

Energy-Related Air Quality and Health Effects Research
Program Opportunity Notice (PON) 3208
\$2,000,000 Available

Proposals Due: April 13, 2016 by 5:00 PM Eastern Time*

The New York State Energy Research and Development Authority (NYSERDA) has developed a long-term research plan for the Environmental program (Air Quality and Health Effects plan components are available through NYSEDA's website at <http://www.nyserda.ny.gov/-/media/Files/Publications/Research/Environmental/Air-Quality-Research-Plan.pdf>). This PON is guided by the research plan and supports research to improve the scientific and technical foundation for addressing key policy-relevant questions related to air quality and health effects research.

Targeted research topics are:

- A. Emissions Inventory and Source Characterization
- B. Localized Exposure Characterization
- C. Trends – Tool Development and Accountability Analysis
- D. Monitoring, Modeling, Characterization, and Understanding of Atmospheric Processes

\$2,000,000 is available for projects. Awards are limited to no more than \$400,000; NYSEDA anticipates making multiple awards addressing multiple targeted research areas. Project durations are expected to be in the range of one (1) to three (3) years. Total funds available may not be sufficient to fund all proposals received. Cost-sharing by proposers of at least 25% is preferred. Leveraging of other research funding is strongly encouraged. In-kind cost-sharing is acceptable.

Proposal Submission: Electronic submission is preferable. NYSEDA will also accept proposals by mail or hand-delivery. If submitting electronically, proposers must submit the proposal in either PDF or MS Word format with a completed and signed Proposal Checklist and Disclosure of Prior Findings of Non-Responsibility, in PDF format. Proposal PDFs should be searchable and should be created by direct conversion from MS Word, or other conversion utility, rather than scanning. For ease of identification, all electronic files must be named using the proposer's entity name in the title of the document. Proposals may be submitted electronically by following the link for electronic submissions found on this PON's webpage, which is located in the "Current Opportunities" section of NYSEDA's website (<http://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities.aspx>). Instructions for submitting electronically are located as Attachment G to this PON.

If mailing or hand-delivering, proposers must submit (2) paper copies of their proposal with a completed and signed Proposal Checklist, along with a CD or DVD containing both a PDF or MS Word digital copy of the proposal, following the above guidelines. Mailed or hand-delivered proposals must be clearly labeled and submitted to:

Roseanne Viscusi, PON 3208
NYS Energy Research and Development Authority
17 Columbia Circle
Albany, NY 12203-6399

If you have technical questions concerning this solicitation, contact Ellen Burkhard at (518) 862-1090, ext. 3332 or Ellen.Burkhard@nyserda.ny.gov. If you have contractual questions concerning this solicitation, contact Venice Forbes at (518) 862-1090, ext. 3507 or Venice.Forbes@nyserda.ny.gov.

No communication intended to influence this procurement is permitted except by contacting Ellen Burkhard (Designated Contact) at (518) 862-1090, ext. 3332 or Ellen.Burkhard@nyserda.ny.gov. Contacting anyone other than this Designated Contact (either directly by the proposer or indirectly through a lobbyist or other person acting on the proposer's behalf) in an attempt to influence the procurement: (1) may result in a proposer being deemed a non-responsible offerer, and (2) may result in the proposer not being awarded a contract.

*Late proposals will be returned. Incomplete proposals may be subject to disqualification. It is the bidder's responsibility to ensure that all pages have been included in the proposal. Faxed or e-mailed proposals will not be accepted. Proposals will not be accepted at any other NYSEDA location other than the address above. If changes are made to this solicitation, notification will be posted on NYSEDA's website at www.nyserda.ny.gov.

I. Introduction

The primary mission of NYSERDA's environmental research program is to increase understanding and awareness of the environmental impacts of energy choices and emerging energy options and provide a scientific, technical foundation for formulating effective, equitable, energy-related environmental policies and resource management practices.

This PON seeks proposals for research projects that further improve NYS's understanding of air quality and public health effects issues related to all aspects of energy production and use, including storage and distribution. Combustion of fossil fuels and some renewable fuels (e.g. biomass) for power, transportation, industrial processes, construction equipment and heating systems results in significant sources of gaseous, particulate, and air toxic emissions. Conversely, some renewable energy production, such as those based on solar and wind do not have on-site emissions of greenhouse gases, criteria pollutants or air toxics.

New York is embarking on a comprehensive energy strategy that includes initiatives presented in the State Energy Plan, the Reforming the Energy Vision (REV) and the Clean Energy Fund regulatory proceedings, and through the announcement of a Clean Energy Standard. In addition, certain federal policy and regulatory initiatives are likely to impact State energy-related activities.

The REV effort, for example, is expected to transform the way in which NYS values, generates, distributes, and manages electricity. Its implementation is expected to result in the increased penetration of distributed energy generation technologies. These technologies will include solar, wind, fuel cells, hydroelectric, and various combustion technologies, along with an increased use of energy efficiency technologies and demand management measures to address peak load demand on New York's electric system.

REV and additional initiatives in the State Energy Plan have the following goals to be accomplished by 2030:

- 40% reduction in greenhouse gas (GHG) emissions from 1990 levels
- 50% of energy generation from renewable energy sources
- 600 trillion Btu increase in statewide energy efficiency

Collectively, most of these objectives will have an effect on energy-related emissions with respect to spatial and temporal patterns and may also effect ambient concentrations of ozone (O₃), particulate matter (PM), their precursors, co-pollutants and air toxics (which include hazardous air pollutants). Human exposure to these energy-related pollutants may change as well. Overall environmental benefits are anticipated by reducing fossil fuel use. However, local and site-specific impacts are more challenging to estimate.¹

Along with the initiatives stated above, the New York State Department of Environmental Conservation (NYSDEC) is proposing to set new limits on nitrogen oxides (NO_x) and particulate matter (PM) from distributed generation sources. This will assist NY in planning to meet the National Ambient Air Quality Standards (NAAQS) for O₃ and fine particulate matter (PM_{2.5}). It also addresses a need identified by the Public Service Commission in the REV proceeding for NYSDEC to develop rules that avoid or mitigate potential harmful emissions from distributed generation. The new standards are anticipated to be more stringent in New York City and apply to non-emergency units larger than 150 kW in NYC and greater than 300kW in the rest of the State. More information may be found at: <http://www.dec.ny.gov/regulations/104487.html>.

The New York State Department of Health's Prevention Agenda 2013-2017 is a blueprint for state and local action to work toward the goal of making New York the healthiest state. Elements of the Prevention Agenda that are relevant to this PON include promoting a healthy and safe environment and reducing chronic disease with a focus on burdened communities in NYS. Improving outdoor air quality by reducing exposures to PM_{2.5}, O₃, and air toxics are commensurate with the goals of these focus areas. Opportunities may exist to reduce exposure to harmful air pollutants while reducing GHGs. More information can be found at: http://www.health.ny.gov/prevention/prevention_agenda/2013-2017/index.htm.

¹ The Final Generic Environmental Impact Report for REV and the Clean Energy Fund can be found at: <http://energystorage.org/resources/draft-ny-dps-generic-environmental-impact-statement-case-14-m-0101-reforming-energy-vision>.

At the federal level, the Clean Power Plan and implementation of plans to achieve NAAQS will also have an impact on emissions sources and air quality within and upwind of NYS. In 2015, the NAAQS for O₃ was strengthened from 75 to 70 ppb. The NAAQs for PM_{2.5} is currently under review.

Proposers are requested to consider these energy, environmental, and public health objectives and scientific needs when responding to the targeted research topics in this PON.

Proposals will be considered responsive to this solicitation only if they address the targeted research areas in this PON. Preferred projects are those that: provide data in a form that is useable by policy analysts and policymakers; utilize research/analytical capabilities in New York State; are comprised of interdisciplinary teams including environmental, health and social scientists, and public policy analysts; and leverage out-of-State, federal, or other resources to address critical environmental issues in New York State. Projects should support research that helps improve the scientific and technological foundation to address key policy-relevant questions related to air quality and health effects research. They should build upon or coordinate with existing efforts, and not duplicate work by others. When appropriate, selected proposers may be asked to work with a Project Advisory Committee.

II. Program Requirements – Targeted Research Areas

A. Emissions Inventory and Source Characterization

Problem Statement: Emissions inventories tend to represent broad geographical areas and relatively long time intervals. As a result, the data are of more limited value to air quality modeling and exposure studies on shorter time intervals. There are localized geographical areas of high emissions density where concentrations cannot be predicted by the inventory. These areas often are located in densely populated areas, often in disadvantaged and burdened communities. Community exposure is a result of many individual sources, such as commercial buildings burning fuel oil for domestic hot water and space heating, highly-congested roadways, construction equipment, industrial facilities, landfills, ports, and airports. Changing electrical generation technologies to greater use of distributed generation in community microgrids including solar, wind, natural gas micro-turbines and diesel generators will change source numbers, their locations and emissions profiles (for more information please see microgrids 101 <http://www.nyserda.ny.gov/All-Programs/Programs/NY-Prize/Microgrids-101>). Emerging technologies such as combined heat and power, condensing boilers, and increased use of low-sulfur fuels, liquid bio-fuels, biomass fuels, hybrid-electric, electric, and alternative-fuel vehicles, or emission control technologies, will change source profiles for building heating systems, and vehicles. Improvement in the inventory of emissions sources, fuel types, activity patterns, and emissions profiles (including chemical speciation of emissions, primary particle size distributions, volatile organic compounds, nitrogen oxides, and air toxics) is essential for improved pollution-mitigation planning, air quality forecasting, and exposure assessments to support community health studies.

Research Focus:

- Develop community-scale “micro-inventories” through pilot-scale studies (including method development) with the goal of improving the current inventory and source emissions profiles (greenhouse gases, PM, PM components, particle size distribution, and co-pollutants including SO₂, NO_x, VOCs (including carbonyls), other air toxics, PM or ozone precursors). Studies that support concurrent or subsequent ambient air quality monitoring or exposure studies at the community-level scale are also encouraged. These studies must resolve and/or estimate the emissions at much finer spatial (a few hundred meters) and temporal (an hour or less) scales than traditional inventories, which are generally at the county level and are based on annual or seasonal averages.
- Studies are needed to improve the quality of emissions profiles and activity data for those point, area, and mobile (on-road and off-road) sources for which current data are missing or inadequate and to examine emerging technologies. More-sophisticated emissions profiles need to be developed for ozone and PM precursors, air toxics, methane and other GHGs, and primary particle size distributions. Examples of energy-related source profiles of interest include distributed electrical generation sources, emergency back-up generators, generators used for voltage control, commercial/institutional sources of combustion, natural gas storage and distribution systems, energy storage and management facilities, and mobile sources.

B. Localized Exposure Characterization

Problem Statement: While general air quality has improved over the past 30 years as a result of emission control programs, geographic areas exist where high-emitting or highly concentrated sources may cause consistently higher concentrations of air pollution than other areas. Studies are needed to improve understanding of the relationships between local sources, pollutant exposure(s) and human health effects. Both acute and chronic health effects are of interest in this regard (e.g., cardiovascular, pulmonary, reproductive, and neurological). Detailed spatial and temporal characterization of concentrations of PM, PM components, particle size distribution, and co-pollutants including SO₂, NO_x, VOCs, PM precursors, or air toxics is needed to support exposure and health studies. Sources may include residual oil-fired power plants, back-up generators, distributed generation technologies, major express highways, ports, airports, warehouse staging areas with high numbers of diesel vehicles, other locations heavily impacted by energy-related sources or improved/changed by new technologies (e.g., renewable energy technologies, micro turbines, emission control upgrades, electric vehicles or diesel retrofits), fuel types (e.g., lower sulfur fuels, biofuels, biomass), or planning (e.g., energy efficiency, energy management, green zones, or community microgrids). Spatially-intensive air monitoring is needed to assess concentration gradients, contributions from important source types, conduct exposure assessments, assess potential health effects or perform community health studies. Activities in these areas could be coordinated with or extend research conducted as part of a micro-inventory. Where possible, accountability projects that measure and quantify PM, PM components, precursors, air toxics, greenhouse gas emissions, exposure, and health impacts should address the associated monetary benefit and cost of the policy change.

Research Focus:

- Assess the potential health relevance of community-scale pollution exposure in New York State. There should be a defined residential or occupational population nearby that is potentially impacted. These might include, but would not be limited to, vulnerable or disadvantaged communities in areas located in and around microgrids, landfills, ports, airports, neighborhoods impacted by high-volume road traffic, areas affected by a high density of diesel generators or other power production, fuel storage, fuel distribution, and residential or commercial biomass heating or power.
- Characterize the spatial and temporal patterns of air pollutant concentrations in the vicinity e.g., through receptor modeling efforts, by spatially intensive air monitoring, or personal monitoring to characterize personal exposures and to assess human health risks.
- Projects might address relationships between personal and ambient exposure, augment and strengthen ongoing epidemiologic studies, support source-apportionment analyses, particularly where epidemiological studies are being considered, evaluate social demographic factors, or assess dose-response relationships. To the extent possible, projects are encouraged to use state-of-the-art analytical methods and capabilities. Low-cost monitors may be used to supplement established methods but their performance must be evaluated with state-of-the-art analytical methods.

C. Trends – Tool Development and Accountability Analysis

Problem Statement: Trends analyses are needed to assess whether federal, state, and local programs and policies (e.g., SIPs, Clean Power Plan, NYS Energy Plan, REV, Clean Energy Fund, PlaNYC/One City) aimed at reducing greenhouse gas emissions and other pollution are having the intended impact on air quality, exposure and public health. Determination of trends for some air quality metrics has been difficult because insufficient data are available to verify emission reductions, ambient data collections are limited by spatial and temporal coverage of observations, and due to data gaps in the emissions inventories. The determination of trends is further complicated by the complexities of atmospheric chemistry, which often creates non-linear relationships between emissions and ambient observations. Innovative techniques and combinations of techniques (for example, joint applications of empirical data and deterministic models) are needed to estimate robust and credible trends and improve the ability to conduct epidemiology studies.

Research Focus:

- Develop and/or apply models that will simulate emissions at the microscale in complex environments (e.g., urban environment or rural valley), and evaluate modeling results using ambient pollutant measurements. The validated model may be used for improved exposure assessment and estimates of health impacts at the local scale.
- Develop approaches for diagnostic, dynamic and probabilistic evaluation of air quality models to determine:
 - how well models simulate changes in air quality induced by changes in weather versus changes in emissions

- the ability of air quality models to accurately estimate the emissions reductions needed to comply with NAAQS
- Analyze changes in total PM_{2.5}, PM chemical components, PM size distributions, NO_x, NO_y, NH_x, VOCs (including carbonyls), ozone, greenhouse gases, air toxics and other trace gases to determine trends resulting from federal, state, and local programs and policies (e.g., SIPs, Clean Power Plan, NYS Energy Plan, REV, Clean Energy Fund, One City). Approaches may include trends analysis of data from ground-based measurements and remote-sensing techniques, including analyses of satellite measurements. Analyses should have sufficient temporal and spatial scope to capture the possible impacts of the program implementation on ambient concentrations and exposure levels for New York State residents. A large database of air quality measurements exists for Whiteface Mountain, Rochester, Pinnacle State Park, and Queens College and is available for trends analysis.
- Perform accountability analyses to evaluate how changes in regulations, policies, technologies or energy use patterns change emissions, and affect local or regional air quality, exposure, and public health. Where possible, accountability projects that measure and quantify total PM, PM components, co-pollutant emissions, greenhouse gas emissions, air toxics, exposure, and health effects over time should address the monetary benefit and cost of the change.

D. Monitoring, Modeling, Characterization and Understanding of Atmospheric Processes

Problem Statement: The production and use of energy results in emissions of many gaseous and solid chemical species. These emissions may be involved in numerous complicated atmospheric processes, including ozone production and aerosol formation. Much information is needed to characterize atmospheric species, including trace gas concentrations, particle size distributions, chemical composition of aerosols, air toxics and greenhouse gases. The species of interest in the atmosphere include not only those species that are directly emitted or that are ultimately formed through atmospheric chemistry, but also intermediate species that can provide insights into atmospheric chemical processing. Beyond ground-based measurements, the vertical profile and synoptic-scale spatial distributions of aerosols and gases are needed for improved understanding of atmospheric processing and air quality management. These studies may also support exposure and health studies.

Research Focus:

- Perform highly time-resolved measurements of NO_y, NO_x, HNO₃, HONO, PAN, H₂O₂, CO, O₃, NH₃, CH₄, organic peroxides, and VOCs in urban and regional atmospheres in New York State to improve the quantitative understanding of atmospheric oxidation cycle and ozone production.
- Review and interpret existing oxidant measurements in selected urban and rural sites and combine with photochemical modeling to look for improved measurement coverage and indicators of anomalies that could influence O₃ chemistry.
- Expand VOC (including carbonyls) and PM-OC (particulate matter-organic carbon) speciation measurements to include quantitative tracers of biogenic or otherwise naturally derived primary and secondary organic carbon versus anthropogenic components to include at least two regionally representative rural sites and New York City.
- Characterize particle-size distributions in New York State on a highly time-resolved basis to identify source types and dynamics in particle production and growth. These measurements should be performed alongside detailed measurements of gaseous compounds and speciated aerosols in the ultrafine, accumulation mode, and coarse thoracic size ranges.
- Improve remote-sensing data for New York State and the region. Research is needed regarding multi-sensor data analysis from different instruments, including satellites which can potentially improve the spatial and temporal resolution and quality of PM, O₃ and precursors, greenhouse gases, aerosol optical data, for estimating coarse/fine-mode fractions, and separating absorbing and non-absorbing aerosols.
- Improve spatial and temporal observations for O₃ and precursors using satellite data to inform local and regional production, cycling and transport of O₃.
- Measure PM_{2.5} composition, particle size distribution, and gases using a high temporal resolution for better source apportionment, evaluate changes in emissions sources so as to support exposure and health studies, and conduct trend analysis. Samples for analysis may include archived samples from previous studies to maximize research value. The organic fraction of PM and air toxics are of particular interest.

III. Proposal Requirements for Targeted Research Areas

Proposers must submit a complete proposal in either PDF or MS Word format with a completed and signed Proposal Checklist and Disclosure of Prior Findings of Non-Responsibility, in PDF format. Proposal PDFs should be searchable and should be created by direct conversion from MS Word, or other conversion utility, rather than scanning. For ease of identification, all electronic files must be named using the proposer's entity name in the title of the document. Proposals may be submitted electronically by following the link for electronic submissions found on this PON's webpage, which is located in the "Current Opportunities" section of NYSERDA's website (<http://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities.aspx>). Instructions for submitting electronically are located as Attachment G to this PON.

If mailing or hand-delivering, proposers must submit (2) paper copies of their proposal with a completed and signed Proposal Checklist, along with a CD or DVD containing both a PDF or MS Word digital copy of the proposal, following the above guidelines. Mailed or hand-delivered proposals must be clearly labeled and submitted to the attention of Roseanne Viscusi at the address on the front of this PON.

Proposals should not be excessively long or submitted in an elaborate format that includes expensive binders or graphics. Unnecessary attachments beyond those sufficient to present a complete, comprehensive, and effective response will not influence the evaluation of the proposal. Each page of the proposal should state the name of the proposer, PON 3208 and the page number.

Proposals should follow the format below and provide sufficient and succinct information to complete the required descriptions and answer the questions described in the Proposal Evaluation criteria listed in Section IV. The preferred length of each proposal section is shown. **Proposals are subject to return without evaluation if more than 14 pages are submitted** (not including the Checklist Cover Sheet, Contract Pricing Proposal Forms (Attachment C), one-page letters of commitment, and resumes), or if a font smaller than 11 point is used. **Proposers may contact Ellen Burkhard at 518-862-1090 ext. 3332 before preparing a proposal to discuss proposal requirements.**

Proposers must submit the appropriate number of copies of the completed proposal to the attention of Roseanne Viscusi at the address on the front of this Program Opportunity Notice. A completed and signed Proposal Checklist (Attachment A) must be attached as the front cover of your proposal, one of which must contain an original signature. **Late proposals will be returned and proposals lacking the appropriate completed and signed Proposal Checklist may be returned. Faxed or e-mailed copies will not be accepted.**

Proposal Format:

PART 1: Project Summary (Four pages total)

- A. Proposal Checklist Cover Sheet: A signed and completed Proposal Checklist (Attachment A) must be attached to the front of the proposal. (Not included in page count) *Proposals lacking the appropriate completed and signed Proposal Checklist will be returned.*
- B. Project Summary and Policy Relevance: Summarize the proposed project and its policy implications. Clearly indicate how each of the main goals of the project relates to one or more of the Targeted Research Areas. Describe any energy, air quality, or public health policy issues this research would potentially inform. Detail the project goals and major objectives. Explain how the project results will address, in a timely manner, a problem/opportunity facing New York State with respect to pollutants associated with the generation, use, storage or distribution of energy. Coordination with other national, state or local cooperative environmental research initiatives is desirable. Explain how the project will make use of other relevant data and coordinate with other initiatives where possible to provide maximum value to New York State. (Two pages)
- C. Summary of Project Methods: Summarize the proposed project methods and overall research design. Explain why the equipment, models, methods, and other aspects of the work are expected to be capable of meeting objectives. Describe the extent to which these have been accepted by the scientific community and policy making organizations, or otherwise demonstrated to be valid. The methods must be outlined in detail and clearly designed to meet the project objectives. The methodology for statistical analysis of the data from all aspects of the project must be clearly presented. (Two pages)

PART 2: Statement of Work (Seven to nine pages total)

- A. Tasks: The Statement of Work is the primary contractual document that identifies the task sequence, deliverables, and provides the basis for progress payments. It is an action document, divided by the individual tasks or procedures required to accomplish the project objectives. Each task should be identified with a description of its objective, how it will be performed, and the anticipated deliverables and milestones. As appropriate, tasks should include a clear description of general operating procedures, quality control and quality assurance measures, analytical procedures, data analysis, evaluation, and statistical analysis to be used to optimize the quality of the data and project results. (Five to seven pages)
- B. Information Transfer and Dissemination Plan: The Statement of work must include a task for reporting and information transfer. The following baseline reporting and information transfer work will be required for each project and should be considered in allocating resources for this task: presentations at meetings and completing quarterly progress reports, a comprehensive final technical report, and articles for submission to peer-reviewed journals. In addition, each principal investigator will be required to prepare a short paper summarizing the usefulness of their research findings for environmental policy formulation. Principal investigators are strongly encouraged to collaborate with social scientists/policy analysts in preparing these policy papers and a technical editor for all final documents. Findings-to-date shall be presented to NYSERDA's Environmental Research Program Advisory Group and invited guests at annual meetings (in Albany, NY) arranged by NYSERDA staff.

Additional methods of information transfer and reporting may be proposed for involving pertinent policy makers or regulators and other target audience representatives during the project and for using the anticipated project results to achieve projected public benefits. Efforts to increase access to, or use of data collected, is encouraged. Outreach or education about project findings is also encouraged. (One Page)

- C. Master Schedule: Complete a schedule showing start and completion times for all major tasks, in terms of months after project initiation. Include major milestones and meetings, tests, demonstrations, reports, and other key deliverables. The Schedule should be realistic and reflect the nature of environmental research. (One Page)
- D. Contract Pricing Proposal Form: Complete the attached Contract Pricing Proposal Form (Attachment C) for the entire project, including any in-kind contributions and other cost-sharing. The degree of cost-sharing will be considered in the evaluation of proposals. **Cost-sharing of at least 25% is preferred.** Leveraging of other research funding is preferable. In-kind cost-sharing is acceptable. (Not included in page count)

PART 3: Supporting Documentation (Three pages total)

- A. Management Plan and Qualifications:
- Organizational Chart - Prepare an organizational chart listing all key personnel by name. The role for each of the team members must be clearly described in the proposal. Include any subcontractors and other sponsors involved in the project, showing their roles and responsibilities.(One page)
 - Tasking Chart - Prepare a tasking chart, describing approximately in hours or days the effort contributed by each of the key personnel to each task and the total effort. (One page)
 - Related Projects – Provide a sample of related projects that have been undertaken by the proposer and/or subcontractors. For each project, provide a brief summary, describing its title, scope, funding amount and client contact numbers. NYSERDA may contact listed clients. (One page)
 - Resumes - Submit relevant portions of resumes of all key project personnel, including those of proposed subcontractors. Include education and experience that are relevant to the proposed work. (One page each - not included in page count)
- B. Letters of Commitment or Support: If you are relying on other organizations or businesses to do work, provide services or equipment, data or share in the non-NYSERDA cost, include a letter from that organization or business describing their commitment. If the use of unpublished data from other researchers is necessary for the project to be successful, letters of support showing the availability of these data must be included. **Absence of letters of commitment or support will be interpreted as the proposer not having commitment/support from those parties.** (One page each - not included in page count)

C. Disclosure of Prior Findings of Non-Responsibility Form: (See General Conditions, below)

D. Cost Sharing: A cost-share of at least 25% of the total project cost is preferred. Cost sharing can be from the proposer, other team members, and other government or private sources. Contributions of direct labor (for which the laborer is paid as an employee) and purchased materials may be considered "cash" contributions. Unpaid labor, indirect labor, or other general overhead may be considered "in-kind" contributions. NYSERDA will not pay for efforts that have already been undertaken. The proposer or proposing team cannot claim as cost-share any expenses that have already been incurred. If applicable, show the cost-sharing plan in the following format (expand table as needed).

	Cash	In-Kind Contribution	Total
NYSERDA	\$	\$	\$
Proposer	\$	\$	\$
Others (list individually)	\$	\$	\$
Total	\$	\$	\$

Attach supporting documentation to support indirect cost (overhead) rate(s) included in your proposal as follows:

- Describe the basis for the rates proposed (i.e., based on prior period actual results; based on projections; based on federal government or other independently-approved rates).
- If rate(s) is approved by an independent organization, such as the federal government, provide a copy of such approval.
- If rate(s) is based on estimated costs or prior period actual results, include calculations to support proposed rate(s). Calculation should provide enough information for NYSERDA to evaluate and confirm that the rate(s) are consistent with generally accepted accounting principles for indirect costs.
- Provide a detailed budget for the overall project.
- Include a detailed budget for each of the subcontractors/consultants that justifies the amount proposed.

NYSERDA reserves the right to audit any indirect rate presented in the proposal and to make adjustment for such difference. Requests for financial statements or other needed financial information may be made if deemed necessary.

Annual Metrics Reports – If awarded, the proposer will be required to submit to NYSERDA's Project Manager on an annual basis, a prepared analysis and summary of metrics addressing the anticipated energy, environmental and economic benefits that are realized by the project. All estimates shall reference credible sources and estimating procedures, and all assumptions shall be documented. Reporting shall commence the first calendar year after the contract is executed. Reports shall be submitted by January 31st for the previous calendar years activities (i.e. reporting period). Please see Attachment E: Sample Metrics Reporting Guides for the metrics that you will be expected to provide and the reporting duration. NYSERDA may decline to contract with awardees that are delinquent with respect to metrics reporting for any previous or active NYSERDA agreement.

IV. Proposal Evaluation Criteria for Proposals Addressing Targeted Research Areas

Proposals that meet Proposal requirements will be reviewed by a Technical Evaluation Panel (TEP) using the Evaluation Criteria below. **If an investigator(s) identified in a proposal is an investigator on one (1) or more current NYSERDA-funded projects, performance on these projects will be considered in the evaluation of the current proposal.**

A. Technical Evaluation Criteria: (listed in order of importance)

- a. **Usefulness and Value of Project Results** – Does the project indicate how each of the main goals of the project relate to one or more Targeted Research Areas? How useful are the project results

expected to be in validating or improving New York State policies, regulations, impact assessments, models, or mitigation methods? Will the results be available in a timely manner? To what extent will the project use and integrate other relevant data and coordinate with other research/monitoring initiatives (e.g., with field sampling and data analysis) to provide maximum value to New York State?

- b. Soundness of Project Methods and Research Design /Statement of Work and Schedule** - How suitable are the proposed project methods and overall research design for meeting the project objectives and yielding accepted results? How comprehensive, realistic, and explicit is the Statement of Work with respect to the project objectives and proposal requirements? Are specific measurable targets of success provided where applicable? Are the Tasks reasonable and clearly described? Are the methods outlined in detail and clearly designed to meet the project objectives? Are the deliverables for each task clearly presented? Is there a coherent plan for synthesizing the data set?
- c. Management Plan and Qualifications** – How well has the proposer organized a management plan and a project team with the necessary educational, technical, operations, technology transfer, financing, and administrative experience for successfully completing the project? Are all roles clearly defined? Does the team include partnerships with other research groups? Has an interdisciplinary team been assembled including environmental scientists, social scientists/public policy analysts, and technologists, as appropriate? How many of the team members are located in New York State? Have letters of support demonstrating the availability of data and agreement to participate been included?
- d. Communication of Results** - How promising is the reporting and information transfer plan for successfully using project results to realize the potential benefits of the project? Has the proposer included a review of the draft final report by a technical editor?
- e. Cost Criteria** - How justifiable and reasonable are the overall costs compared to the expected usefulness of the project results and the level of effort and duration of the project? How justified and reasonable are the proposer's cost allocations and co-funding contributions (cash, in-kind services, etc.)? To what degree does the proposal include meaningful cost-sharing from other key organizations important for the success of the project? Is there a detailed budget provided for the overall project?

B. Other Considerations: Projects will also be reviewed to determine whether they reflect the overall mission of NYSERDA, including:

- The balance among projects of long- and short-term benefits and risk/reward relationships, and whether similar projects are presently or have been previously funded.
- The general distribution of projects of diverse topics related to program goals.
- The ways in which the proposed project fits with currently funded projects.
- The ease of measuring project success in quantifiable ways.
- If applicable, the responsiveness of the proposer in conducting other NYSERDA-funded work.

V. GENERAL CONDITIONS

Proprietary Information - Careful consideration should be given before confidential information is submitted to NYSERDA as part of your proposal. Review should include whether it is critical for evaluating a proposal, and whether general, non-confidential information, may be adequate for review purposes. The NYS Freedom of Information Law, Public Officers law, Article 6, provides for public access to information NYSERDA possesses. Public Officers Law, Section 87(2)(d) provides for exceptions to disclosure for records or portions thereof that "are trade secrets or are submitted to an agency by a commercial enterprise or derived from information obtained from a commercial enterprise and which if disclosed would cause substantial injury to the competitive position of the subject enterprise." Information submitted to NYSERDA that the proposer wishes to have treated as proprietary, and confidential trade secret information, should be identified and labeled "Confidential" or "Proprietary" on each page at the time of disclosure. This information should include a written request to exempt it from disclosure, including a written statement of the reasons why the information should be excepted. See Public Officers Law, Section 89(5) and the procedures set forth in 21 NYCRR Part 501 <http://www.nyserda.ny.gov/About/-/media/Files/About/Contact/NYSERDA-Regulations.ashx>. However, NYSERDA cannot guarantee the confidentiality of any information submitted.

Omnibus Procurement Act of 1992 - It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority- and women-owned business enterprises, as bidders, subcontractors, and suppliers on its procurement Agreements.

Information on the availability of New York subcontractors and suppliers is available from:

Empire State Development
Division For Small Business
625 Broadway
Albany, NY 12207

A directory of certified minority- and women-owned business enterprises is available from:

Empire State Development
Minority and Women's Business Development Division
625 Broadway
Albany, NY 12207

State Finance Law sections 139-j and 139-k - NYSERDA is required to comply with State Finance Law sections 139-j and 139-k. These provisions contain procurement lobbying requirements which can be found at <http://www.ogs.ny.gov/aboutogs/regulations/advisoryCouncil/StatutoryReferences.html>

The attached Proposal Checklist (Attachment A) calls for a signature certifying that the proposer will comply with State Finance Law sections 139-j and 139-k and the Disclosure of Prior Findings of Non-responsibility form (Attachment B) includes a disclosure statement regarding whether the proposer has been found non-responsible under section 139-j of the State Finance Law within the previous four years.

Tax Law Section 5-a - NYSERDA is required to comply with the provisions of Tax Law Section 5-a, which requires a prospective contractor, prior to entering an agreement with NYSERDA having a value in excess of \$100,000, to certify to the Department of Taxation and Finance (the "Department") whether the contractor, its affiliates, its subcontractors and the affiliates of its subcontractors have registered with the Department to collect New York State and local sales and compensating use taxes. The Department has created a form to allow a prospective contractor to readily make such certification. See, ST-220-TD (available at http://www.tax.ny.gov/pdf/current_forms/st/st220td_fill_in.pdf). Prior to contracting with NYSERDA, the prospective contractor must also certify to NYSERDA whether it has filed such certification with the Department. The Department has created a second form that must be completed by a prospective contractor prior to contacting and filed with NYSERDA. See, ST-220-CA (available at http://www.tax.ny.gov/pdf/current_forms/st/st220ca_fill_in.pdf). The Department has developed guidance for contractors which is available at <http://www.tax.ny.gov/pdf/publications/sales/pub223.pdf> .

NYSERDA anticipates making multiple awards under this solicitation. It may award a contract based on initial applications without discussion, or following limited discussion or negotiations pertaining to the Statement of Work. Each offer should be submitted using the most favorable cost and technical terms. NYSERDA may request additional data or material to support applications. NYSERDA will use the Sample Agreement to contract successful proposals. NYSERDA reserves the right to limit any negotiations to exceptions to standard terms and conditions in the Sample Agreement to those specifically identified in the submitted proposal (see Proposal Checklist). Proposers should keep in mind that acceptance of all standard terms and conditions will generally result in a more expedited contracting process. NYSERDA expects to notify proposers in approximately 8 weeks from the (proposal due date/receipt of an application) whether your proposal has been selected to receive an award. NYSERDA may decline to contract with awardees that are delinquent with respect to any obligation under any previous or active NYSERDA agreement.

Annual Metrics Reports – If awarded, the proposer will be required to submit to NYSERDA's Project Manager on an annual basis, a prepared analysis and summary of metrics addressing the anticipated energy, environmental and economic benefits that are realized by the project. All estimates shall reference credible sources and estimating procedures, and all assumptions shall be documented. Reporting shall commence the first calendar year after the contract is executed. Reports shall be submitted by January 31st for the previous calendar years activities (i.e. reporting period). Please see Attachment: Sample Metrics Reporting Guides (Attachment E) for the metrics that you will be expected to provide and the reporting duration. NYSERDA may decline to contract with awardees that are delinquent with respect to metrics reporting for any previous or active NYSERDA agreement.

Limitation - This solicitation does not commit NYSERDA to award a contract, pay any costs incurred in preparing a proposal, or to procure or contract for services or supplies. NYSERDA reserves the right to accept or reject any or all proposals received, to negotiate with all qualified sources, or to cancel in part or in its entirety the solicitation when it is in NYSERDA's best interest. NYSERDA reserves the right to reject proposals based on the nature and number of any exceptions taken to the standard terms and conditions of the Sample Agreement (Attachment D).

Disclosure Requirement - The proposer shall disclose any indictment for any alleged felony, or any conviction for a felony within the past five years, under the laws of the United States or any state or territory of the United States, and shall describe circumstances for each. When a proposer is an association, partnership, corporation, or other organization, this disclosure requirement includes the organization and its officers, partners, and directors or members of any similarly governing body. If an indictment or conviction should come to the attention of NYSERDA after the award of a contract, NYSERDA may exercise its stop-work right pending further investigation, or terminate the agreement; the contractor may be subject to penalties for violation of any law which may apply in the particular circumstances. Proposers must also disclose if they have ever been debarred or suspended by any agency of the U.S. Government or the New York State Department of Labor.

VI. Attachments:

- Attachment A: Proposal Checklist
- Attachment A-1: Acceptance of Standard Terms and Conditions
- Attachment B: Disclosure of Prior Findings of Non-Responsibility Form
- Attachment C: Contract Pricing Proposal Form (CPPF) and Instructions
- Attachment D: Sample R&D Cost-Share Agreement
- Attachment E: Sample Metrics Reporting Guide
- Attachment F: Solicitation Marketing Questionnaire
- Attachment G Instructions for Submitting Electronic Proposals