacity for sewers vs pervious suface | academia |
| | | | | | if you get gov't funding, or take advantage of tax saving programs then you need to meet requirements of green program. | DEC, dept of state |
| | | | | | | soil and water conservation dists |
| | | | | | | NYSERDA |
| | | | | | | grant and loan providers |
| | | | | | | architects |
| 7 | Protect and enhance critical habitat, floodplains, and wetlands that are under threat from climate change. | 2 | Oct 1 Group 1 | Enforce SEQR review to protect sensitive areas of wetlands, get rid of Short Form require long form to insure adequate review is conduct. | | |
| | | | Oct 1 Group 7 | | map, assess, identify | land trusts |
| | | | | | identify programs to buy, create esements | ORGs like TPL, nature conservancy, Scenic hudson |
| | | | | | study system wide resources | ag districts and right to farm areas |
| | | | | | identify and support funding mechanisms | county and munis |
| | | | | | ag districts | muni orgs / quasi public entities than own land |
| | | | | | higher level of SERQ review areas | NYS office of cyber security -- GIS clearinghouse |
| | | | | | more robust zoning and land use restrictions | higher ed |
| | | | | | PDR programs | biologists and naturalists |
| | | | | | identify effects of climate change on regions natural resources | user groups - audobon, ADK, kayak, bike, hike |
| | | | | | identify local cost of climate change | TDR program manager |
| | | | | | | land banks |
| | | | Oct 1 Group 16 | | identify the property that is threatened | Partnerships with Land Trusts |
| | | | | | provide funding and incentives for landowners | NYS DEC, Audubon Society, Sierra Club, ICLEI, NWF, NRDC, Land developers, resource extractors |
| | | | | | sort out property rights issues | concern that local officials need better understanding of what is being done, need to be educated, and will the partners bulldoze the local officials? |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| *NEW* | Stepback. Stepback means investigation of the time, education, and cost required for implementation. | 1 | Oct 1 Group 16 | | | |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 1 - Implement a tree planting program | Capital Region Website | 11-Oct | Establish a regional Urban and Community Forestry Program to plant low-pollen trees and shrubs through the Hudson-Mohawk Resource Conservation and Development Council hiring of a forester. The certified forester needs to coordinate any federal and state government funding programs toward a strategic drainage basin tree, shrub, wildflower and grass planting project. School districts need to consider integrating a K-12 Earth Day science program as a component of the biology/science curriculum to educate the faculty and students in the carbon sequestration process and the health benefits of tree ecology. Municipal governments need to consider conservation easement tax credits to landowners willing to participate in the drainage basin program.<br>Michael McGlynn |
| | Crowdbrite | 1-Oct | Put an effort on creating community gardens as well. |
| | | 1-Oct | big trees |
| | Crowdbrite - Schenectady Meeting | 18-Sep | Comments: Volunteer groups – no new taxes |
| | SurveyGizmo | 26-Oct | Already working on Tree Master Plan, and Inventorying street trees for Saratoga Springs. |
| | | | An inexpensive way to add beauty and cleaner air to our region. |
| | | | How about a food tree planting program? That would change answer to "High Support". |
| | | | I plant a tree every year on my prpoerty to honor my ancestors |
| | | | This is important to me |
| | | | Trees are a good way to sequester carbon and to add oxygen toi the environment |
| | | | Trees are important, but seem to grow well on their own. Where would planting occur? |
| | | | and not only in urban areas |
| | | | fruit bearing trees |
| | | | planting of young trees to replace ones harvested by logging operations |
| | | | sounds like a good idea |
| | | | they look nice and keep the temp down in urban areas |
| | | | trees are needed to cut air pollution |
| | | | trees provide so much- soil support, shade, beauty, maple syrup, wood... |
| | | | In Troy recently the city cut down several trees from Riverfront Park, rather than moving them and having them replanted after the renovations for the park were complete. |
| | | | it's also important to obtain a wide range of tree species, in light of species-specific blights, invasives and climate change impacts |
| | | | I know it is iimportant where we plant as we at the same time we want more trees we want more solar tech. |
| | | | Tree planting is not an effective way to combat climate change in this region, trees grow well naturally. |
| | | | I can think of nothing more important for future generations than a well managed mixed forestland, as well as trees in communities. Not only do they clean and cool the air, but they add to the value of property and provide wildlife food and refuge. |
| | | | No matter how many trees we plant, by the time they mature and act fully as carbon sinks, doing so will never be able to offset our tremendous volume of carbon emissions from all sources. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 2 - Establish a Regional Climate Change Collaborative | Capital Region Website | 11-Oct | Establish a Regional College Cooperative Services Board -NYS Education Law Section 496, for institutions of higher education to copperate and coordinate with government and business the application to the National Science Foundation programs: Climate Change Education; Climate Change Education Partnership; Science, Engineering and Education for Sustainability; Research Coordination Networks; Facilitating Research at Primarily Undergraduate Institutions; Research Experiences for Undergraduates; Faculty Early Career Development Program; Innovation Corps Sites Program; Innovation Corps Teams Programs; Biotechnology, Biochemical and Biomass Engineering; Grant Opportunities for Academic Liaison with Industry. Michael McGlynn |
| | Crowdbrite | 3-Oct | What's GHG? A greenhouse gas (sometimes abbreviated GHG) is a gas in an atmosphere that absorbs and emits radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect. Jackson Davis |
| | SurveyGizmo | 26-Oct | This is crucial, regardless of whether there is global warming occurring, or not. |
| | | | Very important to have a good plan i9n place as we go into the future |
| | | | could work but may be costly |
| | | | needs to be done on a macro regional basis...(.i.e. the northeast) |
| | | | with global warming a reality we need to find ways to stop it or adapt |
| | | | would this be just another committee or group that does little except sit and talk? |
| | | | Such a collaborative would help to avoid costs by some who have already incurred losses by failed projects. We could avoid duplicating wasteful and unsustainable practices and concentrate our resources upon programs proven to be successful. |
| | | | There is much we can do in our communities like solar street lightning, large area for solar panels that residents can tap into, making circular systems that recycles energy, networking with existing intiatives like the Transition group, using public transportation, etc. |
| | | | The scientific community has not firmly established whether the increase in avergae winter temperatures over the past 20 years are due to anthropomorphic influences in the climate or a natural cycle due to a combination of solar activity and 20-year cycles in the pacific and atlantic oceanic oscillations. Since it has been established beyond doubt that ice ages and warming cycles have occurred about 8 times over the past 800,000 yeras, the benefit of the doubt must be given to a natural, rather than a man-made explanation. Therefore, on the basis of scientific evidence, I do not support any climate change collaborative. |
| | | | I believe it is time to develop a land trust for county land and waters . The health and safety of the soil and water (reservoir) should be protected and nourished/harvested . |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 3 - Promote green infrastructure. | Crowdbrite | 1-Oct | Implement tax breaks at the local level that phase out over time for residents to institute green construction. For example, purchasing new windows or insulation will reduce energy needs but also raises and individuals tax bill. It is counter productive. |
| | SurveyGizmo | 26-Oct | The greener the better. This includes absolutely NO FRACKING! |
| | | | With infrastructure comes jobs and makes it easier for average people to participate. |
| | | | Would love to have solar panels on my property but unsure how to get started. |
| | | | Yes, definitely |
| | | | every way we can stop the use of fossil fuels and turn to wind, solar, and water power the better |
| | | | it's time to promote green infrastructure before it's too late |
| | | | come on, this si not just about green roofs on schools! Green infrastructure includes natural waterways |
| | | | making circular systems like putting solar panels on wastelands where you cannot grow anything or cannot build because the water may be contaminated |
| | | | Hopefully, you'll reach out to our environmental organizations for guidance. For example, Citizens' Environmental Coalition has published a Green Buildings Guidebook. |
| | | | new construction needs to have green aspects and storm water management needs to be a top priority |
| | | | We should follow Denmark's example who transitioned from 99% energy dependence back in the early 70's to 99% independence; primarily through green initiatives. The same holds true of Switzerland, where I lived 7 years without ever experiencing a power failure, no matter how severe the weather... imagine that?! |
| | | | I especially support the green roofs. With all the big box stores in this area, what an opportunity for reducing storm runoff, decreasing heating and cooling costs, and greatly improving the appearance of those buildings. |
| | | | improved bicycle and pedestrian systems will help divert some of the automobile travel to non polluting modes |
| 4 - Include climate change in SEQR reviews. | Crowdbrite - Schenectady Meeting | 3-Oct | WHAT's SEQR? New York's State Environmental Quality Review Act (SEQR) requires all state and local government agencies to consider environmental impacts equally with social and economic factors during discretionary decision-making. |
| | SurveyGizmo | 26-Oct | The concern for climate, and actually doing something about it, must begin somewhere. |
| | | | This is a great idea |
| | | | This would be a good addition to what is already in place |
| | | | We need to plan for change flooding, drought and sea level change (remember the Hudson is tidal) |
| | | | floods like in Schoharie County need to be prepared for |
| | | | not sure what the benefit would be |
| | | | unproven theory |
| | | | Until we factor in the increasing severity of hurricanes, tornadoes, floods, etc., and plan accordingly, we will continue to be third world in terms of power and communication outages. |
| | | | Yes. For example, has the rising level of our Hudson River been being considered for shoreline projects? |
| | | | I think the Environmental Im pact Statement is really important. For example the proposed large area in Tupper Lake for upscale homes could be constructed with a less severe impact on the environment. |
| | | | Urban environmental consideration is not the same as rural or country natural resources. Conservation of soil and water in the country and prevention of pollution in the urban settings . |

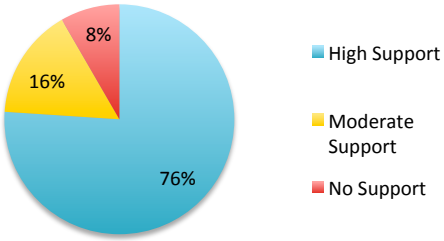
| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 5 - Develop guidance document on how to integrate climate change impacts into existing plans and processes. | SurveyGizmo | 26-Oct | A must for colaboration between communities spread over 8 counties. |
| | | | First, we must act to prevent and reduce climate change. |
| | | | Important step to get everyone on the same page |
| | | | Some existing plans are not good and need changing |
| | | | not sure it would be effective |
| | | | Sequestering carbon in the soil will impact air pollution , if implemented with plans and processes. Biochar production |
| | | | Not really sure how you can integrate into existing plans but to change going forward would be good |
| | | | Do it right the first time! |
| | | | More study and understanding is needed of specifically how this is going to be implemented. |
| | | | need more info |
| | | | sounds good |
| 6 - Create floodplain ordinances. | SurveyGizmo | 26-Oct | Note my response to item 4, above. |
| | | | Very little building should happen in floodplains with the exception of parks and some farming |
| | | | We need to do this and provide for flood coverage that does not take years to receive |
| | | | we are living with the results of no plan in place... |
| | | | we need to plan for floods with climate change happening. |
| | | | people lost their homes and businesses when water was released to save other places and then got no help to rebuild |
| | | | good idea to plan for the future especially aftr the devestating hurricane's we saw over the last year. |
| | | | with the "hundred year floods" occurring in this area every 3-5 years, it is about time we recognized that building on flood plains cannot be supported. |
| | | | Unless I am mistaken, there already exist flooplain areas. The need and purpose of floodplain ordinances should be better described before I could support such an activity. |
| | | | You can create all the template anyone could want, the problem will be getting them passed. Only one town in Washington County has zoning. |
| | | | Yes. This is a practical matter. Its an effort to spare homes, other property, and lives from unnecessary damage. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 7 - Protect and enhance critical habitat, floodplains, and wetlands that are under threat from climate change. | Capital Region Website | 11-Oct | Small watershed planning within the Mohawk-Hudson River Basin by municipalities coordinating their Unified Haward Mitigation plans in conjunction with the Erie Canal Corporation with other programs such as: Nonpoint Source Pollution Control; Wetlands Program Development Grants; Snagging and Clearing for Flood Control; Watershed Potection and Flood Prevention Program; Watershed Rehabilitation Program. Municipal governments inclusion of conservation easement tax credits for landowners willing to participate in the protection plan. Collaboration by government and business with regional institutions of higher education to apply to the National Science Foundation for Science, Engineering and Education for Sustainability program grants with regional coordination with the Hudson-Mohawk Resource Conservation and Development Council.<br>Michael McGlynn |
| | SurveyGizmo | 26-Oct | By maintaining our floodplains and wetlands we give ourselves a buffer to flooding. |
| | | | I need more info |
| | | | I still see wetlands in my area being filled in and used for commercial development. |
| | | | No such threats have been identified as due to climate change. |
| | | | Our ecosystems have been badly damaged through runaway development. I support this concept. |
| | | | Protect, restore and conserve(land trust) don't sell off vulnerable land . |
| | | | Wetlands must be absolutely protected. |
| | | | You will not succeed with optional ordinances, you need to regulate use. |
| | | | homeowners can help by planting native species or rain gardens where appropriate |
| | | | how about under threat from human development |
| | | | it needs to be done |
| | | | I do recognise the importance of wetlands. there need to be some where no construction or farming can occur. |
| | | | Expansion into some of these areas is threatening habitats that people seem to not care about anymore. Sometimes it is better to build up instead of out. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 8 - Conduct local vulnerability assessments and adaptation planning- | Capital Region Website | 11-Oct | It is essential to "protect the health, safety and welfare" of our neighbors through an inter-municipal assessment of vulnerable groups. Local emergency medical service units need to know the location of the citizens most vulnerable, such as cardiovascular, respiratory-related illness, and mental illness conditions for emergency response priority coordination during diasaters. The establishment of Aging and Disability Resource Centers in collaboration with medical institutions of higher education to apply to the National Science Foundation's Science, Engineering and Education for Sustainability's Interdisciplinary Research in Hawards and Disasters (Hawards SEES 12-610) program funding.<br>Michael McGlynn |
| | SurveyGizmo | 26-Oct | See comments under #4 above. |
| | | | We need to keep some of these spaces open for the things that we share this space with. |
| | | | Yes! |
| | | | all populations are sensitive |
| | | | good idea if affordable |
| | | | it is important to have residents be part of the decision making process |
| | | | plan for the future |
| | | | we need to be prepared for the effects of global warming |
| | | | If we're to transition to a sustainable society we should adopt The Precautionary Principle and Zero Waste principles and practices. More on The Precautionary Principle can be found here: http://www.sehn.org/precaution.html and more on Zero Waste Principles and Practices can be found here: http://zwia.org/standards/ . |
| 9 - Expand participation in NYS ISO's demand response program. | Crowdbrite | 27-Sep | What are ISO's? An Independent System Operator (ISO) is an organization formed at the direction or recommendation of the Federal Energy Regulatory Commission (FERC). In the areas where an ISO is established, it coordinates, controls and monitors the operation of the electrical power system, usually within a single US State, but sometimes encompassing multiple states.<br>Jackson Davis |
| | SurveyGizmo | 26-Oct | I am not sure I understand this. |
| | | | I don't fully understand this |
| | | | I need more info |
| | | | It is better to plan to prevent a problem but we must respond quickly to problems |
| | | | an area that I know little about |
| | | | need to know more about it. |
| | | | not enough knowledge of ths program. |
| | | | sounds like another layer of burracracy |
| | | | works fine now |
| | | | If the independent ISO is from the private or for profit this is  Not a good thing . Do not support ! |
| | | | This could be the creation of a regional waste authority, as well, if thermal technologies are chosen to create energy, (Which I would strongly oppose,) but I'm not well informed in NYS ISO demand response system. |
| | | | Demand response is a win-win proposition for consumers, utilities and the grid operator. Consumers are paid to reduce power consumption at critical times, and system reliability can be increased if consumer response is consistent over time. |
| | | | We seem to have failures within this system more often than not. To have some control over these failures would be a good place to start. Also, many of these systems are over extended and old - Our gird needs to be updated. |

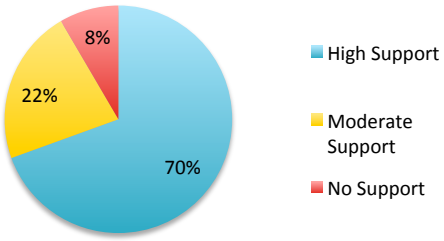
| Initiative # | Initiative | Support | Online Votes | 1-Oct | 2-Oct | 3-Oct | Survey votes | Total | Percent | Total | Support | Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 3. Promote green infrastructure | High Support | 3 | 7 | 3 | 3 | 57 | 73 | 76.0% | **100.0%** | | |
| 3 | Promote green infrastructure | Moderate Support | 3 | 2 | 0 | 0 | 10 | 15 | 15.6% | **100.0%** | Some Support | 91.7% |
| 3 | Promote green infrastructure | No Support | 0 | 2 | 0 | 5 | 1 | 8 | 8.3% | **96** | No Support | 8.3% |
| 1 | 1. Implement a tree planting program | High Support | 3 | 14 | 1 | 4 | 44 | 66 | 69.5% | **100.0%** | | |
| 1 | Implement a tree planting program | Moderate Support | 1 | 1 | 0 | 0 | 19 | 21 | 22.1% | **100.0%** | Some Support | 91.6% |
| 1 | Implement a tree planting program | No Support | 3 | 2 | 0 | 1 | 2 | 8 | 8.4% | **95** | No Support | 8.4% |
| 7 | 7. Protect and enhance critical habitat, floodplains, and wetlands that are under threat from climate change | High Support | 4 | 9 | 1 | 3 | 49 | 66 | 72.5% | **100.0%** | | |
| 7 | Protect and enhance critical habitat, floodplains, and wetlands that are under threat from climate change | Moderate Support | 1 | 2 | 0 | 0 | 14 | 17 | 18.7% | **100.0%** | Some Support | 91.2% |
| 7 | Protect and enhance critical habitat, floodplains, and wetlands that are under threat from climate change | No Support | 2 | 1 | 0 | 4 | 1 | 8 | 8.8% | **91** | No Support | 8.8% |
| 6 | 6. Create floodplain ordinances | High Support | 2 | 11 | 0 | 3 | 29 | 45 | 56.3% | **100.0%** | | |
| 6 | Create floodplain ordinances | Moderate Support | 2 | 1 | 0 | 1 | 23 | 27 | 33.8% | **100.0%** | Some Support | 90.0% |
| 6 | Create floodplain ordinances | No Support | 1 | 0 | 0 | 1 | 6 | 8 | 10.0% | **80** | No Support | 10.0% |
| 5 | 5. Develop guidance document on how to integrate climate change impacts into existing plans and processes | High Support | 3 | 4 | 2 | 6 | 43 | 58 | 64.4% | **100.0%** | | |
| 5 | Develop guidance document on how to integrate climate change impacts into existing plans and processes | Moderate Support | 2 | 3 | 0 | 0 | 17 | 22 | 24.4% | **100.0%** | Some Support | 88.9% |
| 5 | Develop guidance document on how to integrate climate change impacts into existing plans and processes | No Support | 1 | 2 | 0 | 5 | 2 | 10 | 11.1% | **90** | No Support | 11.1% |
| 8 | 8. Conduct local vulnerability assessments and adaptation planning | High Support | 4 | 8 | 2 | 1 | 37 | 52 | 58.4% | **100.0%** | | |
| 8 | Conduct local vulnerability assessments and adaptation planning | Moderate Support | 1 | 1 | 0 | 1 | 24 | 27 | 30.3% | **100.0%** | Some Support | 88.8% |
| 8 | Conduct local vulnerability assessments and adaptation planning | No Support | 2 | 2 | 0 | 4 | 2 | 10 | 11.2% | **89** | No Support | 11.2% |
| 4 | 4. Include climate change in SEQR reviews | High Support | 4 | 9 | 2 | 6 | 48 | 69 | 72.6% | **100.0%** | | |
| 4 | Include climate change in SEQR reviews | Moderate Support | 2 | 1 | 0 | 0 | 11 | 14 | 14.7% | **100.0%** | Some Support | 87.4% |
| 4 | Include climate change in SEQR reviews | No Support | 1 | 2 | 0 | 6 | 3 | 12 | 12.6% | **95** | No Support | 12.6% |
| 2 | 2. Establish a Regional Climate Collaborative | High Support | 4 | 11 | 4 | 3 | 47 | 69 | 65.7% | **100.0%** | | |
| 2 | Establish a Regional Climate Collaborative | Moderate Support | 1 | 2 | 0 | 0 | 14 | 17 | 16.2% | **100.0%** | Some Support | 81.9% |
| 2 | Establish a Regional Climate Collaborative | No Support | 3 | 7 | 0 | 5 | 4 | 19 | 18.1% | **105** | No Support | 18.1% |
| 9 | 9. Expand participation in NYS ISO's demand response program | High Support | 2 | 3 | 1 | 1 | 15 | 22 | 39.3% | **100.0%** | | |
| 9 | Expand participation in NYS ISO's demand response program | Moderate Support | 1 | 2 | 0 | 1 | 18 | 22 | 39.3% | **100.0%** | Some Support | 78.6% |
| 9 | Expand participation in NYS ISO's demand response program | No Support | 3 | 1 | 0 | 4 | 4 | 12 | 21.4% | **56** | No Support | 21.4% |

**3. Promote green infrastructure**



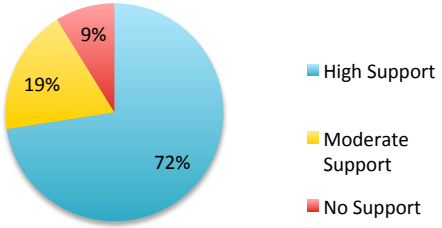

Total no. of votes 96

**1. Implement a tree planting program**



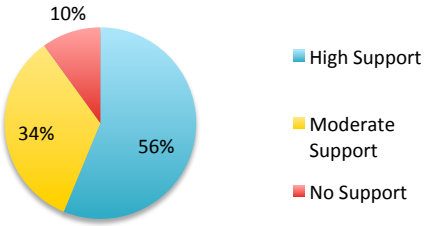

Total no. of votes 95

**7. Protect and enhance critical habitat, floodplains, and wetlands that are under threat from climate change**



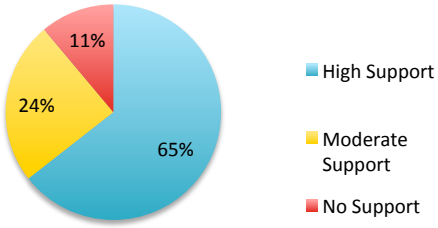

Total no. of votes 91

**6. Create floodplain ordinances**



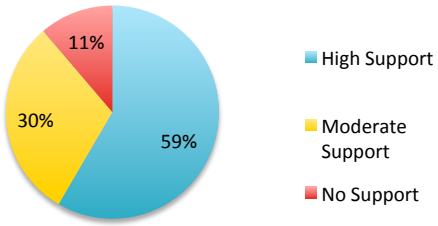

Total no. of votes 80

**5. Develop guidance document on how to integrate climate change impacts into existing plans and processes**



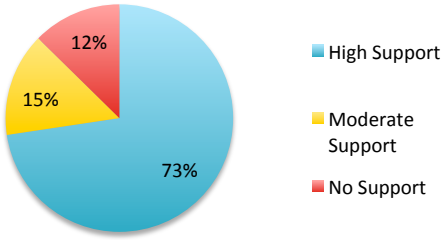

Total no. of votes 90

**8. Conduct local vulnerability assessments and adaptation planning**



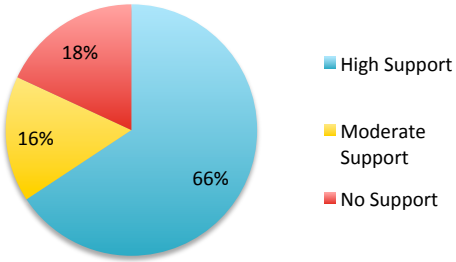

Total no. of votes 89

**4. Include climate change in SEQR reviews**



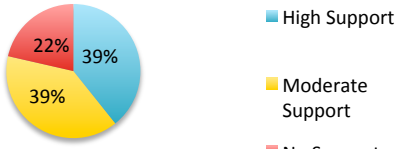

Total no. of votes 95

**2. Establish a Regional Climate Collaborative**




Total no. of votes 105

**9. Expand participation in NYS ISO's demand response program**




Total no. of votes 56

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| | | | Oct 2 Group 1 | General comment: there should be a statewide "I love NY" branding | | |
| | | | | General comment: current initiatives do not address why NY state discourages new businesses from settling - new regulations? | | |
| | | | | General comment: buying local reduces the carbon footprint! | | |
| 1 | Create a green alliance between government and businesses. | | Oct 2 Group 1 | Create a green alliance: will it happen anyway? | | |
| 2 | Establish model zoning code for the region that directs growth and promotes sustainability. | 1 | Oct 1 Group 2 | | Not in favor | |
| | | | | | Alternatives or best practices available | |
| | | | | | Not strict land laws | |
| | | | | | DO we want the sustainablility committe to work on model zoning codes | |
| | | | | | or can this be done on a local level from within the community | |
| | | | | | Education of the local zoning boards | |
| | | | Oct 2 Group 1 | Model zoning code: - best practices; taking issues?; role models | | |
| 3 | Establish a regional sustainability resources and education website. | 2 | Oct 1 Group 1 | | | |
| | | | Oct 1 Group 2 | | Advertisements | Require other agencies to participate and contribute to this "one stop shop" site |
| | | | | | Outreach | NYSERDA |
| | | | | | Get the information on the web through other existing websites | |
| | | | | | A link from other websites to this new site | |
| | | | Oct 2 Group 1 | Regional sustainability resources and education website: who coordinates? maintains? updates?; only 1 website? what's in, who's out? | | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 4 | Create a regional consortium of non-profits. | | Oct 2 Group 1 | Regional consortium of non-profits: consolidating non-profits or groups meet to distribute information need? | | |
| 5 | Establish a regional land bank. | 1 | Oct 1 Group 2 | Merge with green leases | Do we even want to initiate a bank? | |
| | | | | | Does this really expedite redevelopment? | |
| | | | | | Administration and funding considerations | |
| | | | Oct 2 Group 1 | Regional land bank: accounting vehicle; consolidation of abandoned properties for redevelopment; taking concerns? | | |
| 6 | Implement a "Buy Local" campaign. | 2 | Oct 1 Group 16 | | Get the pricing where it belongs. Should consumer protection be involved? Local currency. Better education to the public on concept of buying local. Time banking - similar to a barter sytem | |
| | | | Oct 2 Group 1 | "Buy local"campaign: love it; more of it; recognition; local $ to run own campaigns; cut taxes; branding | Statewide "buy local products" branding (buying a state product rather than only neighboring communities products) | |
| | | | | | State branding campaign is able to accommodate some localization, for example some local cooperative marketing $ | |
| 7 | Establish a financial literacy program. | 2 | Oct 1 Group 1 | | Open to all resident not geared only to low income and minorities. | |
| | | | Oct 1 Group 2 | | Through existing educational programs | |
| | | | | | Collaborative efforts through existing agencies | |
| | | | Oct 2 Group 1 | Financial literacy program: may organizations; alphabet soup already; not priority | | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 8 | Expand NYSERDA's green jobs training to include green infrastructure design, installation, and maintenance. | 2 | Oct 1 Group 1 | | For local businesses to be developed ; NYSEG contractor for energy saving lights were installed by out of State Contractors. Need to develop more locally qualified contractors to do this type of business. | Trade Unions, Colleges, BOCES, Local Business owners |
| | | | Oct 2 Group 1 | NYSERDA's green jobs: skilled workforce for new businesses and youth; recruiting too; bureaucracy | Broaden to advanced manufacturing | Boces |
| 9 | Promote green leases. | | Oct 2 Group 1 | Green leases: both parties go green; education-volunteer effort (not enforcement issue); not a priority | | |
| 10 | Implement a small business incubator program. | 1 | Oct 1 Group 16 | | Find lenders, new lending sources as existing may not be enough, ex. venture capitalist, angel investores. more flexibility for loans by lenders. finding successful.mentors | |
| | | | Oct 2 Group 1 | Small business incubator: rural areas are important as well; regional collective organization - no new ones | | |

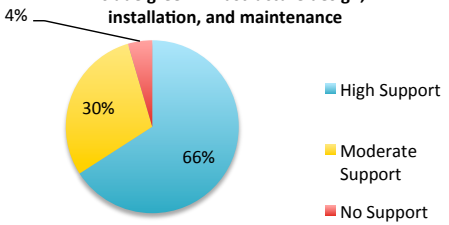
| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 1 - Create a green alliance between government and businesses. | Capital Region Website | 14-Oct | Municipalities incorporating State Energy Law, Article 9, into their enrgy policy shall establish an Energy Performance Contract with certified Public Service Commission non-carbon emitting energy service providers to install energy conservation measures and energy generation for heat and power of government buildings and facilities.<br>Municipal Industrial development agenies and municipal corporations shall incorporate State Energy Law, Article 9, into its fiscal and monetary policies and programs to ensure that contracts between government and businesses shall include energy conservation measures of buildings and facilities receiving municipal benefits. In addition, businesses receiving municipal benefits from the agenies shall contract with non-carbon emitting energy service providers to obtain heat and power services. Any allowances and benefits provided from the Regional Greenhouse Gas Initiative shall be made available to the municipal corporation and/or industrial development agency.<br>Municipal governments shall designate "Clean energy enterprise zones" for energy service provider small businesses, manufacturers of energy efficient equipment, and manufacturing and servicing of energy generating units with priority access to the allowances and benefits of the Regional Greenhouse Gas Initiative for those businesses, including fiscal and monetary assistance to install distributed generation of combined heat and power technology, battery energy and storage technology, and electric vehicle fueling stations and electric vehicles.<br>Municipal government shall offer through the comprehensive plan and the zoning board the installation of distribtive generation combined heat and power technologies, battery energy and storage technologies and electric vehicle fueling stations by Planned Unit Development landowners and contracters for use by the future commercial, industrial or residential owners.<br>Municipal governments shall utilize State Energy Law Article 9 to enter into an energy performance contract with businesses and institutions of higher education to apply to the National Science Foundation for program grants for R&D to enhance energy conservation and energy generation to comply with the Regional Greenhouse Gas Initiative to reduce carbon based emissions. Consideration of NSF grant programs shall include : Division of Chemical, Bioengineering, Environmental and Transport Systems; the Division of Biotechnology and Biomass Engineering; and the NSF-wide Science, Engineering and Education for Sustainability.<br>Municipal planning and zoning shall consider the strategic location of public and private Smart-grid distributive generation of heat and power technologies to ensure sustainable industrial, commercial and residential zones with energy audits, energy conservation measures and energy generation within each micro-grid zone.<br>Municipalities shall cooperate with the Capital District Planning Commission, the U.S. Department of Commerce and agencies of the State government to enhance economic development with businesses, domestic and foreign, to locate manufacturing, processing and shipping of "Clean Cook Stoves" and biomass pellet production in our regional "Foreign Trade Zones" for international trade with African, South American and Asian nations in cooperation with the Global Alliance for Clean Cook Stoves. This will attempt to expand the reduction of carbon emissions in other nations using U.S. products.<br>Municipal incorporation of an energy performance contract with any member of the Electrification Leadership Council to locate business activities in clean energy enterprise zones for the production of electric vehicles and electric vehicle supply chain items to enhance the broad scale deployment of electric vehicles, electric fueling stations, battery energy and storage technology and non-carbon emitting distributive energy generating units. |
| | Crowdbrite | 1-Oct | This is already done through the chambers. Why re-create the wheel? |
| | Crowdbrite | 1-Oct | This is a good idea. We need to incentive small businesses and individuals to buy and fix up housing in our inner cities. |
| | Crowdbrite | 3-Oct | This has been done and as far as I know still is a functioning group. |
| | SurveyGizmo | 26-Oct | And residents. We need to come together on the issues of sustainability |
| | | | Capital Region Should be fully invested in green jobs and training |
| | | | I am more for a hands-off, or little involvement with the gov't approach |
| | | | We should be doing this right now. |
| | | | give tax cuts to companies that go green |
| | | | Cooperative efforts to develop creative solutions will bring together the best aspects of business and government |
| | | | For a TRULY GREEN building design that is energy efficient, safe and would be economically viable and sustainable, allowances and funds need to be invested in building straw bale/stucco houses!! |
| | | | We must remain wary of such alliances, though in some situations they are necessary. In the past, such partnerships have created our environmental justice areas, something we do not want repeated. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 2 - Establish model zoning code for the region that directs growth and promotes sustainability. | Crowdbrite | 1-Oct | Create environmentally preferable purchasing policies for government agencies? Preferred vendors and purchasing process for green goods and services. |
| | SurveyGizmo | 26-Oct | Can support regional and watershed wide planning |
| | | | Communities could use well thought out directions |
| | | | We must always safeguard the environment. Always. |
| | | | not sure what that is |
| | | | Again, there is a potential for abuse of some communities by the regulating body, effectively 'writing them off' for anything but polluting industries while other communities enjoy and benefit from 'greener' technologies being put into practice. |
| | | | I would encourage this venture to include state, regional and non-profits already working on land use issues. |
| | | | Bring companies like Google and Bing to Capital Region by being more friendly to both Small and Large companies |
| | | | See earlier comments, only one town in Washington County has zoning (a few of the villages do). A model ordinance will not help Washington County and will be a waste of effort. |
| 3 - Establish a regional sustainability resources and education | SurveyGizmo | 26-Oct | Sounds good |
| | | | This should have been done long ago. I look forward to its creation. |
| | | | couldn't hurt |
| | | | The internet is now used as a research tool. Information provided on a web-site will be very helpful. |
| | | | The more the public has access to vital info, the better it is to make educated and wise decisions. |
| | | | I want to address education whether on a website or whereever. The schools need to do a lot more to motivate the next generation to sustainable practices. |
| 4 - Create a regional consortium of non-profits. | Crowdbrite | 1-Oct | This is a good idea. We need to incentive small businesses and individuals to buy and fix up housing in our inner cities. |
| | SurveyGizmo | 26-Oct | Cooperation is always good. |
| | | | No comment necessary. |
| | | | Non-Profits do not bring jobs or creats growth as much as private companies |
| | | | just another layer of quasi government |
| | | | more burracracy |
| | | | more control. more bureaucracy |
| 5 - Establish a regional land bank. | SurveyGizmo | 26-Oct | A land bank for preservation would be good, not necessarily for redevelopment. |
| | | | By all means. |
| | | | It is important to put these types of properties to good use. |
| | | | Saratoga PLAN is a good example of the program |
| | | | Work with regional land trusts |
| | | | let private enterprise do this |
| | | | not sure |
| | | | sounds good |
| | | | Remove properties from tax list that are abandoned and a blemish to our communities, and motivate growth of small companies instead |
| | | | This is of critical importance and preservation of historic resources needs to be addressed as well |
| | | | Perhaps the wisest proposal yet... I fully suport the creation of County Landbanks, but not larger, regional landbanks. |
| | | | Will requiree intermunicipal agreements and cooperation, need to break the parochial attitudes present in local governments |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 6 - Implement a "Buy Local" campaign. | Crowdbrite | 2-Oct | Has been done and expanded upon by Local First of the Capital Region. locallift.org also has info. on a small business focused symposium. |
| | SurveyGizmo | 26-Oct | Already active on this one. |
| | | | Am espacially in favor of local farming products |
| | | | Buying local promotes our local economy. |
| | | | NY already has Pride of NY, it would be duplicating efforts. |
| | | | Support all our farmers, manufacturers and farmers! |
| | | | We must sustain and support our local economies. If we don't, who will? |
| | | | will only work if local merchants can keep their prices reasonable |
| | | | With financial constraints so many communities face, I am unsure how reasonable it is to ask them to spend more, if that is the case, in order to buy local. |
| | | | There should be a large incentive to promote small businesses that are 50 employees and less, and help them market at a very minimal cost |
| 7 - Establish a financial literacy program. | SurveyGizmo | 26-Oct | Absolutely. |
| | | | Ask Junior Achievement for input |
| | | | Very good idea! |
| | | | much needed |
| 8 - Expand NYSERDA's green jobs training to include green infrastructure design, | Crowdbrite | 1-Oct | More needs to be done to incentive green roofs for residents. |
| | | 6-Oct | Green Job training shd be combined w/ placement, and focus on communities w/ greatest need for jobs. |
| | SurveyGizmo | 26-Oct | A great idea that should be implemented soon. |
| | | | I think NYSERDA is an under utilized resource. |
| | | | Such trainings are important and should be encouraged. |
| | | | great idea to get the younger generation interested and employed |
| | | | They MUST stop Discriminating against felons- who need the help the most! As of now they are not training felons who need the training and the skills to stop further crime |
| 9 - Promote green leases. | SurveyGizmo | 26-Oct | No additional comment. |
| | | | Owners and renters should be responsible for being green. |
| 10 - Implement a small business incubator program. | Crowdbrite | 30-Sep | Small Business Incubator program should be for small GREEN businesses, |
| | SurveyGizmo | 26-Oct | ANY entrepreneur needs support, regardless of race, income, location |
| | | | Especially small businesses that want to start a sustainable business. |
| | | | Green jobs for inner city, suburban and rural areas |
| | | | I want to see everyone participating in the American Dream. |
| | | | No additional comment. |
| | | | generally they don't work |
| | | | This plan would need structure and requirements; ie, educational background, prior experience etc to help insure that the business venture would be successful. If the business were to fail within the first year or so, does the recipient have to pay the money back? |
| | | | This would be great if it really does serve small businesses and minority and impoverished populations |
| | | | sounds good but it shouldn't just be for low income...the middle class needs even more help than the poor who already get a lot of aid. |

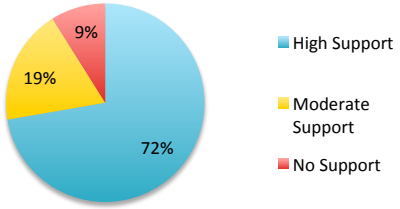
| Initiative # | Initiative | Support | Online Votes | 1-Oct | 2-Oct | 3-Oct | Survey votes | Total | Percent | Total | Support | Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 8. Expand NYSERDA's green jobs training to include green infrastructure design, installation, and maintenance | High Support | 6 | 6 | 3 | 2 | 41 | 58 | 65.9% | **100.0%** | | |
| 8 | Expand NYSERDA's green jobs training to include green infrastructure design, installation, and maintenance | Moderate Support | 3 | 2 | 0 | 0 | 21 | 26 | 29.5% | **100.0%** | Some Support | 95.5% |
| 8 | Expand NYSERDA's green jobs training to include green infrastructure design, installation, and maintenance | No Support | 0 | 4 | 0 | 0 | 0 | 4 | 4.5% | **88** | No Support | 4.5% |
| 6 | 6. Implement a “Buy Local” campaign | High Support | 8 | 13 | 3 | 6 | 43 | 73 | 72.3% | **100.0%** | | |
| 6 | Implement a “Buy Local” campaign | Moderate Support | 2 | 2 | 1 | 0 | 14 | 19 | 18.8% | **100.0%** | Some Support | 91.1% |
| 6 | Implement a “Buy Local” campaign | No Support | 1 | 4 | 0 | 0 | 4 | 9 | 8.9% | **101** | No Support | 8.9% |
| 7 | 7. Establish a financial literacy program | High Support | 3 | 10 | 0 | 6 | 21 | 40 | 46.0% | **100.0%** | | |
| 7 | Establish a financial literacy program | Moderate Support | 3 | 3 | 0 | 0 | 32 | 38 | 43.7% | **100.0%** | Some Support | 89.7% |
| 7 | Establish a financial literacy program | No Support | 1 | 5 | 0 | 1 | 2 | 9 | 10.3% | **87** | No Support | 10.3% |
| 3 | 3. Establish a regional sustainability resources and education website | High Support | 2 | 11 | 1 | 3 | 35 | 52 | 58.4% | **100.0%** | | |
| 3 | Establish a regional sustainability resources and education website | Moderate Support | 1 | 1 | 0 | 0 | 23 | 25 | 28.1% | **100.0%** | Some Support | 86.5% |
| 3 | Establish a regional sustainability resources and education website | No Support | 5 | 4 | 0 | 1 | 2 | 12 | 13.5% | **89** | No Support | 13.5% |
| 5 | 5. Establish a regional land bank | High Support | 2 | 14 | 2 | 4 | 32 | 54 | 54.5% | **100.0%** | | |
| 5 | Establish a regional land bank | Moderate Support | 4 | 2 | 1 | 0 | 24 | 31 | 31.3% | **100.0%** | Some Support | 85.9% |
| 5 | Establish a regional land bank | No Support | 1 | 5 | 0 | 5 | 3 | 14 | 14.1% | **99** | No Support | 14.1% |
| 1 | 1. Create a green alliance between government and businesses | High Support | 5 | 10 | 2 | 3 | 36 | 56 | 58.3% | **100.0%** | | |
| 1 | Create a green alliance between government and businesses | Moderate Support | 2 | 3 | 1 | 0 | 20 | 26 | 27.1% | **100.0%** | Some Support | 85.4% |
| 1 | Create a green alliance between government and businesses | No Support | 3 | 5 | 0 | 3 | 3 | 14 | 14.6% | **96** | No Support | 14.6% |
| 2 | 2. Establish model zoning code for the region that directs growth and promotes sustainability | High Support | 4 | 18 | 6 | 4 | 39 | 71 | 61.7% | **100.0%** | | |
| 2 | Establish model zoning code for the region that directs growth and promotes sustainability | Moderate Support | 2 | 3 | 0 | 1 | 21 | 27 | 23.5% | **100.0%** | Some Support | 85.2% |
| 2 | Establish model zoning code for the region that directs growth and promotes sustainability | No Support | 2 | 9 | 0 | 4 | 2 | 17 | 14.8% | **115** | No Support | 14.8% |
| 10 | 10. Implement a small business incubator program | High Support | 7 | 9 | 0 | 5 | 24 | 45 | 48.9% | **100.0%** | | |
| 10 | Implement a small business incubator program | Moderate Support | 1 | 1 | 0 | 2 | 29 | 33 | 35.9% | **100.0%** | Some Support | 84.8% |
| 10 | Implement a small business incubator program | No Support | 2 | 5 | 0 | 2 | 5 | 14 | 15.2% | **92** | No Support | 15.2% |
| 4 | 4. Create a regional consortium of non-profits | High Support | 4 | 4 | 0 | 2 | 29 | 39 | 49.4% | **100.0%** | | |
| 4 | Create a regional consortium of non-profits | Moderate Support | 1 | 2 | 0 | 1 | 22 | 26 | 32.9% | **100.0%** | Some Support | 82.3% |
| 4 | Create a regional consortium of non-profits | No Support | 2 | 3 | 0 | 3 | 6 | 14 | 17.7% | **79** | No Support | 17.7% |

**8. Expand NYSERDA's green jobs training to include green infrastructure design, installation, and maintenance**



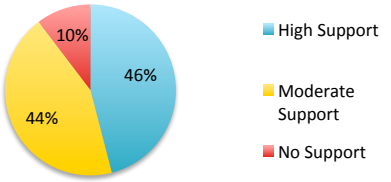

Total no. of votes 88

**6. Implement a "Buy Local" campaign**



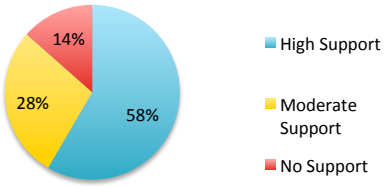

Total no. of votes 101

**7. Establish a financial literacy program**



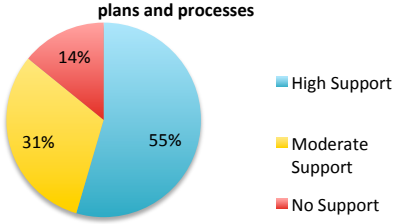

Total no. of votes 87

**3. Establish a regional sustainability resources and education website**



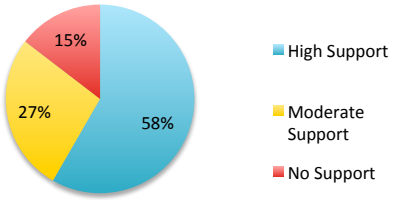

Total no. of votes 89

**5. Develop guidance document on how to integrate climate change impacts into existing plans and processes**



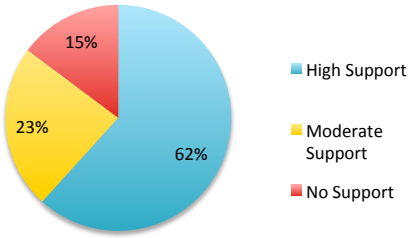

Total no. of votes 99

**1. Create a green alliance between government and businesses**



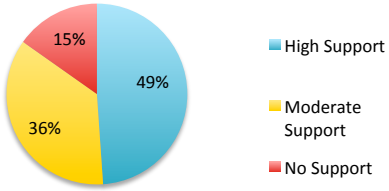

Total no. of votes 96

**2. Establish model zoning code for the region that directs growth and promotes sustainability**



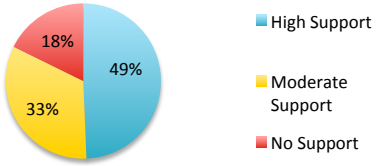

Total no. of votes 115

**10. Implement a small business incubator program**



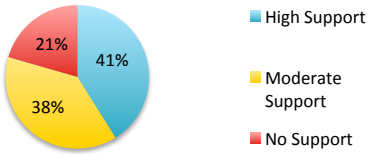

Total no. of votes 92

**4. Create a regional consortium of non-profits**




Total no. of votes 79

**9. Promote green leases**




Total no. of votes 73

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| | | | Oct 2 Group 1 | General comment: eliminate waste and implement energy conservation program. | | |
| | | | | General comment: initiatives should be tied to areas that are most polluting the carbon footprint. | | |
| | | | | General comment: make carbon footprint measurements easily accessible to communities so they know what areas to target for reduction. | | |
| | | | | General comment: cooperation to bring in more energy efficient technology such as what's used in Europe - coordination between State and Federal and Local. | | |
| | | | Oct 3 Group 6 | General comment: initiatives that did not make the list include (micro) hydroelectric, waste to energy facilities, energy production from farm wastes through anaerobic digestion. | | |
| | | | | General comment: need to increase capacity. | | |
| 1 | Establish Green Districts. | 1 | Oct 1 Group 9 | | | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 3 | Adopt a local energy-efficient building code. | 1 | Oct 1 Group 9 | | Adopt energy efficient building code within social service housing. | |
| | | | | | Energy code should supercede financial assistance from NYSERDA. | |
| | | | | | Building codes should cover new and existing construction. | |
| | | | | | Planning departments in every community will adhere to the code. | |
| | | | | | Incentivize high-efficiency building over bare minimum codes. | |
| | | | | | See south end Albany high-efficiency housing. | |
| | | | | | Focus on renewable energy in the code. | |
| | | | | | Energy efficiency codes with IDA financing mechanisms. | |
| 4 | Establish Energy Efficiency and Renewable Financing Districts (or PACE program). | 1 | Oct 2 Group 1 | | People need funding to make the changes to save energy in their homes. | |
| | | | | | Make sure the policy is implemented in cap district and the word gets out. | |
| 6 | Implement a Smart Grid pilot program. | 2 | Oct 1 Group 9 | | | |
| | | | Oct 3 Group 6 | Smart Grid helps to spread the load | Educate public on the benefits of program (reliability, cost savings) | Municipalities |
| | | | | Will the Smart Grid program become mandatory? | | Education of younger generation |
| 7 | Incentivize Combined Heat and Power District Energy Systems. | 1 | Oct 3 Group 6 | | Inform the public of the options to get things going | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 8 | Establish a local carbon tax. | | Oct 2 Group 1 | Carbon tax would promote conservation and alternative fuels. | | |
| 9 | Lower or eliminate permitting fees for energy conservation or renewables. | 1 | Oct 2 Group 1 | | Eliminate fees to encourage green energy development. | |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 1 - Establish Green Districts. | Crowdbrite | 5-Oct | An energy green district could be compatiblewith an eco park. |
| | | 6-Oct | Involve local colleges & universities in proposing innovations. |
| | SurveyGizmo | 26-Oct | Great for the economy AND our future. |
| | | | Green policies should be in effect everwhere, not just certain targeted areas. |
| | | | I don't understand what this means |
| | | | This is clearly a very local development decision and depends on the nature of the development. |
| | | | generate awareness by setting examples |
| | | | great idea! |
| | | | should be living in one. |
| | | | sounds costly |
| | | | This is an important area of development in my opinion that will provide for a better Greener future. |
| | | | Once again, an effort into truly renewable resources has to be made and a major change in our current building practices. |
| | | | you have to start somewhere, change is difficult, but with positive examples things can move along |
| 2 - Create a standard Environmentally Preferable Purchasing (EPP) policy. | Capital Region Website | 11-Oct | The incorporation of State Energy Law Article 9 in municipal governments and school districts policies to conduct energy conservation and energy generation shall be assisted by the New York Power Authority, NYSERDA and the State Office of General Services as to content of the purchasing policy in order to comply with the Regional Greenhouse Gas Initiative. In addition, the counties social services departments shall issue an energy performance contract regarding the payment of utilities for social service recipients and HEAP eligible reciients, such as non-carbon emitting energy service providers contracting to install EMPOWER NEW YORK services at the residences. Also, the county social services departments shall enter into energy performance contracts with non-carbon emitting energy service providers to provide heat and power to social service recipients' residences. Municipal governments shall participate in NYSERDA's "Buy Green, Save Green Rebates for New York State Local Governments" program to purchase energy efficient equipment.<br>Michael McGlynn |
| | SurveyGizmo | 26-Oct | Every community should already be engaged in green purchasing practices. |
| | | | I don't understand this enough to respond |
| | | | may not work and may be costly |
| | | | High priority as it will minimize waste in our enviornment that often carries with it toxic chemicals. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 3 - Adopt a local energy-efficient building code. | SurveyGizmo | 26-Oct | Absolutely. |
| | | | High priority as it will promote a safer enviornment to live in. |
| | | | state code is sufficient |
| | | | the less energy we use and still get things done the better |
| | | | yes...let certain communties become leaders in this arena |
| | | | This has to change at the state level, local codes won't help. Towns in Washington County will not adopt them. |
| | | | Did you know that the R Value of a straw bale/stucco house can range between R38-R60 and higher depending on the size of the bale used. It is also MORE fire resistant than current buildings. |
| | | | Small businesses are financially stressed without having to make mandatory changes at their own expense. |
| | | | There are already both federal and state building codes and appliance efficiency standards in place. |
| | | | Concerned what effect this would have on the historic buildings and homes. This area is rich in very historic buildings that are 200+ years old. |
| 4 - Establish Energy Efficiency and Renewable Financing Districts (or PACE program). | SurveyGizmo | 26-Oct | Sounds good, but I hope it has lots of financial flexibility. |
| | | | The state already finances the Energy Efficiency Portfolio Standard on utility bills. |
| | | | Yes. This is absolutely necessary for people to initiate, and benefit from, these improvements. |
| | | | if it saves money, they'll do it. No more Solyndras. |
| | | | need more info |
| | | | yes as long as the middle class can afford thsi program |
| | | | I hope it will be inclusive of residentual programs as there will be those who will need to borrow; in order to pay for improvements who otherwise could not. |
| 5 - Engage in Power Purchase Agreements | Capital Region Website | 11-Oct | Utilizing the incorporation of State Energy Law Article 9 municipal governments and school districts incorporate energy conservation measures and energy generation at their sites with certified Public Service Commission energy service providers that do not use carbon-emitting sources to produce combined heat and power. The use of this PPA or energy performance contract is to be in compliance with the goals and objectives of the Regional Greenhouse Gas Initiative in order to participate in the environmental and economic benefits of the initiative. Michael McGlynn |
| | Crowdbrite | 3-Oct | PPAs creates jobs and makes solar acceccible to those without capital. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 6 - Implement a Smart Grid pilot program | Capital Region Website | 11-Oct | Incorporation of State Energy Law, Article 9, to establish an energy performance contract with the RPI Lighting Research Center, the G.E. Global Research Center, and Public Service Commission certified non-carbon emitting energy service providers to conduct a traffic and street lighting micro-grid system. Application of NYS Transportation Law Section 440, Transportation Energy Conservation Program for municipalities willing to retrofit their traffic and street lighting systems can use NYSERDA's FLEX TECH program to conduct energy audits and plan for a micro-grid system with solar powered LED light systems, natural gas fuel cell distributive generating units, battery energy storage technology and possibly a net meter connect to the New York Energy Highway. In addition, the municipalities may consider the purchase of government electric vehicles with the deployment of electric vehicle fueling stations inter-connected with the traffic and street lighting micro-grid system.<br>Michael McGlynn |
| | SurveyGizmo | 26-Oct | I use wind and hydroelectric for energy now. |
| | | | sounds like big brother |
| | | | Pilot programs in my opinion allows one time to determine it's effectiveness, thus I would support this. |
| | | | Rather than depending on an outage prone grid, I would prefer to see localized grids limited to communities or counties. Why should all communities suffer such economic losses as those that power outages create? A localized grid would remain up and running despite outages elsewhere. |
| | | | If every home in the city had solar panels that were tied into a central grid you could effectively create an energy efficient community. |

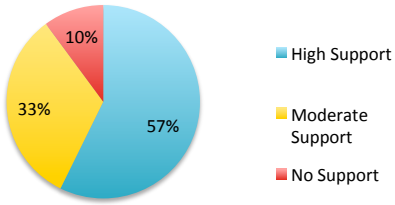
| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 7 - Incentivize Combined Heat and Power District Energy Systems | Capital Region Website | 11-Oct | Regional incorporation of State Energy Law, Article 9, with the 2012 New York Energy Highway Task Force is important. Some organizations submitted ideas, such as: The New York State Smart Grid Consortium advocating distributive generation and battery energy storage technology; the New York Battery and Energy Storage Technology Consortium advocating startegic planning and mapping of battery energy storage technology sites; the United Technologies Company advocating their natural gas distributive generating fuel cell units; the Bloom Energy Savers advocating their natural gas distributive generating fuel cell units; the Plug Power company advocating their hydrogen gas/liquid distributive generating fuel cell units. And intermunicipal collaboration with businesses and institutions of higher education to implement the 2004 New York State Hydrogen Energy Vision and Roadmap with National Science Foundation program grants to further R&D.<br>Michael McGlynn |
| | Crowdbrite | 6-Oct | District heating makes possible annual cycle storage of thermal energy from summer to winter. |
| | SurveyGizmo | 26-Oct | Don't like the part about using the public spaces where appropriate. Too loose. Too open. |
| | | | How can anyone disagree with this? |
| | | | Would want more imformation as to how this plan would effect residentual property owners. |
| | | | good idea if not too costly |
| | | | need more info |
| | | | CHP is wise to explore for many reasons, but not for all applications, such as waste to energy technologies, which are ultimately unsustainable. |
| | | | These can be very beneficial to the local community. However, it takes a certain density of population to make sense. Certain large cities have district steam systems in place in the state already. If the economics support this, it could be a good project. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 8 - Establish a local carbon tax | Capital Region Website | 11-Oct | Participation in the Regional Greenhouse Gas Initiative's Carbon Dioxide Budget Trading program may attain for the municipalities and businesses greater CO2 allowances, obtain funds through the initiativeto increase energy efficiency and distributive energy generation from non-carbon emitting technologies, and innovative carbon emissions abatement technologies for government, businesses and institutions of education (K-16).<br>Michael McGlynn |
| | SurveyGizmo | 26-Oct | A great idea. Now let's see all the details. |
| | | | No more taxes. |
| | | | no more taxes right now the economy is too bad |
| | | | sounds good, but will be so unpopular as to make it useless I suspect |
| | | | the only way I would support this is if the community had bike access lanes on all main roads |
| | | | this needs to be done as a multi-state regional effort.. support REGI(sp?) |
| | | | Disincentivize fossil fuel period. End fossil fuel subsidies. Limit, regulate and tax carbon emissions . enough is enough |
| | | | I'm sure many will complain that such a tax will drive business elsewhere, but I support such a tax and oppose carbon trading schemes. |
| | | | I would want to see an adjustment period in cover a time period of switching from fossil fuel to alternative and to offer some form of assitance with doing so. |
| | | | A carbon tax is exactly the wrong type of public policy to enact. The use of cell phones, computers, and other electronic equipment have already reduced carbon by virtue of eliminating travel, paper production, and other resources. they needed absolutely zero subsidization from some carbon tax, yet these devices are transforming the economy in both good and bad ways. Many more traditional jobs have been lost and are not replaced. This is a very very bad idea, especially in a local area. Businesses will move or not locate if such a local levy is established. Use common sense please. |
| | | | Somehow adding yet another tax to the overburdened tax payers of NY doesn't make much sense. You want people to think about there impact? Why not put a .30 tax on plastic bags? That will get peoples attention. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 9 - Lower or eliminate permitting fees for energy conservation or renewables. | SurveyGizmo | 26-Oct | Again, do it right the first time! |
| | | | Start a PACE program |
| | | | provide more tax incentives, deductions or credits, whatever it takes to get us to go green! |
| | | | the amount & cost of local inspection does not disappear. |
| | | | yes it will help people take action |
| | | | This could be good for homeowners, but it should not apply to industry. Where's your definition of what is "Renewable?" |
| | | | If we want this to happen, we need to make it as cheap as possible for the homeowner to implement. |
| | | | Th emarketplace needs a level playing field. Too many "green power projects" have gone by the wayside given federal spending. Don't risk hard-earned taxplayer dollars on such unproven ventures. |
| 10 - Establish a revolving energy efficiency improvement fund for local businesses. | Crowdbrite | 6-Oct | Revolving loans should also be made available for residential property owners to finance solar water and space heating. |
| | SurveyGizmo | 26-Oct | Again, a definition of "Renewable Energy" is necessary to answer. |
| | | | Incentives are great. Punishing , like taxes, are not. |
| | | | Only if it will be available for residents and consumers . |
| | | | The New York Power Authority already provides financing for energy efficiency improvements. |
| | | | This already exists under NYSERDA, it would be duplicating efforts not doing something new. |
| | | | YES! |
| | | | great idea |
| | | | need more info |

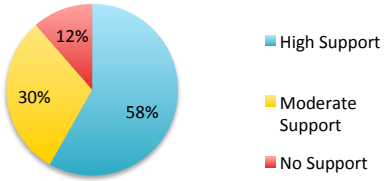
| Initiative # | Initiative | Support | Online Votes | 1-Oct | 2-Oct | 3-Oct | Survey votes | Total | Percent | Total | Support | Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 10. Establish a revolving energy efficiency improvement fund for local businesses | High Support | 2 | 10 | 6 | 3 | 30 | 51 | 57.3% | **100.0%** | | |
| 10 | Establish a revolving energy efficiency improvement fund for local businesses | Moderate Support | 3 | 1 | 0 | 3 | 22 | 29 | 32.6% | **100.0%** | Some Support | 89.9% |
| 10 | Establish a revolving energy efficiency improvement fund for local businesses | No Support | 0 | 3 | 0 | 1 | 5 | 9 | 10.1% | **89** | No Support | 10.1% |
| 7 | 7. Incentivize Combined Heat and Power District Energy Systems | High Support | 2 | 5 | 0 | 3 | 36 | 46 | 58.2% | **100.0%** | | |
| 7 | Incentivize Combined Heat and Power District Energy Systems | Moderate Support | 4 | 3 | 0 | 0 | 17 | 24 | 30.4% | **100.0%** | Some Support | 88.6% |
| 7 | Incentivize Combined Heat and Power District Energy Systems | No Support | 0 | 3 | 0 | 2 | 4 | 9 | 11.4% | **79** | No Support | 11.4% |
| 6 | 6. Implement a Smart Grid pilot program | High Support | 4 | 10 | 3 | 3 | 43 | 63 | 69.2% | **100.0%** | | |
| 6 | Implement a Smart Grid pilot program | Moderate Support | 2 | 1 | 0 | 0 | 14 | 17 | 18.7% | **100.0%** | Some Support | 87.9% |
| 6 | Implement a Smart Grid pilot program | No Support | 2 | 1 | 0 | 3 | 5 | 11 | 12.1% | **91** | No Support | 12.1% |
| 3 | 3. Adopt a local energy-efficient building code | High Support | 4 | 12 | 2 | 5 | 40 | 63 | 63.0% | **100.0%** | | |
| 3 | Adopt a local energy-efficient building code | Moderate Support | 1 | 2 | 0 | 0 | 21 | 24 | 24.0% | **100.0%** | Some Support | 87.0% |
| 3 | Adopt a local energy-efficient building code | No Support | 3 | 4 | 0 | 3 | 3 | 13 | 13.0% | **100** | No Support | 13.0% |
| 9 | 9. Lower or eliminate permitting fees for energy conservation or renewables | High Support | 2 | 3 | 2 | 4 | 36 | 47 | 61.0% | **100.0%** | | |
| 9 | Lower or eliminate permitting fees for energy conservation or renewables | Moderate Support | 2 | 1 | 0 | 0 | 17 | 20 | 26.0% | **100.0%** | Some Support | 87.0% |
| 9 | Lower or eliminate permitting fees for energy conservation or renewables | No Support | 1 | 2 | 0 | 2 | 5 | 10 | 13.0% | **77** | No Support | 13.0% |
| 2 | 2. Create a standard environmentally preferable purchasing (EPP) policy | High Support | 3 | 4 | 0 | 2 | 37 | 46 | 62.2% | **100.0%** | | |
| 2 | Create a standard environmentally preferable purchasing (EPP) policy | Moderate Support | 3 | 0 | 1 | 0 | 13 | 17 | 23.0% | **100.0%** | Some Support | 85.1% |
| 2 | Create a standard environmentally preferable purchasing (EPP) policy | No Support | 0 | 4 | 0 | 1 | 6 | 11 | 14.9% | **74** | No Support | 14.9% |
| 4 | 4. Establish Energy Efficiency and Renewable Energy Financing Districts (or PACE program) | High Support | 1 | 4 | 3 | 6 | 35 | 49 | 59.0% | **100.0%** | | |
| 4 | Establish Energy Efficiency and Renewable Energy Financing Districts (or PACE program) | Moderate Support | 2 | 1 | 0 | 0 | 17 | 20 | 24.1% | **100.0%** | Some Support | 83.1% |
| 4 | Establish Energy Efficiency and Renewable Energy Financing Districts (or PACE program) | No Support | 1 | 2 | 0 | 6 | 5 | 14 | 16.9% | **83** | No Support | 16.9% |
| 1 | 1. Establish Green Districts | High Support | 3 | 5 | 2 | 4 | 33 | 47 | 55.3% | **100.0%** | | |
| 1 | Establish Green Districts | Moderate Support | 1 | 3 | 0 | 0 | 17 | 21 | 24.7% | **100.0%** | Some Support | 80.0% |
| 1 | Establish Green Districts | No Support | 5 | 5 | 0 | 2 | 5 | 17 | 20.0% | **85** | No Support | 20.0% |
| 5 | 5. Engage in Power Purchase Agreements | High Support | 3 | 6 | 0 | 3 | | 12 | 57.1% | **100.0%** | | |
| 5 | Engage in Power Purchase Agreements | Moderate Support | 1 | 1 | 0 | 0 | | 2 | 9.5% | **100.0%** | Some Support | 66.7% |
| 5 | Engage in Power Purchase Agreements | No Support | 1 | 4 | 0 | 2 | | 7 | 33.3% | **21** | No Support | 33.3% |

**10. Establish a revolving energy efficiency improvement fund for local businesses**



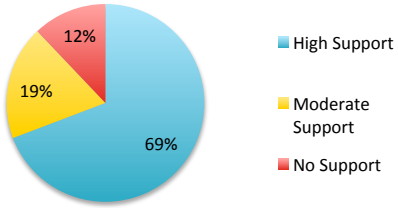

Total no. of votes 89

**7. Incentivize Combined Heat and Power District Energy Systems**



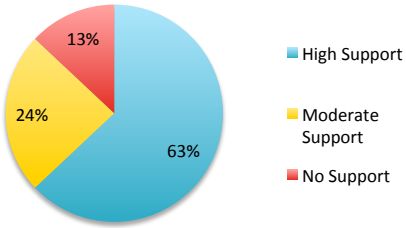

Total no. of votes 79

**6. Implement a Smart Grid pilot program**



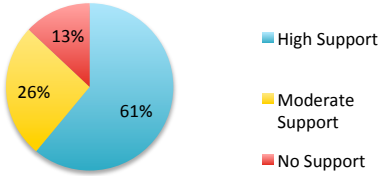

Total no. of votes 91

**3. Adopt a local energy-efficient building code**



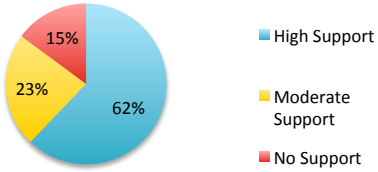

Total no. of votes 100

**9. Lower or eliminate permitting fees for energy conservation or renewables**



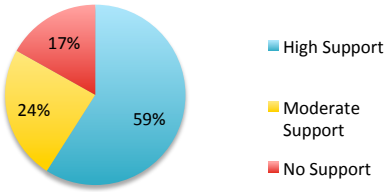

Total no. of votes 77

**2. Create a standard environmentally preferable purchasing (EPP) policy**



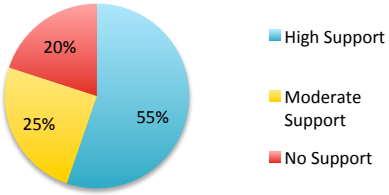

Total no. of votes 74

**4. Establish Energy Efficiency and Renewable Energy Financing Districts (or PACE program)**




Total no. of votes 83

**1. Establish Green Districts**

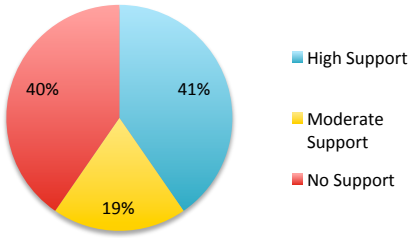



Total no. of votes 85

**5. Engage in Power Purchase Agreements**

Total no. of votes 21

**8. Establish a local carbon tax**




Total no. of votes 104

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| | | | Oct 1 Group 4 | General comment: I like the idea of my dollars going to eliminate waste in food systems. | | |
| | | | | ?? This would be a waste of resources; when the government manipulates the market it results in inefficiencies. | | |
| | | | Oct 2 Group 6 | | | Public, private partnerships increase likelihood of success when applying for grant funding or CSA funding. |
| | | | | | | Potential partners: NYS Ag and Markets, local land trusts, not for profit farming groups, ARC. |
| 1 | Create/re-establish a Food Policy Council for the Capital District | | Oct 1 Group 4 | If people knew what they wanted and we educated them better, they would demand healthier food (Food policy council) | | |
| | | | | What would a Food Policy Council do? I don't want to create a council without knowing more about what it would do. | | |
| | | | | Isn't there already a Farm Bureau? How would this be different? | | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 2 | Establish an initiative to create/increase "local food" transactions, especially between large grocery stores and farms. | 3 | Oct 1 Group 4 | If it's locally-produced, it's a good idea. | | |
| | | | Oct 1 Group 8 | | I LOVE NY PRODUCE - education component to develop the market for local food | Small farm consortiums |
| | | | | | Smaller farms need to build consortiums together in order to market dependable quantities to large chain stores. | Support farmers markets |
| | | | Oct 1 Group 16 | Local food transactions: how can it be more profitable than market driven? can we verify how long supermarket chains have been buying local - is it more over the last numerous years? get local suppliers advantage inspect non local suppliers | | |
| 3 | Create a food hub for regional food processing, storage, and distribution. | 1 | Oct 1 Group 4 | Question on who is creating the food hub, and what the need for it is. | | |
| | | | Oct 2 Group 6 | Create a Hub: Establish more than one. | | |
| | | | | Create a food hub: Establish more farmer's markets. | | |
| | | | | A challenge to have produce in the winter. Could use various techniques: Hydroponic, hoop houses, layered naturally heated green houses. | | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 4 | Create a Regional Farmland Protection Plan. | 2 | Oct 1 Group 4 | I'm stongly in favor of farmland protection. It's important for us to protect farmland from development. | | |
| | | | | Strongly opposed to farmland protection - private property is a constitutional right. | | |
| | | | | I grew up on a farm. Farmers need the opportunity to develop land if they can't afford to run the farm any longer | | |
| | | | | Farmland protection might not be feasible would require extensive legal changes and would impact a lot of areas, such as labor,,etc. | | |
| | | | Oct 1 Group 8 | | conservation easement planning on a broader scale | |
| | | | | | prioritize farmland protection in areas under heavier development pressure | |
| | | | | | develop purchasing consortiums for small farms to compete with mega farming | |
| | | | | | Regional gleaning/food recovery program - post the program on the internet, use NYS Ag & Markets web site. | Involve church organizations. |
| | | | | | establish voluntary committee of trade groups, charitable organizations, etc. | GE Elfun Society |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 5 | Establish a regional gleaning and food recovery program. | 2 | Oct 1 Group 4 | | Ask non-profits that are involved in food distribution to provide volunteers to help farmers harvest crops. | Build off existing food pantries and City Mission |
| | | | | | Non-governmental committee of stakeholders can come up with ideas (internet) to support this initiative. Must be driven by the private sector, committee can serve as access point. | Take advantage of free lunch programs. |
| | | | | | Create links to gleaning program to existing grocery store, government, farm bureau, etc. web sites. | Take advantage of local grocery store philanthropic efforts and volunteer programs. |
| | | | | | Restart small business incubator to focus to use food that's gleaned | Chambers of Commerce - can involve a lot of businesses. |
| | | | | | Make food available to a variety of charities and food programs. | Advocate for legislative changes to facilitate partnerships. |
| | | | | | Use this initiative to facilitate and organize volunteer efforts. | Involve the largest truck farms to identify who to talk to. |
| | | | | | Develop public service announcement to tell people how they can use fresh produce | Advertise at and involve farmer's markets - is there a regional network of farmer's markets |
| | | | | | | Involve restaurants to reduce waste (NYS Restaurant Assn.) |
| | | | Oct 2 Group 6 | | Investigate if food pantries can store perishable food. Expand capacity. Storage or coordinate with outlets. | |
| | | | | | Invest in nutritional programs. (Good nutrition mitigates lead exposure) | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 6 | Create a Regional Healthy Corner/Convenience Store Network. | 2 | Oct 1 Group 4 | Convenience store network OK unless it requires government suppport. | | |
| | | | Oct 1 Group 8 | This seems infeasible due to the culture of cheap non perishable food | | |
| | | | | This can work when education is involved so kids understand why fresh foods are important | | |
| | | | Oct 1 Group 16 | convenience network is a bad idea | | |
| 7 | Build capacity for new and existing farmers by establishing a Farmers Support and Enhancement Program. | 2 | Oct 1 Group 4 | I like the idea of helping farmers but this seems too vague. What GAP certification? | | |
| | | | Oct 1 Group 16 | | educate general public first to understand what elected representatives are doing | USDA, NYS Ag and Markets, Farm Bureau, American Farmland Trust, local Granges, county agriculture development agencies, small colleges, alternative agriculture groups such as Land Institute |
| | | | | | need to educate general public on the need for trades in today's economy and that includes farming | |
| | | | | | reintroduce sharecropping for underemployed | |
| | | | | | need to find out what the farmer's needs are | |
| | | | Oct 2 Group 6 | Build Capacity: work on new business models. ACC is offering courses. | | |
| | | | | Build Capacity: Marketing of local produce in local groceriess. | | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 8 | Create additional medium to small-sized processing facilities, including kitchen incubators, throughout the region. | 1 | Oct 1 Group 4 | Why are additional processing facilities needed? What's a kitchen incubator? This doesn't seem like a high priority. | | |
| *NEW* | Stepback. Stepback means investigation of the time, education, and cost required for implementation | 1 | Oct 1 Group 16 | | this requires more farmer input and feedback on initiatives | |
| | | | | | less government involvement and more community involvement | |
| | | | | | need to make sure representatives do the job well, concerned about the short time period for completing the planning process | |
| *NEW* | Items 1-4 should be consolidated into one or two policy options. | 1 | Oct 2 Group 6 | | Cold growing capacity has some energy needs. So farmers need access to additional energy. | |
| | | | | | Marketing efforts need to be boosted, refined, expanded. | |
| | | | | | Food hubs, small processing centers, kitchen incubators and cold growing on site could overlap;need to integrate and coordinate. | |

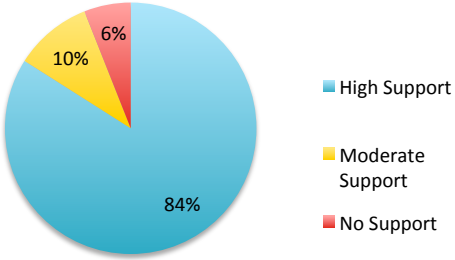
| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 1 - Create/re-establish a Food Policy Council for the Capital District | Crowdbrite | 1-Oct | this could also be done in conjunction with a food waste prevention program. over 1/3 off all food is wasted. see example: <A>http://www.lovefoo...</A> |
| | | 6-Oct | The public school sector shd be a priority for food policy - teach students to grow and understand food, energy & health. |
| | SurveyGizmo | 26-Oct | Great idea! |
| | | | I don't understand how this council would operate, nor even what it's mandates would be. |
| | | | It should not have representation from big ag firms like Monsanto, Archer Daniels, etc. |
| | | | not sure how it would promote agriculture |
| | | | Is this referring to FOOD? As long as chemical companies are involved in food production, I do not want any governing bodies involved in food choices. |
| | | | It would seem the Farm Bureau and the Cooperative Extention could be used to meet this need, instead of creating another agency. |
| | | | Ban GMO's or at least label them. Can't even hunt anymore for fear of eating GMO contaminated meat. |
| 2 - Establish an initiative to create/increase "local food" transactions, especially between large grocery stores and farms. | SurveyGizmo | 26-Oct | A role the Farm Bureau and Cooperative Extention could fill. |
| | | | Great idea. Include all farms, and all grocery stores. |
| | | | I'd like to go into a market and purchase more local items. |
| | | | If the produce is certified organic, this is a great idea for schools. |
| | | | More organic choices in stores. |
| | | | People understand 'buy local' and want to do it |
| | | | This can help improve the business incfrastructure in upstate new york. |
| | | | YES!! Get away from Monsanto crap! |
| | | | I think the area's supermarkets and educational systems should work with local agricultural producers to get fresh fruits, vegetables and dairy into schools and more widely available to consumers via supermarkets. |
| | | | yes eating local benefits everyone....priority should be given to organic food and gmo food should be barred from the program |
| | | | Define 'food'. You need to have people involved in this that are at the cutting edge of educating he public about HEALTHY food choices. Not just a nutritionist- but someone who understands what health and food is ( not processed garbage!) |
| | | | The key is equitable prices and on reasonable delivery schedules. As a small producer, I found out from Hannaford that they would pay 30% of what I get from other purchasers and they needed daily deliveries -- impossible at my scale. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 3 - Create a food hub for regional food processing, storage, and distribution. | SurveyGizmo | 26-Oct | Great idea. |
| | | | I will not support slaughterhouses. |
| | | | Let them do it themselves. Too confusing sounding! |
| | | | Menands is not local food, a hub there may be processing California food. |
| | | | doesn't sound fesible |
| | | | need more info |
| | | | Perhaps county-wide, but not regionally over 8 counties. What about food wastes? Seems like that's got to be included in this. |
| 4 - Create a Regional Farmland Protection Plan. | SurveyGizmo | 26-Oct | More organic growers. |
| | | | Only if that farmland is for growing plants- not wasted on animals/ranches which are NOT green. |
| | | | State should do more to support farmers & to go with renewables. |
| | | | YES!!! Our local farmers need HELP!!! |
| | | | have to balance farmland protection as well as other kinds of devleopment |
| | | | need more info |
| | | | I don't see this here, but I support supporting farmers in establishing buffer vegetation zones around any streams on their property. This area should not be taxed as long as it remains a riparian buffer. This crosses over into the environmental/climate area. |
| | | | There are many Farmland Protection Plans in place already. Don't really need more plans - need implementation dollars for the plans already adopted. |
| | | | No farms, no food. No farmland, no farms, therefore no food. Farmers must not be forced out by high property taxes. |
| 5 - Establish a regional gleaning and food recovery program. | Crowdbrite | 1-Oct | could this also tie into waste issues and look at composting. |
| | | 1-Oct | Along the lines of food waste, implement composting programs. |
| | SurveyGizmo | 26-Oct | Include donating to non-profit animal sanctuaries to exclude them from health dept standards. |
| | | | It is amazing how much food goes to waste. I have a gleaning program in Glens Falls |
| | | | The sooner we do this, the better! |
| | | | This just seems obvious, doesn't it? |
| | | | YES!!! Hannaford is already really good about this. |
| | | | These already exist from the Regional Food Bank and Washington Co and Saratoga Co ERC. They are very effective and you do not need to duplicate efforts. |
| | | | great idea...could get school children to volunteer as part of school program to teach citizenship and compassion |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 6 - Create a Regional Healthy Corner/Convenience Store Network. | SurveyGizmo | 26-Oct | CDCG is already doing this on a small scale. |
| | | | I do not support funding this- they can add produce by getting rid of the garbage they sell. |
| | | | Interesting idea. |
| | | | This is a very sound idea to help improve the diets and health of all our citizens. |
| | | | better to bring larger markets into these underserved area |
| | | | I've read about this in inner cities where people can't drive to the supermarket. They really LOVE fresh produce at the local bodega. |
| 7 - Build capacity for new and existing farmers by establishing a Farmers Support and Enhancement Program. | Crowdbrite | 3-Oct | What is GAP? Good Agricultural Practices (GAP) are specific methods which, when applied to agriculture, produce results that are in harmony with the values of the proponents of those practices. |
| | SurveyGizmo | 26-Oct | Not sure what the pupose would be. |
| | | | They need support. |
| | | | only if it emphasized organic food and barred GMO food |
| | | | shop only local organic farmers now. |
| | | | These programs already exist through NOFA, the Regional Farm and Food Project and Cooperative Extension. |
| | | | I support help for local farmers, however, I would also highly encourage helping them to earn the Humane Certified certification. |
| 8 - Create additional medium to small-sized processing facilities, including kitchen incubators, throughout the | SurveyGizmo | 26-Oct | I need to know who would fund this. |
| | | | I will not support the processing of animals . |
| | | | These already exist. |
| | | | We definitely need more certified community kitchens in all towns. |
| | | | We especially need licensed slaughter houses to handle meat raised on small farms. |
| | | | need more info |
| | | | not sure if it would be cost effective |
| | | | Actually, smaller slaughter houses would be helpful. Farmers here in Chatham have to truck their cows quite far away. This jacks up the price even more. |
| | | | I Hope that "Create" does mean incintivize (subsidize) kitchen incubators for micro farms and food processing ! |

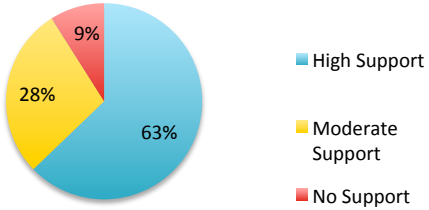
| Initiative # | Initiative | Support | Online Votes | 1-Oct | 2-Oct | 3-Oct | Survey votes | Total | Percent | Total | Support | Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 2. Establish an initiative to create/increase "local food" transactions, especially between large grocery stores and farms | High Support | 8 | 19 | 4 | 7 | 46 | 84 | 84.0% | **100.0%** | | |
| 2 | Establish an initiative to create/increase "local food" transactions, especially between large grocery stores and farms | Moderate Support | 1 | 1 | 0 | 1 | 7 | 10 | 10.0% | **100.0%** | Some Support | 94.0% |
| 2 | Establish an initiative to create/increase "local food" transactions, especially between large grocery stores and farms | No Support | 1 | 4 | 0 | 1 | 0 | 6 | 6.0% | **100** | No Support | 6.0% |
| 7 | 7. Build capacity for new and existing farmers by establishing a Farmers Support and Enhancement Program | High Support | 4 | 7 | 3 | 6 | 29 | 49 | 62.8% | **100.0%** | | |
| 7 | Build capacity for new and existing farmers by establishing a Farmers Support and Enhancement Program | Moderate Support | 3 | 1 | 0 | 0 | 18 | 22 | 28.2% | **100.0%** | Some Support | 91.0% |
| 7 | Build capacity for new and existing farmers by establishing a Farmers Support and Enhancement Program | No Support | 0 | 3 | 0 | 0 | 4 | 7 | 9.0% | **78** | No Support | 9.0% |
| 4 | 4. Create a Regional Farmland Protection Plan | High Support | 6 | 18 | 1 | 2 | 41 | 68 | 75.6% | **100.0%** | | |
| 4 | Create a Regional Farmland Protection Plan | Moderate Support | 2 | 0 | 0 | 2 | 9 | 13 | 14.4% | **100.0%** | Some Support | 90.0% |
| 4 | Create a Regional Farmland Protection Plan | No Support | 1 | 6 | 1 | 0 | 1 | 9 | 10.0% | **90** | No Support | 10.0% |
| 5 | 5. Establish a regional gleaning and food recovery program | High Support | 7 | 10 | 0 | 3 | 38 | 58 | 73.4% | **100.0%** | | |
| 5 | Establish a regional gleaning and food recovery program | Moderate Support | 3 | 0 | 0 | 2 | 8 | 13 | 16.5% | **100.0%** | Some Support | 89.9% |
| 5 | Establish a regional gleaning and food recovery program | No Support | 0 | 2 | 0 | 2 | 4 | 8 | 10.1% | **79** | No Support | 10.1% |
| 6 | 6. Create a Regional Healthy Corner/Convenience Store Network | High Support | 5 | 7 | 0 | 3 | 32 | 47 | 60.3% | **100.0%** | | |
| 6 | Create a Regional Healthy Corner/Convenience Store Network | Moderate Support | 2 | 1 | 2 | 3 | 11 | 19 | 24.4% | **100.0%** | Some Support | 84.6% |
| 6 | Create a Regional Healthy Corner/Convenience Store Network | No Support | 1 | 4 | 0 | 1 | 6 | 12 | 15.4% | **78** | No Support | 15.4% |
| 3 | 3. Create a food hub for regional food processing, storage, and distribution | High Support | 4 | 8 | 6 | 4 | 21 | 43 | 55.8% | **100.0%** | | |
| 3 | Create a food hub for regional food processing, storage, and distribution | Moderate Support | 3 | 2 | 0 | 0 | 17 | 22 | 28.6% | **100.0%** | Some Support | 84.4% |
| 3 | Create a food hub for regional food processing, storage, and distribution | No Support | 0 | 6 | 0 | 1 | 5 | 12 | 15.6% | **77** | No Support | 15.6% |
| 8 | 8. Create additional medium to small-sized processing facilities, including kitchen incubators, throughout the region | High Support | 3 | 6 | 3 | 5 | 24 | 41 | 52.6% | **100.0%** | | |
| 8 | Create additional medium to small-sized processing facilities, including kitchen incubators, throughout the region | Moderate Support | 1 | 4 | 0 | 1 | 18 | 24 | 30.8% | **100.0%** | Some Support | 83.3% |
| 8 | Create additional medium to small-sized processing facilities, including kitchen incubators, throughout the region | No Support | 3 | 4 | 0 | 1 | 5 | 13 | 16.7% | **78** | No Support | 16.7% |
| 1 | 1. Create/re-establish a Food Policy Council for the Capital District | High Support | 5 | 7 | 0 | 2 | 23 | 37 | 47.4% | **100.0%** | | |
| 1 | Create/re-establish a Food Policy Council for the Capital District | Moderate Support | 1 | 0 | 1 | 1 | 18 | 21 | 26.9% | **100.0%** | Some Support | 74.4% |
| 1 | Create/re-establish a Food Policy Council for the Capital District | No Support | 2 | 8 | 0 | 2 | 8 | 20 | 25.6% | **78** | No Support | 25.6% |

**2. Establish an initiative to create/increase "local food" transactions, especially between large grocery stores and farms**



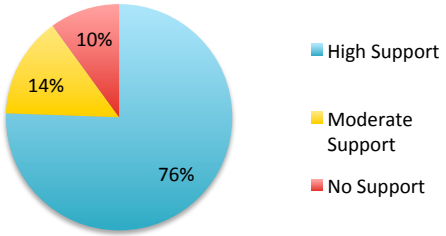

Total no. of votes 100

**7. Build capacity for new and existing farmers by establishing a Farmers Support and Enhancement Program**



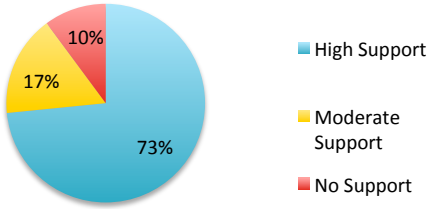

Total no. of votes 78

**4. Create a Regional Farmland Protection Plan**



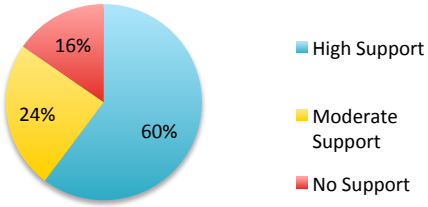

Total no. of votes 90

**5. Establish a regional gleaning and food recovery program**



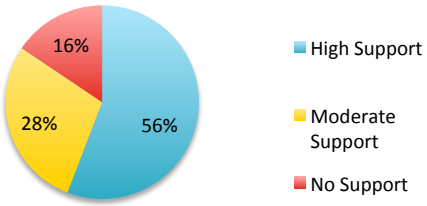

Total no. of votes 79

**6. Create a Regional Healthy Corner/ Convenience Store Network**



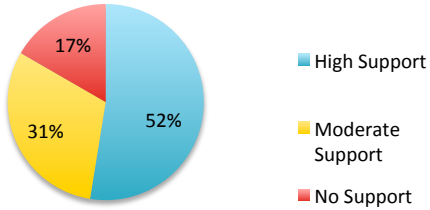

Total no. of votes 78

**3. Create a food hub for regional food processing, storage, and distribution**



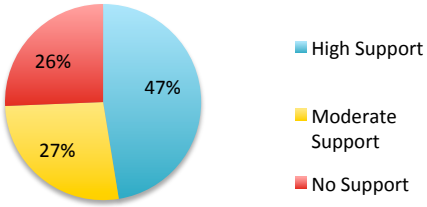

Total no. of votes 77

**8. Create additional medium to small-sized processing facilities, including kitchen incubators, throughout the region**




Total no. of votes 78

**1. Create/re-establish a Food Policy Council for the Capital District**




Total no. of votes 78

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| | | | Oct 1 Group 9 | General comment: energy efficient and distributive energy generation in traffic / street lighting systems, sewers / waste water, etc. | | |
| | | | Oct 2 Group 6 | NEW IDEA: Redevelopment or infill of existing population hubs including depressed areas around them, i.e. vacant, abandoned properties (watch for trigger issues of codes and zoning). Modifying local codes initiative is also important in and of itself as well as a means to help implement this concept (senior housing and affordable housing could be use). | | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 3 | Modify local codes and regulations to allow for sustainable, compact development. | 2 | Oct 1 Group 5 | | Are outdated federal and state regulations an obstacle to doing the right thing locally? | Cross-municipal collaboration. Inter-county planning. |
| | | | | | Communication about best practices to be shared among communities in the region is important. Templates, models and training. | Dept. of State funding and training. |
| | | | | | Review prior experiences. | Transportation agencies and providers. |
| | | | | | We include public plaza, brownfield, and waterfront initiatives under this category. | Downtown business improvement districts to promote "buy local" campaigns. Use code to insulate downtown businesses from competition from suburban big boxes. |
| | | | | | Support for bicyclists. Incentives: extra pay for bike commuters. | |
| | | | | | Complementary transportation solutions needed to support compact development. | |
| | | | | | Land value taxation to disincentivize urban blight. Also implement policies to disincentivize development of surrounding rural lands. | |
| 4 | Implement land conservation practices into land use planning | 1 | Oct 1 Group 5 | | | Dept of Agriculture |
| | | | | | | Farm Bureau |
| | | | | | | Coop. Ext. |
| | | | | | | Open Space Institute |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 5 | Prioritize brownfield redevelopment. | 2 | Oct 1 Group 13 | | Need Funding for clean up | Alco - Have the right idea |
| | | | | | Reuse brownfields sites, clean up and use as affordable housing | Chem Cleaners, clean up and reuse (Scotia Diner is now is there now) |
| | | | | | Parks in cleaned up brownfields | Chip fabrication plant in Saratoga |
| | | | | | technology companies (i.e. Chip Fab) reusing lands already industrialized | |
| 6 | Update zoning for Transit-Oriented Development (TOD). | 1 | Oct 1 Group 9 | | | |
| 7 | Repair and modernize existing infrastructure. | 2 | Oct 1 Group 9 | Modernize infrastructure: eliminate unnecessary light/energy usage. | | |
| | | | Oct 2 Group 6 | | Education outreach to planning boards, builders, local officials regarding the value of green infrastructure. | DOS |
| | | | | | Funding for general infrastructure improvements. | DOH |
| | | | | | Planning for capital improvements, redesign, incorporation of green infrastructure. Regionalizing green infrastructure. (Landscape scale ecosystem considerations) | USDA |
| | | | | | | Community Dev. Block Grant |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 8 | Promote sustainable and affordable housing. | 2 | Oct 1 Group 9 | Affordable housing: municipalities should incentivize/establishing codes for affordable and efficient housing. | | |
| | | | Oct 1 Group 13 | | Tax incentives/tax code to help the homeowners afford housing | Habitat for Humanity |
| | | | | | pay people on a fair and equitable scale so that they can afford housing they can live in | Schenectady County Housing Inititives |
| | | | | | More of a Mixed use community development rather than the "us and Them" mentality | Communities, such as Saratoga Springs, using them as a model for use in other communities - Schenectady |
| | | | | | Increased funding for the organizations that are already at work in our communities, i.e habitat for humanity | |
| | | | | | Communities, such as Saratoga Springs, using them as a model for use in other communities - Schenectady | |
| | | | | | Creating walkable communities , increasing the tax base helping to lower the cost to homeowners | |
| 9 | Improve public access to waterfront areas. | | Oct 1 Group 9 | Coordinate/cooperate with the Erie Canal Corporation on waterfront access. | | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| *NEW* | Merge Brownfield, Local Codes and New Idea | 1 | Oct 2 Group 6 | | Allowing mixed use development and higher density in these redevelopment hubs. | DEC |
| | | | | | Examine the ways in which the new building codes inhibit redevelopment or find finance for builders to adhere to stricter codes. | DOS |
| | | | | | Limit geographic expansion of water and sewers (for individual developers). | LDCs |
| | | | | | Consider affordable and senior housing as uses for these redeveloped properties. | IDA |
| | | | | | | EPA |
| | | | | | | Regional developers |
| | | | | | | Business improvement districts |
| | | | | | | Municipalities |
| | | | | | | Private developers |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 1 - Develop a regional greenway connectivity plan. | SurveyGizmo | 26-Oct | Great idea. |
| | | | Implementation of already-existing adopted plans is a much higher priority than more plans. |
| | | | Love it. Love the Rails To Trails thing. |
| | | | Use the Hudson River Valley Greenway as a model -- it can't be beat! |
| | | | We need interconnected trails including blue way trails. |
| | | | good idea for residents and to increse tourism |
| | | | work with local business to support this while they advertise there business |
| | | | my major concern is the herbicide, agent orange derivatives, being used by municpalities, 2-4D - MONSNATO, DOW ET AL WIHT ROUND-P AND OTHER DEADLY PRODUCTS ARE USED WIHTOUT REGARD FOR HUMAN LIFE OR SAFETY - IN SARATOG WHERE I LIVE IT IS USED CONSTANTLY! THESE PRODUCTS CAUSE CANCER, TUMORS,RESPIRATORY DEGRADATION AND DEATH!!~ WORKERS APPLYING THESE LETHAL COCKTAILS HAVE NO PROTECTION - IGNORANCE IS NO EXCUSE AND THE COMMON GOOD IS TRUMPED BY CORPORATE DICTATES - WE ARE JUST ACCEPTABLE RISKS! |
| | | | We need encourage travel by bicycle and foot. Trails should be seen as tools for economic development, better transportation and fighting climate change. We need a revolving fund to buy key properties when they are on the market, place trails easements on them, and then resell them so that when the opportunity comes to build a trail, the easement is there. This implies the existence of a regional trails plan. |
| 2 - Develop and implement sustainability guidelines for historic buildings and districts. | SurveyGizmo | 26-Oct | Again, work with groups like the Preservation League that are already providing models |
| | | | As long as they are guidelines, that is probably OK. But avoid mandates. |
| | | | Draw upon the substantial expertise that exists in this region regarding historic preservation |
| | | | We must not abandon out historical treasures. |
| | | | Why limit to historic districts? |
| | | | Yes, yes, YES!!! We have such wonderful historic zones. Keep them healthy! |
| | | | only if cost effective |
| | | | I think the vacant historical buildings should be converted to 'boarding' homes for welfare recipients. They could be charming, with all the green improvements. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 3 - Modify local codes and regulations to allow for sustainable, compact development. | Crowdbrite | 3-Oct | Local codes/zoning for sustainability must include population limits or they are useless. . |
| | | 6-Oct | Economic incentives at all govt levels shd favor compact development and discourage sprawl. |
| | SurveyGizmo | 26-Oct | True communities again with small groceries and other shops |
| | | | Unless mandated, codes will not adopted. |
| | | | Very good. Keep people away from WAlMart! |
| | | | great idea.... |
| | | | I don't think this is a mandate that can come from on high, but rather from each municipality. Again, there are lots of good groups (including the NY Planning Federation) that offer the above. |
| | | | There are many instances where abutting commercial properties each has a parking lot that is accessible only from it's own curb cut. There should be a way to connect urban parking areas so that so many in-and-outs can be avoided. |
| | | | It would be good if many more sidewalks and bike paths, were added to suburban area roadways, many people like to walk and ride bikes. I think it would encourge more people to exercise. AND maybe have an impact on obesity rates! |
| 4 - Implement land conservation practices into land use planning and zoning. | SurveyGizmo | 26-Oct | Make the requirements mandatory, not voluntary by town. |
| | | | The time for this is right Now. |
| | | | Use the skills of land conservancies, the AFT, etc. |
| | | | YES! Talk to our CLC in Chatham. They are awesome! |
| | | | it's important to protect these area |
| | | | Add TDR (transfer of development rights) to list. Provide seed money for communities willing to put TDR programs in place, allowing development to proceed in a concentrated pattern while paying for conservation. |
| | | | All development projects, if they are approved, should require steps that promote land conservation, energy conservation, and greenway linkages. |
| | | | Open the Alcove to conservation protection and public trespassing ! No development rights for purchase or transfer of development rights. |
| 5 - Prioritize brownfield redevelopment. | SurveyGizmo | 26-Oct | Absolutely. Great community team building, too. |
| | | | I do not support unless it is public conservation and protection. |
| | | | The state needs to provide money and incentives on a broader scale than it has. |
| | | | Who pays for this? The polluter should pay. |
| | | | should be done but is very costly and might fail rather put resoruces elsewhere right now |

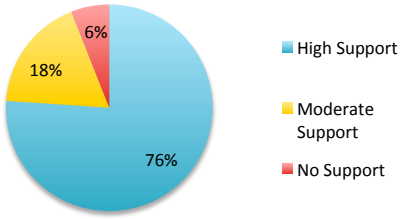
| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 6 - Update zoning for Transit-Oriented Development (TOD). | Crowdbrite | 30-Sep | Incorporate the Thruway corridor in the vicinity of residential neighborhoods into alternative transportation plans. E.g. integrating a 2-way bike lane btw. Thruway exits 23 and 24 and 787/90, with numerous, appropriate entry/exit points, would allow good connection between downtown business district and residential areas. |
| | | 3-Oct | Work to redesign intersections and traffic corridors to stress primacy of pedestrian over car. |
| | | 6-Oct | TOD and compact development overlap so much they shd be combined. |
| | SurveyGizmo | 26-Oct | And with connections between neighborhoods and developments. No more cul-de-sacs. |
| | | | I don't know what this means. a definition would have been helpful |
| | | | Include Complete Streets legislation here. |
| | | | Not into developments. |
| | | | good idea, fewere cars on the road, less pollution, etc... |
| | | | Create transportation linkages between regional attractions, museums and historic sites to enhance tourism |
| | | | I agree with the plan to revitalize the Livingston Avenue Bridge over the Hudson to make it possible to walk between downtown Albany and Rensselaer, so people can get to the train station in ways other than the highway. (THE STATION SHOULD STILL BE IN DOWNTOWN ALBANY!!!) In addition, I think it would be really cool to have water taxis going across the river. Maybe amphibious vessels that could drive right out of the river to the train station. It would be really fun and practical. |
| | | | I don't see this as a regional task, though it's a good idea, but again something that each municipality can undertake with help from agencies and non-profits. |
| | | | get cars off the highways, fewer trucks, more rail transport, improve bus and light rail transportation |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 7 - Repair and modernize existing infrastructure- | Capital Region Website | 12-Oct | Transportation is considerably reliant on energy. The Capital District Transportation Committee's New Visions 2021 Plan advocates an Intelligent Transportation System for public safety that needs to be energy effient. One component of the system that is energy intensive is the traffic and street light system throughout every municipality. The combination of State Energy Law Article 9 and the Regional Greenhouse Gas Initiative will enhance the establishment of energy performance contracts to modernize LED traffic and street lighting, the inclusion of solar powered lamps with battery energy storage technology interconected to natural gas/hydrogen gas distributive generating fuel cells within the region's infrastructure.<br>A regional feasibility study financed by NYSERDA's FLEXTECH program to establish a regional base-line data of municipal energy demands for their lighting system is a starting point. Public hearings and establishment of an inter-municipal plan for a retrofitted LED traffic light system with solar powered street lights within a micro-grid district and strategic location of electrical energy storage batteries powered by distributive generating fuel cells will address energy performance and reduction of demand on greenhouse gas powered facilituies. The contracting with Public Service Commission certified non-carbon emitting energy service providers will ensure the modernization process.<br>Some organizations interested in modernizing the electrical grid and the public safety sector are the Electrification Leadership Council and the Municipal Solid-State Street Lighting Consortium. Some companies that submitted ideas to the New York Energy Highway Task Force are the United Technologies Company, the Bloom Energy Servers, and the Plug Power Company. Some government transportation programs are the NYS Treansportation Law, Article 19, Transportation Energy Conservation Program, the federal Energy Efficiency and Conservation Block Grant program, NYSERDA FLEXTECH program, and allowances and benefits from the Regional Greenhouse Gas Initiative.<br>The inclusion of clean energy enterprise zones within the regional plan for the location of R&D activities by institutions of higher education, small business incubators, existing solid state lighting manufacturers, non-carbon emitting energy service providers, energy education and training providers, and other related companies will sustain a less polluting public safety governance.<br>Michael McGlynn |
| | Crowdbrite | 1-Oct | The Capital Regions infrastructure at the City level is in desperate need up updating. Sustainable design could be used to update and beautify parks and other public areas. For example, user semi permeable materials for walking areas around parks, etc... |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| | SurveyGizmo | 26-Oct | Include Complete Streets legislation here. |
| | | | Of course! Cheaper than building NEW. |
| | | | more mass transportation will cut repairing costs |
| | | | yes is needed |
| | | | forget about motorist, let's get the bike and walk lanes in similar to boardwalks. NOT narrow little unattractive bike lanes. |
| | | | Now you're talking. This will create jobs, and create and maintain the roads that are absolutely necessary for our economy. |
| 8 - Promote sustainable and affordable housing. | SurveyGizmo | 26-Oct | 500-800 square feet, green homes. |
| | | | Everyone needs a home. |
| | | | How about for EVERYONE! |
| | | | need more info |
| | | | people must have decent housing |
| | | | private enterprise will meet the need. |
| | | | Triple high support on this one, housing is part of a lot of major changes in county plans, even the NYS Medicaid Redesign has housing proposals and recommendations. |
| | | | yes, it would be nice to support these kinds of community building initiatives so people will have a support system |
| 9 - Improve public access to waterfront areas. | SurveyGizmo | 26-Oct | And the Alcove property. |
| | | | I think we have nice access, but I'm not a kayaker! |
| | | | Tear down I-787!!!!!!! and get people to the river! |
| | | | Trailways |
| | | | important but not a huge priority in this economic climate |
| | | | some lakes and ponds are only accessible if you own property on them |
| | | | This is one of the most supported and underutilized ideas in the Albany area. There is almost no access to the Hudson and no focus on revitalizing the area surrounding it. There needs to be housing, RETAIL, grocery stores, etc. To draw people downtown and give them accessibility to a thriving waterway. K |
| 10 - Design and install public plazas. | SurveyGizmo | 26-Oct | I don't really get it, but it sounds very European! |
| | | | NO MORE CONCRETE!! It makes it twice as hot in the middle of the summer. |
| | | | good idea when the economy recovers |
| | | | People have to have a reason to gravitate to these areas. There must be retail! There must be more than bars downtown. |
| | | | Maintenance of new public spaces and visitor centers become a burden on future gov'ts - if not planned carefully. So many are overbuilt! |

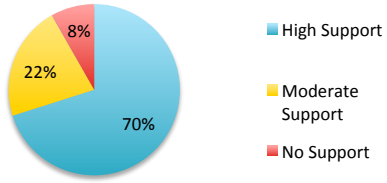
| Initiative # | Initiative | Support | Online Votes | 1-Oct | 2-Oct | 3-Oct | Survey votes | Total | Percent | Total | Support | Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 7. Repair and modernize existing infrastructure | High Support | 7 | 19 | 5 | 5 | 53 | 89 | 76.1% | **100.0%** | | |
| 7 | Repair and modernize existing infrastructure | Moderate Support | 1 | 4 | 0 | 0 | 16 | 21 | 17.9% | **100.0%** | Some Support | 94.0% |
| 7 | Repair and modernize existing infrastructure | No Support | 0 | 2 | 0 | 5 | 0 | 7 | 6.0% | **117** | No Support | 6.0% |
| 5 | 5. Prioritize Brownfield redevelopment | High Support | 8 | 14 | 2 | 4 | 40 | 68 | 70.1% | **100.0%** | | |
| 5 | Prioritize Brownfield redevelopment | Moderate Support | 0 | 0 | 0 | 0 | 21 | 21 | 21.6% | **100.0%** | Some Support | 91.8% |
| 5 | Prioritize Brownfield redevelopment | No Support | 0 | 0 | 0 | 3 | 5 | 8 | 8.2% | **97** | No Support | 8.2% |
| 1 | 1. Develop a regional greenway connectivity plan | High Support | 8 | 15 | 2 | 5 | 52 | 82 | 72.6% | **100.0%** | | |
| 1 | Develop a regional greenway connectivity plan | Moderate Support | 0 | 0 | 0 | 0 | 20 | 20 | 17.7% | **100.0%** | Some Support | 90.3% |
| 1 | Develop a regional greenway connectivity plan | No Support | 2 | 4 | 0 | 5 | 0 | 11 | 9.7% | **113** | No Support | 9.7% |
| 2 | 2. Develop and implement sustainability guidelines for historic buildings and districts | High Support | 4 | 7 | 0 | 6 | 36 | 53 | 51.5% | **100.0%** | | |
| 2 | Develop and implement sustainability guidelines for historic buildings and districts | Moderate Support | 6 | 2 | 0 | 0 | 32 | 40 | 38.8% | **100.0%** | Some Support | 90.3% |
| 2 | Develop and implement sustainability guidelines for historic buildings and districts | No Support | 0 | 3 | 0 | 4 | 3 | 10 | 9.7% | **103** | No Support | 9.7% |
| 9 | 9. Improve public access to waterfront areas | High Support | 11 | 14 | 0 | 3 | 48 | 76 | 71.0% | **100.0%** | | |
| 9 | Improve public access to waterfront areas | Moderate Support | 2 | 2 | 0 | 0 | 15 | 19 | 17.8% | **100.0%** | Some Support | 88.8% |
| 9 | Improve public access to waterfront areas | No Support | 0 | 4 | 0 | 3 | 5 | 12 | 11.2% | **107** | No Support | 11.2% |
| 4 | 4. Implement land conservation practices into land use planning and zoning | High Support | 7 | 13 | 5 | 7 | 56 | 88 | 77.9% | **100.0%** | | |
| 4 | Implement land conservation practices into land use planning and zoning | Moderate Support | 0 | 0 | 0 | 0 | 12 | 12 | 10.6% | **100.0%** | Some Support | 88.5% |
| 4 | Implement land conservation practices into land use planning and zoning | No Support | 2 | 4 | 0 | 5 | 2 | 13 | 11.5% | **113** | No Support | 11.5% |
| 8 | 8. Promote sustainable and affordable housing | High Support | 9 | 16 | 0 | 4 | 53 | 82 | 70.7% | **100.0%** | | |
| 8 | Promote sustainable and affordable housing | Moderate Support | 1 | 1 | 0 | 0 | 18 | 20 | 17.2% | **100.0%** | Some Support | 87.9% |
| 8 | Promote sustainable and affordable housing | No Support | 1 | 6 | 1 | 4 | 2 | 14 | 12.1% | **116** | No Support | 12.1% |
| 6 | 6. Update zoning for transit-oriented development (TOD) | High Support | 7 | 13 | 2 | 3 | 46 | 71 | 69.6% | **100.0%** | | |
| 6 | Update zoning for transit-oriented development (TOD) | Moderate Support | 1 | 1 | 0 | 0 | 17 | 19 | 18.6% | **100.0%** | Some Support | 88.2% |
| 6 | Update zoning for transit-oriented development (TOD) | No Support | 1 | 4 | 0 | 5 | 2 | 12 | 11.8% | **102** | No Support | 11.8% |
| 3 | 3. Modify local codes and regulations to allow for sustainable, compact development | High Support | 10 | 19 | 2 | 7 | 47 | 85 | 66.4% | **100.0%** | | |
| 3 | Modify local codes and regulations to allow for sustainable, compact development | Moderate Support | 2 | 1 | 0 | 0 | 20 | 23 | 18.0% | **100.0%** | Some Support | 84.4% |
| 3 | Modify local codes and regulations to allow for sustainable, compact development | No Support | 2 | 7 | 1 | 6 | 4 | 20 | 15.6% | **128** | No Support | 15.6% |

**7. Repair and modernize existing infrastructure**



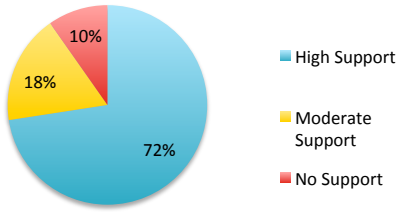

Total no. of votes 117

**5. Prioritize Brownfield redevelopment**



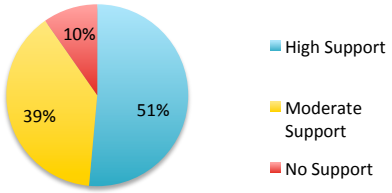

Total no. of votes 97

**1. Develop a regional greenway connectivity plan**



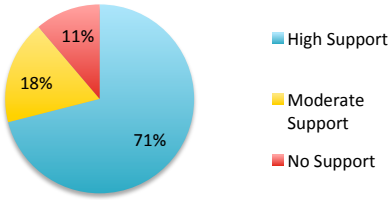

Total no. of votes 113

**2. Develop and implement sustainability guidelines for historic buildings and districts**



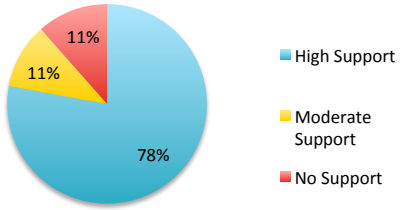

Total no. of votes 103

**9. Improve public access to waterfront areas**



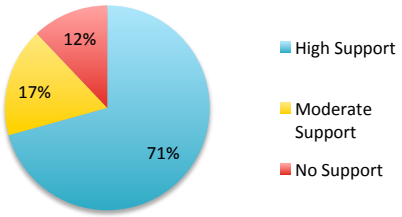

Total no. of votes 107

**4. Implement land conservation practices into land use planning and zoning**



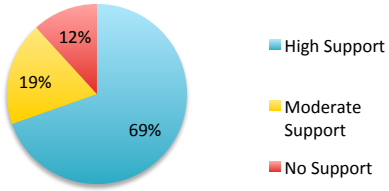

Total no. of votes 113

**8. Promote sustainable and affordable housing**



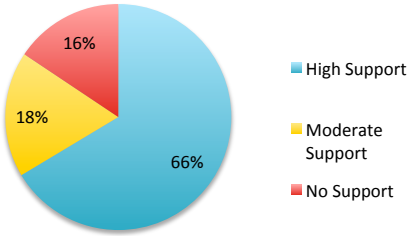

Total no. of votes 116

**6. Update zoning for transit-oriented development (TOD)**



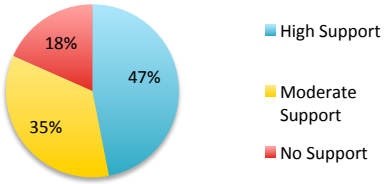

Total no. of votes 102

**3. Modify local codes and regulations to allow for sustainable, compact development**




Total no. of votes 128

**10. Design and install public plazas**




Total no. of votes 98

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| | | | Oct 1 Group 7 | General comment: could get businesses to work together - bids, economic development corporations. Need to coordinate transfer stations and d routes/vehicles. | | |
| | | | | General comment: industrial zoning | | |
| | | | | General comment: match suppliers with users, i.e. recover packaging | | |
| | | | | General comment: build upon existing resources. | | |
| | | | | General comment: what about existing landfills (some near capacity)? | | |
| | | | | General comment: match input companies to waste product (i.e. waste metal recycled to new product at the facility) | | |
| | | | | General comment: IDAs and economic developer agencies could recruit companies to enter into synergy. Match supplier and buyer - reducing transportation cost / distance / energy input needed to produce net new goods. | | |
| | | | | General comment: site facility with access to transporation | | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 1 | Develop a Resource Recovery Park. | 1 | Oct 1 Group 7 | | Where to site the facility? | Users |
| | | | | | Who would manage the facility? Regional entity might need to oversee. | IDAs |
| | | | | | Would the site be staffed by private or public entity? Same with employees? | Waste management companies |
| | | | | | Who will own the facility? | Recyclers |
| | | | | | | Municipalities |
| | | | | | | Colleges and universities |
| | | | | | | Environment groups and concerned citizens |
| | | | | | | Manufacturers, construction trades, shipping & packaging |
| | | | | | | Waste to energy plants |
| 2 | Improve and increase composting options. | 1 | Oct 1 Group 13 | | Community garden composting activities | DEC building composting cafeteria waste, shipping to washington county |
| | | | | | Troy Bike rescue working with the community gardens. Troy Bike rehabs bikes creates carts and helps to distribute compost to local farms | Troy Community gardens |
| | | | | | Collaboration of local businesses that produce compostable waste and the community gardens | |
| | | | | | Adding a compostable bin to trash day | |
| | | | | | Increased communications between those that need compost and those that create it | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 6 | Implement volume-based user fees. | 1 | Oct 1 Group 7 | | Tough to initiate through entire region - could share in cost savings? | Waste haulers |
| | | | | | How to police? | Users |
| | | | | | Need a pilot program | Recyclers |
| | | | | | Look to other communities - Utica and Binghamton | Municipalities and counties |
| | | | | | Determine size and capacity standards | Regional entity (waste management authority / ida /etc.) |
| | | | | | How to track waste - technology for waste collectors to track from the curb | |
| | | | | | Increased enforcement | |
| | | | | | Consumer/use awareness campaign | |
| | | | | | Inform users as to where the waste goes | |
| | | | | | Need "smart bags" and program to match bag to user | |
| 9 | Partner with universities to facilitate innovation in waste technologies. | 1 | Oct 1 Group 13 | | Utilizing the multi-disciplines that are at the surrounding engineering schools, hosting competitions between schools for developing and using wastes in alternative ways - Grants as incentives | Anthony street, Schenectady waste treatment plant, anaerobic covered tanks |
| | | | | | Waste energy development - using the waste to develop fuel, alternative fuel | Albany landfill, just burning off the methane...can something else be done with this "waste" product? |
| | | | | | Highlighting the advances in the technologies in the communities, to spur interest in the younger community | |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| *NEW - Outlaw Plastic Bags | Capital Region Website | 8-Oct | Ruth Lamb |
| *NEW - Promote Reuse | Capital Region Website | 8-Oct | Ruth Lamb |
| 1 - Develop a Resource Recovery Park | Capital Region Website | 11-Oct | county and regional resource recovery planned unit developments of "Clean Energy Enterprise Zones" focused on incubator R&D resource recovery businesses, enterpreneurial businesses for domestic and international marketing with a collaboration toward obtaining National Science Foundation grants from the Division of Chemical, Bioengineering, Environmental and Transport Systems programs, such as the Science of Learning Centers program, Innovation Corps Sites Program, Innovation Corps Teams program and Research Coordination Networks program will enhance economic development and reduce pollution.<br>Michael McGlynn |
| | Crowdbrite | 1-Oct | The major benefit of a Resource Recovery Park is that manufacturers of products that can use recycled material or waste heat can benifit by having their suppliers nearby. That, of course is also a benifit of the suppliers of the recycled feedstocks |
| | | 6-Oct | Incineration, which is not included in RR summary, so votes for RR must NOT be taken as support for Incin. |
| | | 6-Oct | RRP summary doesn't mention incineration, so votes for RR can NOT be taken as support for Incineration. |
| | SurveyGizmo | 26-Oct | Not sure that people will go, easier if the stuff is picked up at their homes. |
| | | | yes...we need that |
| | | | I support the creation of County-wide resource recovery centers, but not one facility for eight counties, and then only if it does not include waste to energy thermal treatment technologies. |
| | | | include a "Re-use" center there. Many people discard things that still work but they no longer want: for instance, a functional toaster when they got a toaster oven. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 2 - Improve and increase composting options | Capital Region Website | 11-Oct | Using the best management practices of Schenctady County and the Town of Colonie composting management program an enhance organic resource recovery process can be established. In addition, collaboration with instituions of higher education and business for R&D programs using the National Science Foundation's Biotechnology, Biochemical and Biomass Engineering program grants will modernize existing organic resource recovery.<br>Michael McGlynn |
| | Crowdbrite | 1-Oct | Many of the upstream environmental benefits of composting are from getting the soil nutrients back into the ground. AD is not always best for a community depending on feedstock and volumes (it may be great for biosolids, but not for food waste). A feasability study that includes life cycle analysis should be done as part of this. |
| | | 1-Oct | Food waste makes up about 11% of the waste stream. This is a large portion of the waste stream that we are not diverting from disposal. |
| | | 3-Oct | Absolutely, do this!! |
| | | 6-Oct | Methane from landfills is a MAJOR greenhouse contributor; diverting food waste shd be high priority. |
| | SurveyGizmo | 26-Oct | A fine idea. |
| | | | We need a city composting site. |
| | | | absolutely, a win-win all around |
| | | | If a food waste/composte was provided it would decrease the amount of trash going to landfills....such as in Seattle, WA. |
| | | | I support composting, but lots of people can do it now if they just will. Leaves should never go to a landfill. |
| 3 - Adopt C&D waste reduction ordinance. | Crowdbrite | 1-Oct | About 30% of all waste generated in NYS comes from constructin and demolition debris. |
| | | 3-Oct | What is C&D debris? C&D debris is waste material generated during the Construction and/or Demolition of buildings. |
| | | 3-Oct | This is easy and fair. |
| | SurveyGizmo | 26-Oct | Some C&D waste might be made available for reuse. |
| | | | This needs to be mandatory, not subject to local ordinances. |
| | | | good idea |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| | | 11-Oct | Municipalities incorporating State Energy Law Article 9 into their solid waste policy to implement energy conservation and energy generation at sewerage treatment facilities and landfills using Microbial and Hydrogen fuel cell technologies is important. In addition, the installation of new air emission technologies on their diesel powered vehicles will reduce pollution. Municipalities using the Regional Greenhouse Gas Initiative's goals and objectives, allowances and monetary benefits, the collaboration with institutions of higher education and businesses can apply to the National Science Foundation (NSF) for additional R&D program funding. The NSF 's Energy for Sustainability and the USDOE's Office of Science Financial Assistance Program can provide funds to R&D microbial fuel cell technologies to generate combined heat and power from sewerage and landfill material/landfill gas. There are institutions of higher education more advanced than those in our region involved with microbial fuel cell R&D, such as the National Institute of Standards and Technology, the University of Wisconsin-Milwaukee, the University of Maryland, and George Mason University.<br>Michael McGlynn |

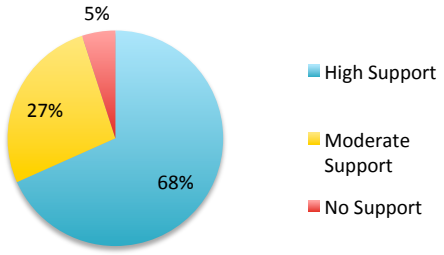
| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 4 - Site and develop anaerobic digestion facilities in the region. | Capital Region Website | 11-Oct | Using the federal and state floodplain and coastal resource zoning and mapping procedures the construction of microbial fuel cell technologies can be located to improve water quality and create distributive energy generation of stormwater runoff. The organic content of stormwater runoff is a component of invasive vegetation in our waterways due to the chemical and organic debris from upland. Collaboration amogovernment-business-academic organizations to apply to the National Science Foundation's Division of Chemical, Bioengineering, Environmental and Transport Systems program can enhance R&D toward greater water quality in lakes, reservoirs, ponds, rivers and streams. The U.S. Army Corps of Engineers, the Erie Canal Corporation, and the NYS Department of Environmental Conservation and the NYS Department of State can assist with technical assistance and funding as to distributive energy generation through the 2004 Hydrogen Energy Vision Roadmap.<br>Michael McGlynn |
| | | 24-Oct | The City of Glens Falls operates the Glens Falls Wastewater Treatment Plant, which provides wastewater treatment for the most densely populated urban and suburban areas in Warren County and northern Saratoga County, including the City of Glens Falls, the Village of South Glens Falls, portions of the Town of Moreau, and portions of the Town of Queensbury.<br>One of the many issues currently facing the City is the recent change in Sewage Sludge Incinerator Regulations. The City needs to develop a new, sustainable means of disposing of the sludge (biosolids) produced by the wastewater treatment process. One means of biosolids disposal the City is seeking to look into is anaerobic sludge digestion and methane generation with electric cogeneration and combined heat and power to maximize the efficiency of the system.<br>Properly sized, such a system could include capacity for future growth. The capacity for future growth could be used immediately for co-digestion of food processing waste, dairy waste, and waste fat oil and grease which would increase electrical power generation while providing a sustainable way to dispose of these wastes.<br>We would like to see funding for this work included in the Sustainability Plan.<br>Steve Gurzler |
| | Crowdbrite | 1-Oct | To me this fits under the Improve and increase composting. If you read the summary the composting initiative includes digestion. |
| | | 3-Oct | Anaerobic digestion of sewage to create biogas and fertilizer is best done using separator toilets and a separated sewage system (solid/liquid). |
| | SurveyGizmo | 26-Oct | Use waste as an energy source! |
| | | | We should be doing this right now. |
| | | | yes, a win-win as long as the facilities are efficient |
| | | | These would be needed to create the off-the-grid localized power production I mentioned earlier that are not suseptible to regional outages when the grid "goes down." |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 5 - Implement single stream recycling. | Crowdbrite | 1-Oct | This is already being done throughout much of the project area and a facility to process single stream material currently exists in Albany. |
| | SurveyGizmo | 26-Oct | As long it does not exclude hi volume recyclables ie. styrofoam |
| | | | This Hugely increases participation in recycling programs |
| | | | could be helpful since people are lazy |
| | | | need more info |
| | | | Single Stream collection systems are wasteful and minimize the sale of after-sorting goods, particularly paper. We should maximize profits and minimize the creation of residual wastes by establishing Dual Stream practices incorporating automated and segmented trucks. |
| | | | We have this where I live, and it makes recycling easy. But there are things that can't be handled by the system currently. Batteries are an example. I fear they and other hazardous wastes are being put in with trash. I'd like to know more about how well it is working. |
| | | | While single stream is easier, recovery and higher use of recycled materials is better w/ source separation. Higher quality is important. |
| | | | We have this now and absolutely love it....doesn't cost more and is so easy to do....cuts down on trash as well. |
| | | | I do it. And I hope that the environment benefits. We should all be engaged in this very practical activity. |
| 6 - Implement volume-based user fees. | Crowdbrite | 1-Oct | This idea actually creates financial incentives for waste generators to produce less waste and divert as much as they can. This ideal is also very inexpensive for municipalites to implement and also costs most waste generators less if you count what they would have paid in waste utility fees, waste hauler service fees or taxes under traditional service payment schemes. |
| | | 1-Oct | And including a connection to reuse (and a reuse building supply retail store) can create significant jobs and economic opportunities. |
| | SurveyGizmo | 26-Oct | A great idea for those are on a tight budget. |
| | | | Educate and build  infrastructure before punishing with taxes please! |
| | | | Those who create the most should pay the most for their waste disposal services. |
| | | | With some caveats. Not every one-time project need be imposed with heavy fees. |
| | | | Would need to research this more but the. Idea is intriguing |
| | | | people will just get angry that they have to pay more they won't use less |
| | | | Even better would be making businesses responsible for the waste they produce through packaging, etc. Ordinary people do not always have the option of avoiding wasteful practices when making purchases. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 7 - Implement a waste inspection program. | SurveyGizmo | 26-Oct | Regulators are always needed to prevent cheaters and corruption. |
| | | | good idea, helps to educate people and hit them in their wallets if they don't comply! |
| | | | too costly in this economic environement |
| | | | you may get more mileage from paying for recyclables |
| | | | As waste disposal becomes more expensive, more haulers will be delivering "toxic cocktail" truckloads of prohibited wastes buried within the permitted wastes the trucks carry. |
| 8 - Establish a revolving loan fund to bridge recycling expenses. | Crowdbrite | 1-Oct | The MWRR Grant Program is a 50% matching grant program where the State funds 50% of the investment of municipaliites in waste prevention, reuse, recycling or composting projects. These projets can either be captial investments or education projects that can include funding of municipal staff. The problem with the current program is that it is a first come first serve program and currently lack of funding of the program is causing delays of at least four years in the funding of projects. The bridge loan could solve the delay problem and make applying for the program feasible again. |
| | SurveyGizmo | 26-Oct | people should pay as they go |
| 9 - Partner with universities to facilitate innovation in waste technologies | Capital Region Website | 11-Oct | Formation of a Regional College Cooperative Services Board (NYS Education Law Section 496) can coordinate applications and utilization of faculty and students for R&D using the National Science Foundation's program grants. The NSF's Division of Chemical, Bioengineering, Environmental and Transport System offers program grants, and there are others such as: Research Coordination Networks, Facilitating Research at Primarily Undergraduate Institutions, Faculty Early Career Development Program, Research Experiences for Undergraduates, Innovation Corps Sites Program, Innovation Corps Teams Program, Science, Engieering and Education for Sustainability, and Grant Opportunities for Academic Liaison with Industry.<br>Michael McGlynn |
| | Crowdbrite | 3-Oct | Get RPI involved in working with the community! |
| | SurveyGizmo | 26-Oct | utilize expertise where you find it |
| | | | yes...academics and young bright minds are the future of this country |

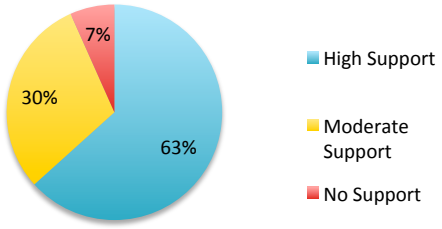
| Initiative # | Initiative | Support | Online Votes | 1-Oct | 2-Oct | 3-Oct | Survey votes | Total | Percent | Total | Support | Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1. Develop a Resource Recovery Park | High Support | 3 | 8 | 4 | 4 | 22 | 41 | 68.3% | **100.0%** | | |
| 1 | Develop a Resource Recovery Park | Moderate Support | 5 | 1 | 0 | 0 | 10 | 16 | 26.7% | **100.0%** | Some Support | 95.0% |
| 1 | Develop a Resource Recovery Park | No Support | 0 | 1 | 0 | 1 | 1 | 3 | 5.0% | **60** | No Support | 5.0% |
| 4 | 4. Site and develop anaerobic digestion facilities in the region | High Support | 3 | 12 | 0 | 3 | 20 | 38 | 63.3% | **100.0%** | | |
| 4 | Site and develop anaerobic digestion facilities in the region | Moderate Support | 4 | 2 | 0 | 1 | 11 | 18 | 30.0% | **100.0%** | Some Support | 93.3% |
| 4 | Site and develop anaerobic digestion facilities in the region | No Support | 0 | 1 | 0 | 1 | 2 | 4 | 6.7% | **60** | No Support | 6.7% |
| 2 | 2. Improve and increase composting options | High Support | 8 | 8 | 4 | 4 | 26 | 50 | 71.4% | **100.0%** | | |
| 2 | Improve and increase composting options | Moderate Support | 3 | 3 | 0 | 0 | 9 | 15 | 21.4% | **100.0%** | Some Support | 92.9% |
| 2 | Improve and increase composting options | No Support | 0 | 3 | 0 | 1 | 1 | 5 | 7.1% | **70** | No Support | 7.1% |
| 9 | 9. Partner with universities to facilitate innovation in waste technologies | High Support | 3 | 11 | 2 | 4 | 28 | 48 | 70.6% | **100.0%** | | |
| 9 | Partner with universities to facilitate innovation in waste technologies | Moderate Support | 1 | 3 | 0 | 1 | 8 | 13 | 19.1% | **100.0%** | Some Support | 89.7% |
| 9 | Partner with universities to facilitate innovation in waste technologies | No Support | 2 | 3 | 0 | 0 | 2 | 7 | 10.3% | **68** | No Support | 10.3% |
| 5 | 5. Implement single stream recycling | High Support | 5 | 14 | 1 | 2 | 22 | 44 | 63.8% | **100.0%** | | |
| 5 | Implement single stream recycling | Moderate Support | 4 | 3 | 0 | 0 | 9 | 16 | 23.2% | **100.0%** | Some Support | 87.0% |
| 5 | Implement single stream recycling | No Support | 0 | 3 | 0 | 4 | 2 | 9 | 13.0% | **69** | No Support | 13.0% |
| 6 | 6. Implement volume-based user fees | High Support | 7 | 5 | 2 | 2 | 21 | 37 | 59.7% | **100.0%** | | |
| 6 | Implement volume-based user fees | Moderate Support | 2 | 4 | 1 | 0 | 8 | 15 | 24.2% | **100.0%** | Some Support | 83.9% |
| 6 | Implement volume-based user fees | No Support | 1 | 4 | 0 | 0 | 5 | 10 | 16.1% | **62** | No Support | 16.1% |
| 3 | 3. Adopt C&D waste reduction ordinance | High Support | 5 | 7 | 1 | 2 | 25 | 40 | 64.5% | **100.0%** | | |
| 3 | Adopt C&D waste reduction ordinance | Moderate Support | 2 | 0 | 0 | 1 | 7 | 10 | 16.1% | **100.0%** | Some Support | 80.6% |
| 3 | Adopt C&D waste reduction ordinance | No Support | 2 | 4 | 0 | 4 | 2 | 12 | 19.4% | **62** | No Support | 19.4% |
| 8 | 8. Establish a revolving loan fund to bridge recycling expenses | High Support | 3 | 2 | 0 | 3 | 15 | 23 | 51.1% | **100.0%** | | |
| 8 | Establish a revolving loan fund to bridge recycling expenses | Moderate Support | 1 | 0 | 0 | 0 | 10 | 11 | 24.4% | **100.0%** | Some Support | 75.6% |
| 8 | Establish a revolving loan fund to bridge recycling expenses | No Support | 2 | 2 | 0 | 3 | 4 | 11 | 24.4% | **45** | No Support | 24.4% |
| 7 | 7. Implement a waste inspection program | High Support | 2 | 6 | 0 | 0 | 17 | 25 | 43.9% | **100.0%** | | |
| 7 | Implement a waste inspection program | Moderate Support | 3 | 0 | 0 | 2 | 13 | 18 | 31.6% | **100.0%** | Some Support | 75.4% |
| 7 | Implement a waste inspection program | No Support | 3 | 3 | 0 | 3 | 5 | 14 | 24.6% | **57** | No Support | 24.6% |

**1. Develop a Resource Recovery Park**



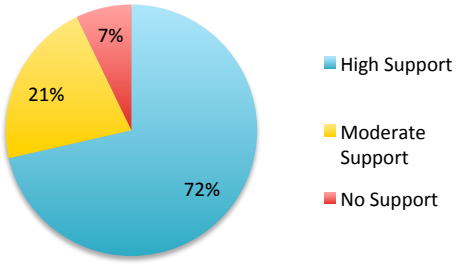

Total no. of votes 60

**4. Site and develop anaerobic digestion facilities in the region**



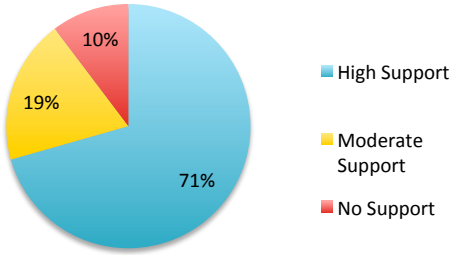

Total no. of votes 60

**2. Improve and increase composting options**



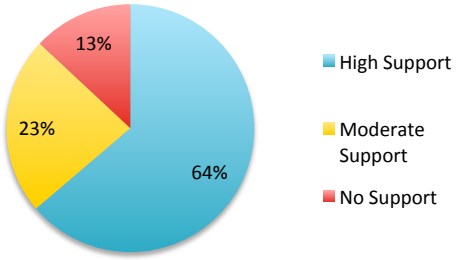

Total no. of votes 70

**9. Partner with universities to facilitate innovation in waste technologies**



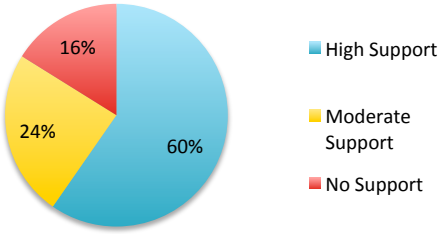

Total no. of votes 68

**5. Implement single stream recycling**



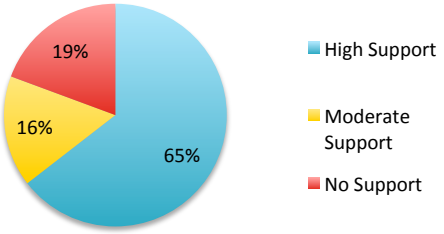

Total no. of votes 69

**6. Implement volume-based user fees**



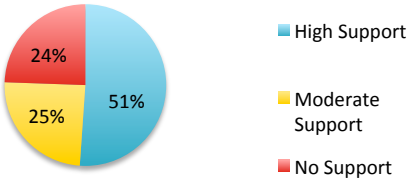

Total no. of votes 62

**3. Adopt C&D waste reduction ordinance**



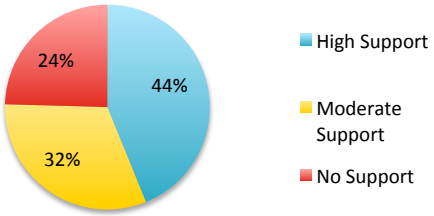

Total no. of votes 62

**8. Establish a revolving loan fund to bridge recycling expenses**




Total no. of votes 45

**7. Implement a waste inspection program**




Total no. of votes 57

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 1 - Establish car sharing programs throughout the region. | SurveyGizmo | 26-Oct | As long as the programs can be done cheaply. |
| | | | I no longer drive. |
| | | | Will work in some places, I guess. |
| | | | YES! |
| | | | need more info |
| | | | would only work in urban areas |
| | | | I've just learned about this and was looking to see if we had anything in this area and we don't, this would be great! |
| | | | This may work for commuters to Albany but locally I think people will place time and convenience above carbon footprint |
| 2 - Implement a bicycle and pedestrian infrastructure improvement program. | Crowdbrite | 6-Oct | Prioritize crossings where pedestrians have been hit by vehicles. |
| | SurveyGizmo | 26-Oct | GREAT IDEA |
| | | | If this works, I will support it. |
| | | | Include Complete Streets legislation here. |
| | | | Public awareness of bicycle safety and road rules need to be reintroduced and reinforced. |
| | | | This is critical. Invest at rate of mode share. |
| | | | YES! |
| | | | not now |
| | | | this needs to be done not only for energy efficiency but for safety and transportation equity |
| | | | I would like to see a law that there be sidewalks on all roads within a 1 mile radius of every school. In Glens Falls and Queensbury, there are schools where there are no sidewalks on parts of the school property! This discourages parents from allowing children to walk to school. |
| | | | Love the idea of biking but there must be safe paths for them w/o interfering with car usage of roads |
| | | | We must do what we can to get people out of their cars whenever possible. Perception of safety is a major obstacle. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 3 - Improve transit service through technology improvements. | Crowdbrite | 6-Oct | Adopt a standard method for a bus nearing a transfer point to tell connecting bus of passenger(s) wanting to xfer. |
| | SurveyGizmo | 26-Oct | CDTA buses are EMPTY!!! What a waste already. |
| | | | Washington and warren counties may not have funds for those. |
| | | | We have the brains; let's use them. |
| | | | perhaps down the line |
| | | | Improving public transit in any way will increase ridership. Off-board fare collection should be well-established by now... what's the delay? |
| | | | Having lived in a city with a first-class transit system (Champaign-Urbana, IL) I mourn the paucity of Albany's bus system, and the lack of any sort of schedule that one can trust. |

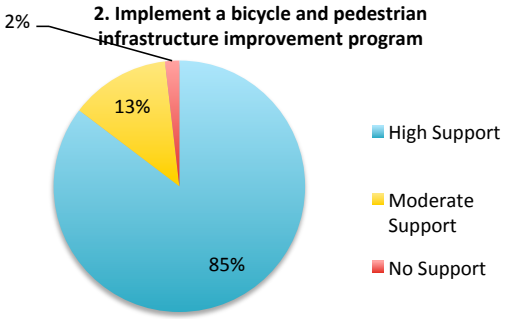
| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 4 - Develop and expand electric vehicle and alternative fuel infrastructure | Capital Region Website | 12-Oct | The U.S. Department of Energy in 2011 issued a report entitled ONE MILLION ELECTRIC VEHICLES BY 2015. Later in 2011 NYSERDA received $1 million from USDOE to develop an electric vehicle fueling station plan. In January 2012 the North American International Auto Show exhibited electric vehicles manufactured by FORD, GM, NISSAN, HONDA and other companies. In July 2012 NYSERDA allocated funds for the deployment of electric fueling stations within NYS.<br>A regional electric vehicle infrastructure plan with inter-municipal cooperation to zone with an overlay map a micro-grid system of distributive generating natural gas/hydrogen gas powered fuel cells with battery energy storage technology connected to the electric vehicle fueling stations is possible, including the use of credit card payment. NYSERDA is offering a Customer-sited Tier Small Fuel Cell Program and an Electric vehicle supply equipment demonstration program.<br>Municpal adoption of an energy performance contract (State Energy Law Art.9) for an Electric Vehicle Infrastructure Plan can provide a base-line for further public-private academic collaboration to enhance R&D investment to improve the micro-grid system. The inclusion of an energy performance contract in the fiscal and monetary benefit policy of the municipal industrial development agencies can enhance energy conservation of businesses locating within the Clean Energy Enterprise Zones with distributive generating units to reduce costs for the production of the electric vehicle supply chain.A public-private partnership to expand the deployment of the electric vehicle infrastructure can include municipal parking garages, CDTA park-n-ride lots, hotels, rent-a-car companies, taxicab companies and other multi-modal locations to reduce gasoline consumption and greenhouse gas pollution.<br>Michael McGlynn |
| | SurveyGizmo | 26-Oct | An absolute necessity. |
| | | | not now |
| | | | Combining these two together is a mistake. I would support expanding electric vehicles bbut if we're to combat climate change, we must eliminate the possibility of creating new sources of carbon emissions. I do not support any alternative fuel excepting hydrogen. |
| | | | While I highly support the development of alt fuel transport, it should not be as high a priority as improving systems that conserve energy to a greater degree i.e. car sharing (can be done w/ alt-fuel vehicles), public transport improvements, and incread support of non-motorized transportation. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 5 - Convert municipal fleets and transit vehicles to electric or other alternative fuels. | Crowdbrite | 25-Oct | Bring back trolleys |
| | SurveyGizmo | 26-Oct | Consider first the cost. |
| | | | Good way to save on cost and natural resources. |
| | | | Ideally yes, but it all involves high initial cost output |
| | | | not now |
| | | | Again, a nice idea but not as effective as getting folks to switch to ridesharing, cycling or walking, and using mass transit. |
| | | | Again, as with the last question, I cannot support creating new sources of emissions utilizing alternative carbon-based fuels. Electric fleet vehicles I support. |
| 6 - Optimize transportation system through alternative street design | SurveyGizmo | 26-Oct | Very smart idea. |
| | | | need more info |
| | | | not a big fan of roundabouts |
| | | | not now |
| | | | support NY State's "complete streets law" - enacted in 2010 |
| 7 - Incentivize use of clean and fuel-efficient truck and freight technology. | SurveyGizmo | 26-Oct | This does not seem possible on the regional level, this is state or national policy. |
| | | | it depends what the incentives are |
| | | | maximize rail transport and leave truck transportation for small local (50-100 miles) |
| | | | This is a great idea/concept but I foresee a financial hardship for the companies that may put some out of business. Incentives would be crucial... |
| 8 - Create an interconnected regional transit system. | Crowdbrite | 30-Sep | Incorporate the Thruway corridor in the vicinity of residential neighborhoods into alternative transportation plans. E.g. integrating a 2-way bike lane btw. Thruway exits 23 and 24 and 787/90, with numerous, appropriate entry/exit points, would allow good connection between downtown business district and residential areas. |
| | | 6-Oct | Require employers and developers offering free/subsidized parking to offer transit passes of equal value. |
| | SurveyGizmo | 26-Oct | As someone who uses public transit, this would be welcome. |
| | | | Columbia County has no public transportation system! |
| | | | Must be accompanied by steps to get people to use transit systems rather than personal vehicles. |
| | | | This should exist, and be in operation right now. |
| | | | YES! And make these transit options affordable to the working class. |
| | | | light rail for Albany-Saratoga region |
| | | | not tha tmany people would use it |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 9 - Improve freight facility operations, | SurveyGizmo | 26-Oct | not now |
| | | | Increased ability to move freight from port to store is terrific, BUT be careful about reducing traffic through communities... it can have adverse effects on local businesses. |

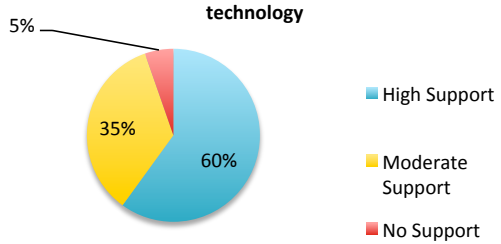
| Initiative # | Initiative | Support | Online Votes | 1-Oct | 2-Oct | 3-Oct | Survey votes | Total | Percent | Total | Support | Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 2. Implement a bicycle and pedestrian infrastructure improvement program | High Support | 10 | 29 | 4 | 5 | 45 | 93 | 85.3% | **100.0%** | | |
| 2 | Implement a bicycle and pedestrian infrastructure improvement program | Moderate Support | 1 | 1 | 0 | 0 | 12 | 14 | 12.8% | **100.0%** | Some Support | 98.2% |
| 2 | Implement a bicycle and pedestrian infrastructure improvement program | No Support | 0 | 1 | 0 | 0 | 1 | 2 | 1.8% | **109** | No Support | 1.8% |
| 6 | 6. Optimize transportation system through alternative street design and advanced signal technology | High Support | 5 | 7 | 2 | 2 | 29 | 45 | 60.0% | **100.0%** | | |
| 6 | Optimize transportation system through alternative street design and advanced signal technology | Moderate Support | 2 | 3 | 0 | 1 | 20 | 26 | 34.7% | **100.0%** | Some Support | 94.7% |
| 6 | Optimize transportation system through alternative street design and advanced signal technology | No Support | 0 | 1 | 0 | 0 | 3 | 4 | 5.3% | **75** | No Support | 5.3% |
| 8 | 8. Create an interconnected regional transit system | High Support | 6 | 16 | 5 | 3 | 44 | 74 | 81.3% | **100.0%** | | |
| 8 | Create an interconnected regional transit system | Moderate Support | 0 | 1 | 0 | 1 | 9 | 11 | 12.1% | **100.0%** | Some Support | 93.4% |
| 8 | Create an interconnected regional transit system | No Support | 2 | 2 | 0 | 0 | 2 | 6 | 6.6% | **91** | No Support | 6.6% |
| 9 | 9. Improve freight facility operations, infrastructure, and highway connection | High Support | 0 | 3 | 1 | 4 | 23 | 31 | 44.3% | **100.0%** | | |
| 9 | Improve freight facility operations, infrastructure, and highway connection | Moderate Support | 5 | 3 | 0 | 1 | 25 | 34 | 48.6% | **100.0%** | Some Support | 92.9% |
| 9 | Improve freight facility operations, infrastructure, and highway connection | No Support | 1 | 1 | 0 | 1 | 2 | 5 | 7.1% | **70** | No Support | 7.1% |
| 7 | 7. Incentivize use of clean and fuel-efficient truck and freight technology | High Support | 2 | 9 | 0 | 3 | 36 | 50 | 61.0% | **100.0%** | | |
| 7 | Incentivize use of clean and fuel-efficient truck and freight technology | Moderate Support | 4 | 2 | 0 | 0 | 17 | 23 | 28.0% | **100.0%** | Some Support | 89.0% |
| 7 | Incentivize use of clean and fuel-efficient truck and freight technology | No Support | 0 | 3 | 0 | 4 | 2 | 9 | 11.0% | **82** | No Support | 11.0% |
| 3 | 3. Improve transit service through technology improvements | High Support | 4 | 9 | 0 | 4 | 24 | 41 | 57.7% | **100.0%** | | |
| 3 | Improve transit service through technology improvements | Moderate Support | 1 | 2 | 0 | 1 | 17 | 21 | 29.6% | **100.0%** | Some Support | 87.3% |
| 3 | Improve transit service through technology improvements | No Support | 1 | 2 | 0 | 2 | 4 | 9 | 12.7% | **71** | No Support | 12.7% |
| 5 | 5. Convert municipal fleets and transit vehicles to electric or other alternative fuels | High Support | 5 | 12 | 3 | 6 | 36 | 62 | 65.3% | **100.0%** | | |
| 5 | Convert municipal fleets and transit vehicles to electric or other alternative fuels | Moderate Support | 1 | 1 | 0 | 1 | 15 | 18 | 18.9% | **100.0%** | Some Support | 84.2% |
| 5 | Convert municipal fleets and transit vehicles to electric or other alternative fuels | No Support | 2 | 4 | 0 | 5 | 4 | 15 | 15.8% | **95** | No Support | 15.8% |
| 4 | 4. Develop and expand electric vehicle and alternative fuel infrastructure | High Support | 4 | 13 | 0 | 4 | 31 | 52 | 54.2% | **100.0%** | | |
| 4 | Develop and expand electric vehicle and alternative fuel infrastructure | Moderate Support | 2 | 1 | 3 | 2 | 19 | 27 | 28.1% | **100.0%** | Some Support | 82.3% |
| 4 | Develop and expand electric vehicle and alternative fuel infrastructure | No Support | 2 | 6 | 0 | 4 | 5 | 17 | 17.7% | **96** | No Support | 17.7% |
| 1 | 1. Establish car sharing programs throughout the region | High Support | 5 | 4 | 0 | 2 | 24 | 35 | 44.3% | **100.0%** | | |
| 1 | Establish car sharing programs throughout the region | Moderate Support | 2 | 0 | 0 | 0 | 22 | 24 | 30.4% | **100.0%** | Some Support | 74.7% |
| 1 | Establish car sharing programs throughout the region | No Support | 4 | 7 | 0 | 2 | 7 | 20 | 25.3% | **79** | No Support | 25.3% |

**2. Implement a bicycle and pedestrian infrastructure improvement program**



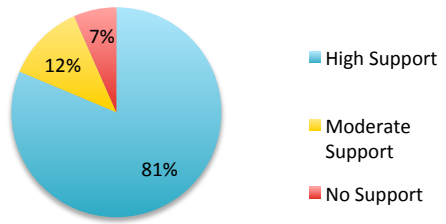

Total no. of votes 109

**6. Optimize transportation system through alternative street design and advanced signal technology**



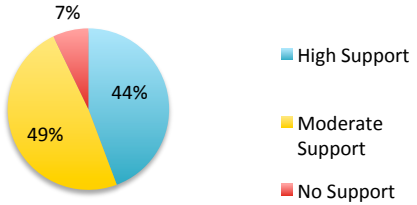

Total no. of votes 75

**8. Create an interconnected regional transit system**



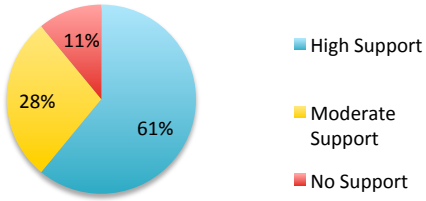

Total no. of votes 91

**9. Improve freight facility operations, infrastructure, and highway connection**



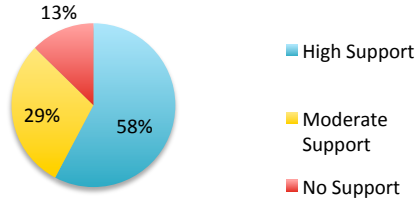

Total no. of votes 70

**7. Incentivize use of clean and fuel-efficient truck and freight technology**



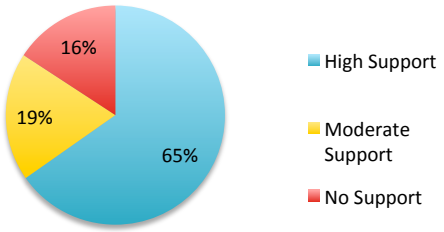

Total no. of votes 82

**3. Improve transit service through technology improvements**



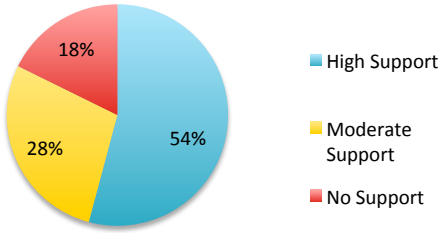

Total no. of votes 71

**5. Convert municipal fleets and transit vehicles to electric or other alternative fuels**



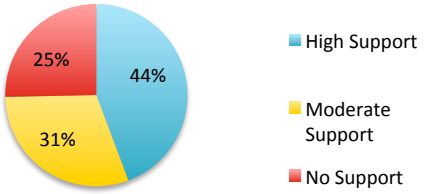

Total no. of votes 95

**4. Develop and expand electric vehicle and alternative fuel infrastructure**




Total no. of votes 96

**1. Establish car sharing programs throughout the region**




Total no. of votes 79

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| | | | Oct 1 Group 2 | General comment: why is there currently no asset management plan? | | |
| | | | Oct 1 Group 5 | We don't necessarily agree with the framing of the issues for this topic. | | |
| | | | Oct 1 Group 8 | Consider the low hanging fruit in prioritizing the initiatives, i.e. easier/cheaper to invest in sustainable infrastructure for new construction than to rebuild aged systems. This can apply to new construction in older cities as well. | | |
| | | | | Have developers for new construction shoulder some financial burden for replacing aged systems that their new development will impact? | | |
| 1 | Require use of a predictive model for stormwater management. | 1 | Oct 1 Group 2 | | | |
| 4 | Conduct a watershed assessment for stormwater management. | 1 | Oct 1 Group 5 | | Inventory should consider not only location and condition, but also capacity of existing municipal waste water systems. | |
| | | | | | Also consider ag runoff. | |
| 6 | Implement an invasive species management and outreach program. | | Oct 1 Group 2 | | Invest/repair and modernize existing infrastructure. | |
| | | | | | Piggy back on existing research being done. Partner with local universities. | |

| Initiative no. | Initiative | Vote no. | Group no. | Comments | Considerations for Implementation | Parntership Opportunities |
|---|---|---|---|---|---|---|
| 8 | Revise municipal code to incorporate water/stormwater management best practices. | 2 | Oct 1 Group 2 | | Be more proactive in existing code | |
| | | | | | Take into account the economic impact of the increased requirements on developers. | |
| | | | | | Examine the life cycle costs of new infrastructure | |
| | | | Oct 1 Group 8 | | Create model legislation at statewide level | |
| | | | | | Get municipalities adopt the model | |
| | | | | | Fund grants incentives for adoption and implementation at municipal and county levels | |
| 9 | Develop a purchasing consortium for municipal water | 1 | Oct 1 Group 8 | | Have municipalities share equipment? | Cities |
| | | | | | Configure metropolitan areas to consolidate resources | Merge the cities into metro areas so that purchasing is consolidated. |
| *NEW* | Combine ideas 2 & 3: develop asset management plan for water and sewer systems | 1 | | | For both natural and built systems. | New businesses, developers |
| | | | | | Plan should consider not only location and condition, but also capacity of existing municipal waste water systems. | Environmental Facilities Corp. may offer some funding. Particularly, Small Water Quality Grants program. |
| | | | | | Encourage use of predictive model to address alternatives to gray and green systems. | Universities. |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 1 - Require use of a predictive model for stormwater management. | Crowdbrite | 30-Sep | Develop an Albany Basin Improvement Master Plan and Yearly Workplans to lay out, measure and track progress toward solving the CSO issues in the Hudson btw. Troy and Albany. |
| | | 3-Oct | Comment to idea above: What are CSOs? Combined sewer systems (CSOs) are sewers that are designed to collect rainwater runoff, domestic sewage, and industrial wastewater in the same pipe. Most of the time, combined sewer systems transport all of their wastewater to a sewage treatment plant, where it is treated and then discharged to a water body. During periods of heavy rainfall or snow melt, however, the wastewater volume in a combined sewer system can exceed the capacity of the sewer system or treatment plant. For this reason, combined sewer systems are designed to overflow occasionally and discharge excess wastewater directly to nearby streams, rivers or other water bodies. |
| | SurveyGizmo | 26-Oct | Very important to protect water supplies, water resources and control infrastructure costs |
| | | | Which approach is chosen should be a local government choice. |
| | | | end albany's overflow of sewage into the river during storms, for instance.. |
| | | | will help with flash flooding |
| | | | yes could save money and help the earth |
| | | | make sure that gauging stations are maintained and expanded to keep up long term data on flooding and draught |
| 2 - Develop an Asset Management Plan for water systems. | SurveyGizmo | 26-Oct | Asset management when combined with full cost billing will create sustainable water systems |
| | | | I am afraid all this will lead to is increased cost to local governments. |
| | | | Obviously. |
| | | | yes there should be this kind of accountability |
| | | | all for stats, but make sure policies do not discriminate based on racial or socio-economic demographics |

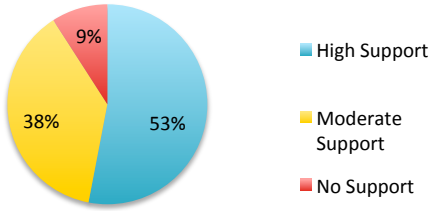
| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 3 - Develop an Asset Management Plan for Sewer systems | Capital Region Website | 12-Oct | An asset management plan is essential. Separation of storm water discharge from sewage waste discharge is important for utilization of appropriate pollution control equipment and the inclusion of energy generating microbial fuel cell units. Stormwater runoff from highways and urban streets contain vehicles carbon based waste. The sewage from buildings contains organic and inorganic waste different from stormwater discharge, therefore, a different type of microbial fuel cell component is essential for energy generation from each type of waste. Appropriate pollution control will enhance the quality of the water returning to the water cycle. The 2004 NYS Hydrogen Energy Vision and Roadmap may be a valuable resource to incorporate into any application to the National Science Foundation's program grants. The NSF's Division of Chemical, Bioengineering, Environmental and Transport Systems program provides access to funds for R&D for microbial and hydrogen technology development of waste water treatment facilities.<br>Michael McGlynn |
| | SurveyGizmo | 26-Oct | Asset management when combined with full cost billing will create sustainable wastewater systems |
| | | | Yes! |
| | | | not now |
| 4 - Conduct a watershed assessment for storm water management | Capital Region Website | 12-Oct | Utilization of the existing non-point source water quality committees within the river basin will enhance the asset and management policy. The assessment of the watersheds drainage systems may need the state and municipal transportation departments to redesign the drainage ditches from a 10-yr flood frequency to a 25 yr. flood frequency in accordance with the 2011 NYS Highway Design Manual. It may be important for municpalities to consider establishing a conservation easement tax credit for landowners willing to participate in the watershed protection program.<br>Michael McGlynn |
| | SurveyGizmo | 26-Oct | Of course. |
| | | | not now |
| | | | watershed wide assessment, when combined with asset management and prioritization of water quality improvements can provide the most cost - effective management of stormwater |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 5 - Create a small grant program for innovative water quality projects- | Capital Region Website | 12-Oct | Academic-government-business collaboration for National Science Foundation's program grants can establish an important R&D monetary resource. In addition, the counties Unified Haward Mitigation plans within the Hudron-Mohawk river basin can provide a mechanism for innovative water quality development of technology, manpower, education and training programs, and the inclusion of microbial and hydrogen fuel cell bioengineering to generate electricity within the region. The incorporation of State Energy Law Article 9 into the water quality system, including at public water filtration plants where microbial and hydrogen fuel cell units will be valuable is important. Michael McGlynn |
| | SurveyGizmo | 26-Oct | Can't fish most streams anymore because they are so polluted. |
| | | | Money is needed; lots of money is needed in order to develope these proograms. |
| | | | Should be combined with watershed - wide planning |
| | | | yes this will give every citizen the chance to be creative and help their community |
| 6 - Implement an invasive species management and outreach program | Capital Region Website | 12-Oct | Incorporation of the National Science Foundation's programs to conduct R&D of aquatic weed growth, carbon sequestration and biomass use for energy generation is important for appropriate management. There is ongoing R&D of alga biomass and energy generation, therefore, other aquatic weeds may be useful in our region. The NSF's Division of Chemical, Bioengineering, Environmental and Transport Systems, the Division of Biotechnology, Biochemical and Biomass Engineering and the NSF-wide Science, Engineering and Education for Sustainability are important areas to inquire for R&D funds.<br>Michael McGlynn |
| | SurveyGizmo | 26-Oct | Collaborate |
| | | | Great way to get kids involved |
| | | | Needs funding to assist local governments with projects and education. |
| | | | This is silent and very important |
| | | | sounds good and not too costly |

| Initiative | Data source | Date | Comment |
|---|---|---|---|
| 7 - Create water/stormwater management rating system for commercial | SurveyGizmo | 26-Oct | Needs to be tied into stormwater revenue streams to be effective |
| | | | don't forget the other side of this issue; more frequent draughts |
| | | | interesting |
| | | | require that businesses post their rating in their windows, like NYC does with the restaurant cleanliness ratings. That will get them all on board! |
| 8 - Revise municipal code to incorporate water/stormwat | SurveyGizmo | 26-Oct | Make it mandatory, not voluntary for towns to adopt or not. |
| | | | sounds good if they are forced to actually review it and make changes |
| | | | Sounds like you are going to tell local government what needs to be in their code. Sounds like an unfunded mandate. |
| 9 - Develop a purchasing consortium for municipal water | SurveyGizmo | 26-Oct | Again, must be administered fairly. |
| | | | This is a practical approach to the high costs involved in such ambitious projects. |
| | | | Will need to overcome parochialism |
| | | | sounds good but will communities actually do it? |

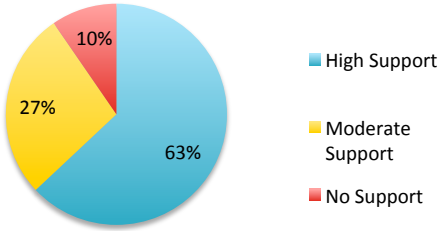
| Initiative # | Initiative | Support | Online Votes | 1-Oct | 2-Oct | 3-Oct | Survey votes | Total | Percent | Total | Support | Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 3. Develop an Asset Management Plan for sewer systems | High Support | 3 | 5 | 0 | 3 | 24 | 35 | 53.0% | **100.0%** | | |
| 3 | Develop an Asset Management Plan for sewer systems | Moderate Support | 3 | 1 | 0 | 1 | 20 | 25 | 37.9% | **100.0%** | Some Support | 90.9% |
| 3 | Develop an Asset Management Plan for sewer systems | No Support | 0 | 1 | 0 | 1 | 4 | 6 | 9.1% | **66** | No Support | 9.1% |
| 4 | 4. Conduct a watershed assessment for stormwater management | High Support | 3 | 10 | 1 | 3 | 29 | 46 | 63.0% | **100.0%** | | |
| 4 | Conduct a watershed assessment for stormwater management | Moderate Support | 2 | 2 | 0 | 0 | 16 | 20 | 27.4% | **100.0%** | Some Support | 90.4% |
| 4 | Conduct a watershed assessment for stormwater management | No Support | 0 | 3 | 0 | 1 | 3 | 7 | 9.6% | **73** | No Support | 9.6% |
| 9 | 9. Develop a purchasing consortium for municipal water projects | High Support | 3 | 8 | 2 | 5 | 27 | 45 | 63.4% | **100.0%** | | |
| 9 | Develop a purchasing consortium for municipal water projects | Moderate Support | 2 | 0 | 0 | 1 | 15 | 18 | 25.4% | **100.0%** | Some Support | 88.7% |
| 9 | Develop a purchasing consortium for municipal water projects | No Support | 0 | 1 | 0 | 3 | 4 | 8 | 11.3% | **71** | No Support | 11.3% |
| 6 | 6. Implement an invasive species management and outreach program | High Support | 2 | 5 | 1 | 3 | 30 | 41 | 51.9% | **100.0%** | | |
| 6 | Implement an invasive species management and outreach program | Moderate Support | 4 | 4 | 0 | 0 | 21 | 29 | 36.7% | **100.0%** | Some Support | 88.6% |
| 6 | Implement an invasive species management and outreach program | No Support | 0 | 5 | 0 | 4 | 0 | 9 | 11.4% | **79** | No Support | 11.4% |
| 1 | 1. Require use of a predictive model for stormwater management | High Support | 2 | 7 | 4 | 3 | 29 | 45 | 59.2% | **100.0%** | | |
| 1 | Require use of a predictive model for stormwater management | Moderate Support | 3 | 3 | 0 | 0 | 16 | 22 | 28.9% | **100.0%** | Some Support | 88.2% |
| 1 | Require use of a predictive model for stormwater management | No Support | 0 | 4 | 0 | 1 | 4 | 9 | 11.8% | **76** | No Support | 11.8% |
| 8 | 8. Revise municipal code to incorporate water/stormwater mgmt best practices | High Support | 2 | 9 | 1 | 5 | 29 | 46 | 55.4% | **100.0%** | | |
| 8 | Revise municipal code to incorporate water/stormwater mgmt best practices | Moderate Support | 5 | 3 | 0 | 0 | 19 | 27 | 32.5% | **100.0%** | Some Support | 88.0% |
| 8 | Revise municipal code to incorporate water/stormwater mgmt best practices | No Support | 0 | 3 | 0 | 5 | 2 | 10 | 12.0% | **83** | No Support | 12.0% |
| 5 | 5. Create a small grant program for innovative water quality projects | High Support | 1 | 6 | 2 | 5 | 33 | 47 | 63.5% | **100.0%** | | |
| 5 | Create a small grant program for innovative water quality projects | Moderate Support | 2 | 1 | 0 | 0 | 15 | 18 | 24.3% | **100.0%** | Some Support | 87.8% |
| 5 | Create a small grant program for innovative water quality projects | No Support | 1 | 3 | 0 | 3 | 2 | 9 | 12.2% | **74** | No Support | 12.2% |
| 2 | 2. Develop an Asset Management Plan for water systems | High Support | 2 | 8 | 3 | 6 | 29 | 48 | 60.8% | **100.0%** | | |
| 2 | Develop an Asset Management Plan for water systems | Moderate Support | 3 | 1 | 0 | 0 | 17 | 21 | 26.6% | **100.0%** | Some Support | 87.3% |
| 2 | Develop an Asset Management Plan for water systems | No Support | 1 | 4 | 0 | 2 | 3 | 10 | 12.7% | **79** | No Support | 12.7% |
| 7 | 7. Create water/stormwater mgmt rating system for commercial and residential development | High Support | 1 | 6 | 1 | 3 | 20 | 31 | 43.1% | **100.0%** | | |
| 7 | Create water/stormwater mgmt rating system for commercial and residential development | Moderate Support | 5 | 0 | 0 | 0 | 26 | 31 | 43.1% | **100.0%** | Some Support | 86.1% |
| 7 | Create water/stormwater mgmt rating system for commercial and residential development | No Support | 1 | 4 | 0 | 4 | 1 | 10 | 13.9% | **72** | No Support | 13.9% |

**3. Develop an Asset Management Plan for sewer systems**



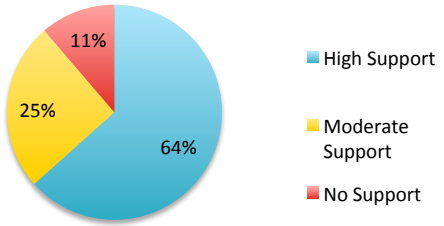

Total no. of votes 66

**4. Conduct a watershed assessment for stormwater management**



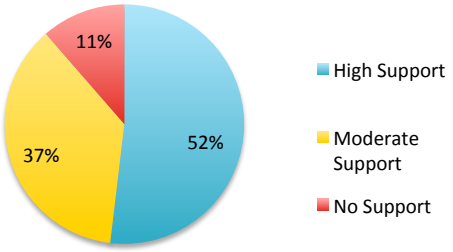

Total no. of votes 73

**9. Develop a purchasing consortium for municipal water projects**



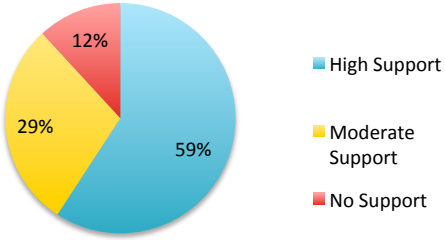

Total no. of votes 71

**6. Implement an invasive species management and outreach program**



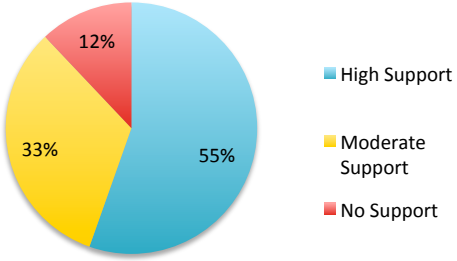

Total no. of votes 79

**1. Require use of a predictive model for stormwater management**



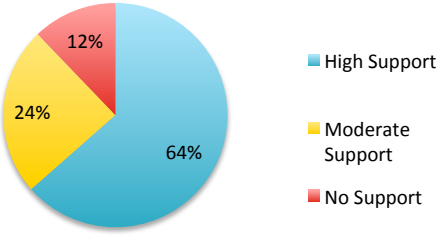

Total no. of votes 76

**8. Revise municipal code to incorporate water/ stormwater mgmt best practices**



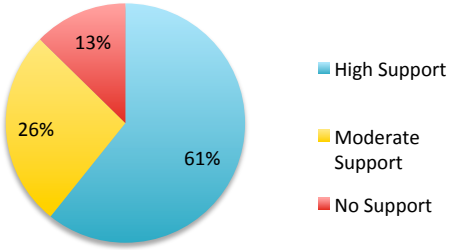

Total no. of votes 83

**5. Create a small grant program for innovative water quality projects**



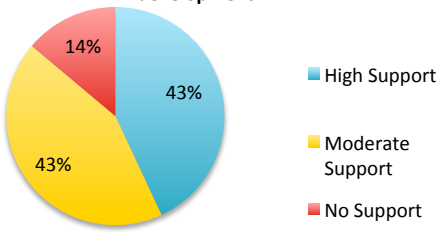

Total no. of votes 74

**2. Develop an Asset Management Plan for water systems**




Total no. of votes 79

**7. Create water/stormwater mgmt rating system for commercial and residential development**




Total no. of votes 72

**CAPITAL DISTRICT REGIONAL SUSTAINABILITY PLAN**
**COXSACKIE-ATHENS HIGH SCHOOL**
**PUBLIC WORKSHOP**
**JULY 23, 2012**

**SIGN-IN SHEET**

| Name | | | |
|---|---|---|---|
| Ted Hilscher | | | |
| Rachel Hallock | | | |
| PETER HALLOCK | | | |
| Rene Van Schaack | | | |
| JEFF FLACK | | | |
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Date July 23, 2012

Location

# Sign-In Sheet

| # | Name | Organization (if any) | Phone Number | Zip Code | Email Address |
|---|---|---|---|---|---|
| 1 | MARY PAPE | | | | |
| 2 | Don Meltz | Town of Stockport | | | |
| 3 | Ed Stevens | Westerlo | | | |
| 4 | DON PATTERSON | Coxsackie | | | |
| 5 | Doris Patterson | Coxsackie | | | |
| 6 | DOTTY VERCH | WESTERLO | | | |
| 7 | RICH KORYLO | WESTERLO | | | |
| 8 | BOB PREUSSER | T. OF CLAVERACK | | | |
| 9 | W VANDENOU | Stuyv | | | |
| 10 | Mark Sargent | Greenville | | | |
| 11 | J H ECKL | | | | |
| 12 | GENE RODRIGUEZ | YCIP / LOCAL RESIDENT | | | |
| 13 | Elizabeth LaGrande | CCE Greene | | | |
| 14 | Juan Duran | Free energy | | | |
| 15 | Lee Palmateer | T/o Athens | | | |
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# Sign-In Sheet

Date 10/3/12

Location CGCC

| # | Name | Organization (if any) | Phone Number | Zip Code | Email Address | Receive Email Updates? |
|---|---|---|---|---|---|---|
| 1 | Fred Podunk | | | | | |
| 2 | Linda Allen | Self | | | | ✓ |
| 3 | Ken York | Boring Asso | | | | ✓ |
| 4 | SAMOY GHEORSM | Self | | | | |
| 5 | Ed Simonsen | | | | | |
| 6 | Lois DiSard | Self | | | | ✓ |
| 7 | Rich Schiafo | Vnwaste NY | | | | ✓ |
| 8 | John Frank | Self | | | | ✓ |
| 9 | Lorraine Frank | " | | | | |
| 10 | KEN Babain | SELF | | | | ✓ |
| 11 | TODD ERLINE | CREDC | | | | |
| 12 | R Hoffmann | Self | | | | |
| 13 | Larry Lyon | Self | | | | |
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Date 10/3/12

Location CGCC

# Sign-In Sheet

| # | Name | Organization (if any) | Phone Number | Zip Code | Email Address | Receive Email Updates? |
|---|---|---|---|---|---|---|
| 1 | J. Blessinger-Henry | | | | | |
| 2 | D. BOWDISH | | | | | |
| 3 | W. BIMMANN | | | | | |
| 4 | BOB GAWEL | | | | | |
| 5 | Ellen J-Epstein | Col. Land Con | | | | |
| 6 | Edwin Stevens | Westerlo | | | | |
| 7 | Wm PACK | | | | | |
| 8 | D. O'Hare | | | | | |
| 9 | B PREUSSER | T of Claverack | | | | |
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# Sign-In Sheet

| First Name | Last Name | Organization | Phone Number | Zip Code | Email Address | Receive Email Updates? |
|---|---|---|---|---|---|---|
| Terrence | | Transition Albany | | | | |
| Bob | Balcom | Town of Chatham | | | | |
| Amy | Stock | Saratoga Springs | | | | |
| Shana | DiSarro | | | | | |
| Joe | Durkin | | | | | |
| Dawn | Jordan | Center for Sustainable Rural Communities | | | | |
| Bill | Rapp | | | | | |
| Larry | Schillinger | | | | | |
| Morgan | Storms | Commission on Economic Opp. | | | | |
| Chris | | | | | | |
| Kristine | Cottom | | | | | |
| Gary | Pavlic | Troy City Council | | | | |
| Janice | Cowie | | | | | |
| Pete | Looker | | | | | |
| John | Smolinksy | Town of Bethlehen | | | | |
| Ruth | Smalley | Transition Albany | | | | |
| Cheryl | O'Connor | Heldeberg Community Watch | | | | |
| Scott | Rapp | | | | | |
| Sarah | Reginelli | Capitalize Albany Corporation | | | | |
| Barbara | Park | | | | | |
| Bill | Park | | | | | |
| Deborah | Gordon | | | | | |

| | | |
|---|---|---|
| Andy | Looker | |
| Dave | Delozier | Eco-Local |
| Jim | Bonesteel | Rensselaer Platea |
| Philip | Dixon | Whiteman |
| Hannah | Pelz-Smalley | |
| Joan | Rapp | KSR Industry |
| Rich | Nicholson | Albany DDP |
| Elizabeth | McIntyre | |
| Trina | Porte | NL PB |
| Rodney | Wiltshire | City of Troy |
| Rocco | Ferraro | CDRPC |
| Anna | Campas | AIA ENY |
| Bill | Reinhardt | |
| Anasha | Cummings | Troy Compost |
| Michael | O'Hara | |
| Jeff | Ednerds | Schenectady Cou |
| Tom | Sinopoli | City of Troy Planning Committee |
| Ed | Simonses | Columbia County Environmental Management Council |
| Donna | Lessard | Transportation Schenectady |
| Darren | Fish | GDI |
| Bryce | Pollock | Ind. |
| George | Myer | |
| Colleen | Pierson | |
| James | Kopp | ESC |
| Barbara | Heinzen | |
| Phyllis | Wheeler | |
| Carole | Whisman | |
| Cheryl | Cammer | |
| Howard | Treite | |
| Lou | Lourinia | |

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|---|---|---|
| Deirdre | Murphy | Greenlight Energy |
| Rich | Michel | GSG Architects |
| James | Peltz | SUNY Press |
| Meghan | Haley-Quigley | Union College |
| Anne | Benware | CDTC |
| Carmella | Mantello | Barton&Loguidice |
| Geo | Kuelin | |

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|---|---|---|---|---|
| Pat | Snyder | Town of New Scotland | ( | |
| Dottie | Malossi | | ( | |
| Christopher | Longo | Ingalls&Associates, LLP | ( | |
| Barb | Nelson | Troy | ( | s |
| Fred | Erickson | Town of Sand Lake | ( | s |
| Tom | Crowell | CLC | ( | s |
| Nancy | Goody | | ( | s |
| Linda | Allen | Self | ( | s |
| Linda | von der Heide | Rensselaer County | ( | |
| Beverly | Bendix | Troy | | s |
| Christine | Young | Rensselaer Land Trust | | s |
| Carol | Nallenbech | | | |
| Mark | Schaeffer | Citizen Action | | s |
| Clarence | Fountain | | | s |
| Dylan | Carey | Office of Rep. Tonl | | s |
| Julie | Ragozzino | | | |
| Mike | Ragozzino | | | |
| Leslie | Lombardo | Albany County Planning | | /.com |
| Bill | Genther | | | |
| Mary | Werner | SCEAC | | |
| Charles | Noland | Citizen | | |
| Nancy | Noland | Citizen | | |
| Polly | Pedersern | | | |
| Mike | Stammel | Rensselaer County Legislator | | |
| Tom | Ellis | | | |
| Sarah | Crowell | City of Rensselaer | | |
| Hannah | Morgan | SUNY | | |
| Ken | York | Ronin Associates | | |
| Susan | Holland | Historic Albany | | |
| John | Santacrose | ACSWCD | | |

# Sign-In Sheet

Date _____

Location _____

| Name | Organization (if any) | Phone Number | Zip Code | Email Address | Receive Email Updates? |
|---|---|---|---|---|---|
| Glen Gilbertson | Transition Tray | | | | |
| Jane Kana | Transition GF | | | | |
| John Street | | | | | |
| Michelle Ray | | | | | |
| B Deggins | TT, AFRP PRE | | | | |
| Tim Daniels | University of Alb | | | | |
| Montana Tracy | Clearbrook Cutt | | | | |
| Tiffany Ramirez | ADK Jrn | | | | |
| [illegible] | [illegible] 6020 | | | | |
| [illegible] | – | | | | |

# Sign-In Sheet

Date _____

Location _____

| Name | Organization (if any) | Phone Number | Zip Code | Email Address | Would like to speak |
|---|---|---|---|---|---|
| [illegible] WELQ | | | | | |
| [illegible] | [illegible] | | | | |
| Rob [illegible] | OWSD | | | | |
| John T. Rehgeier | Washington | | | | |
| Heidi Lamb | Transition | | | | |
| Floyd Matt | WESBO | | | | |
| [illegible] Campbell | Transition | | | | |
| [illegible] Collins | Transition Town Planning | | | | |
| [illegible] | Transition | | | | |
| Steve LaFave | Batavia Legislature | | | | |
| Cathy Hamlin | NYSDOS | | | | |
| [illegible] | WCSD #2 | | | | |
| [illegible] | [illegible] | | | | |
| [illegible] | Genesee Co. Rail | | | | |

# Sign-In Sheet

Date 10/2/12

Location Fort Ann

| # | Name | Organization (if any) | Phone Number | Zip Code | Email Address | Receive Email Updates? |
|---|---|---|---|---|---|---|
| 1 | James Kopp | Courtney Strong | | | | |
| 2 | Barbara Heinzen | — | | | | |
| 3 | Marilyn Ryba | Shelter Planning | | | | |
| 4 | Paul Cummings | Chazen | | | | |
| 5 | Melissa Chinigo | Glens Falls Hosp. | | | | |
| 6 | Mark McCoy | | | | | |
| 7 | Diane Collins | Transition Towns Initiative | | | | |
| 8 | Tori Riley | Wash Cty LDC | | | | |
| 9 | Melissa White | Transition Town | | | | |
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Date 10/2/12

Location Fort Ann

# Sign-In Sheet

| # | Name | Organization (if any) | Phone Number | Zip Code | Email Address | Receive Email Updates? |
|---|---|---|---|---|---|---|
| 1 | Rayna Caldwell | Sustainable Saratoga | | | | |
| 2 | Darlene DeVoe | Town of Fort Edward | | | | |
| 3 | Nancy Heinzen | Stormwater Coalition of Albany County | | | | |
| 4 | Liz Stavbach | | | | | please |
| 5 | SKIP STRAHAN | Live the Peoples | | | | |
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# Sign-In Sheet

Date 10/1/12

Location Union

| # | Name | Organization (if any) | Phone Number | Zip Code | Email Address | Receive Email Updates? |
|---|---|---|---|---|---|---|
| 1 | Jim Kalohn | Schdy Cnty ED + P | | | | |
| 2 | BARB NORSON | CITY OF TROY | | | | |
| 3 | Sent [illegible] | Schen County | | | | |
| 4 | REV PHIL GRIGSBY | SICM | | | | |
| 5 | Tom Carey | | | | | |
| 6 | Moden Dily | Parks & Trails New York | | | | |
| 7 | Chris Longo | Ingalls + Associates | | | | |
| 8 | Martha Asselin | SCCC | | | | |
| 9 | Cheryl Pollock | | | | | |
| 10 | L Fountain | TRANSITION Schenectady | | | | |
| 11 | Sue Ayuso | Transition Schenectady | | | | |
| 12 | Sheldon Carnes | Trans Troy | | | | |
| 13 | Ellen Kelly | | | | | |
| 14 | [illegible] | | | | | |
| 15 | Nick Conrad | Rensselaer Land Trust | | | | |
| 16 | Donna Lessard | Trans. Schdy | | | | |
| 17 | Earl Wallace | Schdy | | | | |
| 18 | Lou LaRiva | Press | | | | |
| 19 | John Frank | | | | | |
| 20 | Clarisse Ramkal | SCCC | | | | |
| 21 | Dan Houlihan | — | | | | |
| 22 | Mike McGlynn | — | | | | |
| 23 | Chris O'Neill | CDTC | | | | |
| 24 | Rebecca Caldwell | | | | | |
| 25 | Mary Mosny | SCEDC | | | | |
| 26 | Kurty | | | | | |

Date 10/1/12

Location Union

# Sign-In Sheet

| # | Name | Organization (if any) | Phone Number | Zip Code | Email Address | Receive Email Updates? |
|---|---|---|---|---|---|---|
| 1 | Jess Edward | School district | | | | |
| 2 | JOE BERMAN | EQUB | | | | |
| 3 | Meghan Haley-Quigley | Union College | | | | |
| 4 | Linda Allen | SUA | | | | |
| 5 | CHRISTOPHER MORRIS | CHA | | | | |
| 6 | Carol Ward | CDTA | | | | |
| 7 | Carrie Lenard | SCCC | | | | |
| 8 | Edward Asselin | SUNY Cobleski | | | | |
| 9 | B. Caulo | | | | | |
| 10 | C. Vitulins | | | | | |
| 11 | Jerry Byrd | Transitions | | | | |
| 12 | Linda vanderheide | Rensselaer Co | | | | |
| 13 | Michael Cellini | Transition | | | | |
| 14 | Allison Williams | SCCM | | | | |
| 15 | Suzanne Perry Potts | | | | | |
| 16 | JASON Kersch | Halfway | | | | |
| 17 | Scott Tatro | Trans | | | | |
| 18 | JIM WELCH | TRANSITION | | | | |
| 19 | Deb Nelson | NYSDOT | | | | |
| 20 | Betty Ketcham | Town of Knox | | | | |
| 21 | Aaron Eastwood | Schenectady CCC | | | | |
| 22 | Rebecca Crawford | SCCC | | | | |
| 23 | Gary S Lessard | RJ Murray | | | | |
| 24 | WILLIAM PARK | ACT | | | | |
| 25 | HOWARD BEEBE | — | | | | |
| 26 | FRED POLNISCH | — | | | | |

**Press Releases and Media Reports**

**CONTACT:** Sarah Boggess: (518) 792-3856, sarah.boggess@behancom.com

**MEDIA ADVISORY/DAYBOOK ITEM**
For Immediate Release: Tuesday, October 2, 2012

**Oct. 3 Public Workshop for Regional Sustainability Plan**

Hudson, NY – A second round of public workshops on the development of the Capital Region Sustainability Plan will be held this week. The facilitated meetings will prioritize the hundreds of strategies, ideas and comments provided by workshop participants and online contributors earlier in August. The goal is to improve sustainability practices in the following eight counties: Albany; Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren and Washington. Representatives of the media are encouraged to attend. Photo opportunities will be available.

**WHEN:**

Wednesday, October 3, 2012
6:30 – 7 p.m., Open House
7 to 9 p.m., Public Workshop

**WHERE:**

Columbia-Greene Community College, 4400 Route 23, Hudson (in the Professional Academic Center, Room 612)

**ABOUT THE PROGRAM:**

A coalition of Capital Region municipalities and organizations is gathering input for a regional sustainability plan that is being funded by the New York State Energy Research and Development Authority (NYSERDA) as part of Governor Andrew M. Cuomo's statewide Cleaner, Greener Communities Program.

The sustainability plan will provide baselines for greenhouse gas emissions and energy use and will develop regional goals and metrics to reduce greenhouse gas and improve the energy supply, transportation, water management, waste management, land use, open space, agriculture, housing and economic development in the region. Once the plan is developed, the region will apply for Cleaner, Greener Communities funding in 2013 to implement priority projects.

###

**CONTACT:** Sarah Boggess: (518) 792-3856, sarah.boggess@behancom.com

**MEDIA ADVISORY/DAYBOOK ITEM**
For Immediate Release: Monday, October 1, 2012

**Oct. 2 Public Workshop for Regional Sustainability Plan**

Fort Ann, NY – A second round of public workshops on the development of the Capital Region Sustainability Plan will be held this week. The facilitated meetings will prioritize the hundreds of strategies, ideas and comments provided by workshop participants and online contributors earlier in August. The goal is to improve sustainability practices in the following eight counties: Albany; Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren and Washington. Representatives of the media are encouraged to attend. Photo opportunities will be available.

**WHEN:**

Tuesday, October 2, 2012
6:30 – 7 p.m., Open House
7 to 9 p.m., Public Workshop

**WHERE:**

Fort Ann School District, 1 Catherine Street, Fort Ann (in the Cafeteria, which is off the main parking lot and to the left of the main entrance)

**ABOUT THE PROGRAM:**

A coalition of Capital Region municipalities and organizations is gathering input for a regional sustainability plan that is being funded by the New York State Energy Research and Development Authority (NYSERDA) as part of Governor Andrew M. Cuomo's statewide Cleaner, Greener Communities Program.

The sustainability plan will provide baselines for greenhouse gas emissions and energy use and will develop regional goals and metrics to reduce greenhouse gas and improve the energy supply, transportation, water management, waste management, land use, open space, agriculture, housing and economic development in the region. Once the plan is developed, the region will apply for Cleaner, Greener Communities funding in 2013 to implement priority projects.

###

**CONTACT:** Sarah Boggess: (518) 792-3856, sarah.boggess@behancom.com

**MEDIA ADVISORY/DAYBOOK ITEM**
For Immediate Release: Monday, October 1, 2012

**Oct. 1 Public Workshop for Regional Sustainability Plan**

Schenectady, NY – A second round of public workshops on the development of the Capital Region Sustainability Plan will be held this week. The facilitated meetings will prioritize the hundreds of strategies, ideas and comments provided by workshop participants and online contributors earlier in August. The goal is to improve sustainability practices in the following eight counties: Albany; Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren and Washington. Representatives of the media are encouraged to attend. Photo opportunities will be available.

**WHEN:**

Monday, October 1, 2012
6:30 – 7 p.m., Open House
7 to 9 p.m., Public Workshop

**WHERE:**

Union College in Schenectady (in the Ballroom of College Park Hall, which is located West of the Main Campus off Nott Street, between Seward Place and Erie Boulevard)

**ABOUT THE PROGRAM:**

A coalition of Capital Region municipalities and organizations is gathering input for a regional sustainability plan that is being funded by the New York State Energy Research and Development Authority (NYSERDA) as part of Governor Andrew M. Cuomo's statewide Cleaner, Greener Communities Program.

The sustainability plan will provide baselines for greenhouse gas emissions and energy use and will develop regional goals and metrics to reduce greenhouse gas and improve the energy supply, transportation, water management, waste management, land use, open space, agriculture, housing and economic development in the region. Once the plan is developed, the region will apply for Cleaner, Greener Communities funding in 2013 to implement priority projects.

###

**CONTACT:** Behan Communications Inc., Sarah Boggess: (518) 792-3856

**FOR IMMEDIATE RELEASE:** September 10, 2012

Second Phase of Regional Sustainability Planning to Commence in Early October

Albany, NY – The public is invited to attend the second round of regional sustainability workshops, which will take place in and around the Capital Region in early October. Community residents from a wide range of fields and expertise are encouraged to attend. The goal of these facilitated workshops is to prioritize the hundreds of strategies, ideas and comments that were captured during the first phase of this project, which ended August 31.

The workshops will take place from 7 to 9 p.m. on each of the following days: Monday, October 1 at Union College in Schenectady; Tuesday, October 2, at the Fort Ann School District in Fort Ann; and Wednesday, October 3, at Columbia-Greene Community College in Hudson. Citizens are also able to provide feedback and input in an online open house from September 17 through October 6. Details may be found on the project website at www.sustainablecapitalregion.org. All input received during this second phase will be considered by the technical teams for inclusion in the final regional sustainability plan.

Top ideas and strategies identified during the first phase of the planning process by workshop participants and online contributors include: Improved public policy on thechanging climate; Increased high-occupancy vehicle (HOV) lanes, ride shares and public transit opportunities; better

distributions systems from farms to school districts and inner cities; improved bike, trail and rail networks; reduction of rural/suburban sprawl and investment in vibrant city centers; and an expansion of "buy local" food and forest products initiatives.

Additionally, the public discussed eight focus areas during the first round of workshops. These focus areas are being incorporated into the final regional sustainability plan, and include the following: water; food systems; land use and livable communities; waste; economic development; transportation; energy; and climate adaptation.

The regional sustainability plan is part of Governor Andrew M. Cuomo's Cleaner, Greener Communities program. This program, funded by the New York State Energy Research and Development Authority (NYSERDA), empowers regions to create more sustainable communities through smart growth practices.

A coalition of Capital Region local governments and organizations has received funding from NYSERDA to create the regional sustainability plan for the following eight counties: Albany; Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren and Washington.

The Regional Sustainability Plan is intended to inform municipal sustainability and land use policies, serve as a basis for local government infrastructure decision making, guide infrastructure investment of both public and private resources, outline specific and tangible actions to reduce greenhouse gas emissions consistent with New York State's goal of 80% carbon reduction below 1990 levels by the year 2050, and identify strategies for adapting to the effects of climate change.

Project information also can be found on Twitter at @sustaincapreg; or on Facebook at facebook.com/sustainablecapitalregion.

###

**CONTACT:** Behan Communications Inc., Sarah Boggess: (518) 792-3856

**FOR IMMEDIATE RELEASE:** August 24, 2012

August 31 Deadline for First Phase of Regional Sustainability Plan Development

Albany, NY – Citizens have until Aug. 31 to provide ideas and potential strategies that will feed into the first phase of development of the Capital Region's comprehensive regional sustainability plan. The first phase has been aimed at collecting ideas and strategies; the second phase, beginning in Sept., will focus on prioritization and implementation of those strategies.

A series of public workshops on regional sustainability, held last month in Coxsackie, Rensselaer and Queensbury, yielded hundreds of strategies, goals and comments were captured real-time through the use of virtual "sticky notes" on county and community maps. Individuals who were not able to attend the workshops are encouraged to participate online by posting their ideas on the maps, which are posted at www.sustainablecapitalregion.org. The deadline for online input is Aug. 31.

The ideas and strategies gathered during the public workshops will be considered in the development of the regional sustainability plan. Top ideas and strategies identified so far by participants and online contributors include: Increased high-occupancy vehicle (HOV) lanes, ride shares and public

transit opportunities; improved bike, trail and rail networks; reduction ofrural/suburban sprawl and investment in vibrant city centers; energy efficiency initiatives; and an expansion of community gardens, single-stream recycling and local/regional composting.

The regional sustainability plan is part of Governor Andrew M. Cuomo's Cleaner, Greener Communities program. This program, funded by the New York State Energy Research and Development Authority (NYSERDA), empowers regions to create more sustainable communities through smart growth practices.

A coalition of Capital Region local governments and organizations has received funding from NYSERDA to create the regional sustainability plan for the following eight counties: Albany; Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren and Washington.

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Project information also can be found on Twitter at @sustaincapreg; or on Facebook at facebook.com/sustainablecapitalregion.

###

**CONTACT:** Sarah Boggess: (518) 792-3856, sarah.boggess@behancom.com

**MEDIA ADVISORY/DAYBOOK ITEM**
For Immediate Release: Tuesday July 24, 2012

**July 25 Public Workshop for Regional Sustainability Plan**

Queensbury, NY – A public workshop will be held to gather citizen input for a Capital Region Sustainability Plan. The goal of this facilitated meeting is to yield ideas for improving sustainability practices in the following eight counties: Albany; Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren and Washington.

Representatives of the media are encouraged to attend. Photo opportunities will be available.

**WHEN:** 7 to 9 p.m., Wednesday, July 25, 2012.

**WHERE:** Queensbury High School

ABOUT THE PROGRAM: A coalition of Capital Region municipalities and organizations is gathering input for a regional sustainability plan that is being funded by the New York State Energy Research and Development Authority (NYSERDA) as part of Governor Andrew M. Cuomo's statewide Cleaner, Greener Communities Program.

The sustainability plan will provide baselines for greenhouse gas emissions and energy use and will develop regional goals and metrics to reduce greenhouse gas and improve the energy supply,

transportation, water management, waste management, land use, open space, agriculture, housing and economic development in the region. Once the plan is developed, the region will apply for Cleaner, Greener Communities funding in 2013 to implement priority projects.

###

**CONTACT:** Sarah Boggess: (518) 792-3856, sarah.boggess@behancom.com

**MEDIA ADVISORY/DAYBOOK ITEM**
For Immediate Release: Monday, July 23, 2012

**July 24 Public Workshop for Regional Sustainability Plan**

Rensselaer, NY – A public workshop will be held to gather citizen input for a Capital Region Sustainability Plan. The goal of this facilitated meeting is to yield ideas for improving sustainability practices in the following eight counties: Albany; Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren and Washington.

Representatives of the media are encouraged to attend. Photo opportunities will be available. F. Michael Tucker, president of the Center for Economic Growth, will kick off the meeting and be available for media interviews.

**WHEN:**

7 to 9 p.m., Tuesday, July 24, 2012.

**WHERE:**

The Doane Stuart School in Rensselaer (in the Commons Room)

**ABOUT THE PROGRAM:**

A coalition of Capital Region municipalities and organizations is gathering input for a regional sustainability plan that is being funded by the New York State Energy Research and Development Authority (NYSERDA) as part of Governor Andrew M. Cuomo's statewide Cleaner, Greener Communities Program.

The sustainability plan will provide baselines for greenhouse gas emissions and energy use and will develop regional goals and metrics to reduce greenhouse gas and improve the energy supply, transportation, water management, waste management, land use, open space, agriculture, housing and economic development in the region. Once the plan is developed, the region will apply for Cleaner, Greener Communities funding in 2013 to implement priority projects.

###

**CONTACT:** Sarah Boggess: (518) 792-3856, sarah.boggess@behancom.com

**MEDIA ADVISORY/DAYBOOK ITEM**
For Immediate Release: Sunday, July 22, 2012

**July 23 Public Workshop for Regional Sustainability Plan**

Coxsackie, NY – A public workshop will be held to gather citizen input for a Capital Region Sustainability Plan. The goal of this facilitated meeting is to yield ideas for improving sustainability practices in the following eight counties: Albany;Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren and Washington.

Representatives of the media are encouraged to attend. Photo opportunities will be available.

**WHEN:**

7 to 9 p.m., Monday, July 23, 2012.

**WHERE:**

Coxsackie-Athens High School

**ABOUT THE PROGRAM:**

A coalition of Capital Region municipalities and organizations is gathering input for a regional sustainability plan that isbeing funded by the New York State Energy Research and Development Authority (NYSERDA) as part of Governor Andrew M. Cuomo's statewide Cleaner, Greener Communities Program.

The sustainability plan will provide baselines for greenhouse gas emissions and energy use and will develop regional goals and metrics to reduce greenhouse gas and improve the energy supply, transportation, water management, waste management, land use, open space, agriculture, housing and economic development in the region. Once the plan is developed, the region will apply for Cleaner, Greener Communities funding in 2013 to implement priority projects.

###

**CONTACT:** Behan Communications Inc., Sarah Boggess: (518) 792-3856

**FOR IMMEDIATE RELEASE:** July 11, 2012

**Regional Sustainability Workshop To Be Held July 23 in Coxsackie**

Albany, NY – The public is invited to attend a workshop on Monday, July 23 from 7 to 9 p.m. at the Coxsackie-Athens High School to discuss the development of a regional sustainability plan. Community residents from a wide range of fields and expertise are encouraged to attend. The goal of this facilitated workshop is to yield ideas from the public for improving sustainability practices in the region.

The feedback gathered from the public workshops will assist in the development of a comprehensive regional sustainability plan that is part of Governor Andrew M. Cuomo's Cleaner, Greener Communities Program. This program, funded by the New York State Energy Research and

Development Authority (NYSERDA), empowers regions to create more sustainable communities through smart growth practices.

The regional sustainability plan is expected to include recommendations on land use, housing, transportation, infrastructure, energy and environmental practices. It also will highlight opportunities for achieving greenhouse gas reductions, energy efficiency savings and/or renewable energy deployment while enhancing job creation, economic investment and development consistent with the Regional Economic Development Council's strategic plan.

A coalition of Capital Region municipalities and organizations has received funding from NYSERDA to create the regional sustainability plan for the following eight counties: Albany; Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren and Washington.

The goal of the regional sustainability plan is to foster communities that have lower costs, more businesses and jobs, and an improved environment and quality of life.

Citizens also are able to provide feedback and input through the project website at www.sustainablecapitalregion.org. Individuals are encouraged to participate online before the workshops by posting their ideas on virtual sticky notes on county and community maps. Citizens unable to attend the workshop will be able to participate in an online open house after the event.

Project information also can be found on Twitter at @sustaincapreg; or on Facebook at facebook.com/sustainablecapitalregion.

###

**CONTACT:** Behan Communications Inc., Sarah Boggess: (518) 792-3856

**FOR IMMEDIATE RELEASE:** July 11, 2012

**Regional Sustainability Workshop To Be Held July 25 in Queensbury**

Albany, NY – The public is invited to attend a workshop on Wednesday, July 25 from 7 to 9 p.m. at the Queensbury High School to discuss the development of a regional sustainability plan. Community residents from a wide range of fields and expertise are encouraged to attend. The goal of this facilitated workshop is to yield ideas from the public for improving sustainability practices in the region.

The feedback gathered from the public workshops will assist in the development of a comprehensive regional sustainability plan that is part of Governor Andrew M. Cuomo's Cleaner, Greener Communities Program. This program, funded by the New York State Energy Research and Development Authority (NYSERDA), empowers regions to create more sustainable communities through smart growth practices.

The regional sustainability plan is expected to include recommendations on land use, housing, transportation, infrastructure, energy and environmental practices. It also will highlight opportunities for achieving greenhouse gas reductions, energy efficiency savings and/or renewable energy

deployment while enhancing job creation, economic investment and development consistent with the Regional Economic Development Council's strategic plan.

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The goal of the regional sustainability plan is to foster communities that have lower costs, more businesses and jobs, and an improved environment and quality of life.

Citizens also are able to provide feedback and input through the project website at www.sustainablecapitalregion.org. Individuals are encouraged to participate online before the workshops by posting their ideas on virtual sticky notes on county and community maps. Citizens unable to attend the workshop will be able to participate in an online open house after the event.

Project information also can be found on Twitter at @sustaincapreg; or on Facebook at facebook.com/sustainablecapitalregion.

###

**CONTACT:** Behan Communications Inc., Sarah Boggess: (518) 792-3856

**FOR IMMEDIATE RELEASE:** July 11, 2012

**Regional Sustainability Workshop To Be Held July 24 in Rensselaer**

Albany, NY – The public is invited to attend a workshop on Tuesday, July 24 from 7 to 9 p.m. in the Commons Room at The Doane Stuart School in Rensselaer to discuss the development of a regional sustainability plan. Community residents from a wide range of fields and expertise are encouraged to attend. The goal of this facilitated workshop is to yield ideas from the public for improving sustainability practices in the region.

The feedback gathered from the public workshops will assist in the development of a comprehensive regional sustainability plan that is part of Governor Andrew M. Cuomo's Cleaner, Greener Communities Program. This program, funded by the New York State Energy Research and Development Authority (NYSERDA), empowers regions to create more sustainable communities through smart growth practices.

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A coalition of Capital Region municipalities and organizations has received funding from NYSERDA to create the regional sustainability plan for the following eight counties: Albany; Columbia; Greene; Rensselaer; Saratoga; Schenectady; Warren and Washington.

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Citizens also are able to provide feedback and input through the project website at www.sustainablecapitalregion.org. Individuals are encouraged to participate online before the workshops by posting their ideas on virtual sticky notes on county and community maps. Citizens unable to attend the workshop will be able to participate in an online open house after the event.

Project information also can be found on Twitter at @sustaincapreg; or on Facebook at facebook.com/sustainablecapitalregion.

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**Appendix XX: Media Coverage**

**CLEANER, GREENER COMMUNITIES PROGRAM PUBLIC MEETINGS SCHEDULED**

By DAVE LUCAS
Published: October 01, 2012
WAMC

Gov. Andrew Cuomo's Cleaner, Greener Communities program has taken off: its mission is to Create Green Jobs, Improve Energy Efficiency, and Reduce Pollution ... Hudson Valley Bureau Chief reports the panel is making a mark in the Capital Region.

Announced by Governor Cuomo in his 2011 State of the State Address, the Cleaner, Greener Communities Program is administered by the New York State Energy Research and Development Authority. A coalition of Capital Region municipalities and organizations has received NYSERDA funding to create a regional sustainability plan for eight counties: Albany, Columbia, Greene, Rensselaer, Saratoga, Schenectady, Warren and Washington.

Doug Melnick is Director of Planning for the City of Albany, the lead municipality for the project, the entity that applied for the funds

Mike Tucker is President and CEO of the Center For Economic Growth - he defines sustainability as simply "good common-sense practices that both businesses and individuals can implement on the short term".

The Greener Communities panel will participate in three public workshops: Monday Oct. 1st at Union College in Schenectady; Tuesday the 2nd, at the Fort Ann School District in Fort Ann; and Weds. the 3rd at Columbia-Greene Community College in Hudson.

The meetings run from 7 to 9 p.m. focusing on topics including but not limited to land use and livable communities, water, transportation, energy and climate adaptation.

Learn how the program works:
Phase One: Creating Regional Sustainability Plans
Phase Two: Implementing Smart Development Projects

Direct Link To Story: http://wamc.org/post/cleaner-greener-communities-program-public-meetings-scheduled

**PULSE OF THE PEOPLE: GOV. ANDREW CUOMO'S CLEANER, GREENER COMMUNITIES INITIATIVE IS AN OPPORTUNITY**

Published: Friday, September 28, 2012
The Troy Record
Yasha Husain

Gov. Andrew Cuomo's Cleaner, Greener Communities initiative, an interdisciplinary approach to sustainability now in its planning stages, is an opportunity to push a sustainability agenda for New York state that relies on energy efficiency, renewable energy, and other carbon abatement measures.

Building on what's been developed by the 10 Regional Economic Development Councils, the CGC only stands to improve the state's efforts to go green in a way that's truly sustainable.

A bottoms up approach, the CGC is an opportunity for local experts, administrators and the public to draw up sustainability plans that best suit their region, before the plans are finally submitted to the New York State Energy and Research Development Authority, the agency that oversees the CGC, in January 2013.

Ten separate consortia, or groups, have been selected for the CGC to represent the same ten REDC regions the state has. The CGC sustainability plans by region are meant to run parallel to the strategic visions of the REDCs but also supplement them with focused and interdisciplinary green measures.

The regions, collections of counties representing every city, town and village, are larger in size than previous organizational models the state has used. This encourages planners to think outside-of-the-box to see how neighbors can pool their resources and collaborate their community-lain solutions. Solutions, mind you, that are meant to take into account the many different facets of community building and restoration, from agriculture to energy to landscaping and land use to revitalization of downtowns and main streets, to see how they overlap and can increasingly complement one another.

In the Mohawk Valley, six counties are represented by a consortia that is expecting to hear not only from local experts and administrators, but the public, during its planning stage, which has just begun and will continue until the end of the year. The six counties are Fulton, Herkimer, Montgomery, Oneida, Otsego and Schoharie. Nine other regions, set up similarly, are developing plans across the state. The Capital Region, too, is in the early part of its planning stage for the CGC.

There's $10 million in funding for Phase I of the CGC, planning, and $90 million for Phase II, implementation. The money comes from the Regional Greenhouse Gas Initiative (RGGI), the first mandatory, market-based regulatory effort in the United States that manages greenhouse gasses while also raising dollars to be used toward energy efficiency and renewable energy projects. The RGGI is a cooperative between nine Northeastern states, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

Planners of the CGC can look both to local and federal plans and objectives for inspiration, while they'll rely strongly on the knowledge of local teams, with input from the public, to address their unique needs.

With the CGC, a rare opportunity exists to shift the focus to energy efficiency and renewable energy from fossil fuels. Now is the time for New Yorkers, including in the Mohawk Valley and Capital District, to speak out about what their sustainability needs are.

Yasha Husain
Johnstown

Direct Link To Story:
http://troyrecord.com/articles/2012/09/28/opinion/doc506481d773d18268486705.txt?viewmode=fullstory

**GIVE INITIATIVE A CHANCE (Column)**

Published: September 20, 2012
By YASHA HUSAIN
The Leader Herald

Gov. Andrew Cuomo's Cleaner, Greener Communities initiative, an interdisciplinary approach to sustainability now in its planning stages, is an opportunity to push a sustainability agenda for New York state that relies on energy efficiency, renewable energy and other carbon abatement measures.

Building on what's been developed by the 10 Regional Economic Development Councils, the CGC only stands to improve the state's efforts to go green in a way that's truly sustainable.

A bottom-up approach, the CGC is an opportunity for local experts, administrators and the public to draw up sustainability plans that best suit their region before the plans are finally submitted to the New York State Energy and Research Development Authority -?the agency that oversees the CGC - in January 2013.

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The regions - collections of counties representing every city, town and village - are larger in size than previous organizational models the state has used. This encourages planners to think outside-of-the-box to see how neighbors can pool their resources and collaborate on their solutions. These solutions are meant to take into account the many different facets of community building and restoration - from agriculture to energy to landscaping and land use to revitalization of downtowns and main streets - to see how they overlap and can increasingly complement one another.

In the Mohawk Valley, six counties are represented by a consortia that is expecting to hear from local experts, administrators and the public during its planning stage, which has begun and will continue until the end of the year. The six counties are Fulton, Herkimer, Montgomery, Oneida, Otsego and Schoharie. Nine other regions, set up similarly, are developing plans across the state. The Capital Region, too, is in the early part of its planning stage for the CGC.

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market-based regulatory effort in the United States that manages greenhouse gasses while also raising dollars to be used toward energy efficiency and renewable energy projects. The RGGI is a cooperative between nine states: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

Planners of the CGC can look both to local and federal plans and objectives for inspiration, but they'll rely strongly on the knowledge of local teams, with input from the public, to address their unique needs.

With the CGC, a rare opportunity exists to shift the focus to energy efficiency and renewable energy from fossil fuels. Now is the time for New Yorkers, including in the Mohawk Valley and Capital regions, to speak out about what their sustainability needs are.

Direct Link To Story: http://www.leaderherald.com/page/content.detail/id/550233/Give-initiative-a-chance.html?nav=5004

**OUR VIEW: SUSTAINABILITY PLAN SEEKS YOUR INPUT (Editorial)**

Published: August 14, 2012
Register-Star

In his Aug. 2 column, Columbia Land Conservancy Executive Director Peter Paden talked about the Capital Region Sustainability Plan, which identifies strategies for area residents and businesses to live, operate and grow while using fewer resources. But don’t let the title fool you, this plan includes Columbia County.

A product of Gov. Cuomo’s Cleaner Greener Communities Program, the initiative has identified nine focus areas — energy use, food systems, land use, water resources, solid waste, transportation, economic development, governance and climate adaptation — for which ideas will be considered for improving performance efficiencies while minimizing energy usage and carbon emissions.

The point of this initiative? To improve the quality of life, enhance regional economic health and create job opportunities, while reducing carbon emissions, saving energy and speeding the deployment of renewable energy.

We know this is definitely attainable if we all work together. That’s where you come in.

The planning group behind the Capital Region Sustainability Plan is seeking input from everyone in the area who may have ideas on how to achieve this goal.

The sustainability initiative has provided an interactive regional map that allows anyone to review suggestions, comment on them and then post their own. If you go to the site, http://sustainablecapitalregion.org/share-ideas, and click on south counties (which will show you Columbia and Greene counties), you’ll find notes already posted. Many of them indicate existing projects, while a few indicate proposed projects and others suggest ideas/strategies.

It’s really an ingenious way of seeking public input, especially with so many regions involved. If you can’t make a public meeting, hop online and post it on the map. It also allows anonymity.

It's a great way for the public to get a better understanding of some of things already happening in our county. It's also a great source for people to bounce ideas off of each other.

One note suggests promoting human health benefits of outdoor recreation opportunities through support for open space and trail. Sound familiar? Right now, several towns in Columbia County are going back and forth about the Harlem Valley Rail Trail.

Paden stated that CLC believes "it is possible to conserve the qualities that make this county such a special place and at the same time build a healthy economy related to the realities of the region." All it takes is "intentional effort and thoughtful planning."

We couldn't agree more, which is why we encourage you to share your idea or ideas on the map before it closes to the public on Aug. 31.

Direct Link To Story:
http://www.registerstar.com/articles/2012/08/14/opinion/editorials/doc5029735696396016594202.txt

**A TALE OF 2 GREENS - ECONOMIC AND ENVIRONMENTAL**

Published: August 4, 2012
The Daily Mail

COXSACKIE — Is it possible to have both economic development and cleaner, greener communities at the same time?□□□□

That's precisely what planners are hoping to do across an eight-county swath — build stronger communities economically, that encourage growth of business and jobs, while at the same time lowering costs and improving quality of life.

A series of three sustainability public workshops have been held in Coxsackie, Rensselaer and Queensbury to get public input as the planning process takes off. Similar workshops are planned in other communities in the coming months. □□
□□
The eight counties involved in the initiative are Albany, Greene, Columbia, Rensselaer, Saratoga, Schenectady, Warren and Washington.□□

The Cleaner, Greener Communities Program was announced by Governor Andrew Cuomo as part of his 2011 State of the State address to encourage innovative ways for New Yorkers to live, operate and grow, using fewer resources. □□□□
The program is funded by the New York State Energy Research and Development Authority, and is taking place in two phases. □□□□

The first phase — taking place right now — is aimed at building a regional sustainability plan detailing how participating communities would like to see the region proceed, with phase 2 focusing on implementing the plan. □□□□

The focus of the Cleaner, Greener Communities Program is to "attract new jobs and to prepare the region for sustainable growth," said David Rooney, senior vice president of the Center for Economic Growth. □□□□

The goal, Rooney said, was “to build a smart sustainable regional plan … with an eye toward the future.”□□□□

Green initiatives can “go hand in hand with economic development,” he added. □□□□

Once the sustainability plan has been finalized, the group will likely be able to pursue grant money to implement it. According to planner Steve Wilson, there will be roughly $90 million in greenhouse gas grants out there, and if the regional sustainability plan is finished by the end of this year, they will be able to apply for them. □□□□

Competition for grant money, though, will be stiff.

The program involves two committees — an executive committee, with planners, public officials and community leaders from the eight participating counties, and a technical committee, which does the “heavy lifting.”

The latter is holding the public forums that took place in Coxsackie, Rensselaer and Queensbury last week, as well as online open houses that are open to anyone who wants to participate. Another round of forums will be scheduled for the fall.□□□□

“We are trying to involve as many people in the region as possible,” Wilson said.□□

Specific areas of discussion tackled during the Coxsackie meeting included climate adaptation, economic development, energy, food systems, land use and livable communities, transportation, solid waste and water.□□□□

Forum participants discussed initiatives that are already in place or in the works — such as the installation of solar panels in the Coxsackie-Athens Central School District and the growing popularity of farmer’s markets across the region — as well as ideas for what they would like to see in the future.

In addition to studying green initiatives across the eight counties, municipalities will be able to share their ideas — and perhaps begin implementing programs that are already taking place elsewhere in the region.□□□□

“We want to celebrate the work that is already going on in communities, capture it on a map, and then share it with other communities so they can share information and resources,” said Darin Dinsmore from Crowdbrite.□□□□

In some communities, resources have been preserved by re-using existing buildings and adapting them for new uses, “so you don’t have to use resources to build new facilities,” Rooney said.□□□□

Mixed use developments are another idea some communities have implemented, he said, that can save resources. For example, in one county a supermarket recently opened — with apartments above.□□□□

“In Saratoga, Price Chopper opened a new store and upstairs there are apartments,” Rooney said. “It helps meet a need for people in an urban environment, and they can do their shopping within walking distance.”

By installing solar panels at a school, he added - such as at Coxsackie-Athens — “they can offset some of their costs for energy, and not burn fossil fuels,” Rooney said.□□□□

Ultimately, the goal of the sustainability plan is to come up with ideas that can combine economic growth and job development with green initiatives so both can prosper.□□□

“We want to create new opportunities for growth in the region that balances with a very desirable quality of life,” Rooney concluded.□□□□

To input your own ideas for the regional sustainability plan, visit www.sustainablecapitalregion.org.□□□□

Direct Link To Story:
http://www.thedailymail.net/articles/2012/08/04/news/doc501cb7d74999d229008408.txt

**CLEANER, GREENER INITIATIVE TO BE AIRED**

Local workshop scheduled July 23 at C-A High School

By Jim Planck
Hudson-Catskill Newspapers
Published: Wednesday, July 18, 2012

COXSACKIE — NYS Governor Andrew M. Cuomo has created an initiative to improve both the state’s economy and its environment, with bettering the quality of life for its residents the specific goal.

The initiative is called the Cleaner, Greener Communities Program, and the first of three workshops for Capital District counties — Albany, Columbia, Greene, Rensselaer, Saratoga, Schenectady, Warren and Washington — will be held Monday evening, July 23, from 7-9:30 p.m. at the Coxsackie-Athens High School.

The immediate step is to develop a long-range sustainability plan for the eight county region, and the public is thus invited to attend and provide input at the workshop.

The plan, once written, is anticipated to address such things as “smart development practices” which are noted underpinning the sustainability of an area — whether a small community or a large region.

These practices potentially include concepts such as using renewable energy, controlling sprawl, building near existing neighborhoods, making walking and bicycling easier, and reusing developed land, among others.

The Greene and Columbia County representatives on the program’s leadership team executive committee are Rene VanSchaack and Kenneth Flood, respectively.

Technical committees include solid waste, transportation, energy, open space and land use, infrastructure, economic development, natural resources, and agriculture.

Monday's workshop is essentially to gather input and ideas that residents, business owners, community leaders, and elected officials in Greene and Columbia counties — identified in the project as the Southern Counties — think the state should put on its radar screen.

Funding for the Cleaner, Greener Communities Program comes through the NYS Energy Research and Development Authority (NYSERDA), which is providing $100,000 statewide for New York's ten regions to each create sustainability plans and adopt smart development practices.

For additional information, visit www.sustainablecapitalregion.org.

To reach reporter Jim Planck, call 518-943-2100, ext. 3324, or e-mail jplanck@thedailymail.net.

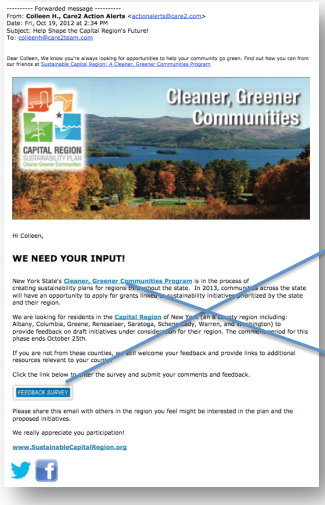
Direct Link To Story:
http://www.thedailymail.net/articles/2012/07/18/news/doc5006479a35247875959706.txt

# Final Report 2012 Campaign

**For more info Care2's cause marketing for nonprofits, please contact:**


Justin Perkins
303-475-4827
justin@care2team.com
www.frogloop.com


**Client Dedicated Email Blast to Care2 Action Alert Subscribers**



---------- Forwarded message ----------
From: **Colleen H., Care2 Action Alerts** <actionalerts@care2.com>
Date: Fri, Oct 19, 2012 at 2:34 PM
Subject: Help Shape the Capital Region's Future!
To: colleenh@care2team.com

Dear Colleen, We know you're always looking for opportunities to help your community go green. Find out how you can from our friends at Sustainable Capital Region: A Cleaner, Greener Communities Program



Hi Colleen,

**WE NEED YOUR INPUT!**

New York State's Cleaner, Greener Communities Program is in the process of creating sustainability plans for regions throughout the state. In 2013, communities across the state will have an opportunity to apply for grants linked to sustainability initiatives prioritized by the state and their region.

We are looking for residents in the Capital Region of New York (an 8 county region including: Albany, Columbia, Greene, Rensselaer, Saratoga, Schenectady, Warren, and Washington) to provide feedback on draft initiatives under consideration for their region. The comment period for this phase ends October 25th.

If you are not from these counties, we still welcome your feedback and provide links to additional resources relevant to your county.

Click the link below to enter the survey and submit your comments and feedback.

FEEDBACK SURVEY

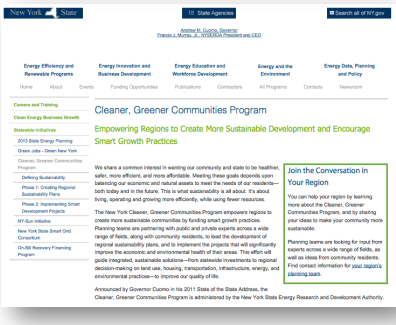
Please share this email with others in the region you feel might be interested in the plan and the proposed initiatives.

We really appreciate your participation!

www.SustainableCapitalRegion.org

Link to Survey

Links to Information (i.e. NYSERDA Landing Page)



# Email 1

**Sent:** 13,001
**Opens:** 1,568 **12.06%**
**Survey Clicks:** 77 **4.91%**

---------- Forwarded message ----------
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We really appreciate you participation!

**www.SustainableCapitalRegion.org**

# Email 2

**Sent:** 12,545
**Opens:** 1,451 **11.57%**
**Survey Clicks:** 97 **6.69%**

**There was a total of 158 clicks to websites linked in the emails (the New York, Cleaner, Greener Communities Program, and the Facebook and Twitter pages).**

---------- Forwarded message ----------
From: **Colleen H., Care2 Action Alerts** <actionalerts@care2.com>
Date: Tue, Oct 23, 2012 at 3:49 PM
Subject: Capital Region Sustainability Plan, Give us Your Input!
To: colleenh@care2team.com

Dear Colleen, time is running out to contribute to a cleaner, greener New York with our friends at Sustainable Capital Region: A Cleaner, Greener Communities Program

**ONLY TWO DAYS REMAINING TO SEND US YOUR COMMENTS**

Thank you to those who have already commented! For those of you who haven't yet, there are two days left to submit comments on the Initiatives under consideration for the **Capital Region's Sustainability Plan.**

We are looking for residents in the **Capital Region** of New York (an 8 county region including: Albany, Columbia, Greene, Rensselaer, Saratoga, Schenectady, Warren, and Washington) to provide feedback on draft initiatives under consideration for their region. The comment period for this phase ends **October 25th.**

If you are not from these counties, we still welcome your feedback and provide links to additional resources relevant to your county.

Click the link below to enter the survey and submit your comments and feedback.

FEEDBACK SURVEY

Please share this email with others in the region you feel might be interested in the plan and the proposed initiatives.

The Capital Region's Sustainability Plan is part of the **New York Cleaner, Greener Communities Program**, which is in the process of creating sustainability plans for regions throughout the state. In 2013, communities across the state will have an opportunity to apply for grants linked to sustainability initiatives prioritized by the state and their region.

Thank you for taking the time to give us your feedback!

Sincerely,

The Capital Region Sustainability Plan Project Team

**www.SustainableCapitalRegion.org**

**New York State Department of Environmental Conservation**
**Division of Water**
**Bureau of Water Resource Management, 4th Floor**
625 Broadway, Albany, New York 12233-3508
**Toll Free:** (877) 472-2619 • **Phone:** (518) 402-9185 • **Fax:** (518) 402-9018
**Website:** www.dec.ny.gov

Joe Martens
Commissioner

August 21, 2012

Mr. Jean Loewenstein
CHA Companies
3 Winners Circle
Albany, N.Y. 12205-0269
jloewenstein@chacompanies.com

**Re**: Foil No. 12-2460

Dear Mr. Loewenstein:

The Bureau of Water Resource Management, within the Division of Water (DOW), has received your Freedom of Information Requests dated August 15, 2012. Attached is an excel spreadsheet which contains the information you requested.

Sincerely,

Richard Kruzansky
Engineering Geologist

cc: Ruth Earl
Suzanne Anson

| FACILITY NAME | FACILITY COUNTY | FACILITY TOWN/CITY | POPULATION | Ave_Day(MGD) | Permitted(MGD) |
|---|---|---|---|---|---|
| Albany Water Filtration | Albany | Albany (C) | 101000 | 19.6 | 32 |
| Altamont, Vg | Albany | Guilderland (T) | 2000 | 0.158 | 0.612 |
| Arcady Bay Association | Warren | Hague (T) | 450 | 0.0093 | 0.165699 |
| Ballston Spa, Vg | Saratoga | Milton (T) | 5800 | 0.87 | 2.016 |
| Berkshire Farm Center | Columbia | Canaan (T) | 285 | 0.042349 | 0.1512 |
| Bethlehem, Tn WD #1 | Albany | New Scotland (T) | 31304 | 5.367 | 12.63 |
| Bolton Landing, City | Warren | Bolton (T) | 1800 | 0.198127 | 1 |
| Cairo WD | Greene | Cairo (T) | 725 | 0.096 | 0.145 |
| Castleton, Vg | Rensselaer | Schodack (T) | 2000 | 0.153 | 0.238 |
| Catskill, Vg | Greene | Coxsackie (T) | 8500 | 0.83149 | 3.024 |
| Chatham, Vg | Columbia | Chatham (T) | 2800 | 0.260846 | 1.58 |
| Chester WD | Warren | Chester (T) | 750 | 0.08 | 0.288 |
| Clarksville WD | Albany | New Scotland (T) | 480 | 0.028415 | 0.144 |
| Clifton Park Water Authority | Saratoga | Clifton Park (T) | 30000 | 3.19 | 5.6664 |
| Cohoes, City | Albany | Cohoes (C) | 16168 | 0.67416 | 11 |
| Coxsackie, Vg | Greene | Coxsackie (T) | 3000 | 1.051 | 1.872 |
| Diamond Point WD | Warren | Lake George (T) | 490 | 0.03744 | 0.288 |
| Fort Ann, Vg | Washington | Fort Ann (T) | 530 | 0.093604 | 0.687 |
| Fort Edward, Vg | Saratoga | Moreau (T) | 3152 | 0.379545 | 1.2 |
| Glens Falls, City | Warren | Glens Falls (C) | 13500 | 2.7 | 5.2 |
| Glenville, Tn | Schenectady | Glenville (T) | 15000 | 1.717189 | 5 |
| Gore Mountain - PWS | Warren | Johnsburg (T) | 2500 | 0.003384 | 0.108 |
| Grandview Water Works | Columbia | Kinderhook (T) | 120 | 0.21105 | 0.288 |
| Granville, Vg | Washington | Granville (T) | 2640 | 0.56 | 1 |
| Green Island, Vg | Albany | Green Island (T) | 4000 | 0.499949 | 1 |
| Greenport WD #1 | Columbia | Greenport (T) | 4400 | 0.528 | 1.8 |
| Greenport WD #1- Mt Ida | Columbia | Greenport (T) | 490 | 0.0218 | 0.25 |
| Greenville, Tn | Greene | Greenville (T) | 2400 | 0.054 | 0.2016 |
| Greenwich, Vg | Washington | Easton (T) | 2000 | 0.15 | 0.303 |
| Guilderland, Tn | Albany | Guilderland (T) | 30000 | 2.757 | 6 |
| Hadley, Tn WD #1 | Saratoga | Hadley (T) | 800 | 0.0353 | 0.4 |
| Hadley, Tn WD #2 | Saratoga | Hadley (T) | 997 | 0.0471 | 0.435 |
| Hampton Manor / Hillview | Rensselaer | East Greenbush (T) | 2440 | 0.13 | 0.5 |
| Heritage Springs Water Works | Saratoga | Milton (T) | 2580 | 0.184 | 0.62 |
| Hill Water Works | Columbia | Kinderhook (T) | 51 | 0.0921 | 0.12672 |
| Hoosick Falls | Rensselaer | Hoosick (T) | 4500 | 0.441419 | 1.4 |
| Hunter, Vg | Greene | Hunter (T) | 896 | 0.181 | 0.885 |
| Kinderhook, Vg | Columbia | Kinderhook (T) | | 0.11875 | 0.485 |
| Kiskatum Mobil Home Park | Greene | Catskill (T) | 102 | 0.005 | 0.1512 |
| Knolls Atomic Power Lab - Kesselring Site | Saratoga | Milton (T) | 2600 | 0.34 | 4.032 |
| Lake George, Vg | Warren | Lake George (T) | 1800 | 0.72 | 2 |
| Lake Luzerne | Warren | Lake Luzerne (T) | 2500 | 0.341 | 0.792 |
| Mechanicville, City | Saratoga | Stillwater (T) | 7700 | 0.97 | 1.5 |
| Mt McGregor CF | Saratoga | Wilton (T) | 750 | 0.072391 | 0.504 |
| Nassau, Vg | Rensselaer | Nassau (T) | 1250 | 0.14965 | 0.42 |
| Niskayuna Water Plant | Schenectady | Niskayuna (T) | 20295 | 1.4 | 3.65 |
| Philmont Vg | Columbia | Philmont | 1750 | 0.166 | 1.05264 |
| Pottersville Water Dist. | Warren | Chester (T) | 300 | 0.03 | 0.288 |
| Prattsville WD | Greene | Prattsville (T) | 438 | 0.025417 | 0.0648 |
| Princetown, Tn | Schenectady | Princetown (T) | 600 | 0.062711 | 0.187 |
| Queensbury WD | Warren | Queensbury (T) | 20000 | 5.209 | 15 |
| Rotterdam, Tn - Rice Road | Schenectady | Rotterdam (T) | 26000 | 3.85 | 10 |
| Rotterdam, Tn - Main St | Schenectady | Rotterdam (T) | 1900 | 0.22356 | 1 |
| Rowlands Hollow Water Works | Saratoga | Milton (T) | 1248 | 0.136 | 0.541875 |
| Salem Water Dept. | Washington | Salem (T) | 700 | 0.039651 | 0.4824 |
| Saratoga County Water | Saratoga | Gansevoort | 219607 | 2.86113 | 7.111 |
| Saratoga Springs, City | Saratoga | Saratoga Springs (C) | 26000 | 4.128 | 11.344 |
| Saratoga Water Services, Inc | Saratoga | Malta (T) | 7000 | 0.469 | 2.985 |
| Schenectady WTP | Schenectady | Rotterdam (T) | 61821 | 12.9 | 35 |
| Schodack WD #9 | Rensselaer | Schodack (T) | 308 | 0.144283 | 1.1664 |
| Schodack WD #1 | Rensselaer | Schodack (T) | 209 | 0.038685 | 0.18288 |
| Scotia Pumping Station | Schenectady | Glenville (T) | 12800 | 1.236536 | 5.99 |
| Shore Colony WD | Warren | Queensbury (T) | 100 | 0.004364 | 0.1224 |
| Silver Bay Association | Warren | Hague (T) | 999 | 0.03 | 0.158 |
| South Glens Falls, Vg | Saratoga | Moreau (T) | 3700 | 0.59 | 1.57 |
| Stillwater, Vg | Saratoga | Stillwater (T) | 1644 | 0.309718 | 0.5 |
| Stockport, Tn | Columbia | Stockport (T) | 2000 | 0.152 | 0.604 |

| | | | | | |
|---|---|---|---|---|---|
| Tannersville, Vg | Greene | Hunter (T) | 1021 | 0.25344 | 0.40032 |
| Troy,City - John P. Buckley WTP | Rensselaer | Troy (C) | 130000 | 18.49 | 32 |
| Voorheesville, Vg | Albany | New Scotland (T) | 3100 | 0.348 | 0.864 |
| Warrensburg WD | Warren | Warrensburg (T) | | 0.414532 | 1.08 |
| Watervliet WTP | Albany | Watervliet (C) | 10254 | 2.84 | 5 |
| Whitehall, Vg | Washington | Whitehall (T) | 2000 | 0.625 | 2.016 |
| Wilton Water & Sewer Authority | Saratoga | Wilton (T) | 8298 | 0.652 | 3.03984 |
| Windham Mountain - PWS | Greene | Windham (T) | 338 | 0.049883 | 0.1152 |
| Windham Water District #1, Hensonville | Greene | Windham (T) | 860 | 0.081438 | 0.2102 |
| North Creek WD | Warren | Johnsburg (T) | 1000 | 0.153032 | 0.4824 |
| Northeast WD (New Scotland, Tn) | Albany | New Scotland (T) | 305 | 0.022068 | 0.0936 |
| Northwood Water Company | Saratoga | Milton (T) | 1280 | 0.0944 | 0.1584 |

**Sample Resolution**
**Supporting Implementation of the Capital Region Sustainability Plan**

WHEREAS, the (insert local government) is making a commitment to be a regional leader in the reduction of greenhouse gas emissions; and;

WHEREAS, the (insert local government) supports sustainable development by reducing energy consumption, developing infrastructure to facilitate sustainable development, and supporting efforts to reduce greenhouse gas emissions and conserve non-renewable resources; and

WHEREAS, the Capital Region Sustainability Plan recommends sustainability initiatives related to Climate Adaptation, Economic Development, Energy, Food Systems, Water, Solid Waste, Transportation and Land Use and Livability; and

WHEREAS, the Capital Region Sustainability Plan is intended to inform implementation of sustainable land use policies, serve as a basis for infrastructure design and decision-making, guide viable investment of both public and private resources, outline specific and tangible actions to reduce greenhouse gas emissions consistent with New York State's goal of 80% carbon reduction by the year 2050, and identify strategies for adapting to the effects of climate change; and

WHEREAS, the (insert local government) wants to create, integrate, and manage orderly and sustainable development and growth; manage costs and revenues to achieve efficient operations; support and encourage sustainability, livability, and pride in our neighborhoods; enhance local and regional agricultural activities; aggressively attract and retain diverse businesses; promote healthy lifestyles for all segments of the community; and provide a safe environment for our residents, businesses and visitors; and

WHEREAS, the (insert local government) believes that it is no longer acceptable to allocate public resources based solely on financial considerations, but rather that decisions on local land use, policies and programs must also take into consideration the environmental health, economic strength, and social well-being of our communities; and

WHEREAS, implementing the Capital Region Sustainability Plan will promote energy conservation and the development of renewable energy sources; reduce greenhouse gas emissions; promote sustainable economic development; improve the quality of life; and result in long term cost savings; and

**NOW, THEREFORE, BE IT RESOLVED** that the (insert local government):

1. Supports the implementation of the Capital Region Sustainability Plan; and

2. Will incorporate the principles of sustainability outlined in the Capital Region Sustainability Plan into land use decisions, budget considerations and local government operations; and

3. Will take into consideration the following sustainability elements in future local government actions:

    A. The life-cycle costs and benefits to the environment;
    B. Quality of life;
    C. The well-being of citizens and employees;
    D. Overall livability as it pertains to our community; and
    E. The local and regional economy.

PASSED, ADOPTED, AND APPROVED at the meeting of (insert Board/Council/Commission) of the (insert local government) on this (date of meeting).

Signed

**Technical Committee Comments**

The following is a summary of comments from the Technical Committee on the draft Sustainability Plan.

| | Comment | Responsibility for addressing comment | Response to comment |
|---|---|---|---|
| 1 | The bullets on pg 2 and 3 note examples of the region becoming more sustainable. We should add the CDTC Linkage Program. Here's language to pull from:*The Linkage Program is one of the most significant cooperative regional efforts in the nation to reflect, in practice, what representatives of the region's counties, cities, towns and villages as well as state and local transportation providers have adopted as policy. In recognition of this regional achievement, the Linkage Program received a 2010 National Planning Excellence Award from the Federal Highway Administration, the Federal Transit Administration and the American Planning Association.As of March 2012, CDTC has funded a total of 73 collaborative, jointly-funded studies over the past eleven years. Study sponsors have included 40 separate urban, suburban and rural municipalities and counties as well as not-for-profits and other public entities. Roughly $4.7 million in federal, state and local funds have been committed to the Linkage Program since its inception in 2000.* | SW | Additional text has been added |
| 4 | We should also mention the number of communities that have taken the Climate Smart Communities Pledge, and that CDRPC is managing the Climate Smart Communities Pilot program. | SW | Additional text has been added |
| 5 | For the maps on page 2, the counties and central cities should be labeled and a layer showing minor civil division boundaries should be added. also might want to delete the word "legend"). | SW | Comment is noted |
| 6 | Not sure why Figure 1.3 is where it is. A better graphic would be a census tract map of percent poverty, since pockets of poverty are mentioned in the adjacent text but there is no map showing where the pockets of poverty are. | SW | New figure has been added |

| | Comment | Responsibility for addressing comment | Response to comment |
|---|---|---|---|
| 7 | The third paragraph on pg 10 states that:The current public transportation system in the Capital Region is adequate in the urban centers but fails to create regional accessibility making it difficult to attract workers outside of cities, as well as providing limited access to jobs for low-income urban residents. Addressing the public transportation system will…This makes it sound like the issue is the public transportation system rather than the real issue, which is the sprawling low density auto-oriented land use patterns in these outlying areas that thwart their viability as transit hubs. | SW | Comment is noted |
| 8 | Keep sub-category names consistent throughout the document i.e. "food" vs., "food systems". References on page 1-7, table of contents, technical committees | SW | Comment is noted; consistency within document has been corrected |
| 9 | Page 1-4 Mention all forms of governemnet in paragraphc 2. | SW | Additional text has been added |
| 10 | What about GE advanced manufacturing battery factory in Schenectady using technology developed at GE's Global research Center in Niskayuna? Since 2009, GE has added more than 1,400 new jobs for the local economy. GE continues to invest in the $180M GE Healthcare Digital X-Ray Detector Plant that has delivered more than 100 new jobs in the RPI Tech Park. GE also recently added on the Schenectady Campus its Renewable Energy headquarters, which has created 650 jobs. | SW | Additional text has been added |
| 11 | Seems like we should discuss CDTA here and the BRT initiatives for Central Ave. and Western Ave. | SW | Additional text has been added |

| | Comment | Responsibility for addressing comment | Response to comment |
|---|---|---|---|
| 12 | What are these maps supposed to show? They seem meaningless to me. They look like the same map. It might be more useful to show decline in city populations and increasing development in the suburbs and I-87 corridor. Maybe population density change over a longer period of time might show something useful. I'm sure CDRPC has a useful map. | SW | maps have been deleted |
| 13 | Why a slide identifying ethnic groups when the text is discussing poverty in the cities? Seems to me we should show a map depicting the concentration of poverty in the region. What does this slide tell us? You are also mixing race and ethnicity. | SW | table has been deleted |
| 14 | Hasn't the public workforce declined significantly in the past 10 years? Do we anticipate further reductions? How about a slide showing regional employment by sector over the past 10, 20 years. | SW | Comment is noted; we attempt to collect data and include in final version |
| 15 | I don't think you should say the public transportation system is failing. I personally think CDTA is doing a good job serving the community. The public transportation system will never be able to service spread out development in much of suburbia nor should it even try to given limited funding. I thought the emphasis as discussed in the Transportation section is on technology improvements for transit and BRT. | SW | Comment is noted |
| 16 | What does this statement about debt tell us? What challenge does it exemplify? It may be very important but I'm not sure why. | SW | Sentence is indicating that many communities in the region are under financial stress |
| 17 | This map is indiscernible to me. Do we need 20 land cover classifications? Perennial ice and snow? No glaciers around here. Emergent Herbaceous wetlands v. woody wetlands? It also seems out of place with the discussion topic on this page. | SW | Map has been deleted |
| 18 | The only other comment that I have is in the introductory pages about the region and you mention the Port of Albany, I think it is important to point out that this is a Year Round, Deep Water Port. | SW | Comment is noted |

| | Comment | Responsibility for addressing comment | Response to Comment |
|---|---|---|---|
| 1 | Page 19, 20, How many people participated? | SW | Comment is noted; final number will be provided |
| 2 | What is CEG?What is CGC? I'm all for acronyms, but this too similar to CEG and unfamiliar to me, which makes it hard to read. | SW | Comment is noted |

| | Comment | Responsibility for addressing comment | Response to Comment |
|---|---|---|---|
| 1 | With regard to page 3-10; table 3.8 - please list my program as a partner in the Promotion of Green Infrastructure as we are the only program in the region with a concerted, accredited, and fully implemented curriculum training the professionals in the development industry how to design/build GI systems and individual practices. | | |
| 2 | With regard to page 3-11; table 3.9 – would it not be better to highlight specific tools/resources/methods of vulnerability and other assessments aimed at the modification of local land use law governing development? For example, with regard to review/integrating Green Infrastructure into local land use law/code/ordinance the US EPA's Water Quality Scorecard. This would, to me, impart a much greater knowledge on the subject, direction, and state-of-the-art awareness of these issues and the means we have at our disposal to address them. Isn't that the point of this document? That we know what's wrong, we know how to address the issues, we just need the funding to realize the solutions. Isn't that what we are attempting to demonstrate here? | | |
| 3 | I have one comment regarding the narrative for the climate change and food systems sections. I really think we need to talk about the threat climate change is posing to local food production. We should reference recent significant weather events resulting in extremely serious crop loss that occurred in the Capital Region such as: (1) 2011 crop loss due to severe flooding associated with Hurricane Irene and Tropical Storm Lee; (2) 2012 crop loss due to the 90 degrees plus temperatures in March followed by subsequent freezes that destroyed a significant portion of the tree fruit crop followed by the drought which impacted many fruit, vegetable and field crops | | Comment will be addressed in final plan. |
| 6 | Even as we plan for aggressive action to build local food systems, damage to Capital Region agriculture from climate change is already occurring. | KL | Comment is noted |
| 7 | 3-2, would high ozone levels be considered under climate hazards? If so, that seems pertinent to sustainability. | KL | Not typically; that is a regulated air quality issue and currently the Capital Region is in an attainment area for national ozone standards |
| 8 | Page 25 – I think this chart of disasters is unclear in some way. Is this per capita? I would guess (and maybe I'm wrong) that flooding affects many more residents than tornadoes…shouldn't the breadth of affect be a factor in consideration? A debilitating and costly disease affecting 1 in 250,000 is an important consideration, but an entire health care approach should not be built around that – it should be built around addressing the 150,000 who have "every day" illnesses related to poor nutrition or lack of exercise. | KL | The table is about total costs. I will change the y axis to show larger numbers rather than the x10,000 |
| 9 | Table 3.8, in the table the correct name is Stormwater Coalition of Albany County (intentionally named so as not to be confused as a county department) | KL | change made |
| 10 | Page 3-8: could the "land bank best practice" be moved from climate adaptation to econ dev section since that is where it is mentioned? | KL | change made |

| | Comment | Responsibility for addressing comment | Response to Comment |
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| 11 | There should be some discussion/reference to the MS4 consortiums in Table 3-8. Also, may want to comment in that section that there are initial efforts underway pertaining to the Climate Smart Communities Program being coordinated by CDPC in partnership with VHB and Climate action Associates. | KL | Climate Smart Communities is mentioned in Table 3-8. Will add MS4 Consortium |
| 12 | Section 3 - There needs to be a more thorough discussion of how the climate impacts affect the region. There is some discussion of flooding and storms, but no details concerning how these impacts affect us - road washouts, flooded wastewater treatment plants, power outages. The property damage statistics are a good start, but do not tell a complete story, especially since the numbers are so skewed by the tornado event. This discussion should be expanded upon, as it helps to support the goal of resiliency. For example, what exactly is at risk in Figures 3.6 & 3.7? Could specific facilities be labeled to make it clear how that predicted flooding will affect the area? | KL | More detailed information is in the appendices. We will provide additional info in the final plan. |
| 13 | In your discussion promoting Green Infrastructure, you may want to comment about the issue/difficulty of municipal oversight assuring the long term functionality of storm water infiltration mitigation measures on individual residential parcels. | | |
| 14 | Page 3-1 last paragraph makes it seem that the Adirondacks have warmer summers than in Columbia Co. Just because Glens Falls is in a bowl that doesn't get much air flow doesn't mean that the rest of the area around it suffers from the same weather. The climate in Rensselaer County varies greatly and can't be categorized by the data from Troy in the same respect. | KL | We will review data to see if it can be adjusted. However, there may not suffiecient breakdown in the data to make that distinction. |
| 15 | Page 3-2 A bullet should be added for Blizzards/Severe Winter Storms | KL | change made |
| 16 | Page 3-3 A storm surge that is either wave driven such as a tsunami or wind driven such as the storm surge from Hurricane Sandy would have a hard time making it through the zig zags (curves) in the Hudson River that are found at Peekskill, Hastings and around Bear Mountain. The curves would help wave actions cancel themselves and the hills would reduce the amount of wind action on the river itself. | KL | |
| 17 | Figure 3-7 is missing low-lying marsh and farm field areas along the Papscannee Creek which would flood if there were 16 inches rise in the river level. Papscannee Creek is tidal. | KL | will work with GIS to address in next iteration |

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| 18 | On the section Climate adaption, I believe ICE Storms and Shoulder Season Leaf On Snow Storms have a greater regional impact than do tornadoes, in that they impact a much larger area power outages, and transportation is impacted severely. As such some mention of these storm impact may be worthy of mention; Last year we barely missed the Oct. 30, 2011 nor'easter that severely impacted Connecticut and Mass. Below are examples of such storms that have impacted the Region covered by this Sustainability Plan.<br><br>Note: below are 4 significant storms<br>New York Severe Winter Storms (DR-1196) affected : Incident period: Monday, January 5, 1998 to Saturday, January 17, 1998 Major Disaster Declaration declared on January 6, 1998<br><br>New York Severe Winter Storm (DR-1827)<br>Incident period: Thursday, December 11, 2008 to Wednesday, December 31, 2008<br>Major Disaster Declaration declared on March 4, 2009<br><br>New York SEVERE WINTER STORM (DR-801)<br>Sunday, October 4, 1987<br>Major Disaster Declaration declared on Tuesday, November 10, 1987<br><br>December 4-5, 1964 Albany Tines Union December 4, 2009 at 8:18 am by Phil Falconer<br>Today marks the 45th anniversary of the ice storm of December 4-5, 1964 — arguably one of the most devastating ice storms to have affected our area in the past hundred years. In eastern New York, storm effects were felt from Canajoharie east to the New England border and from Albany north to Glens Falls. | KL | The narrative was related to costs to the region. However, we will revisit this with the Final Plan. |
| 19 | I would agree with Jim. Tornados are somewhat cyclical around here, with periods of none and then more. Ice storms and early/late snowstorms are regular and becoming more damaging as the area gets more tree cover. Add the push for more urban trees as green infrastructure and the damage should be expected to grow, unless electrical and communications infrastructure is put | KL | |
| 20 | Page 3-5 Please identify the global climate change model mention in second paragraph | KL | Will addressed in the Final Plan |
| 21 | Page 3-6 Consider reformatting data in table by age | KL | ?? |
| 22 | Under the promote green infrastructure priority initative it should be noted that Counties do not have land use control authority so they should not be included under the local government level of implementation | KL | change made |
| 23 | Page:25 I think this figure is mislabeled- 3.1? Does it make more sense to show the actual amounts? I don't think the bar graph is a good choice. Is this a one year snapshot or multiple years? Shouldn't you analyze multiple years? Are we saying tornados are the biggestthreat? It may be true but seems strange to me. | KL | this is a costs table not a threat table, we will address language in the next round of edits. |

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| 24 | Page 31 Is this true? Seems to me that some municipalities have formed what are essentially stormwater districts. Niskayuna? | KL | we will look into this |
| 25 | I'd start with "The Capital Region has already started to see changes in its weather due to climate change. Climate and weather are often confused... " Later on in the report, you describes some of the impacts from the climaid report and some evidence of that happening in our region. I think it might be helpful here if you summarized some of those impacts in plain language, perhaps in a table. e.g., ClimAID predicted warmer temperatures earlier in the year would cause major agricultural losses. In March 2012, when 90 degree weather in caused early blooms that were destryoed by frost. Fruit trees were most affected, with X% of the crop lost, causing $X in losses (geographic region). Add something about the coastal and inland flooding from the storms, and extreme heat days. | | |
| 26 | No mention of shorelines or even riparian areas. On page 3-9 and other places initiative "Protect and enhance critical habitat,floodplains, and wetlands that are under threat from climate change." This covers shorelines and riparian areas implicitly if not explicitly. | KL | will address next round of edits |
| 27 | You can note that superstorm Sandy caused storm surge in our region, including damage in Greene County. | KL | ok |
| 28 | Historical weather patterns already indicate warming trends for New York State. The New York State Department of Environmental Conservation's Hudson River Estuary Program documents the following climate trends for the state (NYS Department of Environmental Conservation, 2012):The trends stated should use a primary reference. I suggest changing the word documents to lists or points out. | | |
| 29 | simplify where you can, just use "models" instead of an acronym. | KL | change made |
| 30 | Sea level rise is extremely likely this century and could cause the tidal Hudson River, which extends up to the dam at Troy, to rise 18 inches by the 2080s.<br><br>Revise to Sea level rise is extremely likely this century. For the tidal Hudson River, which extends up to the dam at Troy, the downscaled projections of the GCM show sea level rise between 8 and 18 inches by the 2080s, and under the a rapid ice melt scenarios the projections are 37 to 50 inches.<br>See: Table 5.1 ClimAID Assessment sea level rise projections (Page 125) | KL | change made |

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| 31 | Page 29: This is not about adaptation: it is about energy conservation. Here are two adaptation examples:<br>The New Hampshire Coastal Adaptation Workgroup<br>The New Hampshire Coastal Adaptation Workgroup is a collaboration of 16 organizations working to help communities in New Hampshire's Seacoast area prepare for the effects of extreme weather events and other effects of long term climate change. The workgroup provides support to coastal communities who will be most affected by climate change, including information, workshops, and<br>technical assistance. http://nh.stormsmart.org/<br><br>The City of Kingston, NY<br>Kingston is a city on the Hudson River with a historic downtown vulnerable to flooding. The City's Conservation Advisory Council is engaged in a community-driven process to address the challenges of waterfront flooding, especially in the face of sea level rise. A task force made up of representatives of businesses, property owners, institution, and government will assess the waterfront's greatest vulnerabilities and opportunities. In 2013, the task force will make recommendations to ensure a secure, prosperous waterfront for many<br>years to come. http://kingstoncac.org/index.php/initiatives | | |
| 32 | I think you need to zoom in more and use a caption to make this figure more clear. If this is storm surge you might use a close up on the map and a picture of the recent flooding in Albany or Greene County as a result of Sandy to better tell the story | KL | will address next round of edits |
| 33 | Page 31 Don't use the acronym here. Write it out or call it "environmental review" | KL | change made |
| 34 | Page 33 How do these relate to the new commissions related to Sandy? | | |

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| 1 | Section 4 - There is not a strong enough connection between the baseline indicators and the goals. The baseline indicators don't point to issues that would be addressed by the goal. It is very unclear how helping small business will address poverty or the H&T index, for example. It may be useful to explain the connections between the indicators and goals in this section. | SW | Additional narrative was added under the discussion of the priority initiatives to link goals with initiatives. We agree that the priority initiatives are not directly related to the H & T index, which is one of the indicators. The H &T Index was required by NYSERDA for all regions, which is the reason it is included. The more appropriate indicator that ties to priority initiatives is the change in median household income. |
| 2 | Intro about strong economy may also include comments that "disparities are increasing within region" (i.e. concentrations of poverty that we believe new economic development strategies can help address) | SW | Additional narrative was added. |
| 3 | Critical that reinvestment in existing infrastructure be highlighted | SW | It was the intent of the priority initiative related to land banking was to highlight the need to invest in existing infrastructure. |
| 4 | Would be helpful to drill down data to cities &/or neighborhoods to draw attention to & support our priority strategy of investing in urban/village/built-up areas/poverty concentrations/housing/transportation costs | SW | The scale of the plan covers 8 counties. It is not possible at this time to provide data sets that drill down beyond the county level. |
| 7 | Table 4.5, ED Goals & Initiatives - For goal 2, "expand economic opportunities…," would like to the add "expanding the Community Loan Fund" identified as an initiative; we, of course, are engaged in community & economic development, small businesses, neighborhood revitalization, reducing poverty, socially concerned investing, etc. throughout all 8 counties in the plan | SW | Additional narrative was added to the Table 5.5. |
| 8 | I just have a couple of comments on the ED portion of the paper. The section where you list the goals and the resources, you might want to consider National Grid as a resource and partner for the land banks in that we have grant programs to assist with site clean up and electric and gas infrastructure installation for brownfields. We also have funding for electric and gas infrastructure for any sites that become NYS Build Now sites. | SW | Additional narrative was added to table 5.6 |

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| 9 | Additionally, we have funding to help with getting vacant commercial and mixed use buildings in main commercial corridors in villages and cities back into productive use. I know not every area in the region is in National Grid Service territory, but the majority of the region is. | SW | Additional language was added to table 5.6 |
| 10 | We also have programs to assist with Energy Efficiency and Productivity improvements for diary farmers which includes the installation of solar. | SW | Comment noted. |
| 12 | With regard to page 4-7; table 4.6 – is there some other way to show the positive impact of regional land banking? The grant is geared to reward GHG reduction and here we seem to have selected the "low" reduction potential for our top 3 priorities…again, it would seem we are not taking this seriously. I understand that land banking only holds the line as a GHG-sink (CO2) but isn't there a better way to represent that? | SW | GHG reduction was upgraded to medium for two of the priority initiatives. |
| 13 | How will CEG be involved with expanding Green Jobs Training? | SW | It was the intent to have CEG assist in coordinating and bringing together all of the regional partners who provide green jobs training, since CEG is only regional agency who supports the 8 county region. |
| 14 | How can multiple land banks be implemented on a regional basis? | SW | As the table suggest, this will require multiple partnerships between municipal governments to develop multiple land banks. |
| 15 | Page 38 With workplaces shifting to more suburban locations could it be more of a reflection of housing costs? | SW | That may be part of it. But the H & T index combines housing with transportation as they are such a significant part of any household budget. |
| 16 | Page 35 You can summarize the table information here, you don't need to repeat it all. | SW | The narrative has been edited. |
| 17 | Page 38 Explain the figure first, then explain how you got it. Who is the audience for this? If it is the public, you don't need all the detail about the index or the acronyms, you could just say, "A common measure of affordability shows that housing and transportation costs are not affordable in most of the Capital Region." | SW | The narrative has been simplified. |

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| 18 | Page 38 Is the index figured by the median income of the whole region or of each census block? I'm guessing the latter. There would be very different results if you determined the index the other way because the affordable areas also have lower incomes. | SW | The comment may be correct; however the current Center for Neighborhood Technology, who establishes the index, does not allow that calculation at this time. |
| 19 | Page 39 This is awkwardly worded. Maybe after"... improving the micro-economic environment of the Region," add "in contrast with the economic development approaches of other programs" and delete the juxtaposition phrase. | SW | The narrative has been edited. |
| 20 | Mention areas of concentrated poverty? | SW | Figure has been added to show poverty concentrations |
| 21 | There is not a governance structure outlined for small business support program | SW | Governance structure has been provided |
| 22 | P. 4.7 Table 4.6 (now 5.6) - is there some way to show the positive impact of regional land banking? | SW | We attempt to provide data and include in final plan. |

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| 1 | Table on pg 50 has CDRPC as the recommended Implementer of a revolving energy efficiency fund. A better implementer would be the Community Loan Fund of the Capital District. | JBH | Community Loan Fund of the Capital District was added as a recommended implementer of the proposed program. |
| 2 | The third paragraph on pg 46 mentions the Climate Smart Communities program but does not mention the Climate Smart Communities Pilot program managed by CDRPC. In the six-county pilot region there are currently 16 Climate Smart Communities, not "several. | JBH | The six-county pilot program has been mentioned and is noted to have 16 participants. |
| 3 | Page 44, Table 5.1 I question the validity of arriving at the Capital region's energy usage-by-sector by simply prorating Statewide energy use based on population. Also, we are using 2008 energy data but 2011 population data. Is it important to figure out the Capital region's energy usage-by-sector? Can we provide the use-by-sector graph for the State and simply state that our region's use-by-sector is assumed to be the same as the State; thus eliminating region level numbers that have no firm basis. | KH/JBH/MT | **1.)** Energy use has been computed for the regional GHG inventory. Electricity and natural gas consumption are based on actual utility data. Other fuel use is disaggregated from state level data, accounting for household heating type (residential), commercial employment (commercial), etc. This is consistent with the NY State Greenhouse Gas Inventory Protocol developed specifically for the Climate Smart Communities and Cleaner Greener Communities programs. This is 2010 energy data. **2.)** All Tables have been checked to ensure they include most up-to-date data |
| 4 | Page 44, Table 5.3- How was the capital region energy use/capita computed? Is this based on actual energy use data provided by the various utilities and divided by population data? Since this metric is listed as an indicator on page 105, Table 12.1 for measuring the success of the plan, it needs to be a good verifiable number that can be measured throughout the plan implementation phase. | KH/JBH/MT | **1.)** Energy use was taken directly from the GHG inventory and calculated with Census data. Because the GHG inventory methods follow a statewide protocol, numbers can be updated consistently over time within and across regions. The Protocol was developed with ability to track metrics in mind **2.)** All Tables have been checked to ensure they include most up-to-date data |

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| 5 | Page 45, Table 5.2- Again, I question the validity and the need for the numbers in this table. For example, Table 5.4 lists zero electric generation facilities in Schenectady; yet the Co2 from electric generation and distribution for Schenectady is higher than Warren, Washington and Columbia counties that do have power plants. Do we need to provide this level of granularity when it is not valid? | KH/JBH/MT | **1.)** It is correct that there are no electric generation facilities in Schenectady County. However, the Energy Generation and Supply number for the inventory includes Electricity and Natural Gas transmission and distribution losses. The emissions reported for Schenectady include emissions associated with T&D losses of electricity and natural gas. This total is NOT counted under the consumption categories, so it is NOT double counted. It was decided by the Protocol Working Group to report under Energy Generation and Supply because actions to reduce these emissions would mostly come from the generation side. **2.)** A footnote has been added to this table noting this. **3.)** All Tables have been checked to ensure they include most up-to-date data |
| 6 | Page 49, even though the other initiatives are not ranked, could we move the Smart Grid to the very top as it was highly ranked in public forums? I know that at the Executive Committee meeting, I defended our Committee's decision to keep PACE and revolving fund as two separate initiatives; thus bumping Smart Grid to #4 and out of the top 3 list. After reading the report, I am having second thoughts. Personally, I am starting to think Smart Grid should be in the top 3 list and one way to do that would be to combine PACE and Revolving fund under one item. Again, I am just one person and I understand this is a committee decision. Pradeep, your thoughts? | KH/JBH/MT | Public forum ranking was considered when ranking initiatives. Making a change at this time is not feasible. |
| 7 | Some discussion of On-Bill financing as an alternative to PACE should be included here. I would also like to see a recommendation that the State authorize On-Bill financing for residential Solar Projects. | JBH | On-bill financing is already available in NYS for energy efficiency projects via a nyserda program. On-bill financing for solar could be a seperate recommendation, however, we are not at a point to add recommendations at this time. No changes will be made. |
| 8 | Page 43 – grammar issue. It is not correct to use "both…but". | JBH | This sentence was revised. |
| 9 | "technologies, both as an environmental objective, but also as a way to reduce energy costs and spur economic development." | JBH | |

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| 10 | Page 45 – the electric generation table. This is number of what, individual generators? As far as hydro, can a size range be given, or a customer number? It's quite different to have 11 small turbines each powering one home or 11 commercial producers powering several hundred homes each. I have noticed that several tables don't indicate unit of measure….."per capita" for one example…In addition, how does this electric generation by type inform us? What are we to get from this? | JBH | **1.)** This table will be revised to show nameplate generation capability, not individual generators. **2.)** All Tables have been checked to ensure they include most up-to-date data AND appropriate labels |
| 11 | Page 45 – I would also think that the solar PV number is only what is on-grid. NYSERDA would not know of the individual units someone ordered on-line. There should be a qualifier here. | JBH | A footnote has been added. It should be noted, however, that this would comprise a very small (<1%) share of PV systems. |
| 12 | Page 47 – poor grammar/structure. "While efficiency upgrades are typically viewed as a worthy investment with a real payback, environmental benefits, and improved building performance, the reality is for many property owners—particularly residential and small business owners—they simply do not have the upfront capital to make the investment." | JBH | This sentence was revised. |

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| 13 | Page 51. I am glad to see reference to other work happening in the region(s) but sad to not see anything about the Climate Action Plan draft developed by NY State in 2010. This incredibly comprehensive and detailed plan could inform much of this report, and should be cited somewhere for reference, as could/should the State Energy Plan. In the CAP, the buildings sections go into stretch codes and adoption process and recommended goals. There is also a significant adaptation section that relates to all of this work, and which I so for don't see in this plan. We will have to adapt. Finally, the CAP worked very hard to identify co-benefits across the topic areas. I see the "related policies" sections in the policy priorities listings, but wish they were more developed and more prominent. I would applaud a final listing of chosen policies in order of which ones affect the most benefits. So if one policy in energy affects 4 other areas, then that is made a top priority. | JBH | **1.)** CAP and State Energy Plan were consulted when generating this report. We will add them to the list of works cited. **2.)** Chosen policies and recommendations were judged, in part, based on their "co-benefits". This was not the only criteria on which recommendations were judges, however. |
| 14 | What is considered clean energy, Page 5-1 | JBH | revised to say "renewable energy" |
| 15 | Any projected energy usage data available? Its in water section, something similar here? What about impact of our dependence on electricity for all aspects of data management, communication, trans, internet, cloud computing. We are keeping servers cool--that takes energy. | JBH | It is not feasible to make regional projected energy use estimates given the scope of this project and complexity of that task. The overall growth projection from 2011 to 2021 is around 1% according to NYISO. We determined that including these estimates does not provide any added value to the report and thus they will not be included. |
| 16 | Page 5-3 says solar has little impact on environment. What about during development? | JBH | revised to say "its use" |
| 17 | Table 5.8, should note quality compost is needed for green infrastructure and native plants | JBH | This comment likely references another section and was erroneously given to the Energy committee |
| 18 | Page 44 We seem significantly below (54%) U.S. energy use. Is this a point to elaborate on? What is the trend in usage? Are we increasing/decreasing per | KH/MT | For comparison, NYS Ranks 2nd of the 50 states and capital region would rank 4th when compared to other states |

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| 19 | Page 45 Is the amount produced by type of generation more important than number? While there are a lot of hydras, do they produce most of the energy? | JBH | The chart will be revised per another similar comment. |
| 20 | page 45 What does this mean? Is it an indicator of how many solar panels have been installed? Is there a way to say it in plain language? | JBH | Number of panels is not typically used in reference to pv system size. Furthermore, it is impossible to discern the number of panels since panel size vary's (from ~150-300W). No change will be made. |
| 21 | Page 46 Mention the benefits? like technical assistance? | JBH | Added detail |
| 22 | Page 47 Please address somewhere that one size does not fit all for energy efficiency. In particular,with a large historic building stock in the region,that we address energy efficiency in historic buildings is differently than those built in the 70s or newly built is an important | JBH | The report recommended an energy efficiency building code. Differences in buildings would be considered under the particular implementation mechanism(s) the code utilized. |
| 22 | Can we talk about our region's energy sources? We have a very clean mix - good for ev's. | JBH | We elaborate later in the report. |
| 22 | (Table 5-1) How does this compare to other regions? Their inventories should be done. | JBH | Don't have other regions. |
| 22 | (Table 5-1)Do we have the results from other regions to compare to? | JBH | No |
| 22 | (Table 5-2) Include a row for per capita. How do the counties compare? | JBH | Did not include. This table is total(s) by county. Per capita did not fit. |
| 22 | (Table 5-2) Add a row for total ghg emissions? | JBH | OK, sum columns |
| 22 | (Table 5-4) amounts generated?<br>While this is generation in the region, doesn't our overall supply include nuclear? | JBH | Yes, made this change. This section focuses on Generation. The generatio mix chart was also added. |
| 22 | (Table 5-5) Totals?<br>What percentage of total regional energy use does this translate to? What about all renewables? | JBH | We describe solar pv because it's the greatest in-region generation. The generatio mix chart was added. |
| 22 | Under the current status quo, as the Capital Region's population grows, energy usage will increase as housing, commercial space, transportation, and the need for goods as services increase to meet this growth. The key to a sustainable region is to grow while minimizing the need for unnecessary energy consumption. | JBH | Rephrased |

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| 1 | I would love to see something about the creation of a Food Policy Council in our region if possible. I do think we talked about this at some of our meetings. The bullet that currently exists about Reestablishing a Regional Food and Agriculture Coalition for the Capital Region may be getting at some of the same things, although it sounds much more practical, and isn't explicitly talking about policy creation or working to establish better laws and policies at the local and state level related to food systems, which seems very important in this conversation as well. Maybe we need to debate this more with the others from that committee, but it seems important enough to warrant mentioning, or perhaps adding to the paragraph about the regional food and agriculture coalition as something to identify or figure out if it should be included within that or a separate entity. | AV | Updated the description to add "identify needs, gaps, and advocate for and promote the region's agricultural sector, including investigating local, regional and state food policies" |
| 2 | I was in the Food Systems group. One of our priorities as to establish a Regional Food Policy Council. It appears that this is folded into the Regional Food and Agricultural Consortium, which is fine. But part of the role of the food policy council was to look at increasing access to healthy food, hunger abatement and food justice. These ideas don't come across in the description of the consortium in the document, yet are an important part of strengthening our regional food system. | AV | Added "address hunger abatement and food justice". Access to healthy foods was already in the description (part of the first sentence). |
| 3 | I don't think that Skidmore College should be listed as a potential funding source in Table 6.3. I'm not sure what that means, we may have been talking about helping do research about funding, but not funding it on our own as an institution other than potentially utilizing it to obtain foods for our dining hall. Just to be clear, I think the college's name should be removed from that column, but I would love to stay in the column about partners. | AV | Removed Skidmore College from Funding Column under 'Create a Food Hub' initiative |
| 4 | I would like local colleges/universities or even Skidmore College explicitly to be added to the list of partners in Table 6.3 about establishing a regional food and agricultural coalition for the Capital Region. | AV | Added "Skidmore College and other higher education institutions" |
| 5 | Page 6-1, I find the regional baseline confusing. If that is correct that the average farm business generates $3.5 million dollars in sales, does that mean sales from the farm? We may want to word it differently. It's confusing next to the statistic that points out that over 1/2 of farms have sales of less than $10,000. If there are large farms in a particular region or agribusiness #'s that skew the average, I think that should be pointed out. | AV | I updated the next sentence so it describes this better. The agricultural sector is what is mentioned. The agricultural sector is more than just farmers, it's processing, distribution, transportation, etc. The next sentence now reads: "In addition to farming, the agricultural sector includes businesses that process, transport, warehouse, distribute, and harvest agricultural products." |
| 6 | 6-3, the Capital Region Strategic Plan reference should be part of Food Process & Distribution section not a separate heading. | AV | Steve - this needs to be fixed on your end. It's not in the Word document. |
| 7 | Figure 6.1, can you make the food deserts transparent? | AV | ???? I'm not sure how to update the map… |
| 8 | Page 6-4, there were at least 20 farmers markets in Albany County this year. What's the source of the Farmers Market data? | AV | Apologies - the source was missing. It's from the NYS Department of Agriculture and Markets: http://www.agriculture.ny.gov/ |

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| 9 | Page 6-6, under current initiatives credit should be given to counties and local municipalities for developing and implementing Agricultural and Farmland Protection Plans, Right to Farm Laws, and Ag economic development and to the Soil and Water Conservation Districts, and USDA Farm Service Agency and Natural Resource Conservation Service who assist farmers with land conservation and farm management programs. | AV | Provided a bulleted list of this support |
| 10 | Page 6-8, Create a food hub for regional food processing, storage, and distribution. I think one of the first steps for this might be to determine the actual food shed which might not coincide with the NYS economic development region. I don't think this is mentioned anywhere. | AV | Added: The first step in implementing this initiative would be to define the 'food shed.' It will be important to understand the geographic boundaries of the area that the food hub will need to serve to identify the stakeholders and understand capacity needs for the hub. |
| 11 | Page 6-9 I believe that with the exception of a Regional Farmland Protection Plan, the other initiatives referenced exist at some level. So perhaps changing the wording from "create" to expand or "build upon" would be more appropriate? | AV | I am hesitant to revise the wording. Through the work of the Technical Committee, we crafted language that would both recognize existing programs and create new ones. The idea here is that many of these exist locally and not regionally. |
| 12 | Table 6.4, under the first initiative, would governance come into play? The closest thing we have to a food hub now is Menands Market which is governed by a Board. What structure is envisioned for the food hub referenced? | AV | This is local government governance - what role do local governments play in implementing these initiatives? |
| 13 | This section looks good. I wonder it would be possible to do some feature boxes for other groups like was done on page 6-6 for Capital Community Gardens (great work, but only a limited service area compared to Region). For example- (a little self-promotion here) CLC has initiated a farmer-landowner match program Since its inception in 2009 our Matching Program has facilitated 21 successful matches so far on more than 1,000 acres of land, and we have established a list of 82 landowners and 77 farmers actively seeking leasing arrangements. Last month CLC's Farmer Landowner Match program received national coverage when a story written by the Associated Press was picked up by a multitude of news outlets across the country including ABC News, Wall Street Journal, Washington Post and the San Francisco Chronicle, just to name a few. To view a copy of the article, see here: http://bigstory.ap.org/article/programs-us-match-fledgling-farmers-landowners. AFT is now looking at creating a more regional program servicing the capital region and Hudson Valley. http://clctrust.org/working-farms/farmer-landowner-match-program/ | AV | At this point, I'm not sure we can do the research for additional call-out boxes. If we can, we definitely will though, and CLC is a great example! |
| 15 | The one other concern I have had is that we have not focused enough on farmland protection – as without land, there will be no food production. I know its referenced here and a was a priority in the strategies under land-use, but I think there could be more attention to incentivizing land protection throughout the plan as smart growth and open space planning obviously benefits not only agricultural, but also water quality, climate change, and transportation etc. | AV | |

| | Comment | Responsbility for addressing comment | Response to comment |
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| 16 | Page 55 – it would be great to highlight the definition of "food desert". This is an important term and used several times. I had to back-track t pick up the definition – maybe in a box would be good? Or right under the map of food deserts. | AV | Will be added |
| 17 | Another general comment. I feel like a lot of the selected policies are so obvious (in all sections), I wonder if we need to include a barriers paragraph in each chapter. Why have these things not been successfully done before if they are so clearly needed? What are the barriers – especially the barriers that must be actively removed, like if there is a law about only selling food near a source of potable water (I'm making this up) then we would either have to remove the barrier by installing potable water systems where we sell food or by changing the law and addressing the health and cleanliness in another real way. The "barriers" column in the charts seems to only talk about the anticipated barriers in implementation, but not the real existing barriers we face today. Maybe I'm trying to go too deep? | AV | This is a general comment for the entire plan. |
| 18 | Page 56 – I also highly recommend citing the obesity rates in progression – I saw a presentation on the Active Design guidelines and they showed rates in NYS each year dated from 1990 and projected to 2030 and I was flat out terrified. | AV | At this point, it may be difficult to do this research. We will investigate it, however. |
| 19 | Page 6-1. 4th paragraph. I don't know where the Capital Region Economic Development Council got its data from, but we are updating the Rensselaer County Agricultural and Farmland Protection Data and most of the farms were part-time enterprises and had much less than $1 million in sales. Of course, if you were to limit it to the larger dairy and grain operations, this may be true. | AV | It's ALL agricultural businesses including transport, production, etc. It really covers a lot. |
| 20 | The representation below is at least 7 years old and very much wrong. In fact was never really rue. In the last Census our population growth was 2 (two) people. Over the last ten years Columbia County had a growth of LESS than 200 housing units per year. So please remove this statement it just is too bias. Please remember that population in upstate NY is declining. "While the Capital Region's agricultural economy continues to be strong, farmland in the region is vulnerable to sprawl-type development. An analysis of farmland and development patterns by the Columbia Land Conservancy in Columbia County found that the amount of land in agricultural use was declining, replaced by a growing number of residential subdivisions.12" ALSO to state that "7,500 in Columbia County live in food deserts." is very misleading. It comes that the City of Hudson, within its boundaries does not have a supermarket. But within less than a mile there exists a shoprite and price chopper. | AV | Updated the sentence to remove: "replaced by a growing number of residential subdivisions.12" including the reference. |
| 23 | Page 6-10 is CDCG a willing partner? | AV | Yes - they attended all of the Technical Committee meetings and agreed to be the responsible party |
| 24 | Page: 53 What is the relevance of DEC lands to Agricultural Districts? The farmland/farms loss is not necessarily related to development. Many times it is just land going idle or farmers retiring. | AV | Will confirm. |

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| 25 | Page 54 There is no tax abatement for enrolling in the Agricultural District! Farmers qualify for tax abatement (ag. value assessment) based on farm income. No need to be in the District. | AV | Removed reference to tax abatements. |
| 26 | Page 54 The Ag. District Program tends to protect farm operations more than farmlands. Farmlands in the Ag. District are not subject to any land use restrictions and can be developed at any time subject to local regulations. | AV | Noted. Thank you! |
| 27 | Page 54 Any recommendations to simplify/change the Permitting process? | AV | I'm not sure what this is referring to, unfortunately. |
| 28 | Page 56There are no food deserts in rural parts of the Cap Region? | AV | The data was from the USDA Food Desert map. It didn't indicate there were any Food Deserts in the rural part of the region. Here is the source: http://www.ers.usda.gov/data-products/food-desert-locator/download-the-data.aspx |
| 29 | Page 55 Center for Disease Control | AV | Changed CDC to Center for Disease Control (CDC) |
| 30 | The primary tool is the farmland protection program not the Ag Districts program. Ag districts have minimal protections. Putting land into a conservation easement protects land from future development. P. 7-2 under food processing and distribution: Are there any studies assessing the processing and distribution capacity in the region? Otherwise, this should be included as a recommendation. | | We will attempt to find studies regarding this. |
| 31 | The Capital Region Economic Development Council Strategic Plan encourages the creation of "an urban kitchen incubator in one or more of the Capital Region cities to encourage food entrepreneurs who need access to a licensed commercial kitchen and want to work with locally-produced ingredients in their start-up food retailing or catering businesses."18 Providing adequate processing and distribution facilities, located more strategically throughout the region, can improve profit margins for farmers helping to keep the Capital Region competitive within the larger agricultural economy and remove the barrier for new farmers to process and distribute their products. - Is there any feasibility studies to support this need? | SW | We will attempt to find studies regarding this. |
| 32 | The representation below is at least 7 years old and very much wrong. In fact was never really true. In the last Census our population growth was 2 (two) people. Over the last ten years Columbia County had a growth of LESS than 200 housing units per year. So please remove this statement it just is too bias. Please remember that population in upstate NY is declining. | SW | Comment is noted |

| | Comment | Responsbility for addressing comment | Response to comment |
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| 33 | While the Capital Region's agricultural economy continues to be strong, farmland in the region is vulnerable to sprawl-type development. An analysis of farmland and development patterns by the Columbia Land Conservancy in Columbia County found that the amount of land in agricultural use was declining, replaced by a growing number of residential subdivisions. Page 12 also states that 7,500 in Columbia County live in food deserts. This is very misleading. It comes that the City of Hudson, within its boundaries does not have a supermarket. But within less than a mile there exists a shoprite and price chopper. | | |

| | Comment | Responsbility for addressing comment | Response to comment |
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| 1 | Page 64 – this chart on population growth is MUCH more usable than the chart early in the report! | N/A | Comment noted. This is a comment about a table earlier in the document. |
| 2 | Page 65 – the chart on poverty is clear but it is distracting that we cannot read the first three bits of information. I suggest either spelling out what these are… | NB | This chart has been expanded for clarity. |
| 3 | On Table 7-2, please add CDRPC to the list of Housing & Economic Development agencies. We are the designated Economic Development District by the EDA as well as the grantee for the Foreign Trade Zone program. | NB | CDRPC is included in Table 7-2. |
| 4 | On Page 7-3, the reference to the TDR program in Saratoga County is not fully accurate. It is something that is being promoted but only Clifton Park has a similar program, (somewhat of a hybrid between incentive zoning and TDR since they do not have receiving and sending districts identified in the town. The program only applies to the western part of Clifton Park and higher density allowances are permitted if an equal number of acreage is preserved or if there is a fee paid that can then be used for fee simple or PDR purchases on selected parcels. It is not a county wide program. Coincidentally, there will be a session on TDR's at the Saratoga Planning conference in January and I, along with several others, will be on the panel discussing the opportunities and challenges of communities instituting TDR's as a land use tool. I would keep in the reference to Saratoga Plan but would revise the lead in to more accurately reflect what is currently on the ground. | NB | The TDR callout box has been modified to address this comment. |
| 5 | On Table 9-5, confirm with Chris re: CMAQ money. Will no longer be available for the CDTC MPO area. Not sure about Glens Falls. | VHB (JJ) | To be confirmed |
| 6 | Overall – the goals and initiatives don't seem to follow smoothly from the baseline data. There should be an explanation. | NB | To be addressed |

| | Comment | Responsbility for addressing comment | Response to comment |
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| 7 | Beginning in italics: change “valuing” to “improving” | NB | "Valuing" was used since it is the language from the source that is being cited |
| 8 | Land Use Overview pages 7-1 to 7-2: C-CAP imagery. Is it even worth having this in there? | NB | C-CAP data was included since it was the best readily available data source that covers the entire eight-county study area |
| 9 | 3.3 square miles (2112 acres) dev’ped 1996-2006 but 2002-2007 lost 45,000 acres of farmland (page 1-4)???? Then says actually much more land was developed then says table shows development was for open space and low density. Table is C-CAP – would that show up on C-CAP? | NB | The Land Development in the Capital Region table was missing. This table has been added. |
| 10 | Land Use Overview – second paragraph, “As shown in Figure 7.1, most of the land developed…” That’s not what Figure 7.1 shows (it’s not change) | NB | The Land Development in the Capital Region table was missing. This table has been added. |
| 11 | Land Use Overview – last paragraph first sentence change ending to “process that sets priorities for land use regulation.” | NB | This sentence has been modified accordingly. |
| 12 | Aging Population – “Also, it is important to ensure that such areas” – “such areas” needs to be defined (areas where seniors live?) (denser, mixed use areas?) | NB | The sentence has been clarified based on this comment. |
| 13 | TDR box – the example case merely reiterates the definition of TDR already stated | NB | The TDR callout box has been modified to address this comment. |

| | Comment | Responsbility for addressing comment | Response to comment |
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| 14 | Housing – housing affordability index – is this more useful than housing AND transportation index? We talked about this in the committee meetings. | BVO/NB | The housing index was used since it provided data for all eight counties within the region. The Housing and Affordability index is a great tool, but there are some areas within the Capital Region for which is no data available. |
| 15 | Housing affordability index – text says housing less affordable – not true in all counties shown. | NB | This statement was revised to clarify that housing in the region overall has become less affordable. |
| 16 | Greenhouse gas emissions – what is the point of the table – maybe follow by an explanation. Better to show emissions by land area or by population – such as by including another column. Need source info and methodology (on-road attributed by trip or by mile?) | KH/NB | As described in the text, this table provides GHG emissions from activiteis related to land use. Emissions by land area are not available. We did run numbers for per capita emissions (see Energy chapter).<br>As for the source, it is the 2010 Capital Region Tier 2 Regional Greenhouse Gas Inventory. Methodology is too detailed to add here, but on-road emissions are calculated using Vehicle Miles Traveled. The VMT numbers used are consistent with those included in the Transportation chapter.Sources have been included in the text |

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| 17 | Page 7-7 – Greenhouse gas reduction "likelihood" instead of "potential"? Amount to be reduced is irrelevant, according to the description | KH | Language around the criteria that were used for evaluation/prioritization will not be modified at this point. This was formally adopted by the Executive Committee. |
| 18 | Page 7-1, figure 7.1, This chart and description don't really present a compelling reason to address sustainability as it shows only 6% of the region being developed. I think something is lost in addressing land use on a regional scale without explaining that there are huge differences in land use throughout the region. Maybe an urbanized area growth map might be helpful. Or a historical land use % reference? Or use figure 1.4 here instead? | NB | 1) This is a good point which is why the next paragraph focuses on the pattern of development that is occurring, minimal as it may be percentage-wise. 2) Figure 1.4 is now also referenced here. |
| 19 | Table 7.2, Housing & Economic Development Organizations…Would like to add "Community Loan Fund of the Capital Region" (http://www.mycommunityloanfund.org) as a group identified (we have been engaged in such work for 27 years and serve the entire 8 county region) | NB | The Community Land Fund organization has been added to table 7.2 |
| 20 | Albany County Housing Trust Fund no longer exists (and was never a "true" housing trust fund, though it is a tool that could be utilized throughout region…that's a whole other discussion) | NB | This organization has been removed from table 7.2 |
| 21 | Table 7.5 – is this supposed to be the total cost of all potential projects or of each project that might fall under the particular initiative? If the cost is for individual projects, I would put the cost of the first initiative at $-$$ since a smaller re-zoning project could be done for under $100,000. | NB | These costs provide a general range, but that is not to say that some smaller plans can't be completed for less. |
| 22 | Table 7.5 again: Repair and modernize infrastructure – could additional implementers and/or partners include water districts, private developers, public authorities? | NB | These entities have been added to Potential Partners list. |

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| 23 | And table 7.5 once more: I think that the greenhouse gas reduction potential is for the second two initiatives is underestimated on the table. Although it might be difficult to quantify the Greenhouse gas reduction potential of infrastructure upgrades, this initiative could be given a rating of "medium." One example might be increasing capacity of water and sewer systems in an area targeted for dense development: there would be a quantifiable reduction on greenhouse gas emissions that could be attributed to this type of project which could be calculated by looking at the relative energy costs of distributing water/collecting sewer to the same number of EDUs over a smaller area as opposed to a larger area. For the third initiative, the greenway plan, greenhouse gas reductions could be easily calculated by looking at the carbon sequestration potential of protected open space and/or the potential greenhouse gas emissions prevented by NOT developing the land dedicated to the greenway. So in summary, I suggest that #2 be changed from "Low" to "Medium" and that #3 be switched from "Low" to "High" | KH/NB | No more changes will be made to the ratings. These went through an extensive evaluation process cannot be change at this point. However, regarding suggestion 1,There is simply no way to quantify that without much more specific baseline and implementation detail for specific locations; regarding suggestion 2: , It is a plan, and a strategy to develop a plan was ranked as "low" because developing the plan does not reduce GHGs. Implementing specific actions of a plan does that. |
| 24 | I thought we had decided that the first initiative - Modify local codes and regulations…- was supposed to be broad enough to encompass several other initiatives, but the other initiatives are still listed in the plan separately. Specifically, it seems a little confusing to list "Implement land conservation practices into land use planning and zoning" and "Update zoning for transit-oriented development" as distinct initiatives. Perhaps those should be left of the "losing" initiative list… | BVO/NB | |
| 25 | Page 7-2, top paragraph, 3rd sentence. Figure 7.1, according to its title, shows the land use and not the land use change or development. This line doesn't make sense with the data provided. | NB | The Land Development in the Capital Region table was missing. This table has been added. |

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| 26 | Page 7-7, Repair and Modernize Existing Infrastructure could have a medium greenhouse gas reduction potential, depending on what gets modernized. The upgrading to energy-efficient water and sewer infrastructure can save a lot of energy. The Rensselaer County Sewer District #1 has save incredible amounts of energy and therefore $$$ in some of its upgrades that have paid for themselves. | NB | The $-$$$ range in table accounts for costs, not cost savings. |
| 28 | The pie chart is labeled “Land Use” but is actually land cover. Land use is residential, commercial, industrial, etc. | NB | The title for Figure 7.1 has been changed to "Land Cover" |
| 30 | On the bottom of page 63 the sentence should read: The amount of developed land, however, is underestimated since this data is based strictly on Landsat satellite imagery, which is captured in 30 meter by 30 meter pixels and therefore often fails to document small scale/low density development. | NB | This sentence has been modified accordingly |
| 32 | The top of pg 63 states: As shown in Figure 7.1, most of the land developed in the region during this period, was for open space and low density residential uses. You should delete the words “open space and” in this sentence. | NB | The sentence accurately reflects the data as is. |
| 34 | A proportionate symbol map of net population change by minor civil division would be much more effective at illustrating population change than the Figure 7.2 graph. And an actual land use map based on tax parcels would also be much better than the land cover image that’s shown. From tax parcels you can also extract residential parcels by “year built” to actually show where the sprawl is. A proportionate symbol map of net building permits over time could also be used to show development activity by minor civil division. | | This is a good suggestion. However, due to the scope and schedule restraints of this project, such a detailed analysis was not possible. |
| 35 | | | |

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| 36 | p.7-1 under Land Use Overview – My read of it is that there is no data set illustration for the discussion of the change in land use from 1996 to 2006 that's discussed in the second paragraph; however on page 7-2 in the top paragraph there is discussion of land developed as shown in Figure 7.1 which is inaccurate. The second to last sentence in that paragraph is misleading. I would suggest a summary sentence for the two paragraphs should read something like this: Between 1996 and 2006 the consensus in the planning community is that there has been an increase in sprawl outside of the traditional urban areas. The number of building permits issued during that time would show the increase in development, particularly in the municipalities surrounding the larger cities. | NB | The Land Development in the Capital Region table was missing. This table has been added. |
| 37 | Maybe it would be helpful to explain briefly the difficultly in summarizing land use changes over time in such a large geographic area. The footnote on C-CAP at the bottom of 7-1 gets at this point, but I think you need to be a planner to understand it. With the limited time on this project and the vast geographic area it was very difficult to describe or illustrate the baseline data needed to support what we knew as a technical committee. I think that should be stated in some way. | | This is a good suggestion; however, inluding it in the body of the report might break the flow of the discussion. Consideration will be given to including this in a footnote. |
| 38 | p.7-2, 2nd paragraph – "individual communities have the opportunity to provide zoning…" instead of "have to provide zoning". Just to clarify that zoning regulations are not mandatory, a lot of people assume they are. | NB | The sentence was modified per comment. |
| 39 | p.7-3, The shaded box at the top of the page on Saratoga seems out of place with the discussion of poverty and population. Maybe reposition on another page and add a heading with "An example of a municipal tool to address problems of sprawling development". | NB | The TDR callout box has been relocated so that it is not part of the Poverty section. |

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| 41 | On page 65 there should be census tract-based maps of poverty, homeownership, housing value, tenure, and household income to illustrate the spatial distribution of these attributes, which are discussed in the narrative. This data is readily available from www.census.gov | NB | This is good suggestion. However, due to the scope and schedule of this project , such a detailed analysis was not possible. |
| 42 | Page: 64 How does Figure 1 show us how most of the land was developed during this period. Doesn't Fig. 1 just show land cover? What is meant by developed for open space? | NB | The Land Development in the Capital Region table was missing. This table has been added. |
| 43 | Page 64 What are we trying to say here? It's not surprising that increased development leads to some increase in population. It seems to me the issue is where the population growth/development has occurred and it what form. | NB | This section is providing an overview of population growth at the region-wide and county-wide levels and points out that growth in last decade is higher overall than in the previous decade |
| 44 | Page 64 Is this difference in the rate of population change really dramatic? Is there anything insightful we can say here? What parts of the region are leading this growth? Are the cities experiencing additional growth? Seems that Schenectady and Rensselear growth rates changed the most. | NB | This section is providing an overview of population growth at the region-wide and county-wide levels and points out that growth in last decade is higher overall than in the previous decade |
| 45 | Page 55 Center for Disease Control | d Systems Chapter comment. | |
| 46 | Page 63 Land Use or Land Cover? | NB | The figure title has been changed to" Land Cover" |
| 47 | Page 65 Are you sure Saratoga County has a TDR program? That's news to me. | NB | The information here is based on information provided in the Saratoga Plan |

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| 48 | Page 65 A map showing poverty concentration might be useful here. The bar chart doesn't really tell you anything | NB | This is a good suggestion. However, developing a detailed poverty concentration map was not possible within the project scope and schedule. If more time and budget become available, developing such a map will be considered. |
| 49 | Page 65 What is the home ownership rate and median household income in the CR? | NB | These numbers are provided on the first paragraph of the Housing section in this chapter. |
| 50 | Page 66 Would it be useful to show housing affordability index for other metro areas? Isn't affordability a perceived strength of the area? What's going on with the 2000 data? Affordability went way up between 1990 and 2000 and seems to have fallen significantly between 2000 and 2006. Is this worthy of some discussion? Was 2006 the peak of market values? Can we make some assumptions for this index for 2012 since housing values have generally dropped between 2006 and 2012? | NB | To be addressed |
| 51 | Page 66 Are these a listing of housing assets or regional economic assets? Aren't housing assets more like the quality of housing stock, variety of housing types and afford ability? | NB | This is a good distinction. This section will be modified to be clearer about what types of assets it is referring to. |
| 52 | Page 68 While form based codes may be good, you can modify codes to encourage more traditional, dense and walkable land use patterns without necessarily adopting a form based code. | NB | This is a good point. However, the Regional Initiative statements cannot be modified at this point in the project since they were developed through a series of Technical committee workshops. If an opportunity arises to revisit the statements, this suggested modification will certainly be considered. |

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| 53 | Page 63 Why limit this to DEC lands? There are other State lands, as well as local and private conservation lands. These data are available from the NYSDEC and the National Conservation Easement Database. Let me know if you need help accessing it. | NB | The text has been modified to note that there are other local and private lands beyond NYSDEC lands. |
| 54 | As shown in Figure 7.1, most of the land developed in the region during this period, was for open space and low density residential uses. This may be indicative of an increase in sprawl. This sentence is counter intuitive for the average reader. Open space does not equate to development. | NB | This figure and supporting text has been modified to clarify that this is developed open space which can include recreational and very low density residential uses. |
| 55 | There are better resolution data to describe sprawl, esp. for the 4 county CDPRC region. | NB | Data used for this study were generally limited those that could be readily obtained for all eight counties within the Capital Region |
| 56 | Ilove TDR programs! However, the reality is that their complexity makes it difficult for communities to implement such a program. Clifton Park has a wonderful program, but they also have the capacity to administer such a program (high tax base, planners on staff). Is there another example that might be more accessible to more communities | NB | This is a good point. If time and budget on this project permit, further research on other example TDR programs will be conducted. |

| | Comment | Responsbility for addressing comment | Response to comment |
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| 57 | Page 68 This goal was initiative was broadened using those from other tech committe areas. In the Climate adaptation committee there was much talk about protecting specific resources to adapt to and mitigate climate change, including addressing Hudson River marsh migration due to Sea level rise, protecting floodplains to reduce property damage from more frequent flood events, protecting wetlands to maintain flood storage, protecting forests to manta in carbon sequestration, etc. These important specifics were lost when added to this section. I suggest outlining the important components of such a plan that were raised by the tech committees, eg. trails and recreation, natural areas that help people adapt to climate change, farmland I saw that in food systems), and others. From past experiemce I know that when you are not specific about natural resoruces, they tend to be ignored. | NB | The format of this report is such that goals are worded as they were developed by the Technical Committees over several workshops. |
| 57 | (Figure 7.1) add time period | NB | The figure title has been modified to include the year. |
| 57 | pg 7-2 Can we get a summary of who has a comp plan or even zoning? Shows the importance/opportunity of governance. | NB | This is a great idea. If remaining project schedule and budget allow for it, compiling such a list will be considered. |
| 57 | pg 7-2 Where is Columbia's red bar (Figure 7.2) | NB | No red bar means there was no change in population for that county between 2000 and 2010 |
| 57 | pg 7-3 - Can we see the entire names?<br><br>Data source?<br><br>Feel like we need more discussion on poverty.<br><br>Relationship of poverty to school performance? | NB | The figure was modified to show entire labels and the data source has been cited in the accompanying text. |

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| 57 | 7-4. Median Value of owner occupied units - What are they? | NB | The average median value of owner occupied units in the Capital Regions was $188,400 in 2010, as is noted in the text. |
| 57 | 7-4. Housing Affordability Index - clarify the the higher number is more affordable. | NB | This has been clarified in the text that the higher the number on the index, the less affordable housing is. |
| 57 | pg 7-5. Special needs, supportive services, and affordable housing needs to be spread throughout the region and not concentrated in a few locations. | NB | This comment has been incorporated into the chapter text. |
| 57 | pg 7-5. Table 7.3 GHG Emmisions - Why just residential? Isn't commercial and industrial important? | KH | As noted in the text leading to that table, commercial and industrial energy emissions are important but less relevant for the goals and initiatives under LULC. The LULC strategies are more likely to impact residential energy emissions (sustainable housing, compact development), and on-road transportation (reduction of VMT from certain strategies). |
| 57 | pg 7-6 form-based codes - green codes. eco-district overlays, LEED-ND guidelines. Identify a best practice? Buffalo's Green Code? | NB | The Regional Priority Initiative statements cannot be modified at this point in the project since they were developed through a series of Technical committee workshops. If an opportunity arises to revisit the statements, this suggested modification will certainly be considered. |

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| 57 | pg 7-6 "The other initiatives not included in the top three are listed below in order of their ranking:" - detailed in appendix? | NB | Yes. The inititaive ranking process for all technical areas is detailed in Appendix 4. |
| 57 | Just to provide a little context to the CLC report cited- the reason we commissioned the study was precisely because the population as measured by the census was not painting an accurate picture as to what was (and still is) driving development in Columbia County. It is true that the number of farms in the county is on the rise, however, they are smaller farms, operating on less land, and the total acreage in farmland has declined (down 13,000 acres from 2002- 2007). While the census population in Columbia County remains stable, the number of households in the county is increasing, as are the number of second home owners, which in turn is impacting the land use patterns in the county. For example, during the period examined by the study (1990-2000) one town experience a population growth of just 2.5% but an increase in the number of households equal to 10%, other towns had a loss of population, but again, an increase in the number of households. In Columbia County, most households are living in single family residences, so an increase in number of household translates to more pressure on the land. Add to that new construction by second home owners (again not reflected in the census population numbers) and the effect on the landscape can be dramatic- low density development that has an impact of farmland, forests and other open space. I believe these trends continue through-out the region. | SW | Comment is noted |
| 57 | "NYSDEC manages approximately 286,700 acres of land" - why not include state, local & private conservation lands? This data is available from the NYSDEC and the National Conservation Easement Data Base. | | We will include in final version of the plan. |

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| 1 | Pager 71 – I am sorry to see the term "solid waste" in this report, because NYS is trying so hard to transition away from Waste Management as a term to Resource Management. We need to address "waste" as a resource in order to make any headway. Can we use this better suited term? You cite DECs approach and quote them – we really need to use their terminally. | KG | I disagree. Solid waste is a defined term both in statute and regulations We can move toward a more comprehensive material management policy, but the stuff we throw in the garbage is still solid waste. |
| 2 | Page 8-1 Box. Single stream recycling seems to get more people to recycle since it is easier for people to do since there's less sorting, etc. | KG | That's what the box already says..single stream is more efficient and convenient for the recycler. So no change was made |
| 3 | Page 8-2 Note to the third full paragraph. It was mentioned at the CDTC Policy Board meeting last week that the largest export from the Port of Albany this year was scrap metal. | KG | Added a sentence about this on page 9-3 |
| 4 | The GTASWMA no longer exists. Confirmed in an interview with Bill Chamberlain, Commissioner of DPW in Troy. Please remove it from the Solid Waste Planning Unit list. According to Bill, that planning unit was legally decommissioned many years ago. | KG | Confirmed with Gus Ribero of NYSDEC that the GTSWMA enabling legislation was repealed by A. 10288-A / S.5198-D, which became effective October 15, 2012. As such, reference to the GTSWMA was deleted from Table 9.1. |

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| 5 | I believe this project is complete: The City of Schenectady's Water Pollution Control Plant is developing a $7 million project that includes a combined heat and power (CHP) system producing biogas and using an internal combustion engine to create electricity. With the new equipment, the plant will generate an estimated 1,800 megawatt-hours of electricity per year from the biogas – enough to power more than 275 private homes for a year. This will offset the energy costs of the plant and, combined with other improvements, save an estimated $300,000 in energy costs each year. The CHP system uses anaerobic digestion to produce the biogas. Sewage is treated and the thickened sludge mixed and heated to allow the waste to break down and generate methane. The methane is purified and combusted to generate electricity. NYSERDA provided a $1 million award toward the cost of the CHP project. The entire process also reduces odors and results in a finished product that can be used for compost (NYSERDA, 2012). | KG | Changed the first sentence from "is developing" to "has developed" |
| 6 | Table 8.6 mention quality composting needed for green infrastructure and native plants | KG | No Change to this table. The comments is noted but it is outside the context of the table |
| 7 | In the baseline section, Can we mention Radix and the Watevliet/Albany County Pilot NYSERDA Bio-Digester Project? | KG | added 2 new paragraphs, starting on the bottom of page 9-4. |

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| 1 | GGFT buses also include bike racks, and the service extends to northern Saratoga County (Town of Moreau/Village of South Glens Falls) (p. 9-3) | JJ | Comment incorporated |
| 2 | The AGFTC Regional Bicycle Map has been updated and is available to the public. (9-6) | JJ | Comment incorporated |
| 3 | AGFTC should be listed as an implementer for the bike/ped infrastructure improvement program initiative (Table 9.5) | JJ | Comment incorporated |
| 4 | The local government level of implementation in Table 9.6 should not be limited to jurisdictions within transit agency coverage areas. Complete Street policies, zoning revisions, and signal optimization are not dependent on transit coverage and would benefit communities not served by transit. | JJ | Comment incorporated |
| 5 | This section does not mention the existing carpooling effort undertaken by CDTC and AGFTC. Each agency hosts a web-based ridematching site, with linked databases of potential riders. AGFTC's site is called iPoolNorth, and CDTC's is called iPool2. Might be too late to include these (and I'm surprised they weren't discussed at the subcommittee level) but I thought I'd mention it. | JJ | Comment incorporated |

| | Comment | Responsibility for addressing comment | Response to comment |
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| 6 | Attached are respectfully suggested edits to Section 9-Transportation intended to preserve and enhance intermodal access options as a cost-effective means to reduce GHG emissions and "carbon footprint". Scheduled air-carrier service provides the most fuel efficient and environment friendly mode of intercity mass transit on a per passenger mile basis, on par with rail but much friendlier to critical areas such as watersheds and wildlife habitats and with lower emissions. The Profile and Economics/Demographics attachment is excerpted from the Comprehensive Annual Financial Report for the year ended 2011 available at www.albanyairport.com. Do you agree? Thanks either way…Please let me know if I can provide anything further. Onward and upward. | JJ | Airport information was added to the baseline. Connections between modes is woven into the document |
| 7 | First sentence first paragraph doesn't seem technically true… I took a stab at that paragraph: | JJ | Comment incorporated |
| 8 | First paragraph change to "Modes of transportation heavily influence GHG emission rates, making sustainable transportation a crucial element of any sustainable system. The vehicle miles traveled (VMT) by cars and other motor vehicles generate significant GHGs and must be offset by the provision of sustainable transportation choices for individuals' daily needs. Those choices must include walking, bicycling, transit, and fuel efficient vehicles. A multi-modal transportation system also results in lower VMT and less demand for sprawling land development, leading to a healthier and more sustainable community environment." | JJ | Comment incorporated |

| | Comment | Responsibility for addressing comment | Response to comment |
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| 9 | Page 9-2 2nd paragraph before the last sentence add: "Likewise, measuring VMT at the county level alone omits important information about the relationship between development patterns and VMT." | JJ | Comment incorporated |
| 10 | Page 9-3 end of first paragraph end of last sentence change to "…parking spaces for transit and rideshare use." | JJ | Comment incorporated |
| 11 | Page 9-3 second footnote: same as first footnote? Check this. That article has no reference to Brown or Trailways. | JJ | Comment incorporated |
| 12 | Page 9-4 first paragraph second to last sentence change "some" to "most" | JJ | Comment incorporated |
| 13 | Page 9-10 priority 3, development community also as Implementer? When new developments/subdivisions occur, doesn't the developer build the roads? Then also added to funding sources. | JJ | Comment incorporated. Note that "Development community" was specifically added to table by the technical committee |
| 14 | The Altamont Pedestrian and Bicycle Master Plan should be added to the list of currently available bicycle, pedestrian and trail maps and plans in the Capital Region (page 9-6). | JJ | Comment incorporated |
| 15 | Page 9-2 First paragraph, last sentence. Figure 9-1 illustrates major roadways of the Capital Region roadway network. | JJ | Comment incorporated |
| 16 | Page 9-5, bottom paragraph. Text states that Saratoga County has a car access rate of 98 percent while the chart next to it only shows 95%. | JJ | Comment incorporated |

| | Comment | Responsibility for addressing comment | Response to comment |
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| 17 | 7-7:<br>• Please correct Parks & Trails New York's name to have an ampersand in two instances on this page.<br>• PTNY's Healthy Trails, Healthy People program (listed here incorrectly as Healthy Heart/People) is not a funding source – it's a technical assistance program for trail development and so doesn't make sense here, but possibly under Developing a Greenway Connectivity Plan.<br>• PTNY maintains a list of funding sources that may be useful here: http://www.ptny.org/greenways/funding/index.shtml | JJ | Not a transportation chapter comment |
| 18 | GGTC should read "GGFT". GGFT service area includes the Town of Moreau and Village of South Glens Falls in northern Saratoga County. Table should reflect that and the data should be adjusted. | JJ | Table Redone to take out Transit operator names and instead just refer to Counties |
| 19 | Place additional emphasis on intermodal facilities including the Albany International Airport and other train stations in the region; add addional info about the airport in the baseline. | JJ | Airport information was added to the baseline. Connections between modes is woven into the document |
| 20 | Consider adding a Priority Initiative that promotes intermodal facilities in the Region | JJ | Freight facilities of all kinds are included in the two freight initiatives. Language to the specific priority initiatives was not altered because it was specifically written and approved by the committee as a whole and already covers the "spirit" of this comment. |
| 21 | Page 83 Is there a positive trend in CDTA ridership we should discuss? | JJ | Recent growth information was unknown, so only current ridership is reported. Also, data for other transit systems was not readily available. |

| | Comment | Responsibility for addressing comment | Response to comment |
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| 22 | Page 84 Should we expand on this discussion of BRT to include the studies going on for the proposed Washington/Western Avenue BRT. Seems like an exciting project. | JJ | It is mentioned in the text that "CDTA is planning additional future BRT routes" |
| 23 | discussed? Living close by to transit service is not a measure of potential dependency. It is a measure of potential use. Doesn't it make more sense to discuss the number of households without access to a car? | JJ | Page 85 discusses households with (and without) access to a vehicle, which is the primary census data used to indicate transit dependency. |
| 24 | Page 85 Doesn't it make more sense to provide a graphic showing households without a car? Especially since we are talking about a measure of dependency. | JJ | Understood. Figure 9.6 presents this data in reverse, but the text discusses transit dependency, so comment has been addressed. |
| 25 | Page 86 I think another "barrier" that should be mentioned is free parking. | JJ | Comment incorporated |
| 26 | Page 86 Should this section be retitled to Pedestrian, Bicycle and Trail Planning? Should there be a discussion of the actual trail network, key gaps, proposed routes, etc. Is there some reason why we don't include a regional trail map? | JJ | The section does not refer only to planning, so the title was not changed. A significant attempts was made to create such a regional map, however, GIS layers are unavailable and resources and time - as well as the scope of this project - prevented creation of this map from scratch. Space and level of detail within this report prevent a detailed discussion of gaps, although it is reflected in earlier meetings and minutes. It is agreed, though, that a regional map is a good idea and it could hopefully be one of the outcomes of the priority initiatives. |
| 27 | Page 88 As mentioned in a previous comment, shouldn't we identify some of the key gaps, initiatives, etc. | JJ | This section does not discuss existing gaps or initiatives - the initiatives are forward-looking. However, the initiative itself specifically discusses fixing and filling gaps. |

| | Comment | Responsibility for addressing comment | Response to comment |
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| 28 | Page 84 What about Hudson? | JJ | Correction made |
| 29 | page 85 I think these are overstated, which should be made clear in the text. The problem with transit isn't that people do not have access, it's that it does not meet their needs either because of inconvenient schedules/routes or a need to be able to go home to take care of a kid. One of the things I learned from the sustainability design assessment team report from Albany is that commutes are not that long or expensive, so taking transit isn't cost- or time- effective for most people. It will be interesting to see what permit parking in downtown Albany does to that equation. | JJ | This has been incorporated. |
| 30 | page 86 Where are the major commuting routes? How many people commute into Albany? | JJ | Unknown. |
| 31 | Page 86 add bullet Parks & Trails New York online Trail Finder at http://www.ptny.org/trailfinder/ . It includes information on greenways, rail trails, canal trails, bikeways, and riverwalks state wide. | JJ | Comment incorporated |
| 32 | p. 9-7 What about EV's CNG's - infrastructure needs? Add a section. Albany's EV Study. | JJ | Comment incorporated |
| 33 | On Table 9-5, confirm with Chris re: CMAQ money. Will no longer be available for the CDTC MPO area. Not sure about Glens Falls. | JJ | Comment incorporated |

| | Comment | Responsibility for addressing comment | Response to comment |
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| 1 | Water - not sure if this was addressed in the plan but disincetivizing extension of public sewer and water infrastructure | CE | This is generally considered a land use issue. Limiting water and sewer infrastructure, particuarly sewer is a primary means of controlling growth and density. This topic area focuses more on the protection of water quality (which sometimes includes the extension of sewers vs. continued use of septic systems) and conservation of water resources. |
| 2 | For Inclusion in Water Baseline Assessment<br>Dams<br>New York's States dam infrastructure is aging and in need of repair. This is also a national phenomonen, with many dams being built in the 1950-60s, referred to as the Golden Age of Dam Building. The design lives of many of these dams have been exceeded. A high percentage of dams were built over 50 years ago. Many of these dams were not built, nor are being maintained according to today's engineering standards.<br>Winona Lake Spillway Damaged. Dam located in Orange County on Quassaick Creek.<br>There are XXXX DEC inventoried dams in the Mid-Hudson Region, with likely double that number of smaller dams. Of those dams, X are high hazard, X medium, and X low. These dams serve a number of existing purposes (e.g., hydroelectric energy generation, water supply, and recreation). Dams are owned by a variety of public and private entities, with the greatest percentage in private ownership.<br>Dam removal is viable river conservation and water sustainability strategy, both reducing risk to downstream landowners and structures, while improving river function and aquatic health.<br>Culverts, Bridges, and Road Crossings<br>Every time a road crosses a stream or river, a bridge or culvert exists. As you can imagine, there are thousands of locations where streams, rivers, and roads intersect. Although we might not traditionally think of culverts and bridges as water infrastructure, they are arguably as water infrastructure as road infrastructure.<br><br>There are XXXX bridges and culverts in the Mid-Hudson Region. | CE | It is agreed that dams are an important piece of the region's infrastructure. However, this section focuses on larger planning efforts in the region to address water quantity and quality. Dams will naturally be part of the discussion for the watershed management initiative. Dams provide improundments of water that serve as water supply and they can offer peak flood attenuation during storm events if managed to do so. Addressing the structural integrety of various dams and their continued purpose would come out of the larger watershed analysis and future site specific projects that would be needed to address a watershed plan. No changes to the Water section are recommended. |

| | Comment | Responsibility for addressing comment | Response to comment |
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| 3 | Is this 10 State Standards #? Shouldn't we use whatever design criteria will be mandated? | | In the absence of specific data on water use for various land uses, the multipliers used here are generally accepted in the industry for this region. |
| 4 | I'm pretty sure SSO's are not legally designed into any system. they occur as a result of insufficient collection capacity or other collection system problems. | CE | SSOs are a result of older regulations or lack thereof and are found in older systems. Not implying that they are a current design feature. |
| 5 | Addressing water supply and water quality are two different task---also water quality considers both human and wildlife needs. I'd include sentence to sort this out for the reader. | CE | The Water goals (Table 11.4) reflect this issue. |
| 6 | 4th paragraphs "foreseeable future" - how long is this? | CE | 10-20 years is typically used as a suitable time period for land use and related comprehensive planning |
| 7 | On what basis were water projection made? | CE | Water projections are based on generally accepted multipliers for water use and the population and development projections provided by the Capital District Regional Planning Commission. |
| 8 | Page 10-3, 2nd paragraph…no, the quality of drinking water prior to treatment is affected by | CE | Agreed. Corrected on p. 11-3. |
| 9 | why are ag districts included on figure 10.2 | CE | Ag districts show concentration of agricultural activity that are likely to be actively farmed. Agricultural areas are sources of non-point source pollution (nutrients - fertilizers and sediment). |
| 10 | green infrastructure - this is outlined by NYSDEC - the purpose of green infrastructure is to reduce the amount of runoff generated at the source. | CE | Green infrastructure has a broader definition than reducing runoff at the source. Green infrastructure involves the use of natural systems to naturally convey, detain, and treat runoff whether it is at the source or somewhere downstream. |
| 11 | Plenty of local examples of rain gardens…see attached list | CE | Thank you for the information. Noted on p. 11-5. |

| | Comment | Responsibility for addressing comment | Response to comment |
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| 12 | Page 92: Recreation is primarily fishing, boating and swimming. I think it is worth mentioning them individually. Fishing alone is a $1.9 billion industry in NY that depend on clean water and sustainable human use of the water supply (2011NationalSurvey of Fishing, Hunting,and Wildlife-Associated Recreation: State Overview). | CE | Agreed, however this statement was intended to be very broad with regard to human dependency on water. |
| 13 | Page 92: The emphasis of water in this chapter is drinking water supply. Even though recreation and wildlife are mentioned, there is little supporting text for it. It also doesn't emphasize the importance of water quality to the economy (e.g,tech industry, agriculture)This is especially important in the Cap Region because the tech industry uses huge amounts of water | CE | A considerable portion of this chapter is spent on the discussion of water quality as it relates to sewer systems and runoff. Two of the key initiatives are the watershed analysis and the asset management plan for sewer systems. |
| 14 | Page 94: Water supply is affected by surrounding land use patterns, sewage overflows, loss of natural buffers and wetlands, increased water temperatures, low stream flows, and non-point pollution including urban and agricultural runoff.<br>Revise: The quality and quantity of water available for use is affected by surrounding land use patterns, sewage overflows, loss of natural buffers and wetlands, increased water temperatures, low stream flows, and non-point pollution including urban and agricultural runoff. | CE | Agreed. Corrected on p. 11-3. |
| 15 | page 94: Wastewater treatment facilities, whether municipal facilities or individual septic systems, are critical to protecting the water quality of streams, rivers, lakes and groundwater and ensuring adequate supplies of water for drinking, recreation and wildlife.<br><br>Revise: Well-maintained or adequate wastewater treatment facilities, whether municipal facilities or individual septic systems, are critical to protecting the water quality of streams, rivers, lakes, reservoirs and groundwater and ensuring adequate supplies of clean water for drinking, recreation, and wildlife. | CE | Agreed. Corrected on p. 11-3. |
| 16 | page 95: This section needs work. Nancy Heinzen at Albany County Planning could be a big help. There are also baseline assessment data that could be added here- map of waterbodies and streams that are impaired due to stormwater/land use. | CE | We believe the overview currently provided is sufficient to convey the issues/concerns with stormwater. Additional detail would be difficult to incorporate. |

| | Comment | Responsibility for addressing comment | Response to comment |
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| 17 | I'm glad to see the watersheds on here, as water management at the watershed scale is very important. You could add to this by IDing the watersheds that have groups or mgmt plans associated with them. Off the top of my head: Catskill, Stockport Creek (incl Kinderhook-Claverack), and Onesquethaw-Coeymans. I'm sure there are more. | CE | An important initiative is to conduct watershed assessments and begin to address what has and what needs to be done. |
| 18 | I can't read this map, but I still do not think it is a complete environmental features map. Why were these features selected and why? What story does it tell? It is missing Non-DEC wetlands (NWI, hydric soils), forests, natural areas/habitats. I just found the descriprion of water related resources - which is better, but then it should be the title. And I would still add all wetlands (though the scale of the map would make it impossible to see), and forests. I don't understand the ag districts add anything here, unless you looked at the available data to see that agriculture caused most of the impairment to water bodies in the region. However, I do not think that is the case. | CE | Normally an environmental resources map would include the items listed and might be reflected in more than one map. This map is intended to identify come critical resources and some of the impacts to those resources, such as agricultural runoff. At the scales used for these maps, additional detail would not read well. |
| 19 | Page 96: Land conservation is just one tool for natural stormwater management (a very important one IMO), you need to talk about designing sites, and green infrastructure practices as well. | CE | Green infrastructure is very much part of the discussion and part of the watershed assessment initiative. |
| 20 | Page 97 What about water management from large precipitation events? And addressing the issues of dams? and road crossings and culverts? I'm sending some info along from my colleague who worked on the water section of the Mid-Hudson sustainability plan about these resources. | CE | Catastrophic events are discussed in Climate Adaptation. |
| 21 | Page 97 include reservoirs | CE | Agreed. Corrected on p. 11-6. |
| 22 | Page 97: This is great - However, I didn't see any reference to water quality other than drinking water in the baseline assessment. There are more data than I mentioned, including water quality trends from the NYSDEC. I saw nothing about water quality for recreation. There are also data from the NYSDEC about this. | CE | Water quality represents two of the three goals for the water focus area. The opening paragraphs to this section emphasize the need to protect water qualify for our use, including recreation purposes. The baseline assessment for this topic would appropriate consume whole chapters but unfortuately so would many of the other focus |
| 23 | Page 98: A resource for asset management which overlaps with energy conservation and climate adaptation is EPA Climate Ready Water Utilities, which could be cited in this discussion: http://water.epa.gov/infrastructure/watersecurity/climate/ | CE | comment noted. |

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| 24 | In your discussion promoting Green Infrastructure, you may want to comment about the issue/difficulty of municipal oversight assuring the long term functionality mitigation measures on individual residential parcels. | | Narrative will be provided in final plan. |

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| 1 | Under Plan Implementation there should be a paragraph emphasizing the existing agencies and initiatives that are already underway with a focus on providing resources to these agencies and local governments to continue and to expand their sustainability programs. | SW | Additional text has been added | |

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| 1 | Where are all the other indicators? In addition to VMT, the plan should include "Number of residents that live within a 1/4 mile [or 10-minute walk] of a park, trail or other public open" space as a first priority indicator. If ¼ mile is not realistic, than ½ mile should be included. We're seeing this in other draft plans. | SW | Additional Priority 2 Indicators are provided in the appendix to the plan. Priority 1 Indicators were selected based on NYSERDA direction and those that crosscut focus areas. The priority 2 indicators are goal specific and can be used in the future as part of plan implementation. |
| 2 | Other possible indicators include: (1) Change in [or ratio of] park/open space acreage per thousand residents; (2) Change in number of miles of multi-use trails, sidewalks, and bike boulevards; (3) Acres of conservation land intended for public use; (4) Annual municipal or per capita expenditures on parks, trails and open space; (5) Annual municipal or per capita expenditures on bicycling and pedestrian infrastructure; (6) Number of number of persons that walk, bike or take transit to work [or % transportation by mode; (7) Connectivity and/or accessibility index for walking, cycling and public transit | SW | See response to Comment 1 |

**Appendix 23**
**Governance Analysis Methodology**
**December 5, 2012**

An important consideration in implementation of the Plan is how its various components and initiatives will be governed. Specifically, this includes who will implement each initiative, how it will be implemented, and what level and scale of government is most appropriate for implementation.

To address these issues, the project team reviewed each topic area's initiatives and evaluated how each initiative could most effectively be implemented. This evaluation is intended to provide guidance to local jurisdictions in the region on what specific steps they can take to implement initiatives, as well as direction to the ultimate regional governing body for the Plan.

As a first step, the project team identified the most effective processes to implement each initiative. This step is intended to provide clear guidance to local and regional entities on specific code changes, resolutions, technical assistance, and other mechanisms that will be required for each initiative. In some cases, these will require formal adoption by a jurisdiction, while in other cases a multi-phased process will be necessary consisting, for example, of developing programs and pursuing funding combined with enacting code changes.

With 49 initiatives spanning across the Plan's topic areas, the governance analysis also included applying a systems approach to their implementation so that each initiative could be evaluated for its relationships to all of the other initiatives. The purpose of this exercise was to identify where there are related policies - helping to identify potential synergies among initiatives - and conversely where there is the potential for them to work at cross purposes if not appropriately coordinated.

For each initiative, the project team systematically reviewed all of the other 48 initiatives to identify related initiatives and potential synergies. For example, several of the Plan's initiatives include changes to municipal codes as an implementation mechanism. This suggests an opportunity to coordinate code-related initiatives across each topic area so that updates can be synchronized and completed together. In other cases, broader assessments identified in particular initiatives can help inform more specific actions in other topic areas; for example, the Water topic area's initiative to conduct watershed assessments for stormwater management can help inform the enhancement of floodplain ordinances identified in the Adaptation topic area.

In a related exercise, the project team reviewed each initiative to identify where there may inadvertently be barriers created by any of the other 48 initiatives and where there is the potential for initiatives to be working at cross purposes. For example, those initiatives focused on land conversation could potentially work against those that encourage greater density in certain areas if such initiatives are implemented in isolation of one another. By proactively identifying such potential conflicts between initiatives actual implementation challenges can be minimized.

Finally, the project team identified the appropriate government level of implementation for each initiative. In some cases, initiatives are more appropriately implemented at the regional level, while in other cases implementation at the county, city, and town level is more appropriate. This will help identify who should be involved in implementing each initiative in both a lead and supporting role.

The summary table of governance issues in each topic area chapter should be used as a reference guide for initiative implementation. Those tasked with implementing of various topic areas are encouraged to work collaboratively, particularly where this table identifies other specific initiatives where there are synergies or the potential to work at cross purposes.

| Timestamp | Comment: | Your Name: | Your Email: | Section of Plan | Key Comment |
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| 1/2/2013 10:09:43 | Page 150 "NYS agricultural districts that can be impacted by water quality issues related to wastewater discharges" Ag Districts are not an environmental feature and a not likely to be impacted by wastewater discharges as nearly all agricultural areas are not in areas of public sewer systems. They should not be included as an environmental feature on Figure 11.3<br><br>Figure 11.3 title seems misleading as superfund sites and PCB's are not an "environmental feature"<br><br>Figure 11.2 - Recreation areas don't fit here.<br><br>Figure 11.4 - The Mohawk Watershed is not labeled. | Laura DeGaetano | ldega@hotmail.com | Water | Comments on specific section |
| 1/13/2013 23:18:58 | Include the concept of polyculture, the growing of many different types of crops over monoculture, the growing of one across wide areas. Most local farmers likely already grow multiple types of crops but for education and to support the practice of Diversifying corps, it can only improve the document. There is also the integration concept of doubling up. Promoting alley planting, the alternation of high and low growing plants, and growing crops together which can improve the output of both by way of providing protection different kinds, sun or pests, as well as other benefits. | Daniel Plaat | dplaat@yahoo.com | Food Systems | Comments on specific section |
| 1/14/2013 11:49:50 | Comment on the Energy component.<br><br>My review indicates that much of the focus is on upgrading energy standards and enforcement. This is laudable but I anticipate that it will have little effect in the rural counties. Rural county government at that level has limited interest in additional regulation and limited ability to enforce codes.<br><br>Another approach, one that was not present in the draft plan, would place greater focus on voluntary action and education. I have worked for and with local governments for nearly 40 years and am convinced that this approach is generally welcomed where regulatory approaches often receives push back.<br><br>The Town of Greenwich in Washington County has an Energy Committee that has been working on energy issues for the last two years. We are currently trying to develop an Energy Fair. The intent is to bring together property owners, particularly residential property owners and various providers of products and services that can help individuals with their energy bills.<br><br>We are still in the formative stage but hope to have the first fair this spring. I am hopeful that this type of local initiative, focused on voluntary action and education, has the potential to be replicated elsewhere in the region and the state and deserves a role in the plan.<br><br>William G. Tomkins, AICP | William G. Tomkins | cocawgt@omh.ny.gov | Introduction/Summary of Priority Initiatives | Comments on specific section |
| 1/14/2013 14:16:34 | With regard to Energy, I noticed two things that could be added, One is the element of waste heat. Large buildings can recycle their own waste heat, which is in the LEED codes, but industry and power stations produce alot more, some much that it can be transferred to any developments built nearby. Filed under integration, this has been done in Europe to great effect as the waste of one industry is used by another, making a more closed loop. Up to a 40% savings of material, energy etc in on such instance in Denmark. Suggest policies be pushed to guide incoming industries to attempt to piggyback on one another.<br>A shorter addition is mircohydro. With our lush water resources across the region small generators for 1-2 households each can be used in areas where solar and wind would be harder. Mimi dams or microhydro setups for backyard streams and ponds could be subsidized in the same way solar panels for house roofs are.<br>The Last is also Integration, referred to as doubling up, as one energy generating infrastructure could be placed on static existing structures. One example is PV's on highway sound barriers. On east west roads, the area is south-facing and already cleared. A no-brainier. | Daniel Plaat | dplaat@yahoo.com | Energy | Comments on specific section |
| 1/2/2013 15:02:56 | To whom it may concern,<br>I am contacting you in regards to the Capital District's Regional Sustainability Plan and a project that I think should be included in the plan. The Green Island Power Authority has planned and is pursuing funding to significantly expand of the capacity of their hydroelectric plant located on the Hudson River at the Federal Dam across from the City of Troy. Permitting for the project has been completed and now Green Island is looking for funding to complete the project. Our role is as Green Island's grant writers and we felt this project would be a good to mention in the plan due to the increased sustainability the project would provide the region. If you have any additional question regarding the project or would like any additional information, please feel free to contact me anytime. | Jeremy Silverman | jeremy@gemsgrants.com | Energy | Energy |
| 1/14/2013 14:24:52 | The one suggestion that is doable based on the rest of the report is a tax break for new buildings that include a bike storage room. 100 to 200 sq feet, A place to store bikes on the ground floor is a boon to any one in an urban area using a bike to get around. The policy can also cover owners which lease/rent some percentage of their stock to people who own bikes. This could lead to private programs (get a bike with a signed lease), but these are up to the developers as much as anyone, but they won't happen without incentives like the others discussed. I have read about this polices in a magazine discussing bike friendly policies. Alas, I can't remember to give a detailed reference, but it was an Urban issues based one. | Daniel Plaat | dplaat@yahoo.com | Transportation | Comments on specific section |

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| 1/14/2013 14:31:45 | This comment is not for a policy addition, but a comment on the obstacles to reaching the goals set out. Waste Management, or other private companies which operates in the region may have an economic reason to prevent to creation of less waste, as the for profit model of waste disposals depends on demand to dispose of more. There is likely a case that less trash makes their oppourations more efficient but what business would they or any other company have if people began producing meager amounts compared to now. Keeping or expanding waste management as a public enterprise is needed to keep the goals of less waste as it would now be seen as cutting down on the amount of tax dollars spent. And trash is everyone's problem, no? | Daniel Plaat | dplaat@yahoo.com | Solid Waste | Comments on specific section |
| 1/14/2013 15:35:35 | My greatest concern with the Regional plan is not the content, which is good and sound; but how everything it it will be funded. I fear than like many policies, that the plans will be the best laid but it will not be well funded, or the resources need for its success will not be around. I don't by the permanent fiscal crisis the state is always in. In the energy portion, a carbon tax is mentioned. This is a partisan position, to rasie funds with taxation. I think this concept should be pushed further to include all manner of progressive taxation reforms that would but New Yorkers on an even footing while funding anything and everything in the plan and beyond. If not in this way, 1,000 million rather than 10 million should be shuffled from the budget. This is State Policy, but there are different scales at work. For the reason we've put 8 counties into a region, we have the whole state the integrate and share with. Simply, I want this to work; that means having money to give out to projects worthy. There are many in the plan which need it. | Daniel Plaat | dplaat@yahoo.com | Plan Implementation | Comments on specific section |
| 1/14/2013 15:44:05 | Having just completed a degree in architecture and having taken grad courses in topics like sustainable infrastructure, I found alot of the Plan to my liking as I saw many concepts and ideas I had studied as well as a few i had not come across. But what was missing, though the plan could well be informed by it, was mention of Permaculture and its values. Written by David Holmgren, it is a work which lays out the ethics of natural life cycles to inform the design of sustainable everything. For this work and others I would suggest it. If you have then I'm glad and would hope more mention of the principles in the future. Thank You | Daniel Plaat | dplaat@yahoo.com | Agriculture | Comments on specific section |
| 1/14/2013 15:56:21 | Superstorm Sandy (part of the pattern of more frequent and severe extreme weather events) dramatized what leading scientists have been saying for years: we face catastrophic threats to our way of life as the climate overheats. A rapid transition from fossil fuel dependence to renewable energy is by far THE HIGHEST NATIONAL SECURITY PRIORITY.<br><br>Unless we can hold the global mean temperature rise below 2C from pre-industrial levels, runaway global overheating may become unavoidable, due to positive feedbacks such as permafrost thawing releasing CH4.<br><br>Scientists warn that the probable result would be massive crop failures and eventually melting of the continental glaciers, raising sea level by tens of meters, inundating coastal regions around the world. So far experience has been that the scientific consensus has UNDERestimated the pace of disruptive climate change.<br><br>The policies proposed in this report will be a serious move in the right direction, but they MUST BE IMPLEMENTED urgently, as a top priority for all levels of government. There is no time to lose.<br><br>Unfortunately, with comments due last week on hydrofracking, I did not have time to make detailed comments and suggestions on the draft plan, which does seem to be a serious effort to move in the right direction. I did participate in some of the public sessions earlier in the process.<br><br>This plan should become the basis of policy in our region, overriding all short term and special interest concerns. I would hope that public input will continue to be welcome as the plan is further developed and implemented. | Mark Schaeffer | markalban1@earthlink.net | Energy and hydrofracking | Comments on specific section |

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| 1/13/2013 20:09:48 | Although your plan sounds inviting, I'm writing to tell you that I cannot support the plan.<br><br>I prefer to keep planning for my Town within my Town by ELECTED officials by the residents. We will determine our fate, our finances, our planning, our programs, our housing, and our needs. Regionalism has a pretty ring to it, doesn't it? But it really isn't pretty. Regionalism is not about the environment; but something that paves the way for central planning, and it will silence any opposition to something that will happen in our own municipality, town, village, city, etc. Localities should be the master of their land use and livability, energy, food systems, transportation and solid waste.<br><br>Relevant plans such as master/comprehensive plans, waterfront plans, emergency management/hazard mitigation plans, public health plans, transportation plans, agriculture preservation plans, neighborhood plans, and etc. best reside with the locality and its residents who will conform to them. Municipalities should not be subject to a regional consortium but subject to the local citizens that elect them. Together we will determine our future and if necessary ways we can partner with and make use of community resources across the region.<br><br>Your implementation section states:<br><br>The Region must identify and empower a long-term advocate to ensure continued progress on implementing the Regional Sustainability Plan. The Regional Sustainability Coordinator will be responsible for the timely implementation of the priority initiatives throughout the Region and developing support, education, and communication around the Region's sustainability goals.<br><br>The Coordinator will work closely with the Regional Green Alliance and assist with the development and maintenance of the Regional Sustainability Website Portal.<br><br>I do not see a section that addresses how a municipality will elect not to participate. The study assumes all want to and will participate.<br><br>Ahh…no.<br><br>Now that I have pointed out this information to you, I'm certain you agree with me. Reach out to me for further information should you need it.<br><br>If you dissent from my position, I will need a written response from you justifying why and future steps including ways communities that wish to remain independent and free from intrusion are able to do so. | Kathleen Stallmer | mstallme@nycap.rr.com | Implementation | Local control |

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| 1/14/2013 14:02:49 | THE PEOPLE OBJECT<br>Everyone wants “livable communities,” still everyone cherishes their property rights even more.<br>Where in this 90-page plan is there any mention of citizens’ property rights being guaranteed to not be negatively affected? We find no such language protecting our property rights. Was this an oversight?<br><br>In regards to public concern about this plan being an implementation tool of Agenda 21, the above plan document states in Section 3.0, page 31: “there is no funding or programmatic link between the Cleaner, Greener Communities Program (C, G CP) and Agenda 21.” We don’t agree or accept your premise that there is no resemblance between the two programs. Let us connect the dots for you.<br><br>An additional concern of the people is that regional planning will sweep away local elected representation. Regionalism leads to loss of local representation. Why would our local, state, national representatives allow this to happen?<br><br>On the national level, Senators Kerry, Gillibrand, and Lautenberg just introduced the STRONG Act as recently as Dec. 28, 2012, which promotes the agenda of ICLEI (International Council on Local Environmental Initiatives). The Senators stated: “the Bill has been endorsed by ICLEI USA’s Policy Council of Local Elected Officials.” It is our belief that ICLEI has one charge…to implement the U.N.’s Agenda 21.<br><br>In your proposal document, Section 13, page 170, you credit ICLEI as providing you with a list of indicators (measurements). The NYC document called “PlaNYC” openly admits their plan was written by ICLEI and gives credit to ICLEI on page 2: Acknowledgements. How can you state there is no link between these various documents?<br><br>Let’s review “About ICLEI” from their web site: Developing the concept of ICLEI<br><br>“Under the auspices of the Center for Innovative Diplomacy, Jeb Brugmann consulted with local government officials from more than 20 countries to measure support. The concept was endorsed by the former International Union of Local Authorities (IULA) and an agreement was endorsed with the UN Environment Programme to host the founding congress.” http://www.unep.org/dewa/westasia/data/knowledge_bases/jordan/Agenda21/chapter09.pdf<br><br>Whenever American citizens’ inalienable rights are attacked, the question needs to be raised: Are those who advance or order the infringement on such rights ignorant, incompetent, or part of a designed plan?<br><br>Solution:<br>Have Governor Andrew Cuomo clearly state this isn't implementation of Agenda 21 | William Park | whpark@adirondackcombustion.com | Public Engagement | UNA21 |
| 1/11/2013 7:07:25 | As a resident of the rural county of Washington I am not interested in becoming part of a region. I choose to have this area remain a separate unique entity that is controlled via local responsive town boards rather than be governed by a remote organization. People living in this community have the ability to decide how we want our property maintained as individuals not be dictated to by a group of people who do not have any vested interest in Washington County. So I vote to stay out of this Capital District Sustainability Plan and will advise my neighbors to do so also. | Karen Gates | kgates2821@yahoo.com | General Comment | Capital Region Resident |
| 1/12/2013 16:12:25 | I am a resident of Saratoga County. This document allows some of my property rights to be taken from me for the "benefit of others" I cannot accept this. Please reject this paln. | Robert Fenton | gtcfenton@aol.com | General Comment | Capital Region Resident |
| 1/12/2013 19:58:53 | How can NYS fund this gigantic project? How can local communities, most of which are having financial problems, afford these projects?<br><br>Even if the projects are affordable, I think local control is the best.<br><br>This plan sounds like big government. It sounds like Agenda 21 of the UN. I do not like it, I do not want it. | Teddi Smit | tea7077@aol.com | Implementation | Too expensive |
| 1/11/2013 13:43:00 | As a private property owner in New York State, I am alarmed and aghast over the flagrant assault that this "Cleaner Greener" sustainability regional plan perpetrates against ALL private property owners in New York. The correlations of this plan are identical to that of the UN's Agenda 21!<br><br>I vehemently protest the consideration of this "plan" for my city, county and state. I will vow to contact my elected officials and planning boards today and force them, under the protection of the U.S. Constitution, to fight this "sustainable development" agenda and reveal its' true purpose of usurping private property rights. I will also be knocking on my neighbor's doors to inform them of the insidiousness of this cleaner greener agenda.<br><br>To think that my elected representatives would intentionally consider the dismantling of each citizen's "pursuit of happiness" is blatantly evil. | David Chew | falconashton@yahoo.com | General Comment | UNA21 |
| 1/11/2013 7:27:42 | This complete plan is terrible we do not want Agenda 21 in New York. This is taking away our property. It will create more unemployment. Our food sources will be limited and more expensive. Our transportation will be limited. Those of us who live in rural areas want to keep our areas rural. We do not want to live on top of each other. Please do not get involved with this. And remember there is no grant that does not have strings. | Lynn Clauer | rowlessfat@yahoo.com | Food, transportation, property rights | UNA21 |

| Timestamp | Comment: | Your Name: | Your Email: | Section of Plan | Key Comment |
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| LETTER DATED 1/14/13 | LAST PAGE KEY SUGGESTION: The green infrastructure aspects of the plan can be implemented on a watershed scale by partnerships between municipalities and partner organizations. Real estate development can be made more competitive with more ecologically based approaches--yet new legislative authority is required to enable stormwater utility districts. It would help if we had a few key watershed-scale demonstration projects in our region to show how effective these ideas can be in addressing many of the areas of the region's plan. To do this we will need to craft more action-oriented watershed management plans that integrate development and conservation with communities and landowners along with model legislation and funding concepts to be implementable. The benefits will be significant. | John Behan, AICP (Behan Planning and Design) | info@behanplanning.com | Water | Green infrastructure |
| LETTER DATED 1/14/13 | CONCLUDING SUGGESTIONS: Many of the recommended actions are best implemented at a county, regional or watershed level. This particularly true in the case of stormwater management. Unlike potable water and wastewater, stormwater is not fully subject to controlled flows. Improper stormwater management in one jurisdiction can impact another in the same watershed.<br>This is one of the reasons that the recommendation to establish clear legislative authority for Stormwater Utility Districts is a lynchpin to the success of the stormwater initiatives. A recently survey showed that 30 other states and the District of Columbia currently authorize this approach. Other jurisdictions have also used the user fee aspect of Stormwater Utility Districts to incentivize landowners to adopt improved land use practices and even to retrofit existing facilities -- all at private expense.<br>As a separate but related matter, the plan should also address the inefficiencies inherent in the way the rules require the dedication of large areas of otherwise developable land for stormwater control purposes. Rather than require separate mitigation at each development site, other jurisdictions have explored the use of off-site mitigation, analogous to the approach used by the U.S. Army Corps of Engineers in wetland mitigation or to that of transfer of development rights. Placement of stormwater controls off-site can result in a more efficient use of limited land resources and can enhance community aesthetics in receiving areas with features such as nature trails. | Robert H. Feller, BOND, SCHOENECK & KING, PLLC | rfeller@bsk.com | Water | Green infrastructure and Stormwater Utility Districts |

| Timestamp | Comment: | Your Name: | Your Email: | Section of Plan | Key Comment | Additional comments |
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| 12/31/2012 14:02:57 | I'd love to read the full report my I am unable to download it.<br><br>Is there a different way I can access the report?<br>Thanks<br><br>-Melissa | Melissa Chinigo | mchinigo@glensfallshosp.org | General Comment | Communication - Problem with getting email or report | Follow-up email sent |
| 1/13/2013 14:01:56 | Not happy about the time frame for the comment period. Not only is it short, but during the holiday period. How about extending the comment period for another couple months. | George | | General Comment | Communication - want more time | NO EMAIL ADDRESS TO RESPOND |
| 1/13/2013 19:49:13 | There has not been enough time to read this plan. I want to see more time to have better and more communication of this program and opportunitites for the general public ot ask questions and obtain clarifications. | Barbara Martin | bjmartin@kamartinengineer.com | General Comment | Communication - want more time | Follow-up email sent |
| 1/12/2013 15:44:13 | I was disappointed but not surprised that, even though I had signed upto receive Updates, my name was deleted from the contact list several months ago and I received no notices of upcoming meetings or of the release that the Full Report had been published. | Tom Ellis | tomellis309@yahoo.com | General Comment | Communication Problem | Follow-up email sent |

| Timestamp | Comment: | Your Name: | Your Email: | Section of Plan | Key Comment | Additional comments or points made |
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| 1/2/2013 21:56:16 | Hi there, | Michael Cote | michaelcote | General Comment | Tea Party emails on | |
| 1/11/2013 8:41:52 | This master plan should not be implemented. It takes away the right of local people and communities to decide for themselves what best suits our | paul | | General Comment | Local control | It takes away the right of local people |
| 1/11/2013 12:05:22 | I am against virtually every provision in this plan. You seek to identify which foods we are to eat, which energy resources we are to use and how | Richard | RSardoPLS | General Comment | Local control | Business climate and local control, |
| 1/11/2013 12:23:06 | It appears to me that this plan marginalizes private enterprise, leaving us with fewer and fewer choices as private citizens. | Leah Davis | davisL3@nyc | General Comment | Local control | |
| 1/13/2013 16:12:34 | Whereas some of the objectives of the plan are admirable, I ask that you reject the plan as a whole if: | Wilma Koss | wskdbk@nyc | General Comment | Local control | Property Rights |
| 1/13/2013 19:52:37 | I am against giving a regional authority the power to make local decisions which are better made at a local level by local peopple. My worry is that | Kenneth | kamartinengi | General Comment | Local control | |
| 1/14/2013 14:46:59 | The goals defined in the recently published Capital Region Sustainability Plan represent gross abuse of authority, circumvention of local | Kelly | | General Comment | Local control | |
| 1/14/2013 15:38:21 | Please be asvised of my complete and total opposition to this plan. I believe land use policies should be done by the municipality in which they are | sandra verola | nverola@nyc | General Comment | Local control | |
| 1/8/2013 12:12:25 | I do not like this plan. If Greener communities are to be put in place allow it to happen organically in the Market. I do not want my property rights | Robert Arrigo | robrigo80@a | General Comment | Property Rights | |
| 1/8/2013 18:40:36 | I am 100% against this sustainable development scam and the governments attempt to control our lives. We will be fighting you every step of the | Dominic | dlostritto@ny | General Comment | Property Rights | |
| 1/9/2013 6:01:12 | I am opposed to any action that supplants local and county governments. Also opposed to any actions that weaken property rights. Thank you. | Philip | Ppolizotto@a | General Comment | Property Rights | |
| 1/11/2013 21:59:08 | Some good ideas, some not so good. Riding a bike or walking are not viable for 7 months out of the year. Why would we want to limit the amount | David | dfbuchyn@liv | General Comment | Property Rights | |
| 1/12/2013 15:39:33 | This plan does not protect my property rights. I do not agree with giving them up got the so called"common good" Please do not approve this plan | Robert | Fenton | General Comment | Property Rights | |
| 1/14/2013 12:55:22 | I have read this full report. This document and plan does not protect my personal or local property rights. This document removes our local control | Anastasia | strawbryhl@ | General Comment | Property Rights | |
| 1/14/2013 15:05:54 | I already made a comment, but as I thought more about theCapital Region Sustainability PLan, I realized a few things that were bothering me: | Theodora | tea7077@aol | General Comment | Property Rights | Local Control, Second email comment |
| 1/14/2013 15:22:29 | Gentlemen: The Capital Region Sustainability Plan is a plan to change the whole structure of governing in our region. None of the initiatives | Diane | dclem@nyca | General Comment | Property Rights | |
| 1/14/2013 16:17:03 | What do you have to guarantee the private property rights of local property owners are not infringed, how about a legally binding document to be | Thomas | tchandl1@ny | General Comment | Property Rights | |
| 1/2/2013 21:00:37 | Please view the the video "Agenda 21 for Public Officials: http://www.youtube.com/my_videos?sq=Agenda+21+for+Public+ | Hal Shurtleff | shurtleffhal@ | General Comment | UNA21 | |
| 1/8/2013 10:42:17 | This whole Agenda 21 plan is unconstitutional! All of this is to get more control over We the People. I hope I get the opportunity to leave this state | Patricia | rbvmorgans | General Comment | UNA21 | |
| 1/8/2013 18:14:19 | This is nothing more than the largest grandiose plan of Agenda 21 implementation that will do nothing more than destroy our constiutional liberties, | Cat Young | sacredconstit | General Comment | UNA21 | |
| 1/9/2013 11:56:07 | This whole agensa needs to be thrown out. I see more and more the loss of our freedoms through governmenmt controls. This is not what the | Carol | Carol39@NY | General Comment | UNA21 | |
| 1/11/2013 10:12:36 | This is based pure and simple on Agenda 21. Coumo is one of the authors of the massive nation-wide action plan to eliminate local governance | Reimund | | General Comment | UNA21 | |
| 1/11/2013 11:48:47 | Quite shocked at the thought of this type of central planning. I was amused at the constant use of the phrase "sustainable development" as if | Peter | Medick | General Comment | UNA21 | Loss of local control |
| 1/13/2013 16:36:03 | Our property rights are in danger of being torn away. We all need to educate ourselves and each other. We will continue to learn about Agenda 21 | donald&maur | mtdulmer | General Comment | UNA21 | |
| 1/14/2013 11:55:34 | If I could hear future generations now they might be saying - "How could you be so callous, so selfish and so cold as to co-opt sustainable for | Howard | | General Comment | UNA21 | |
| 1/14/2013 16:02:26 | This entire Agenda 21 is just another huge scam on the public to create gov't control over every aspect of our lives. Government's purpose is to | Janice Cowie | cowiejc@veri | General Comment | UNA21 | |
| 1/15/2013 15:14:27 | I have read through the draft plan for the capital region and have some concerns. | Brenda | warpmail.net | Questions and | local control | |
| 1/1/2013 7:07:41 | I am 100% against this regional plan for the Capital Region. We do not need a board to come into our towns to tell our public officials and | Amy Roelen | 3@yahoo.co | Questions and | UNA21 | |
| 1/11/2013 5:37:20 | We have a system of government that has just barely protected our private property rights under the onslaught of the environmental community | Scortt | @netzero.co | Questions and | Property Rights | |
| 1/13/2013 17:41:06 | I have a few comments/questions on the plan: If we get into this program and decide it is not for us, how can we get out of it? Is there going to be | Yuzynko | msn.com | Questions and | local control | |