Clean Coalition
Making Clean Local Energy Accessible Now

May 25, 2016

VIA EMAIL

Eli Harland
Energy Policy and Planner
California Energy Commission
1516 Ninth Street
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Re: Roadmap to Commercialize Microgrids in California

Dear Mr. Harland:

The Clean Coalition hereby submits for filing these comments on the Joint Energy Agency Workshop to Kick-Off the Development of a Roadmap to Commercialize Microgrids in California, hosted by the California Energy Commission, the California Public Utilities Commission, and the California Independent System Operator on May 24, 2016.

Respectfully submitted,

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BEFORE THE CALIFORNIA ENERGY COMMISSION, THE CALIFORNIA PUBLIC UTILITIES COMMISSION, AND THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR

CLEAN COALITION COMMENTS ON THE JOINT ENERGY AGENCY WORKSHOP TO KICK-OFF THE DEVELOPMENT OF A ROADMAP TO COMMERCIALIZE MICROGRIDS IN CALIFORNIA

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I. INTRODUCTION

On May 24, 2016, the California Energy Commission, the California Public Utilities Commission, and the California Independent System Operator hosted a Joint Energy Agency Workshop to Kick-Off the Development of a Roadmap to Commercialize Microgrids in California. The workshop introduced a proposed work scope and described the process for developing a coordinated agency roadmap to commercialize microgrids in the state. The Clean Coalition respectfully submits these comments describing our Community Microgrid concept and pilot projects. Community Microgrids are a new approach for designing and operating the electric grid in a manner that leverages existing grid assets to cost-effectively increase reliability and support integration of clean DER. The Clean Coalition urges the joint agencies to incorporate this concept into the roadmap.

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 DER—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. COMMENTS

Community Microgrids

The Clean Coalition Community Microgrid concept envision a coordinated local grid area served by one or more distribution substations and supported by high penetrations of local renewables and other DER. These projects reflect a new direction for grid operations that achieves a more sustainable, secure, and cost-effective energy system, while providing long-term power backup for prioritized loads. Community

Microgrids exhibit a number of valuable features. The concept establishes a scalable solution that can span one or more utility substation areas. This scale and the use of existing distribution grid assets allows Community Microgrids to leverage high penetrations of local renewables and other DER to achieve a 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 creates an opportunity to reduce costly peaks and transmission expenses.

Community Microgrids also include 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, Community Microgrids focus only on critical loads within the substation area. Operating at a fraction of the cost of traditional microgrids, they coordinate distributed local resources and maintain critical services, while achieving improved levels of reliability and resilience over larger grid areas.

Clean Coalition Pilot Projects

a. Long Island Community Microgrid Project

Last year, the New York State Energy Research and Development Authority awarded funding through the New York Prize Community Microgrid Competition to the Clean Coalition, in partnership with PSEG Long Island ("PSEG-LI"), the operating utility, and LIPA, the grid owner, to provide a feasibility assessment of the Long Island Community Microgrid Project ("LICMP").[2] The LICMP is targeted for the South Fork area of Long Island and will combine up to 15 MW of local solar PV, a 5 MW/25 MWh battery, and demand response to maximize renewable energy deployment, minimize fossil fuel use, optimize grid operations, and provide power backup to critical facilities,

[1] The U.S. 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).

[2] 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).

including a Suffolk County fire station and two water facilities. The energy storage and solar PV will be wholesale-interconnected and under direct utility control. LIPA will also deploy a Feed-In Tariff ("FIT") that the Clean Coalition helped to design in order to procure the solar resources.

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.

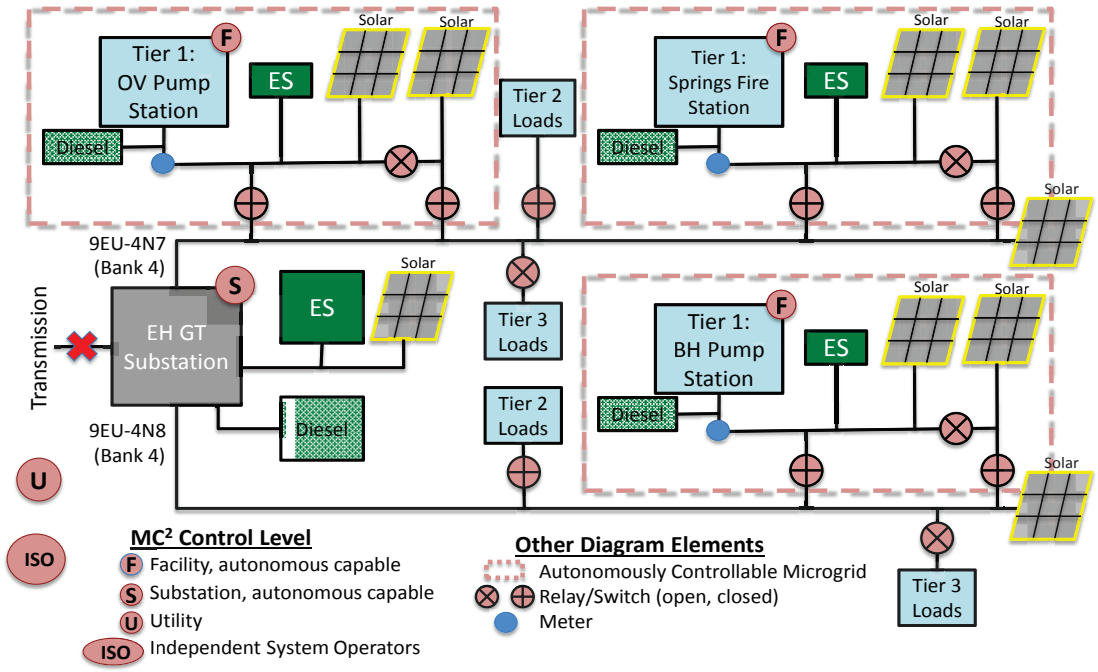
The 5 MW/25 MWh of energy storage for the LICMP will be located at the substation and owned by PSEG-LI upon final approval. The energy storage will smooth the solar PV power output (e.g., during cloud coverage) and eliminate voltage issues, while reducing the need for local oil-based generators during peak periods. The project will utilize commercially available advanced inverters for reactive power provisioning and voltage balancing to achieve the high penetrations of DER at minimum cost to the grid and the 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; (2) bulk, streamlined procurement and interconnection mechanisms that further reduce system costs; (3) a more flexible system that can readily integrate local renewable energy and other DER, accelerating the reduction of greenhouse gas emissions; and (4) a replicable model for the utility industry, demonstrating that Community Microgrids can provide an economically optimized solution for improving grid power quality, reliability, and resilience.

Further, the specific substation where the LICMP is located serves multiple critical facilities, including water filter/pumping stations, a fire department, a telephone center, a civil defense and military installation, a police station, and a healthcare 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 the 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, such as the municipal airport that is served by the same substation.

Figure 1: LICMP deployment plan overview



b. Hunters Point Community Microgrid Project

In collaboration with Pacific Gas & Electric ("PG&E"), 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 a cost-effective Community Microgrid. This DER optimization approach has been validated by PG&E and was incorporated into the California Public Utility Commission's final ruling on distribution resources planning requirements. The modeling methodology provides an example to industry and will

expedite the creation of Community Microgrids by efficiently designing local renewable energy systems that balance vital grid services—power, voltage, and frequency—in a scalable and cost-effective manner.

IV. CONCLUSION

The Clean Coalition appreciates this opportunity to comment on the Joint Energy Agency Workshop to Kick-Off the Development of a Roadmap to Commercialize Microgrids in California. More information on Community Microgrids can be found on Clean Coalition's website at http://www.clean-coalition.org/our-work/community-microgrids/.

Respectfully submitted,

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Dated: May 25, 2016