MINUTES OF THE CLIMATE ACTION COUNCIL MEETING
HELD ON APRIL 12, 2021

Pursuant to Notice and Agenda, a copy of which is annexed hereto, a meeting of the Climate Action Council ("Council") was convened at 9:00 a.m. on Monday, April 12, 2021. The following Members attended:

Council Co-Chairs

- Doreen Harris, President and CEO, New York State Energy Research and Development Authority
- Basil Seggos, Commissioner, New York State Department of Environmental Conservation

Council Members

- Richard Ball, Commissioner, New York State Department of Agriculture and Markets
- Donna L. DeCarolis, President, National Fuel Gas Distribution Corporation
- Marie Therese Dominguez, Commissioner, New York State Department of Transportation
- Gavin Donohue, President and CEO, Independent Power Producers of New York
- Dennis Elsenbeck, President, Viridi Parente, Inc.
- Thomas Falcone, CEO, Long Island Power Authority
- Eric Gertler, Acting Commissioner and President and CEO-designate of Empire State Development
- Rose Harvey, Senior Fellow for Parks and Open Space, Regional Plan Association
- John Howard, Chair, New York State Public Service Commission
- Bob Howarth, Professor, Ecology and Environmental Biology at Cornell University
- Peter Iwanowicz, Executive Director, Environmental Advocates of NY
- Jim Malatras, Chancellor, State University of New York
- Gil C. Quiniones, President and Chief Executive Officer, New York Power Authority
- Roberta Reardon, Commissioner, New York State Department of Labor
- Anne Reynolds, Executive Director, Alliance for Clean Energy New York
- Rossana Rosado, Secretary of State, New York State Department of State (Kisha Santiago-Martinez, Designee)
- Raya Salter
- Paul Shepson, Dean, School of Marine and Atmospheric Sciences at Stony Brook University
- RuthAnne Visnauskas, Commissioner and CEO, New York State Homes and Community Renewal
- Howard A. Zucker, Commissioner, New York State Department of Health (Henry Spliethoff, Designee)

Also present were various State agency staff and members of the public.

Mr. Seggos and Ms. Harris, Co-Chairs of the Council, welcomed all in attendance. A quorum was present throughout the meeting.

Co-Chair Seggos congratulated Co-Chair Harris on her permanent appointment as the President and CEO of NYSERDA, explained the agenda for the April, May and June meetings, announced that the integration analysis will begin in May 2021, and stated that issues of costs and funding will benefit from the integration analysis and are more appropriately discussed after all Advisory Panel recommendations have been presented to the Council. He also stated that all Advisory Panel recommendations and presentations will be made available on the Climate Action Council website after each meeting.

Consideration of the Minutes of the February 26, 2021 Meeting

The next item on the Agenda was to advance the minutes from the February 26, 2021 meeting. In response to Mr. Elsenbeck's comment regarding a lack of reference to his suggestion about the inclusion of off-road vehicles as a mode of transportation to be addressed, Co-Chair Seggos requested that the suggestion be taken up by the Transportation Advisory Panel.

Upon hearing no further changes or objections, upon motion duly made and seconded, the minutes were adopted. Co-Chair Seggos stated that the minutes will be posted to the Council website.

Co-Chair Remarks and Reflections

Co-Chair Harris introduced Sarah Osgood as the Climate Action Council Executive Director and Sameer Ranade as a Climate Justice Advisor, stating that both bring substantive public policy experience to their respective roles. Primary tasks for Ms. Osgood include ensuring the success of the final Scoping Plan by broadly engaging with the public and the Council to ensure a timely and accurate Draft Scoping Plan, as well as steering the public hearing and review process, ultimately leading to a final Scoping Plan. Ms. Osgood will also coordinate regular Scoping Plan updates. Primary tasks for Mr. Ranade include supporting the Council by ensuring climate justice considerations and the mitigation of impacts for frontline communities are included in the development of Scoping Plan recommendations.

Co-Chair Harris presented highlights from the fiscal year 2022 New York State Budget that included a $3 billion Restore Mother Nature Bond Act to be presented for approval on the November 2022 ballot and $300 million in funding for the Environmental Protection Fund. She also highlighted several investments that will maintain New York's momentum toward a green energy economy and advance the goals of the Climate Act.

Presentation and Discussion: Agriculture and Forestry and Waste Advisory Panel Recommendations

Agriculture and Forestry Advisory Panel

Commissioner Ball, Chair of the Agriculture and Forestry Advisory Panel presented broad consensus recommendations of the diverse, 18-member Advisory Panel that includes farmers, foresters, academic researchers, professors, policy experts, and conservation professionals, supported by staff from the NYS Department of Agriculture and Markets and the NYS Department of Environmental Conservation. Subgroups included Livestock and Dairy Management, Soil Health and Nutrient Management, Agroforestry, Avoided Land Conversions, Forestry Management, and Bioeconomy. Inter-panel meetings were held between the Advisory Panels, the Panel also met with the Climate Justice Working Group and a public engagement process was undertaken. Commissioner Ball expressed his gratitude for all involved and believes that they considered a very wide range of subjects in a very thoughtful way.

Commissioner Ball presented information on potential aggregate GHG emissions and carbon sequestration impacts of the Advisory Panel recommendations. The goal is to reduce methane and nitrous oxide emissions by 15% (from the 2018 estimates) by 2030; and 30-45% by 2050. The key themes throughout the recommendations were:

- A focus on methane and nitrous oxide reduction and increasing carbon sequestration;
- That some emissions and sequestration efforts require long-term strategies, in some cases, decades; and
- Emissions reduction strategies that are designed to keep farm operations viable and minimize the potential for emissions leakage to surrounding states.

Commissioner Ball presented detailed information on mitigation and enabling strategies and initiatives, information on estimated greenhouse gas (GHG) reductions, cost and funding considerations, ease of implementation, case studies, risks and barriers to success and possible mitigates were provided. Mitigation Strategies include:

- Agricultural: soil health management practices/regenerative agricultural practices; nutrient management; alternative manure management; precision feed, forage and herd management; and agroforestry.
- Avoided Conversion of Forest and Farmland/Keep Forests as Forests.
- Forest Management: improved, sustainable forest management; afforestation/reforestation; and urban forestry (planting and maintenance).

Enabling Strategies include:

- Agriculture: Agricultural Environmental Management (AEM) planning for climate mitigation/adaptation ("carbon farm planning"), benchmarking and monitoring of GHG mitigation, carbon sequestration and adaptation performance across applicable management areas of farms;
- Avoided Land Conversion, bolstering local agricultural economies, and enhanced local government planning for land conversion;
- Forest Management: expanding funding for peer-reviewed climate and forest carbon research, developing and supporting workforce development and training programs, and developing forest-based outreach, education and marketing techniques;
- Bioeconomy: expanding markets for sustainably-harvested durable wood products; sustainable biomass feedstock action plan for 2050 hard-to-decarbonize products; increasing market access for New York low-carbon products that achieve the climate and social justice goals of the Climate Act; financial and technical assistance for low-carbon product development; bio-based products research, development and demonstration; and net negative carbon dioxide removal.

Commissioner Ball presented benefits and impacts for disadvantaged communities including:

- Increasing research, planning, technical and financial assistance to improve programs for all farmers and forest landowners, prioritizing historically under-served and disadvantaged community members;
- Improvements in food production capacity, resiliency, and diversity;
- Strategies to allow lower-to-middle income landowners to hold on to their forest lands, maintain open space, and sustainably manage their land;
- Increasing tree canopy and open spaces in urban communities in environmental justice areas; and
- Investing in bioeconomy strategies that have the potential to reinvigorate idled rural production sites and existing infrastructure that can support future deep decarbonization projects following the deployment of next-generation technology.

Commissioner Ball also presented the many health and co-benefits of the recommendations and strategies, the Just Transition benefits and impacts for businesses, industries and workers, and other benefits that fall within the identified strategy areas of agroforestry, avoided conversions, forest management and the bioeconomy.

In response to inquiries from Anne Reynolds as to increasing sector emissions from 1990 to 2018 while sequestration decreased, and for clarification on the differences in the sequestration and mitigation goals, Commissioner Ball explained that the growth between 1990 to 2018 largely relates to the growth of the industry. Brian Steinmuller, Assistant Director, Division of Land and Water Resources, NYS Department of Agriculture and Markets, added that some increases in methane production from 1990 to 2018 were due to nutrient management systems implemented for water quality, prior to the consideration of methane emissions. Commissioner Ball stated that, on the sequestration side, there was tremendous growth in the State that removed a large amount of forested land, to which Peter Innes, Assistant Director,

Division of Lands and Forests, NYS Department of Environmental Conservation, added that the changing composition of the forest land is an additional contributor. The State plateaued in its forest land acreage in 1990, and it has been slightly decreasing for the past 10-20 years. As for whether meeting the sequestration goal would make the sector carbon negative, Maureen Leddy, Director Office of Climate Change, NYS Department of Environmental Conservation, clarified that the sequestration goal is viewed in the context of achieving net zero across the entire economy and was not evaluated as being carbon negative for the sector.

In response to an inquiry by Anne Reynolds as to the status of the mitigation strategies going beyond good farming practices with many co-benefits for agriculture, Commissioner Ball stated that the management of enteric fermentation (altering the management of feed for livestock in a way that reduces the amount of methane they emit) would not have been emphasized absent concern for emissions. He also offered that there are numerous co-benefits and significant emissions savings associated with several programs for this industry, noting that soil health is one particular area of interest that has the potential for numerous benefits.

In response to an inquiry by Anne Reynolds as to whether the forest carbon market was the main incentive program the Advisory Panel believes that the State should pursue, or whether there was a series of incentive programs to be considered, and whether a forest carbon market implemented in New York would require legislation or new funding streams, Commissioner Ball noted that this concept was one of many ideas and opportunities. Mr. Innes highlighted the Advisory Panel's review of the Forest Tax Law Program and strategies to improve it, including two new potential tracks that would require legislation and local government support. However, he cautioned that expanding the program in this manner could reduce the tax base of local communities, requiring further evaluation. He also emphasized the serious challenges of deer browse and invasive species that need to be overcome. Ms. Leddy added that the Advisory Panel did examine different carbon market structures with the intention to examine options on ways to implement through administrative actions.

In response to inquiries by Paul Shepson on the level of uncertainty of the analysis, the timeframe used as the basis, and how the State will monitor the trajectory of the carbon sequestered, Ms. Leddy stated that the sequestration values for 1990 and 2018 are numbers derived from the U.S. Forest Service. The 2030 and 2050 data are goals and expectations based on the recommendations. There is a degree of uncertainty for 2050 around how much land can be planted with trees, but she cautioned that there is a need to better understand the technical data as well as the potential impact of competition for other uses of

the land. Mr. Innes offered that, according to The Nature Conservancy Reforestation Hub, there are theoretically nearly 4 million acres that could be planted in the State. About 1.7 million acres are identified as currently under-used in the State and factor into the Advisory Panel's contemplation of a goal of 400,000 acres planted by 2040.

In response to an inquiry by Paul Shepson regarding the measurement of below-ground carbon and the certainty of measurements, Mr. Innes stated that the current data derive from the U.S. Forest Service inventory analysis and that work is underway with the SUNY Environmental Science and Forestry Climate Applied Forest Research Institute and Cornell University to refine the soil carbon measurements, with updates expected in two to three years.

Bob Howarth highlighted the carbon impacts associated with the loss of forest land to agriculture and suggested that how land is taxed is critical to maintaining private forests. He reinforced the need to carefully consider goal-setting strategies and measuring progress. He believes that much more can be accomplished in agricultural carbon sequestration, stating that the cropping system should include perennial crops as an example of the level of detail that should be considered. Mr. Howarth believes there is a climate overlay to harmful algae blooms, for which agriculture is a major source, and suspects that practices such as no-till agriculture aggravate the loss of nitrogen and may contribute to the blooms. On the issue of low-carbon fuels, efforts such as willow growth should be thoughtfully considered. In response, Commissioner Ball acknowledged the issues raised and emphasized that monitoring and measuring carbon stocks can be difficult to quantify and replicate. He also agreed that low carbon fuels need to be looked at very carefully, from both technical and local aspects. He also suggested the need to obtain a greater understanding of harmful algae blooms and noted that NYS Department of Environmental Conservation is engaged in the issue and has approached national thought leaders to better understand it.

Dennis Elsenbeck observed the need to holistically solve for the growth and viability of agribusiness in New York, mentioning technology-based approaches as an opportunity for agribusiness to electrify and use location-based renewable energy electric supply. He further observed that anerobic digesters tend to fail economically due to utility interconnection costs, suggesting the need to align agribusiness recommendations with utility infrastructure investments. He questioned how many of the recommendations would lead to reduced energy costs, suggesting that the Advisory Panel might clarify differences between reduced energy costs and reduced energy bills. In response, Commissioner Ball stated that the concerns regarding cost warrant a better understanding and also agreed that anaerobic digesters traditionally suffer from a misalignment with utility infrastructure. He also highlighted a new

marketing program for agricultural products, New York Grown and Certified, whereby participating farms are required to have a nutrient management plan in place which encourages the holistic management of farms, which in turn, helps carbon goals. He believes the Council is a great forum for garnering insights from all of the sectors on these issues and toward fostering a changed view of electricity by the agriculture community, stating that electricity viewed as a farm commodity to be harvested can benefit the agricultural sector in their own operations and for their neighborhoods.

In response to inquiries from Donna DeCarolis regarding the status of the 2018 inventory, clarity on the definition of reduced energy costs, and a suggestion that the Utility Consultation Group could assist with some of the cost and alignment challenges previously raised, Ms. Leddy noted a series of public webinars hosted by DEC at the end of March 2021 to kick off the inventory process and that DEC and NYSERDA continue to refine the methodology based on public input with the annual inventory report expected later this year.

In response to a request by Gavin Donohue for clarification on the defined commodity within the "forest carbon market" and also stating that the Regional Greenhouse Gas Initiative (RGGI) has an existing offset program for forest products that may accomplish this recommendation, Commissioner Ball and Mr. Innes clarified that the commodity is defined as excess or additional carbon resulting from practices employed to increase the amount of carbon that is sequestered, noting that that New Yorkers are currently participating in voluntary carbon markets, citing a few examples. Ms. Leddy added that measuring and verification are complicated and are barriers to the participation of smaller landholders.

In response to an inquiry by Chair Howard regarding the handling of energy-intensive agriculture, such as recreational marijuana, given that states such as Colorado have experienced increased carbon emissions, Commissioner Ball stated that there is not yet a clear solution, but the NYS Department of Agriculture and Markets has spent a considerable amount of time examining issues related to industrial hemp and he emphasized the need to closely monitor the situation.

In response to an inquiry by Chair Howard about the treatment of invasive species and the balance with afforestation, Commissioner Ball stated that the two main challenges of establishing increased forestry capacity in New York are invasive species and deer browse and emphasized the need to refrain from undercutting the tools that can help effectively manage both challenges.

In response to an inquiry by Peter Iwanowicz about whether the Advisory Panel examined the treatment of farm equipment emissions or considered incentive programs to avoid nitrous oxide emissions by taxing the importation of synthetic fertilizers, Commissioner Ball stated that there was a discussion of farm equipment emissions but there, so far, is also a lack of viable solutions in many circumstances owing to the horsepower required to be effective. He also stated that a tremendous amount of thinking is going into managing nitrogen in more effective ways through soil conservation, soil health programs, and the use of cover crops.

In response to a request for clarification by Peter Iwanowicz on whether the sequestration goal could potentially offset emissions in other sectors given the language of the Climate Act, Ms. Leddy stated that the intention is not to produce an input for an offset program, but rather to increase sequestration for the carbon benefits. Mr. Iwanowicz suggested a deeper dive into this issue and understands that The Nature Conservancy is undertaking a review of its markets program that bears a second look at sequestration programs in the forestry sector.

Raya Salter expressed support for Mr. Iwanowicz's question regarding net-zero and alternate compliance mechanisms. She also expressed concern regarding disadvantaged communities and inquired as to how historical structural change issues, such as heirs' property, and barriers should be understood, tracked, and addressed. Commissioner Ball responded by stating that there is a great need, independent of the Council's work, to look into access to land, capital, and training and the integration analysis should address equity so that all New Yorkers benefit from the Council's work.

Waste Advisory Panel

Martin Brand, Deputy Commissioner, Office of Remediation and Materials Management, NYS Department of Environmental Conservation, Chair of the Waste Advisory Panel presented recommendations that include:

- Reducing methane generating wastes from disposal in landfills and combustors;
- Identifying and reducing fugitive emissions at waste and water resource recovery facilities;
- Reducing the need for new consumer products;
- Ensuring proper end-of-life materials management, with a focus on solid waste management hierarchy;
- Supporting domestic recycling facilities and markets for recovered resources, by emphasizing the highest and best use for recycling end products; and
- No promotion of new fossil fuel energy infrastructure.

Social impacts of these recommendations identified by the Waste Advisory Panel include:

- Green employment opportunities in disadvantaged communities;
- Addressing food insecurity by increasing food donations;
- Reducing truck traffic and the need for additional solid waste infrastructure; and
- Reducing emissions, ambient noise, odors, and co-pollutants to improve local air quality and increase health and co-benefits.

Overall, the Waste Advisory Panel hosted eight full panel public meetings, developed four subgroups and engaged in cross-panel engagement with seven other Advisory Panels and engaged with the Climate Justice and Just Transition Working Groups. To set the stage for the discussion, Mr. Brand also reviewed the New York State Waste Management Hierarchy (source reduction and reuse → recycling and composting → energy recovery → treatment and disposal), which served as the guiding principle for Waste Advisory Panel discussions. He also presented information on the composition of the State's municipal solid waste; how GHG emissions result from the solid waste stream; the volume of solid waste generated Statewide and how it is currently handled.

Mr. Brand presented information on the potential aggregate GHG emissions impact of the Waste Panel recommendations (informed by guiding assumptions) over time and from specific waste sectors. The most opportunity for methane emissions reductions emanates from landfills, with potential reductions from combustion, biological and wastewater sector opportunities much less in comparison.

Key themes for waste management, for which mitigation and enabling strategies were also presented, include:

- Organics diversion from disposal through reduction, recycling, and beneficial use;
- Extended producer responsibility/product stewardship programs for methane-generating wastes;
- Identification and reduction of fugitive emissions of methane from landfills and anaerobic digesters;
- Enhance support for domestic recycling facilities and markets for recovered resources;
- Identification of appropriate uses and financial mechanisms for fuels, electricity, or other strategic energy produced from biogas/renewable natural gas derived from organic wastes;
- Waste reduction, re-use and recycling initiatives;
- End-of-life management of appliances that contain high-global warming potential refrigerants;
- Further research regarding the use of biogas to identify best uses, prices, and funding mechanisms;
- Green Jobs development, for green, equitable jobs and workforce development;
- Transforming wastewater treatment plants from waste disposal priority to water resource recovery facilities;
- Addressing fugitive emissions from wastewater facilities, septic and sewer systems; and
- Additional research to study co-pollutants, develop lifecycle analysis, research end of life

management for difficult to manage materials, and research on organic feedstocks and markets, for example.

Raya Salter expressed concern regarding renewable natural gas, suggesting that there is a limited opportunity for it to contribute to Climate Act goals and believes that efforts in this area benefit the source without contributing additional environmental benefits. She believes this poses the question for future discussion regarding crystalizing how renewable natural gas would comply with the Climate Act. Mr. Brand noted extensive discussions regarding biogas by the Advisory Panel resulting in recommendations for evaluating opportunities for limited and strategic uses, such as co-location and cogeneration and hard-to-electrify uses, also noting that if GHG-producing materials were no longer deposited in landfills today, they would still generate methane for the next 30 years. Therefore, the Advisory Panel believes there is a need to evaluate beneficial uses for the gas and suggested that a market-based study could be conducted to further investigate options. Jared Snyder, Deputy Commissioner, Climate, Air, and Energy, NYS Department of Environmental Conservation, added that the issue of renewable natural gas surfaces in a number of Advisory Panels, making the issue ripe for a more thorough discussion by the Council once the integration analysis is complete and the Council has all of the information to more carefully consider its role in reducing emissions in hard to decarbonize areas.

In response to an inquiry by Raya Salter regarding her preference for early-action, holistic (rather than project-by-project) strategies for reaching the overarching goal for 40% of the benefits set aside for disadvantaged communities, noting that the waste sector has been a long-standing issue for environmental justice communities, Mr. Brand highlighted the subgroup work in examining reuse, reduction, and recycling policies in disadvantaged communities which identified successful model policies used in the New York City area that could be expanded Statewide. Examples include creating local champions to generate higher recycling rates, higher access, and good acceptance rates in a more community-led manner. He acknowledged that the potential for tension between the activities and siting led the Advisory Panel to not propose any new large-scale solid waste infrastructure or combustors, placing the emphasis on reduction and re-use to reduce disposal in landfills and use of waste transfer facilities. Ms. Salter was pleased to see the cohesive strategy and emphasized that structural change in waste management is necessary and that there could be tremendous benefit from changing the culture of overconsumption and waste. Mr. Brand appreciated the comments, stating that there was much discussion about behavioral and cultural changes for handling waste in the State and that aggressive change is needed to meet the Climate Act goals.

In response to an inquiry by Paul Shepson for clarification on technology-enabled waste tracking at restaurants, Mr. Brand noted a number of pilot programs nationwide for waste tracking and minimization, including inventory control, labeling, portion control, and behavior control efforts and it was meant to provide an example of how to avoid generating food waste in the first instance.

In response to an inquiry by Paul Shepson regarding how the Council will address Scope 3 emissions (methane that is emitted from New York waste managed in neighboring states) in terms of best practices, improved cover and capture, or partnerships with other states, Dr. Sally Rowland, Environmental Engineer 3, Division of Materials Management, NYS Department of Environmental Conservation, noted that Scope 3 emissions are tracked and included in the inventory, but present a logistical challenge given that current efforts are aimed at enhancing regulations for in-state emissions and also noted ongoing work with other states to collaborate on reducing landfill emissions.

Bob Howarth noted his appreciation for the focus on upstream waste that eventually leads to methane and that he was unaware of any measurements or monitoring of methane coming from anerobic digesters in the Northeast or perhaps anywhere in the U.S. He inquired as to the numbers used for planning purposes and the projections for decreased methane output. Ms. Rowland stated that that estimates are based on the quantity of organics going into digester facilities based on NYS Department of Environmental Conservation records and leveraging the Intergovernmental Panel on Climate Change (IPCC) and U.S. Environmental Protection Agency models. She agreed that there is no monitoring now, but one recommendation is to identify the best way to reduce methane leakage and whether current regulations should be expanded to specifically focus on methane leakage. Finally, she suggested there is much room to improve on monitoring and better predicting where leaks are occurring. Mr. Howarth believes the IPCC model underestimates the current emissions from methane leakage and suspects that there is more room for improvement than is currently being estimated.

Bob Howarth expressed support for using the methane produced at landfills but that it should be used to the highest possible end, suggesting conducting a quantitative analysis that informs the Council's decision, including full life cycle analysis. For context, he offered that there is abundant literature on using diesel fuel compared to regular natural gas and he encouraged a closer look at the relative efficiency of using diesel rather than biogas in truck engines and the associated emissions. Mr. Brand agreed that a technical analysis on the beneficial uses of captured methane is certainly needed, as well as a good market-based approach study to examine markets for the end uses.

In response to an inquiry by Anne Reynolds regarding the status of the goals of the Beyond Waste Program that New York would achieve 90% paper recycling, and 65% food waste diversion as a means of assessing how difficult achievement of the recommendations presented today might be, Ms. Rowland noted that the State is roughly one-third of the way to 90% on the paper recycling and traditional recyclables, with significant work left to do on organics, as only about 2-3% is diverted.

Anne Reynolds noted that there are about five initiatives rated as having high emissions reductions (excluding refrigerants) and sought clarification on the relative impact among those five, suggesting that removing organics from landfilling might have the greatest impact. In response, Mr. Brand noted that landfills are, by far, the largest source of emissions reductions based on the fugitive emissions and calculations for diversion of emissions-creating waste away from landfills. Ms. Rowland agreed with the assessment, stating that there are two factors: pulling emission-producing materials out of landfills and reducing the leaks, the latter of which equates to increase in methane collection. She stated that the Advisory Panel started with the Beyond Waste assumptions and assumed a 5% increase in collection of landfill gas every five years.

In response to a further inquiry by Anne Reynolds about the balance between addressing leakage versus removing organics from landfills, Ms. Rowland explained the difficulty of making this comparison due to the non-linear degradation of waste and noted that the Advisory Panel ran different scenarios. However, she cautioned that, although one can run the scenario many ways, the relationship is not linear due to the degradation path it takes in landfill. Ms. Reynolds suggested that removing organics from landfilling is key because organics create so much methane which can then leak and Ms. Rowland agreed, and noted that managing leaks is important in achieving the reductions.

Peter Iwanowicz noted his appreciation for the fee concept, highlighting that it will be helpful for the integration analysis. Mr. Brand appreciated the support of the fee recommendation, emphasizing the belief that it has fairly limited impact on the downstream consumer while offering significant funding potential and enhancing diversion and recycling proposals.

Similar to earlier comments made by Mr. Howarth and Ms. Salter, Mr. Iwanowicz further expressed his concerns about how to move ahead with biogas if it is combusted as this would clearly increase net co-pollutants locally, and suggested the Council consider applications for biogas that would

not be combusted (such as fuel cell technology at wastewater facilities). He also suggested that it would be counterproductive to building out biogas infrastructure as there is very little biogas to be used and more polluting fossil fuels would be used to make up for the difference.

Peter Iwanowicz commended the presentation made by Bob Howarth to the Agriculture and Forestry Advisory Panel subgroup in December 2020, which illustrated the quantities of renewable natural gas and biogas. Mr. Brand stated that the Waste Advisory Panel had received Bob Howarth's presentation.

Peter Iwanowicz expressed his opinion that discussions move away from renewable natural gas being used to offset transportation emissions.

Peter Iwanowicz noted that the Climate Act outlines a zero-emissions electricity system by 2040 and inquired as to whether there was dialogue about how to address the possibility that the combustion of waste for energy purposes could cease to be an option after 2040. Mr. Brand stated that there was not much discussion about combustion, focusing instead on increasing recycling, reducing waste, and diverting organics. He stated that there is a lot of debate on combustion, in terms of community impacts, co-pollutants, and other issues. Therefore, if diversion strategies function as designed, there should be no increase in combustion and a big decrease in landfilling, suggesting that combustion would remain roughly the same for the foreseeable future. Ms. Rowland discussed the combustion modeling calculations and, based on that analysis, there does not appear to be any need for new combustors.

In response to an inquiry by Peter Iwanowicz about if the emissions statement holds true when paper, plastics, and organics are diverted, noting that the solid waste plan from 2010 suggests otherwise, Ms. Rowland stated that the answer was "yes" as the model included all sources, while further explaining the methodology that supported her response.

Donna DeCarolis encouraged the Council to be inclusive of options related to renewable natural gas, given how much the State must achieve by 2050. She noted an American Gas Foundation study on the New York State potential for renewable natural gas that can be shared, stating that in her regional utility area, there are 17 active renewable natural gas projects intending to connect to provide energy into the State's economy. While the potential for renewable natural gas may be limited, she believes it is substantial and recommended a close study of the potential for these projects, as others have suggested.

Donna DeCarolis reported on a site visit in Wyoming County where animal and food waste are being co-digested, stating that the demand for the food waste exceeds what they can manage and additional sites are being sought, suggesting this may be an economic development activity as well. Mr. Brand noted that the premise of limited and strategic use point to the need for future study.

Presentation and Discussion: Energy-Intensive and Trade-Exposed Industries Advisory Panel and Just Transition Working Group Recommendations

Energy-Intensive and Trade-Exposed Industries Advisory Panel

Co-Chairs Eric Gertler, President, Empire State Development, and Keith Hayes, Senior Vice President of Clean Energy Solutions, New York Power Authority, presented the Advisory Panel's recommendations. The scope of the Advisory Panel is to develop strategies to mitigate the impact of GHG emissions from the manufacturing and mining industries which contribute the majority of industrial GHG emissions. The recommendations were informed by public and stakeholder inputs, as well as the Council itself, the Climate Justice Working Group, and several other Advisory Panels.

President Gertler presented estimates for industrial sector GHG emissions, which have been cut in half between 1990 and 2018, a decade ahead of schedule regarding the Statewide pace called for by the Climate Act. He also presented illustrative estimates of future emission reductions. He reported that the industrial sector will likely experience little additional emissions reductions between 2018 and 2030 and will contribute more significant reductions between 2030 and 2050 as technologies mature and become more cost-effective.

Key themes presented included:

- Industrial sectors within the Advisory Panel scope total a small share (less than 4%) of the State emissions;
- The "heterogeneous" nature of industry may result in a higher cost per ton of emissions reduced;
- Energy-Intensive and Trade-Exposed industries are likely to represent a high share of industrial sector emissions. These industries are highly sensitive to increased energy costs, that often cannot be passed along, which could cause them to leave the State, resulting in leakage;
- Emissions will decline with decarbonization of the Power Generation sector; near-term

opportunities will likely focus on energy efficiency, while most deep carbonization opportunities will occur further into the future as new technologies become more viable.

Mitigation strategies proposed are: (1) provide financial incentives and technical assistance for the decarbonization of the sector; and (2) create procurement incentives for business to capitalize on low-carbon economic opportunities.

Enabling initiatives proposed include:

- Identify and support technological innovation to enable deep industrial decarbonization;
- Workforce development training to support energy-intensive and trade-exposed industries;
- Increase the available data on industrial GHG emission to prioritize efforts and monitor progress;
- Provide economic incentives to grow the green economy through loans, grants, tax credits or other economic incentives.

President Gertler presented the key themes that emerged for the Advisory Panel regarding disadvantaged communities, including that industrial facilities are often located in or near such communities. Disadvantaged communities should be included in the new green industry opportunities and targeted for decarbonization activities, as air quality and health outcomes in these communities will benefit from lower GHG emissions due to mitigation strategies and residents will benefit from nearby jobs created by lowering emissions and any new green economy industrial jobs.

President Gertler presented themes related to a Just Transition, including:

- Emission and business leakage risks to sector industries and their workers should be mitigated;
- Where possible, opportunities to repurpose fossil fuel infrastructure or create jobs to offset economic losses should be pursued; and
- Government support for GHG reduction activities and economic opportunities that support good jobs should be targeted to residents of disadvantaged communities.

Chair Howard noted that the transfer of older fossil fuel assets for cryptocurrency mining (behind the meter and no longer connected to the electricity grid) is an issue that has come before the NYS Public Service Commission. He inquired as to whether the Advisory Panel discussed this new industry that is extremely energy-intensive, as there are a number of older plants that have been identified as potential sites for this activity. President Gertler stated that the discussions focused on manufacturing and mining and there was not much discussion of cryptocurrency mining, although Kevin Hansen, Senior Vice

President, Head of Public Policy, Empire State Development, noted that this was a topic of the Just Transition Working Group Power Plant Reuse subgroup.

Dennis Elsenbeck suggested the need to reconsider infrastructure investment stating that the utilities have estimated the need for $17.4 billion to build and update infrastructure in order to connect the existing queue of projects in the pipeline. He suggested that an integration-type strategy, or "eco-structure" is needed to assess projects holistically, rather than individually. He suggested there is a need for utilities to begin projecting infrastructure investment needs to identify major constraints and the costs of evolving the distribution system in a decarbonized future, perhaps through the use of proactive incentives - a "forward thinking non-wires approach".

Dennis Elsenbeck suggested that the Advisory Panel consider an additional enabling initiative to provide economic incentives to advance local commercialization of green energy products produced in New York. He also suggested the use of Regional Economic Development Councils to help formalize priorities and advance the Climate Act and the Power Grid Study processes. Co-Chair Harris agreed with the use of the Regional Economic Development Councils and that the issues identified are ripe for the integration analysis and the power grid studies issued earlier this year.

Raya Salter questioned whether the State has the resources necessary to provide the kind of technical assistance that is central to many of the recommendations. She expressed concern that such capacity may not exist, and that further implementation planning is needed on a more granular level, including better defining "technical assistance". President Gertler stated that as the clean industry grows, the technical assistance will evolve over time and emphasized that the bulk of the changes are slated to occur after 2030. Todd Baldyga, Director Industry and Agriculture, NYSERDA, added that NYSERDA offers a flexible, technical assistance program with approximately 60-70 engineering firms to help consumers solve their energy needs by matching customers' pain points with new technologies. This program will continue to evolve and grow as newer technologies are developed.

Raya Salter suggested a pivot toward more overarching plans on structural changes and investments and transforming plans into a comprehensive approach toward structural change, rather than a portfolio of individual projects.

Donna DeCarolis inquired as to whether the Advisory Panel believed that it had a robust amount of engagement, and if there is any assistance that the utilities could provide. She is supportive of the RD&D initiative and would like to involve utilities as stakeholders. She commended the panel for its work on interstate emissions and investment leakage and suggested leveraging the work being done by institutions such as the Low Carbon Resources Initiative (LCRI) of the Electric Power Research Institute (EPRI) and the Gas Technology Institute (GTI). President Gertler acknowledged robust public engagement discussions over the course of months, highlighting the wide array of views expressed within the Advisory Panel and public input sessions. He noted the extensive discussion on leakage, emphasizing concern with businesses leaving the State and continuing to emit at the same levels, as well as a concern with labor and ensuring jobs stay within New York. He agreed there is additional work being done that would benefit these efforts and suggested there is much that will be developed from R&D and venture capital and that there will be increasingly effective results as more advanced technologies come on-line. Mr. Hayes noted the ongoing involvement with EPRI and GTI, even beyond the work of this Advisory Panel.

In response to an inquiry from Anne Reynolds regarding costs and whether the Advisory Panel is suggesting a continuation of the incentives in place or recommending an increase to achieve the goals, President Gertler responded that there are many reasons for past emission reductions, including changes in federal programs, changes in the way business was conducted, and others, and clarified that the current recommendations leverage programs that currently exist or new programs that are quite efficient (such as tax credits). The goal was to tread lightly to minimize costs to industry itself while providing directional support to achieve the desired results. Mr. Hayes added additional examples that were also examined and included in the recommendations.

In response to Anne Reynolds clarifying inquiry as to whether the recommendation is to keep funding the same or to implement an increase, Mr. Hayes suggested that the intention is to keep the funding the same while leveraging any federal funding that may become available in the future.

Peter Iwanowicz reiterated the suggestion to use Regional Economic Development Councils as partners, suggesting the need for them and all of State government to fully appreciate their responsibilities under the Climate Act.

Peter Iwanowicz inquired as to what extent the Advisory Panel considered fuel inputs as a way to reduce carbon intensity, cautioning that the definition of low carbon materials is something that needs to

be taken seriously owing to the potential negative health impacts. He also asked if Environmental Conservation Law Section 75-0109 was considered. President Gertler stated that the Advisory Panel did not get to that level of granularity on carbon intensity definitions but was more focused on strategic discussions. Mr. Baldyga agreed that while the Advisory Panel did not address that level of granularity, he also agreed that it was a good suggestion.

In responding to an inquiry by Peter Iwanowicz as to whether the Advisory Panel had any recommendations on whether the NYS Department of Environmental Conservation should proceed with developing an alternative compliance mechanism, Co-Chair Doreen Harris and Ms. Leddy confirmed that was not part of the Advisory Panel scope.

Gavin Donohue suggested that most of the energy-intensive work done on economic development projects is government-driven and expressed concern about the creation of mitigation strategies and initiatives to be applied to the private sector. He recommended that the requirements cannot be applied exclusively to the private sector and inquired as to whether the Advisory Panel focused on government compliance. President Gertler responded that the Advisory Panel focused primarily on manufacturing and mining and the focus was on issues such as leakage, an issue separate from those faced by government operations. Co-Chair Harris emphasized that while State entity compliance is not directly a Council issue, noting that it is an agency responsibility, it will likely be appropriately addressed in the Scoping Plan.

Just Transition Working Group

Commissioner Reardon, Co-Chair of the Just Transition Working Group (JTWG), provided updates on the most recent work streams, including cross-panel efforts that included the Power Generation, Land Use and Local Government, and Energy-Intensive and Trade-Exposed Advisory Panels as well as holding a dedicated public comment engagement session. She provided a review of the five main work products of the Working Group that include: Just Transition Principles, Workforce Development and Training, Business Impacts, Power Plant Inventory and Site Reuse and a Jobs Study, the latter four of which are statutory requirements of the Climate Act.

Regarding the intent to serve as non-binding tenants for shaping recommendation development and to guide working group and advisory panel recommendations, Commissioner Reardon described the Just Transition principles as:

- Stakeholder engaged transition planning;
- Collaborative planning for a measured transition toward long-term goals;
- An articulation of the importance of preservation of culture and tradition;
- Realizing vibrant, healthy communities through repair of structural inequalities;
- Equitable access to high-quality family-sustaining jobs;
- Redevelopment of industrial communities;
- Developing a robust, in-State, low-carbon energy and manufacturing supply chain;
- Climate adaptation planning and investment for a resilient future;
- Protection and restoration of natural and working land systems and resources; and
- Pursuit of mutually affirming targets for State industrialization and decarbonization.

An initial set of workforce training and development recommendations will be further built upon following the completion of the Jobs Study. The activity categories identified include:

- Direct displaced worker support, including training funds, wage support, job fairs and strike force support;
- Further evaluation of labor standards, such as project labor and community workforce agreements;
- Targeted financial support for business to address diversity, equity and inclusion;
- Development of Climate Justice and clean energy training curriculum and programs;
- Development of comprehensive career pathway programs for future and existing workers; and
- Increasing initiatives for community engagement, stakeholder input, and market assessments, and in addition to the completion of the Jobs Study, additional information will be gleaned about the fossil fuels workforce through survey work.

Kevin Hansen reported on the business impacts related to the identification of energy-intensive industries and related trades as required under the Climate Act. These are industries that spend the highest percentage of revenues on electricity and fuel costs, a subset of which also compete in global or regional markets with less opportunity to pass along these costs to consumers while remaining viable competitors. Related trades are the occupations that are most concentrated in each of these industries. Mr. Hansen presented information showing that energy-intensive and trade-exposed industries are most concentrated in the manufacturing and mining sectors, totaling about 400,000 jobs within the State (about 5% of the State's private sector jobs), as well as information regarding the top 30 most energy-intensive industries in the country, based upon national data, plotted against approximately how many of the occupations are within New York, as well as their relative energy and trade intensity. While fewer New York industries are above 2.5% energy intensity, many are above the 15% threshold to be considered trade exposed. The largest energy-intensive industries in the State are paper mills and semi-conductors and related devices.

Mr. Hansen also addressed a preliminary list of potential challenges and opportunities facing these industries, along with corresponding potential strategies. Challenges include business and emissions leakage, electricity and fuel costs and system reliability. Opportunities were identified as building and fostering strategic partnerships and promoting low-carbon products.

Co-Chair Harris reported on the power plant inventory and identification of issues and opportunities presented by site reuse, both required by the Climate Act. The Working Group identified the top issues spanning a wide range of considerations and factors, including displaced workforce, reduced property tax revenues, parcel ownership issues, local planning capacity, dormant site impacts, environmental remediation, reliability impacts, and stranded assets. Top opportunities include repurposing with on-site clean resources, interconnection points for offsite renewables, commercial redevelopment, port or marine infrastructure, industrial re-use, green space or park infrastructure and diversification of property tax revenues.

Regarding the required power plant inventory, Co-Chair Harris stated that the informational inventory should assist with ongoing and future planning efforts at the local and State level and to position the State for any potential federal resources. The inventory focuses on objective power plant metrics and data points most salient for future transitions and includes identification of over 60 private and public facilities with over 2,000 associated jobs. The State has approximately 150 emitting facilities with roughly 24,000 employed in the traditional electric power generation sector.

Regarding the Jobs Study, Co-Chair Harris stated that a study is required to analyze a broad set of employment impact questions related to achieving the Climate Act requirements and that a contractor was selected, and a scope of work was initiated in December 2020. Three core objectives of the jobs study include (1) developing the structural and analytic framework to estimate the number of jobs created and lost due to climate change mitigation strategies, investments and related scenarios; (2) measuring and describing the employment impacts by industry and occupation for each climate change scenario based on the outputs developed in the first objective; and (3) estimating the workforce implications associated with each of the climate change mitigation strategies and scenarios.

In response to an inquiry by Donna DeCarolis regarding how issues of reliability, resilience and fuel costs might be addressed, Mr. Hansen stated that in focusing on issues of concern to industry it became clear that reliability was a top concern and Co-Chair Harris added that many of the identified issues will be taken up within the Power Generation Advisory Panel.

Raya Salter expressed her thanks for the presentation and was happy to see robust educational and MWBE initiatives. In addition to the role to be played by NYSERDA in these efforts, she inquired as to the role of universities and other educational institutions. In response, Commissioner Reardon agreed that developing an educational strategy will be important for developing a pipeline through every level of

education, stating that K-12 partnerships are likely the most impactful and everyone will need to be involved – parents, communities, and educators.

In response to an inquiry by Ms. Salter as to whether there was a "gender lens" on the Jobs Study and the discussions in general, Co-Chair Harris stated that, given the underrepresentation of women in the clean energy sector, it is a very specific focus that should be improved upon and she will take this issue back to the Jobs Study Team. She added that the Jobs Study contractor does examine demographics as part of its longitudinal study and NYSERDA has observed improvements within its own efforts, such as increases in women in building trades.

Ms. Salter also suggested that how the State entities are implementing Climate Act, section 7, including the interagency plans, will be critical and should be a part of these discussions. Commissioner Reardon reported on DOL efforts through its Green Team, including green office practices, exploring green roofs, and changing out fleet vehicles, noting that the State should not ask businesses to do what it is not willing to do itself.

Rose Harvey suggested that the Department of Labor tap into the Empire Conservation Corps, administered by the NYS Office of Parks and Historic Preservation and the NYS Department of Environmental Conservation, which has been recently ramped up for clean energy, as well as the Regional Economic Development Councils. Commissioner Reardon agreed that speaking to younger people about the breadth of opportunities that will be available in this new economy, and in some unusual places, is very exciting. Co-Chair Harris also mentioned the new Climate Justice Job Corp fellowship program, currently under development, as another example of State agency coordination.

Bob Howarth offered additional perspective regarding bitcoin and cryptocurrencies, citing a potential project in the Finger Lakes that could be a very large consumer of power. He offered insight into reports from China and India which may be finding it difficult to meet GHG emission goals while also meeting the power needs of this industry. In response to his inquiry regarding the current State regulatory framework for this type of facility, Chair Howard described the role of the NYS Public Service Commission when such facilities become behind-the-meter industrial users, the air and water permit requirements, and the role of the local municipality. Jared Snyder added that the mentioned facility is in the DEC permitting process, which applies without regard to the facility being behind-the-meter and suggested that the Council may want to consider whether recommendations should be developed concerning categories of industries that fall within gaps. Both Mr. Howarth and Mr. Iwanowicz agreed that this is an area that should be addressed by the Council, with Mr. Iwanowicz suggesting that he doesn't

believe this industry would fit within the definition of an energy-intensive or trade-exposed industry for purposes of the Climate Act.

In response to an inquiry by Mr. Iwanowicz regarding the suggestion in the written materials on business emissions leakage of an extended compliance pathway for sources that may extend beyond the 2050 statutory deadline, Mr. Hansen explained the context of the subgroup discussion regarding potential incentive designs for early action such that considerations would be applied for business that may have electrified to a great extent prior to 2021 or would involve the design of bankable, tradable credits but he could not recall any specific consideration of post-2050 compliance.

Dennis Elsenbeck suggested tapping into local workforce development initiatives and engaging in better alignment with diversity and equity community groups, noting that a balancing that will need to occur in filling existing open positions as well as green innovation jobs. He also suggested better inclusion under the comprehensive career pathway programs to go beyond including manufacturing trade associations to also include real estate industry, the building and owners management associations, the NYS Economic Development Council and the Regional Economic Development Councils. Commissioner Reardon responded by acknowledging that there are many groups in this space and that the State would like to work with all of them. They will be critical to moving forward, they have a new mission, and her experience with the Regional Economic Development Council process, and the DOL practice of coordinating across all ten regions of the State will need to be an important part of the strategy. The strategy cannot be "top down" but instead, must work from the ground up filling current jobs openings and evolving training processes.

Regarding discussions about electricity fuel costs and system reliability, Dennis Elsenbeck suggested that there is a need to take a closer look at resiliency issues from the perspective of the ratepayer and the market – those impacted by outages at the point of use. He is in favor of the potential strategies presented that include on-site renewable electricity and energy storage, as he believes that the issue is not just one of lowering costs, but of building local capacity. If one waits for the capacity need to arise, it will result in the need for large utility infrastructure investments, which could be addressed more holistically in utility planning.

In clarifying Dennis Elsenbeck's inquiry regarding the since-retired coal plants, Dunkirk and Huntley, Co-Chair Harris stated that, although the plants retired prior to the enactment of the Climate Act, and therefore did not appear on the list at today's presentation, their potential redevelopment is not excluded from future discussions.

Next Steps

Co-Chair Harris stated that the Team has been taking careful notes during the meeting to highlight specific topics for further discussion by the Council. The next meeting will be held on May 10, 2021 and will follow a similar format and will address the draft recommendations of the remaining Advisory Panels.

At the June 2021 meeting, the focus will be on adaptation and resilience recommendations, as well as feedback from the Climate Justice Working Group on all of the recommendations.

In response to an inquiry by Gavin Donohue regarding opportunities for public input on any of the deliberations at this point of the process, Maureen Leddy, NYS Department of Environmental Conservation, stated that public input is always welcomed through the Climate Act website and that information is made available to Council Members as it is received. In addition, the formal public comment period will commence after the release of the Draft Scoping Plan. Co-Chair Harris also added that all of the recommendations presented are informed by stakeholder input.

In response to an inquiry by Peter Iwanowicz regarding a date for the June meeting, Co-Chair Harris stated that follow-up on the June date will be clarified.

With that, the meeting was adjourned.

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Climate Action Council

ANDREW M. CUOMO	DOREEN HARRIS	BASIL SEGGOS
GOVERNOR	CO-CHAIR	CO-CHAIR

Meeting Agenda

April 12, 2021

- Welcome
- Consideration of February 26, 2021 Minutes
- Presentation and Discussion: Agriculture and Forestry and Waste Advisory Panels Recommendations

  Noon - 1pm: Break

- Presentation and Discussion: Energy-Intensive and Trade-Exposed Industries Advisory Panel and Just Transition Working Group Recommendations
- Next Steps

In keeping with measures designed to limit the spread of COVID-19, the meeting will be conducted by teleconference and members of the public will be welcomed to observe and listen to the meeting via webcast only. The webcast may be accessed by going to the Climate Action Council website: climateact.ny.gov