Timothy Banach
Executive Director
Northeast Clean Heat and Power Initiative
PO Box 1000
New York, NY 10016
Timothy.banach@law.pace.edu

December 5, 2014

VIA ELECTRONIC MAIL

Hon. Kathleen H. Burgess
New York Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

Re: Draft Generic Environmental Impact Statement in CASE 14-M-0101 – Reforming the Energy Vision and CASE 14-M-0094 – Clean Energy Fund

Dear Secretary Burgess:

Northeast Clean Heat and Power Initiative hereby submits for filing its attached comments in response to the above-referenced Draft Generic Environmental Impact Statement filed on October 24, 2014.

These comments are primarily authored by Henrietta de Veer, Ph.D., of Adaptive Energy Strategies LLC and Co-Chair of NECHPI's Policy/Regulatory Committee and incorporate the inputs and review of the Board of Directors representing more than fifteen major companies and organizations in the Combined Heat and Power ("CHP") industry. Various members of NECHPI, including Ms. De Veer, Ruben Brown, Matt Cinadr (Senior Consultant to E Cubed), and Herbert Dwyer (President, ASI Energy, Inc.) actively participated in many of the committees in Track I of the proceedings and will continue to be directly involved in Track II initiatives and activities.

Respectfully submitted,

Timothy Banach

Executive Director

Northeast Clean Heat and Power Initiative ("NECHPI") Comments on New York State Department of Public Service's Draft Generic Environmental Impact Statement ("DGEIS")

CASE 14-M-0101 –REFORMING THE ENERGY VISION and
CASE 14-M-0094 – CLEAN ENERGY FUND

DATED: DECEMBER 5, 2014

NECHPI OBSERVATIONS ON THE DGEIS

On page ES-2 of the Executive Summary of the Draft Generic Environmental Impact Statement, the document states that the "overarching goal of REV and CEF is to transform the ways in which the State generates, distributes and manages energy and, in so doing, reduce the State's dependence on fossil fuels, increase system reliability and resiliency, reduce harmful environmental pollution, and lower overall costs of power across all sectors of the economy." We fully concur with this vision. We will not repeat the objectives laid out in many documents associated with REV and CEF, but again, there are multiple and inter-twined objectives for both programs, of which we are also fully supportive. However, we are puzzled by the DGEIS reductionist approach to both proceedings, which seem to be attempting to simplify what are inherently highly complex processes. We will point to the effects of this approach in the following points.

- The key assumption underlying the DGEIS is an exclusive focus on peak-load reduction, with only two scenarios presented in addition to a baseline, which in effect has reduced the discussion of environmental impacts to an extremely narrow band. NECHPI believes that, in the GEIS, the REV has been simplified to such an extent that the GEIS does not deal with fundamental issues concerning the successful development and implementation of both REV and the Clean Energy Fund ("CEF") and the potential associated environmental impacts and mitigation strategies. We appreciate the fact that these proceedings are highly complex, entailing a host of interdependent actions and initiatives over a long time period and which will have innumerable impacts on each other as implementation evolves. However, the GEIS does not include a discussion of the kinds of analyses required to fully reflect the REV and CEF programs.

  NECHPI recommends that, in order to ensure a robust environmental analysis, that the DPS broaden its scenario analyses to be based on a wider range of goals than simply peak-load reduction. We agree that peak-load reduction is an important criteria but other important factors for measuring environmental impacts to select mitigation strategies include avoided GHG emissions, avoided energy costs, and avoided capacity costs, for example. (It might also be noted that peak load reduction on its own will not necessarily reduce GHG emissions levels to those required under state goals. It certainly won't achieve the 80/50 goal.) They are important for comparing alternative technologies and their relative costs and benefits and then selecting the mix of technologies that will allow New York State to achieve its clean-energy goals over time.

  NECHPI also observes that the major contributors to peak loads are New York City and Long Island. While other parts of the state do contribute to peak-load issues, it is apparent that if peak loads were managed more effectively in those areas, a substantial portion of the problem would be alleviated. We are concerned that, by an exclusive focus on peak loads as the only measure used in the GEIS, the DPS is not providing an accurate picture of kinds of mitigation measures available across the state to meet more of the goals of REV and CEF.

In addition, there should be a much more extensive list of distributed-energy resources, which should include combinations of resources as well as microgrids. (We also note that there is no mention of the NY-PRIZE program in the list of state initiatives.) We have seen many EISs which have a detailed list of energy resources, including centralized sources, in order to assess over time the changing resource mix and the effects on clean-energy goals. Again, we realize the complexity of the two proceedings but believe that in order to obtain a true representation of the environmental impacts of REV policies and programs, there needs to be a greater number of scenarios covering a wider range of goals and technologies, all within the changing central-generation landscape. They are fundamentally inter-related and need to be examined in the broader context.

- The DPS has chosen a generic rather than a site- or project-specific approach to the development of an EIS. However, there is another alternative, namely, a programmatic EIS ("PEIS") which we believe is much more appropriate for the type of complex, multi-pronged and multi-staged program(s) at issue in these two proceedings. It appears that one of the reasons DPS was able to choose this approach was the simplifying assumption made at the outset that there would be an exclusive focus on peak-load reduction, namely, a specific, common action applied across the board to all aspects of the REV and CEF.

  In our understanding, broad-action EISs are known either as PEIS or GEISs. According the U.S. Department of State's National Environmental Policy Act or NEPA (responsible for the regulations requiring the submission of EISs for federal projects), GEISs review "the environmental effects that are generic or common to a class of actions," while PEISs, on the other hand, focus the scope of alternatives, environmental effects analysis and mitigation in subsequent tiered levels of documentation of proposed programs, plans, and policies for which subsequent actions will be implemented and which can effectively frame the scope of subsequent site- and project-specific proposed action. It provides a basis for broad or high-level decisions such as identifying geographically bounded areas within which future proposed activities can be taken or identifying broad mitigation and conservation measures for policies, programs and plans.

  The PEIS approach also can reduce or eliminate duplicative or redundant reviews, allowing for subsequent, "tiered" analyses to address more narrow, site-specific details as well as cumulative effects. "In cases where a policy, plan, program or broad project analysis identifies but does not provide sufficiently in-depth analysis for potential future actions, then subsequent analyses are appropriate are referred to as "tiered" analyses. Tiering is one way "to relate" broad and narrow actions and to avoid duplication and delay." (*Effective Use of Programmatic NEPA Reviews*, the White House, September 2014).

  We realize that the State Environmental Quality Review Act ("SEQRA") is different from NEPA, though clearly there are important overlaps. In fact, it has been referred to as a "mini-NEPA" law, requiring evaluation of the environmental impacts of state and often local actions. We are simply pointing out that the sheer complexity of these proceedings requires a more fulsome approach as represented in a PEIS to analyzing the environmental impacts of REV and CEF. We also want to point

out that resiliency is clearly a criterion, among many others, which should be integrated into an EIS for programs as complex as the REV and CEF.

We would note that the SEQRA is designed to incorporate environmental factors into existing planning, review and decision-making processes of state, regional and local government agencies at the earliest possible time and to balance environmental impacts with social and economic factors when deciding to approve or undertaken an action. This is clearly in line with ecosystem services and triple-bottom-line approaches to the kinds of actions being undertaken in REV and CEF. These methodologies offer the Commission a means of evaluating and executing on specific strategies that are cost-effective but meet environmental, social and economic goals. Using a TBL approach aims to harmonize existing state policy goals of affordable and reliable electricity and the protection of public health and the environment while meeting clean-energy objectives.

- Achieving a low-carbon economy, with the goal in New York State of an 80% reduction in greenhouse gas ("GHG") emissions by 2050, will require substantial investments over time and deep analysis of all of the potential resources available and a phased approach to implementing the appropriate resource mix that will achieve those goals over time in a cost-effective manner and with minimal rate impact and maintenance of a highly reliable, safe and resilient grid. Numerous studies are available that point to the difficulties of achieving GHG emissions-reduction goals without significant analysis and modeling of the entire energy system, including all sources of generation, not just distributed energy resources. The REV espouses a fuel-neutral approach, but we do not feel that this is reflected concretely in either the Straw Proposal or the GEIS. It will take a balanced mix of resources to achieve all of the state's goals, with each resource contributing according to its performance characteristics in concert with others.

  In addition, it has already been shown that over-reliance on one source of distributed generation, e.g., solar PV, can result in operational challenges as evidenced in such states as California, Massachusetts and Hawaii. A recent study by Energy and Environmental Economics (*Investigating a Higher Renewables Portfolio Standard in California*, January 2014) identified overgeneration (when there is more generation than there is demand for that power) as one of the biggest operational challenges to integrating renewable resources under increasing RPS requirements, with the need for flexible generation to accommodate such generation close behind. Without the adoption of new solutions to mitigate the problem, overgeneration will become pervasive once renewable penetration goes above 33%. In fact, as renewables penetration levels increase, substantial curtailment will be required, resulting in possible curtailment of nearly one tenth of all RPS-eligible generation at 50% penetration.

  The study also suggests that increasing the RPS may not be the most cost-effective mechanism to reduce California's GHG emissions, especially if integration solutions are not incorporated into energy resource planning. There are clear dangers in over-procuring renewables, most particularly when there is not a detailed state-wide plan for meeting GHG emissions reductions through the detailed analyses of the most appropriate mix of technologies and solutions for achieving that goal

the most cost-effectively. NECHPI believes that CHP represents just one of those mitigation strategies which will reduce the need to curtail renewables.

- In a meaningful shift, the environmental review process in New York must now consider the potential effects of a changing climate on proposed projects, not just the effects a project might have on the environment (recently passed legislation, the Community Risk and Resiliency Act). While lip service has been given to the importance of resiliency throughout these proceedings, there are few proposals related to resiliency and how it can support the successful implementation of REV. CHP plays a critical role in providing that capability, which is little recognized anywhere in the REV and CEF documents.

  Microgrids have also not been discussed in the GEIS, a major oversight since not only is it considered a DER in the REV proceedings but they also play a potentially major role in peak-load reduction as well as many of the other goals of the REV. We also note that there are numerous studies which point to the importance of "hybrid" systems in providing grid stability, reliability and resiliency. A specific DER could provide peak reduction on a standalone basis, but may create other issues (such as overgeneration discussion above or various other effects) which need to be moderated in combination with other resources. (NECHPI discussed this issue at length in its 9/24 and 10/24 comments).

  It has also been found that the combinations of PV-trigeneration, PV-cogeneration, CHP-energy storage, and PV-storage systems have demonstrated to be more effective at reducing GHG emissions and providing high grid reliability, resiliency and flexibility when compared to the same technologies on a stand-alone basis. We point to this because there was no discussion whatsoever in the GEIS concerning the combination of DERs or microgrids, which represent a clear and possibly optimal mitigation strategy in certain circumstances.

- We urge the Commission to begin to evaluate various modelling tools available to explore scenarios to understand the various technology, policy and program options for reducing peak loads and GHG emissions while meeting all other goals and objectives of REV and CEF. There are optimization models that seek to minimize the cost of supplying all of the technologies, resources, infrastructure and end-use technology needed and in the proper mix to meet longer term clean-energy goals. Some models seek to develop a wide range of scenarios with respect to emissions reductions, costs and the mix of technologies used to reduce emissions. Other models, while not as developed, incorporate the wide range of environmental factors necessary in an EIS.

  California has begun such a process as a result of its ambitious Global Warming Solutions Act, and the modelling process has uncovered a variety of paths for achieving its goals. The modelling has shown that, which achieving an 80% reduction in GHG emission sis possible, there are many different outcomes evident depending the assumptions used regarding costs and the mix of technologies and resources used. One such new tool, SWITCH, evaluates multiple pathways to a low carbon future, all involving increased efficiency and a dramatic shift in energy supply from

centralized fossil fuel generation. The tool enables policymakers to assess the economic and environmental implications of different energy scenarios. NREL has developed some tools to allow the analysis of pathways for low emission development strategies simultaneously with economic development goals.

- NECHPI believes that the GEIS has not incorporated some of the key benefits of CHP. While CHP has been credited with some peak-reduction capabilities, we found it puzzling that it was not considered a technology that optimizes the consumption of energy, as defined in the GEIS. CHP is certainlyt a resource that improves energy efficiency (in fact, it is often categorized as an energy-efficiency technology) and can optimize the distribution and use of energy locally. In fact, as baseload power, it is one of the few DERs that can maintain a continuous balance of supply and demand on a local level. In addition, CHP has numerous other positive characteristics not accounted for in the GEIS, which will have positive environmental impacts over time as the State moves toward meeting its various clean-energy goals, including GHG emissions reductions.

  The following chart compares various generation sources, which indicate its contributions relative to other technologies (ICF International, 2013). We believe that significantly greater benefits can be realized when grid power is replaced by power produced on-site. Waste heat generated by CHP systems can be used for space heating, water heating, and other thermal loads to raise their overall full-fuel-cycle efficiency to greater than 80%:

Category	10 MW CHP	10 MW PV	10 MW Wind	10 MW Natural Gas Combined Cycle
Annual Capacity Factor	85%	25%	34%	70%
Annual Electricity	74,446 MWh	21,900 MWh	29,784 MWh	61,320 MWh
Annual Useful Heat Provided	103,417 MWh_t	None	None	None
Footprint Required	6,000 sq ft	1,740,000 sq ft	76,000 sq ft	N/A
Capital Cost	$20 million	$48 million	$24 million	$9.8 million
Annual National Energy Savings	343,787 MMBtu	225,640 MMBtu	306,871 MMBtu	163,724 MMBtu
Annual National CO_2 Savings	44,114 Tons	20,254 Tons	27,546 Tons	28,233 Tons
Annual National NO_x Savings	86.9 Tons	26.8 Tons	36.4 Tons	76.9 Tons

The values in Table 6 are based on:

- 10 MW Gas Turbine CHP - 28% electric efficiency, 68% total CHP efficiency, 15 ppm NOx emissions
- Capacity factors and capital costs for PV and Wind based on utility systems in DOE's Advanced Energy Outlook 2011Capacity factor, capital cost and efficiency for natural gas combined cycle system based on Advanced Energy Outlook 2011 (540 MW system proportioned to 10 MW of output), NGCC NOx emissions 9 ppm
- CHP, PV, Wind and NGCC electricity displaces National All Fossil Average Generation resources (eGRID 2010) - 9,720 Btu/kWh, 1,745 lbs CO_2/MWh, 2.3078 lbs NOx/MWh, 6% T&D losses; CHP thermal output displaces 80% efficient on-site natural gas boiler with 0.1 lb/MMBtu NOx emissions
- CHP, PV, Wind and NGCC electricity displaces EPA eGRID 2010 California All Fossil Average Generation resources - 8.050 Btu/kWh, 1,076 lbs CO_2/MWh, 0.8724 lbs NOx/MWh, 6% T&D losses; CHP thermal output displaces 80% efficient on-site natural gas boiler with 0.1 lb/MMBtu NOx emissions

A wide variety of organizations have cited CHP has a key technology solution for cutting carbon emissions from electricity generation. The following are a few examples: *Advanced Energy Technologies for Greenhouse Gas Reduction* (Advanced Energy Economy, 2014); *Comments on the*

Clean Power Plan (Advanced Energy Economy, November 5, 2014); *Expanding the Solution Set: How Combined Heat and Power Can Support Compliance with 111(d) Standards for Existing Power Plants* (Center for Clean Air Policy, May 2014); and *Change is in the Air: How States Can Harness Energy Efficiency to Strengthen the Economic and Reduce Pollution* (American Council for an Energy-Efficient Economy, April 2014).

Because the focus of the GEIS is exclusively on peak reduction, the ability for CHP to reduce emissions and provide a host of other benefits as listed above in comparison to other distributed generation sources are not taken into account. So, for example, the benefits accruing to its ability to replace centralized power and reduce line losses are not acknowledged as positive environmental impacts, and yet, the negative effects locally are pointed out numerous times throughout the document. We believe this approach presents an unbalanced treatment of CHP not only on a stand-alone basis but also relative to other distributed energy resources.

Examples include the following: Page 4-5 of GEIS states: "CHP systems that are more efficient overall than the thermal load and grid generation they displace do result in GHG reductions, but to be conservative, these potential reductions are excluded."; Page 4-6 of GEIS states: "Cost estimates for each resource do not include cost savings from displaced grid generation….." Yet, on page 5-3, the GEIS states: "The greatest indirect environmental impacts of REV and CEF stem from reductions in the generation of energy for fossil-fuel power plants, accounting for 16% of all New York State GHG emissions." We believe that CHP is not treated in a balanced fashion in the GEIS since many environmental benefits are discounted.

The focus on behind-the-meter resources is also limiting for CHP since it is emerging that one of its clear strengths is in providing "shared resources" at the grid edge: namely, it can be installed at grid edge in front the meter, providing service to multiple loads (e.g., multi-family housing units) at the same time to the grid when and if needed. In fact, CHP is one of the few resources that can meet REV and CEF goals of providing cost-effective, resilient and reliant clean-energy services to low- to moderate-income consumers in multi-family units.

- CHP has other attributes overlooked by the GEIS. We acknowledge that over 60% of currently installed CHP units are natural gas-fired and will likely continue to be as long as natural gas remains inexpensive, most particularly relative to other fuels. However, if appropriately incentivized, CHP is unique in its ability to use many different kinds of fuel sources, including renewables such as biogas, synfuels and biomass. Simply because CHP has been used a certain way in the past does not mean it will have the same profile in the future. CHP technology continues to innovate, and there is emerging such commercial systems as solar cogeneration and others discussed in our previous REV comments.
- State agencies are facing a rapidly changing energy and environmental landscape, with states wielding significant authority in regulating electric utilities and in implementing and enforcing both state and federal environmental law. States currently delegate portions of these interrelated goals to multiple state agencies with very different mandates. This can cause fragmented and siloed activities and initiatives, which can potentially be in conflict with each other.

For example, historically, regulatory authorities were tasked primarily with objectively ensuring least-cost service delivery at the highest quality possible. Its mandate now includes the prioritization and harmonization of a multiple other objectives, which are oftentimes inter-dependent. For example, a recent paper by the National Renewable Energy Laboratory ("NREL") entitled *The Evolving Role of the Power Sector Regulator* (April 2014) points to the increasing pressure faced by regulators to address environmental and social goals via the increased incorporation of clean energy technologies. State environmental agencies are mandated to protect the public health and environment by developing and enforcing standards that may require utilities to install costly pollution controls, retire plants and raise rates. Another agency, the state energy office, influences affordability, reliability and environmental impact of electricity production within the state by developing and implementing additional state energy goals, such as encouraging investment in energy efficiency and renewable energy. And, of course, New York State has many more relevant agencies such as NYSERDA, and we can't forget the legislature!

Our biggest concern is the potential for a lack of policy coordination, with the state's organizational structure not encouraging communication between all of these different agencies, organizations and entities. This could hinder fully informed decision making and collaborative problem solving that can reduce overall costs to consumers. Goals need to be better aligned and integrated with each other, and the issue of economic viability/financeability a part of every discussion about the roll-out of REV policies and programs. Many decisions will have a direct impact on economic viability, and if not taken into account up-front, many programs and initiatives will not be implemented successfully.

Thus, we believe that there needs to be significantly better coordination, information sharing, and mutually accepted evaluation criteria which ensure that each agency/organization responsible for regulating some aspect of electric utility operations does so in a manner that facilitates achievement of the full suite of clean-energy goals related to the REV and CEF in particular. NECHPI recommends that the Commission establish a systematic and frequent means of information sharing, communications and evaluation criteria development and implementation across all state agencies involved in these proceedings.

In our estimation, the GEIS needs to be fleshed out in a substantial fashion to ensure that all state clean-energy goals are implemented transparently and in as standardized a manner as possible across all agencies in question. There is a strong possibility of conflicts occurring which could impede the successful implementation of REV and CEF. Given the still-existing barriers to CHP in this state, we are very concerned about the lack of agreement across state agencies as to role of CHP in the state-s clean-energy future.

- The list of environmental compliance requirements is enormous. This has particular relevance for CHP, but affects all distributed energy resources to a greater or lesser degree. We urge the Commission to put in place immediately a working group of stakeholders from all of the agencies

discussed above to standardize and streamline the requirements and the associated processes, procedures and documentation needed for compliance purposes.