Clean Coalition
Making Clean Local Energy Accessible Now

May 1, 2015

**VIA ELECTRONIC FILING**

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

Re: Case 14-M-0101—Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision

Dear Secretary Burgess:

The Clean Coalition hereby submits for filing these comments on the March 17, 2015, "Notice Soliciting Comments on Microgrids" in the above-captioned proceeding.

Respectfully submitted,

/s/ Brian Korpics

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**BEFORE THE PUBLIC SERVICE COMMISSION**
**OF THE STATE OF NEW YORK**

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**PROCEEDING ON MOTION OF THE COMMISSION IN REGARD TO REFORMING THE ENERGY VISION.** **Case 14-M-0101**

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# CLEAN COALITION COMMENTS ON MICROGRIDS


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## I. INTRODUCTION

On March 17, 2015, the New York Public Service Commission ("PSC") issued a notice soliciting comments on microgrids in which it requested input from parties on various configurations of microgrids, as well as a number of legal and policy issues. Recognizing the value microgrids carry in terms of resilience, integrating clean distributed energy resources ("DER"), and providing grid services, the PSC seeks to promote deployment of microgrids within the wider context of the Reforming the Energy Vision ("REV") proceeding.

One focus of the current comment period is investigating various microgrid configurations. The Clean Coalition would like to take this opportunity to define and highlight one potential community microgrid configuration that should be presumptively permissible. This type of community microgrid will be important in the early stages of REV, as it is both cost-effective and relies on existing organizational and physical infrastructure to achieve REV objectives. Our vision is a sort of "no regrets" community microgrid option that fits within REV's near-term "no regrets" actions.

## II. DESCRIPTION OF PARTY

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise. The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of distributed energy resources—such as local renewables, advanced inverters, demand response, and energy storage—and we establish market mechanisms that realize the full potential of integrating these solutions. The Clean

Coalition also collaborates with utilities and municipalities to create near-term deployment opportunities that prove the technical and financial viability of local renewables and other DER.

## III. COMMUNITY MICROGRID COMMENTS

### *a. Clean Coalition's Community Microgrid Concept*

The Clean Coalition's approach to Community Microgrids envisions a coordinated local grid area served by one or more distribution substations and supported by high penetrations of local renewables and other distributed energy resources. Community Microgrids reflect a new direction for grid operations that achieve a more sustainable, secure, and cost-effective energy system while generally providing long-term power backup for prioritized loads. The substation-level foundation of this type of Community Microgrid facilitates cost-effective replication for optimizing grid operations and customer satisfaction across utility service territories.

Community Microgrids exhibit a number of valuable features. The concept establishes a scalable solution that can span one or more substation areas. This scale, combined with leveraging existing distribution grid assets, achieves the most optimal microgrid configuration—enabling lower overall system costs with a more effective cost comparison of DER versus conventional and centralized options. Community Microgrids leverage high penetrations of local renewables and other DER to achieve the optimal cost-effective level of desired grid reliability, power quality, and resilience. A focus on efficient load-centered design—including local balancing and load flattening—also allows Community Microgrids to reduce costly peaks and transmission costs.

Finally, this type of Community Microgrid includes the ability to island critical loads. In contrast to the microgrid concept articulated by the U.S. Department of Energy, Community Microgrids are not focused on the ability to fully island a section of the local electrical grid for independent operation.[1] Instead, by focusing only on critical loads within the substation area, Community Microgrids are able to coordinate distributed local resources to maintain critical services while achieving improved levels of reliability and resilience over larger areas at a fraction of the cost. This distinction will be important in the context of demonstration projects and working towards the overall objectives of REV because Community Microgrids are a less costly option that can be deployed rapidly.

*b. DER Ownership*

At least in the near-term, utilities will likely play an essential role in deploying Community Microgrids. Because this approach takes advantage of existing infrastructure, utilities will continue to own distribution facilities and manage microgrid operations. Third parties should largely own generation facilities, but, as provided for in the Track One Order under the exceptions to the general prohibition against utility ownership of DER, utilities may for example own energy storage that is integrated into the distribution system architecture.[2]

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[1] The Department of Energy's definition is: "A microgrid is a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or island-mode." *See* U.S. Dep't of Energy, Office of Electricity Delivery and Energy Reliability Smart Grid R&D Program, Summary Report: 2012 DOE Microgrid Workshop at 1 (July 30–31, 2012), *available at* http://energy.gov/sites/prod/files/2012%20Microgrid%20Workshop%20Report% 2009102012.pdf/.

[2] The PSC stated its policy of only allowing utility ownership of DER in the following circumstances:

> 1) procurement of DER has been solicited to meet a system need, and a utility has demonstrated that competitive alternatives proposed by nonutility parties are clearly inadequate or more costly than a traditional utility infrastructure

Under the Track One Order, the PSC will also permit utilities to own DER within the context of demonstration projects. If a utility sponsors a project for demonstration purposes, the PSC should require the utility to show how the project and its ownership of DER will work towards accelerating long-term deployment of microgrids. The PSC should also ensure that these projects demonstrably advance broader policy goals in addition to simply proving technological feasibility. Further, microgrid demonstration projects with utilities owning DER should be the exception rather than the rule, and projects taking advantage of utility ownership of DER should amount to less than fifty percent of all microgrid demonstration projects.

*c. REV Objectives and PSC Policy Goals for Community Microgrids*

The Clean Coalition's Community Microgrid concept fundamentally works to promote the overall objectives of REV.[3] In utilizing resources throughout the community rather than solely within islandable areas, this approach integrates customers in

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alternative;
2) a project consists of energy storage integrated into distribution system architecture;
3) a project will enable low or moderate income residential customers to benefit from DER where markets are not likely to satisfy the need; or
4) a project is being sponsored for demonstration purposes.

N.Y. Pub. Serv. Comm'n, Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Adopting Regulatory Policy Framework and Implementation Plan at 70 (Feb. 26, 2015).

[3] The PSC's Order Instituting Proceeding stated six objectives for the current initiative:

- Enhanced customer knowledge and tools that will support effective management of their total energy bill;
- Market animation and leverage of ratepayer contributions;
- System wide efficiency;
- Fuel and resource diversity;
- System reliability and resiliency; and
- Reduction of carbon emissions.

N.Y. Pub. Serv. Comm'n, Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Instituting Proceeding at 2 (Apr. 25, 2014).

coordinated management of services associated with customer-sited DER and loads to more fully capture their value. Community Microgrids will assist with market animation by identifying grid areas with high locational benefits for third parties to deploy clean DER. The projects promote system-wide efficiency by cost effectively achieving the preferred level of grid reliability, power quality, and resilience, while only focusing on islanding critical loads. Further, Community Microgrids can be designed to achieve varying levels of reliability and resilience depending on market demands and available funding. Increased fuel and resource diversity are also essential components of a Community Microgrid because the concept relies on different types of generation and other DER to ensure the microgrid can continue to serve critical loads following a disturbance. Finally, because Community Microgrids rely on increased penetrations of clean DG and other types of DER, they accomplish notable carbon emissions reductions.

This type of Community Microgrid also fits well within the PSC's stated policy attributes for microgrids.[4] As discussed above, it advances the larger REV objectives, including integrating clean DG and addressing grid constraints. It interconnects seamlessly with the larger utility system because it utilizes the utilities' existing infrastructure and control systems. Further, it provides resilience benefits and supports islanding of both critical public and customer facilities. Although the entire microgrid cannot island, this cost effective solution produces a majority of microgrid benefits without being prohibitively expensive. Finally, the utilities existing obligations to provide reliable power at just and reasonable rates—as well as the consumer protections for residential customers under the Home Energy Fair Practices Act—continue to apply

[4] N.Y. Pub. Serv. Comm'n, Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Adopting Regulatory Policy Framework and Implementation Plan at 112 (Feb. 26, 2015).

equally under this configuration as they do now because the utilities' role as service providers remains largely unchanged.

*d. Clean Coalition Pilot Projects*

*i. Long Island Community Microgrid Project*

The New York State Energy Research and Development Authority recently awarded funding through the New York Prize Community Microgrid Competition to the Clean Coalition, in partnership with PSEG Long Island ("PSEG-LI"), in order to provide a feasibility assessment of the Long Island Community Microgrid Project ("LICMP").[5] The LICMP is targeted for the South Fork area of Long Island and will combine up to 15 MW of local solar, a 5 MW / 25 MWh battery, and demand response to maximize renewable energy, minimize fossil fuels, optimize grid operations, and provide power backup to more than one critical facility, including one or more Suffolk County Water Authority water pumping and filtration plants.

The goals of this project are to: 1) reduce dependence on both the transmission grid and local oil-based generators; 2) increase the penetration of local renewable energy; 3) maintain electric services for critical loads during grid outages; and 4) demonstrate the feasibility of using energy storage in utility grid operations. In order to achieve these goals, the LICMP leverages portfolios of DER that are designed to optimize local grid performance while maintaining critical loads in the case of outages. The LICMP proves that Community Microgrids provide a superior solution both operationally and financially—satisfying normal operating conditions as well as grid outages.

[5] Press Release, N.Y. State Energy Research & Dev. Auth., Governor Cuomo Announces First NY Prize Awards for Five Energy Microgrids Across New York (Apr. 30, 2015), *available at* http://www.nyserda.ny.gov/About/Newsroom/2015-Announcements/2015-04-30-Governor-Cuomo-Announces-First-NY-Prize-Awards.

The 5 MW / 25 MWh of energy storage for the LICMP will be located at the substation, and owned by PSEG-LI upon final approval. The energy storage will smooth the solar PV power output (e.g., during cloud coverage) and eliminate voltage issues, while reducing the need for local oil-based generators during peak periods. The project will utilize commercially available advanced inverters for reactive power provisioning and voltage balancing to achieve the highest penetrations of DG at minimum cost to the grid and utility. An intelligent Monitoring, Communications, and Control ("$MC^2$") energy management system will keep power, voltage, and frequency in balance and optimized, and will interface with PSEG-LI's existing smart grid infrastructure.

Once deployed, the LICMP will help achieve the following specific utility and ratepayer benefits: (1) deferred distribution grid upgrades and transmission investments of more than approximately $300 million required during the 2017–2022 period in deferred T&D costs; (2) bulk, streamlined procurement and interconnection mechanisms that further reduce system costs; (3) a more flexible system that can integrate local renewable energy and other DER more readily, accelerating the reduction of greenhouse gas emissions; and (4) a proven showcase and replicable model for the utility industry, demonstrating that Community Microgrids provide an economically optimized solution for improving grid power quality, reliability, and resilience.

Further, the specific substation of the LICMP serves multiple critical service locations including water filter/pumping stations, a fire department, a police station, a telephone center, a civil defense and military installation, and a health-related facility. As a core system design, the solution features dedicated feeders that connect these facilities to the substation. Thus, during outages the LICMP will utilize solar and energy storage

resources, along with a reduced amount of energy from diesel generators as additional backup, to satisfy key critical loads on an ongoing basis. Additional critical loads can easily be added over time.

*ii. Hunters Point Community Microgrid Project*

In collaboration with Pacific Gas & Electric ("PG&E") and in support of the city of San Francisco's goal to achieve a 100% renewable electricity supply, the Clean Coalition is spearheading a Community Microgrid project in the Bayview and Hunters Point areas of San Francisco. This work will prove that local renewables can fulfill at least 25% of total electric energy consumption for the 20,000 customers served by the Hunters Point substation while maintaining or improving power quality, reliability, and resilience.

To date, the Hunters Point Project has helped develop a replicable model that any community can use to design cost-effective Community Microgrids. This DER optimization approach has been validated by PG&E and was incorporated in the California Public Utility Commission's final ruling on distribution resources planning requirements for California utilities. As an example to the industry, this modeling methodology will expedite the creation of Community Microgrids by efficiently designing local renewable energy systems that balance vital grid services—power, voltage, and frequency—in the most scalable and cost-effective manner.

## IV. CONCLUSION

The Clean Coalition appreciates this opportunity to comment on the PSC's microgrid policy. We look forward to continue to engage with the PSC and comment on

the more detailed microgrid proposal once issued. Community Microgrids provide a substantial and scalable opportunity to expedite DER deployment and achieve REV objectives.

Respectfully submitted,

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Dated May 1, 2015