

From: hcjpowell@cox.net
To: [ESD Sustainability](#)
Subject: Comment Letter and Attachment regarding the City's 100 percent renewable electricity efforts
Date: Monday, August 07, 2017 9:42:42 PM
Attachments: [CEAN COMMUNITY-BASED MICRO GRID PROPOSAL Oct 2016-Feb 2017 \(Rev 080417\) WV.docx](#)

City of San Diego Sustainability Staff:

I am responding to the post on the "Clean and Renewable Energy" tab of the City of San Diego Sustainability website which invites submission of comment letters regarding the City's 100 percent renewable electricity efforts (e.g., Community Choice Aggregation feasibility or other programs) to sustainability@sandiego.gov .

I am submitting a proposed concept on behalf of the Community Energy Action Network (CEAN) for a "City of San Diego Community-based Microgrid System" which includes an update of the original response to an RFI for "Solutions to Support the City of San Diego's Goal of 100% Renewable Energy" submitted October 28, 2016 and the follow up letter submitted on February 1, 2017 to the City Environmental Services Department responding to a request for additional information on that submission.

It is proposed that the City of San Diego implement an aggressive deployment of community-based micro grids comprised of roof-top mounted solar installations combined with energy storage including but not necessarily limited to battery storage and provision for electric vehicle charging and discharging in conjunction with necessary upgrades to ensure stable and reliable integration with local distribution and sub-station facilities and operated through demand response protocols and priorities established by the City and other regulatory agencies.

The Community-based Microgrid approach towards the 100% renewable (electrical) energy goal as outlined in the attached proposal will achieve maximum benefit to San Diego. This approach can best be implemented in a manner and through institutional infrastructure that demonstrates transparency, accountability and responsiveness to the different recognized and designated communities and constituencies while they provide financial and operational sustainability for the City of San Diego.

My understanding is that the comments provided will be posted and summarized for the City Council. Please advise when and where these comments will be posted and please provide a copy of any summaries provided to the City Council.

Please contact me if you have any questions regarding this submission and the attached document.

Sincerely,

H.C. Jay Powell
hcjpowell@cox.net
(619) 813-8485
Cooperations - In the Public Interest, for the Common Good

COMMUNITY ENERGY ACTION NETWORK

A COMMUNITY-BASED MICRO GRID SYSTEM FOR SAN DIEGO

Revised/Updated: August 4, 2017

This document is based on the response submitted October 28, 2016 to the City of San Diego Request for Information (RFI No. 10079755-17-A) soliciting “Solutions to Support the City of San Diego’s Climate Action Plan (CAP) Goal of 100% Renewable Energy” by H.C. Jay Powell on behalf of the Community Energy Action Network (CEAN), a San Diego-based cooperation promoting local clean renewable energy solutions. It includes elements of the original response submittal with updated references and a copy of the February 1, 2017 letter responding to questions posed in a request for additional information by the City Environmental Services Department (pp 13-17).

Detailed Description of the Proposed Concept.

It is proposed that the City of San Diego implement an aggressive deployment of community-based micro grids comprised of roof-top (mounted) solar installations combined with energy storage including but not necessarily limited to battery storage and provision for electric vehicle charging and discharging in conjunction with necessary upgrades to ensure stable and reliable integration with local distribution and sub-station facilities and operated through demand response protocols and priorities established by the City and other regulatory agencies.

A community-based microgrids system would be operated in cooperation with the entity franchised to use City right of way for electrical transmission or a municipal public utility or such other organization such as a Community Choice Aggregation (CAA) authorized and adopted by the City of San Diego to purchase and/or distribute electrical energy to its constituents. This proposal includes recommending a potential pilot demonstration project to be located in City Heights, a candidate “community of concern”.

The concept and definition of a community micro grid is described by The CLEAN COALITION Community Microgrid Initiative (CMI) as follows:

“A Community Microgrid is a coordinated local grid area served by one or more parts of an electric utility substations and supported by high penetrations (25-50% of energy consumed) of local renewables and other distributed energy resources (DER), including energy storage, electric vehicles, and other solutions. Since these components work together intelligently, the whole system can best serve the community in which it is built. Unlike a traditional microgrid, which usually covers a single utility customer or a small number of adjacent locations, our Community Microgrids benefit thousands of residents in the greater community where they are sited and globally through GHG emission reductions. “

The Clean Coalition further describes a currently proposed project in the town of East Hampton, Long Island, New York:

“... (the project) will be designed around the distribution network under a single substation, serving several thousand customers.... a substation...is a building block to remaking the electric grid from the ground up. Specific solar, storage, and demand response technologies, a well as onsite generators, will be used to provide almost ‘indefinite’ backup to critical facilities such as a water filtration plant and a firehouse.”

Such a community microgrid could be integrated into City-owned or controlled municipal facilities or other public or institutional facilities serving as core elements or nodes for what is characterized as a progressively interconnected honeycomb.

The community microgrid systems approach has the advantage of being implemented incrementally and thus able to accommodate improvements and changes in technologies as it is built.

Community Microgrid features described by The Clean Coalition include the following:
“

- Scale: Spans an entire substation grid area, securing benefits for thousands of customers.
- Cost: Offers a more cost-effective solution by first, achieving much broader scale Distributed Energy Resources (DER) deployment and secondly, by utilizing a systems approach that identifies optimal locations for DER in context of existing local distribution grid assets and loads.
- Grid resilience and security: Provides backup power to prioritized loads that are critical to the entire community, such as police and fire stations, water treatment centers, emergency shelters.
- Scalability: Enables easy replications and scaling across any distribution grid area. “

Meeting City of San Diego CAP Goals and City Objectives

(strategies desired--which goals will be achieved and how they will be achieved-- as listed in the RFI Section I.C. are indicated in italics in the order they were set forth in that section).

(C.1.1) Contributing to City’s 100% renewable electricity goal by 2035.

The following assumptions were used in the original RFI response to provide a general estimate of the what a community-based microgrid could contribute to the City’s 100% renewable electricity goal by 2035.

Roof top solar and parking lot installed solar potential capacity has been conservatively estimated at 4,000 MWs and 3,000 MWs respectively within the SDGE service territory. Assuming that approximately half of that combined potential capacity (3,500 MWs) is located within the City of San Diego and given that the current peak load within the SDGE service territory is 4,300 MWs and average load is approximately one-half of the annual peak load, and assuming that approximately half of the SDG&E demand is located within the City of San Diego (approx. 2,200 MW peak and 1,100 MW average), and assuming a flat electricity demand growth rate consistent with the last ten years of actual demand, it is estimated that a full deployment of the proposed community micro grid system to include the City's estimated 3,500 MWs potential roof top and parking lot solar capacity, in conjunction with appropriate storage facilities, would eventually meet about two-thirds of the City's annual electricity demand – assuming 2016 conditions—and allow the City to export solar power during summer peak periods when City solar output approaching 3,500 MWs would far exceed City peak demand of about 2,200 MWs.

Ever more rigorous appliance standards, LED bulbs, and other energy saving practices should drive per-capita electricity demand down going forward (despite modestly increasing population rate and potential increases in electric vehicle charging requirements), allowing local solar and storage systems combined with sophisticated demand management protocols to potentially meet the entire City annual demand. In this case, the renewable energy already produced by or contracted by SDG&E and transmitted into the City from remote sites for City customers could be exported to other locations. In addition, any surplus energy generated in the City microgrid system could be shared regionally or exported through the inter-regional transmission grid.

Additional information from the “City of San Diego Feasibility Study for a Community Choice Aggregate, July 2017 Final Draft” Full Report and Appendices can be consulted for additional analysis of load data. As an example, by excluding Direct Access (DA) customers operating within the City (assuming they would continue to obtain electricity from their contracted sources), the study shows the average maximum peak demand for bundled customers in the City in the month of September (highest peak demand month) is a little under 1,700 MWs. This report includes links to SDG&E full service territory data (Revenues, Sales in Megawatt-Hours and number of customers) by year (p. 12).

(C.1.2) ***Lower carbon content than currently provided and required by the State.*** The carbon content of San Diego's electric energy grid would be significantly reduced due to displacement of any fossil fueled electric generation and displacement of fossil fueled transportation mechanisms.

(C.1.3) ***New and diverse sources of renewable energy.*** The proposal identifies a means to efficiently capture incident solar energy at the main load centers in the City of San Diego. It diversifies the sources of renewable energy by integrating roof top solar generation, storage and electric vehicles operated through a demand management and response system that optimizes reliability and resiliency of each constituent community

microgrid and support for the overall City electrical system. It could augment solar panels and storage with fuel cell generation where applicable or desirable.

It has potential to incentivize diversification of technologies employed on different sectors of the economy to include expansion in residential, multifamily, commercial, industrial, institutional and visitor serving facilities

(C.1.4) **Reliability and sustainability.** As described in C.1.3 the community microgrid systems are operated through properly controlled demand management and response systems with priority protocols for energy dispatch that would enhance *reliability*, responsiveness to changing needs and circumstances (such as emergencies) and would provide optimally resilient and *sustainable energy services* indefinitely. Clean Coalition is designing their community micro grid systems to have an expected service life of 30 years or longer.

(C.1.5) **Spur new renewable energy development.** The investments in a community microgrid electrical system for the City could *spur new renewable energy* installations in all sectors of San Diego including residential, multifamily, institutional, commercial, industrial and visitor serving sectors.

A strategic business plan that designs renewable energy and storage improvements for City-owned or operated or other public entity or institutional facilities to serve as a neighborhood or core location for a community microgrid would make further investments in renewable electric generation and storage attractive to other entities located within that microgrid area. The system has advantage of being built incrementally in what is characterized as a honeycomb inter-related and integrated system.

Where necessary and appropriate and cost-effective imported renewable energy modes such as remotely sited wind, solar, geothermal and hydro generation and storage could be used where they are available through existing transmission and substation facilities and considered compatible and complementary to achieve 100% renewables generation at all times and as an operating bridge to transition through a phased implementation program to achieve the optimum operating capacity of a City-wide community microgrid system.

(C.1.6) **The State of California loading order** would be observed through the employment of roof-top solar generation, storage and demand management technologies. The implementation of community microgrids could also include incentivizing investments in building efficiency as prerequisites to eligibility to participate in the operating, reliability benefits of a community microgrid.

(C.1.7) **Social equity** would be addressed by prioritizing initial investments in identified communities of concern including those communities formerly included in designated redevelopment districts within the City. Section D.5 describes a pilot project in the City Heights community and Section D.9 describes the Hunters Point, San Francisco proposal.

(C.1.8) **Resources dedicated to local investment and economic development would be increased** through a strategic business implementation plan that builds upon investments in City and other publicly owned and controlled facilities to create lower operating costs that provide additional incentive funding for microgrid expansions. A capitalization fund could be created and operated as a revolving loan fund using portions of shared savings realized from net operating revenues paid back into the revolving fund.

(C.1.9) **Green jobs would be created far above levels currently being achieved or contemplated.** Instead of exporting jobs and dollars to site renewable energy facilities in remote locations outside the City of San Diego, investments in roof top and parking lot sited solar panels combined with neighborhood and community scaled storage facilities that are compatible and contribute to substation renovation and upgrading would create many small business opportunities that would expand demand for green jobs. Local education facilities would create green jobs in instruction necessary to provide the workforce for this aggressive expansion of rooftop solar and storage installation.

The Clean Coalition estimates “ of every dollar invested in the proposed Hunters Point Community Microgrid, 50% will remain local, largely in the form of local wages and jobs.”

This Proposal advances the following desired concepts identified in the City RFI:

(C.2.1) **Cost effectiveness.** Cost effectiveness analysis need to take into account what are not always easily quantifiable factors such as improved health, protection of environmental resources and stimulation of jobs and small businesses. In addition, when comparing a community microgrid as described herein to energy generated remotely, and adverse impact on undeveloped land or loss of open space, the real costs of the transmission facilities and loss in power over the transmission lines needs to be factored into any analysis.

A community microgrid systems approach will be *cost effective for City, communities, businesses and residents* because, if modeled and administered properly, it will engage them in the design implementation and the economic benefits both directly and indirectly. Both as consumers and owners. renters and landlords can share in the operating cost savings that roof top and parking lot solar can provide when it is deployed through a community microgrid model.

(C.2.2) **The effects on the City’s and its communities, businesses and residents.** Impacts and benefits are discussed in several other sections. Clean Coalition notes that each of the community microgrid projects they have modeled “will directly benefit the members of the community it serves by providing affordable clean local energy, avoiding transmission infrastructure expansion, delivering local economic benefits, and vastly increasing community resilience.”

In addition they have demonstrated in their models that “Community Microgrids can provide indefinite renewables-driven backup power to critical facilities like fire stations, hospitals, and water facilities. All of the systems constructed as a part of a CMI project are expected to have a service life of 30 years or longer.”

(C.2.3) **Innovative concepts and/or technologies:** A community microgrid system is an innovative concept that will require the application of known technologies and will spur the development of advanced demand response programs that integrate locally generated renewable energy, storage and electric vehicles with other sources available to the local distribution grid.

(C.2.4) **Greenhouse gas reduction.** A community microgrid systems approach will *ensure long-term greenhouse gas reductions* by incrementally displacing any need for fossil fueled power plants and –through the inclusion of electric vehicle charging / discharging connections--greatly reducing the need for fossil fueled transportation.

(C.2.5) **Minimize use of RECs.** A community microgrid systems approach will *minimize the use of renewable energy certificates (RECs)* by incrementally reducing reliance on any imported energy whatsoever. The capacity of a full build out community microgrid system will obviate the need for any RECs to achieve state mandated GHG reductions. *(However, it may create potential for the City to generate RECs that could be marketed.)*

(D. 3) **Support of City Renewable Energy Goals:** The Community Microgrid System Approach supports the City’s renewable energy goals by incrementally and steadily increasing the amount of locally generated renewable energy used by all sectors in the City of San Diego and reducing the amount of fossil fuel generated and the importation of remote sources of energy howsoever they are generated, thereby increasing reliability, responsiveness and resilience of the local electric system and stimulating the local economy for new businesses and sustainable green industry career jobs.

(D. 4. a) **Specific technologies:** Technologies employed initially would be existing and imminently developing roof top solar systems and storage systems including batteries integrated with community and neighborhood electric distribution and substation facilities. Public facilities and large to medium scale institutions and facilities in the private and/or non profit sector would serve as core to a honeycomb-type system of interconnected microgrids.

Additional technologies would be developed through an incremental implementation program to interconnect community microgrids with demand management and response programs that ensure maximum availability for power for priority uses identified by the City in partnership with community planning groups and other stakeholders.

Incremental implementation allows for flexibility and learning and modifications in an economic environment that is continually and rapidly evolving in efficiencies, responsiveness and availability of product choices.

(D. 4. b) **Estimated costs and appropriate funding mechanisms and parties that may incur costs:** Costs of roof top solar systems and projections of future costs with and without tax credit subsidies are well documented. Battery storage technologies and hybrids of systems that employ battery storage with solar and/or a range of other smaller to medium sized electric generators and fuel cell installations are already proven at different scales and their costs for capacity and dispatch are well documented. It is recognized that with additional commitment to expanding numbers of installations, the costs of systems will continue to be significantly reduced.

An array of funding mechanisms will be appropriate for different generators and users. “Clean Coalition” studies evaluating the proposed community micro grid operated by PSEG utility in Long Island, New York propose that “all 15 MWs of the local solar will be procured through a feed-in tariff. Property owners and third parties renting roofs will be directly reimbursed for their power production.” They estimate that “of every dollar invested (there) and at (the proposed) Hunters Point (San Francisco) Community Microgrid, 50% will remain local, largely in the form of local wages and jobs.”

Depending on the mechanism that is chosen by the City of San Diego to administer the generation and transmission of electricity the actual capitalization of costs will be borne by varying combinations of third party investors, the City, other public institutions, property owners, residents, businesses and rate payers. What programs are developed and available to participating generators will help determine how costs will be distributed and benefits shared.

Funding mechanisms such as PACE program can be augmented by funds that identify a nexus between the source of funds and costs imposed by those users. As an example, funds could be made available for retrofits and equipping of visitor serving facilities using the City’s Transient Occupancy Tax (TOT) mechanism.

Other funding opportunities could include:

- Formation of cooperations/cooperatives where property owners and homeowner or neighborhood associations could be incentivized to participate in mini-neighborhood grids with low interest and/or qualified potentially forgivable loans ;
- City adoption of a community microgrid approach in its Municipal Energy Strategy. By incorporating applicable upgrades to surrounding distribution facilities, municipal facilities could serve a core nodes for community micro grids. This could make expansion of the micro grid into surrounding areas more economically viable.
- City establishes a CCA with commitment and business plan to provide funding for community-based micro grid system implementation.

- **UPDATE NOTE:** At its March 9, 2017 meeting SEAB recommended the creation of an “**Energy Trust Fund**” (ETF) in the adoption of recommendations on the City *Municipal Energy Strategy* and incorporated that strategy in recommendations on the Fiscal Year 2018 Budget to the Mayor and City Council transmitted April 25, 2017.

The “ETF” could be seeded by capturing the savings realized in the cost of energy to the City by prior and ongoing investments in energy efficiency and solar power generation and capturing renewable energy fuel opportunities from the waste stream and waste water treatment systems.

The principle identified was that investments in energy efficiency and self-sufficient generation technologies will result in a return on investment savings that could be reinvested in further savings, and a type of revolving fund would be created that could be augmented with and leverage other grants and funding sources.

(D.5) **Estimated timeframe for implementation.** The implementation time frame will depend on the adoption of a strong commitment to local clean energy generation. The time frame depends on decisions by the City and the City’s ability to control decisions on electricity generation and distribution. The City has the ability through State law to create a Community Choice Aggregation (CCA) energy program. The City has the ability through the City Charter to create a municipal electric utility. And with the impending expiration of the current franchise agreement, the City has the opportunity to determine who and how its public right of way will be used for electrical distribution purposes.

If the City chooses to include a community microgrid component or option as a pilot project for response in a proposed RFP for municipal facilities the program could begin within the 2018-2019 time frame. If the City also chooses to create a CCA or a municipal utility or a municipal community microgrid system, the implementation to achieve optimum levels of potential penetration could be accelerated.

Microgrid proposals by The Clean Coalition intended for creation around substations located in Long Island and Hunters Point in San Francisco are projected to move distributed solar to 25-50% of those local area’s annual energy consumption. With higher solar energy incidence in San Diego, those estimates could be increased commensurately.

Assuming that the current renewable mix projection by SDGE to be between 35% and 50% in the next 15 years and the City chooses to incorporate those resources into meeting its 2035 100% goal, an implementation plan could be set forth that would achieve the necessary 50 – 65% of the remainder of the City’s 100% renewables goal by 2035 through a community microgrids program.

Once microgrid areas are delineated and surveyed for key energy node opportunities, the actual interconnections and integration facilities and systems could be designed and carried forth in 2-3 year increments depending on the sizing of the districts and the improvements that would be needed to the local distribution and substation facilities.

* **City Heights Pilot Demonstration Project.** In order to address the social equity goals of the CAP the City could designate a currently underserved, “community of concern” as an “Opportunity Community” for Climate Action priority. This would provide potential access to other federal, state and charitable, foundation funding.

As an example, the community of City Heights within the Mid City Communities Planning Area was formerly designated as a redevelopment district due to significant infrastructure deficiencies and other qualifying factors. It has been designated as one of several “Wellness Communities” by The California Endowment Foundation. The San Diego Unified School District is building a new K-8 School and considering use of properties for a new administrative headquarters adjacent to the SR-15 freeway and the new CenterLine Rapid Transit stations in City Heights. Two electric substations are located within or directly adjacent to City Heights.

The City, agencies such as Civic San Diego, community-based development organizations (CBDOs), utility and other stakeholders could cooperate in such a pilot demonstration program to implement a community-based microgrid project, while addressing social equity and economic development opportunities.

(D. 6) ***Potential participants in implementation and operation.*** As outlined in Section D.5 and other sections of this response, depending on the City adopted governance structure and budget for a CCA, municipal utility or another program the goal would be to engage both public and private entities in the implementation.

The operation and maintenance would be through cooperative agreements with the participating residents, associations, businesses, property owners, institutions or their designated representatives. It may be determined in initial stages to operate the community microgrids and their interface with the existing distribution infrastructure through SDGE or such mechanisms authorized by the State and CAISO to operate such systems.

Key partners in implementation of a community microgrid approach could include the following to function as core nodes:

- Municipal facilities owned and operated by the City of San Diego and facilities such as parking lots franchised by the City and current and contemplated Pure Water treatment and distribution facilities and waste reduction and recycling facilities
- SDGE (or utility entity operating) substations
- Federal and State and County facilities located within the City
- Business Improvement Districts and Assessment Districts within the City
- Institutions and facilities of scale with large buildings, parking lots or structures such as hospitals, universities, colleges, Metropolitan Transit System facilities, sports complexes, High school, Middle school and Elementary school campuses, shopping centers, condominium and apartment complexes, hotels and motels and other visitor serving and tourist and entertainment facilities.

(D. 7) ***Integration with existing or future projects or programs.*** As outlined in the preceding section and other sections one of the key steps that the City can take to facilitate establishment of community microgrids is to incorporate the potential of municipal facilities and other buildings or facilities authorized by the City to serve as the core or key nodes in a community-based microgrid system.

The design of each constituent community microgrid within certain substation region-based areas will depend on a survey of opportunities and constraints in the surrounding communities and neighborhoods. It will be important to integrate and implement in accord with land uses set forth in the City General Plan and community plan updates and the City Capital Improvement Plans need to focus on the potential for community-based microgrid improvements. Existing investments in microgrids such as the UC San Diego microgrid can be evaluated for their potential role and connection to a City-wide community microgrid system.

(D. 8) ***Potential obstacles to implementation.*** One of the key obstacles is to not clearly set forth the policy path to achieve renewables. Significant investments will have to be made in either systems to enhance remote generation and transmission of renewable resources or systems to generate and use the energy available at the load centers.

If the advantages of local electric generation are not recognized by the City Council and the policy direction to pursue the 100% Renewables Goal through a priority investment in those local facilities, community microgrids will not be a feasible alternative.

If the City recognizes the economic as well as environmental benefits of local generation at the load source through a combination of roof top and parking lot solar combined with storage and advanced demand response and the designated distributor of the energy generated cooperates in advancing a commitment to achieving the renewables goal through an accelerated installation of local clean energy generators, the community microgrid approach should be able to overcome any compliance requirements, regulatory barriers or technical and financing challenges.

(D.9) ***Estimated results.*** As delineated in other sections, the results of a commitment to generating renewable energy from within the City of San Diego through a Community Microgrid approach are manifold.

Major portions of the GHG reductions attributed to 100% renewables will be achieved while the economic multipliers in this approach reach residents and businesses in the areas of new businesses created and far more jobs created locally than through investment in remote generation and transmission.

In depth studies completed for two current proposals by The Clean Coalition as part of their “Community Microgrid Initiative (“CMI)” include the following:

- Eliminating nearly 1 billion pounds of toxic greenhouse gas emissions by utilizing 30 megawatts (MW) of solar on the utility substation that serves the

Bayview Hunters Point neighborhood of San Francisco (which used to be the site of a coal-fired power plant) while bringing in tens of millions in regional economic activity, including hundreds of local jobs over 20 years.

- Providing nearly 50% of annual local electricity and indefinite solar-driven power backup for multiple critical facilities, including a fire station and the water pumping and filtration stations that provision fresh water to more than 40,000 residents on the East End of Long Island.




In the study completed by The Clean Coalition for the Hunters Point neighborhood of San Francisco, “the local grid was modeled and ..(it was) demonstrated how it could withstand high penetrations of local solar without compromising the power system.”

(D. 10) ***Other Comments and References.*** A Community Microgrid approach (towards) the 100% renewable energy goal as outlined herein will achieve maximum benefit to San Diego. This approach can best be implemented in a manner and through institutional infrastructure that demonstrates transparency, accountability and responsiveness to the different recognized and designated communities and constituencies while they provide financial and operational sustainability for the City of San Diego.





Given the gravity of the challenges that climate change represents and the opportunities presented in the City Climate Action Plan we need to radically change the economic development strategy, if we are going to achieve what is needed and prescribed. We are asking the wrong questions if we make the energy imperative to switch rapidly to renewables subject to conventional narrow economic “cost effectiveness” analysis.

The proposal for a community micro grid system is the most environmentally and economically effective way to achieve our 100% renewables goal. All other modes are less efficient and represent less or no local economic value capture for the residents and businesses in San Diego.

Incorporated into this proposal by reference are the recommendations adopted March 9, 2017 by SEAB on the City of San Diego Municipal Energy Strategy (to achieve the CAP action goals for municipal facilities) and links provided here and previously incorporated as background to this RFI by City staff and links to the completed final draft CCA Feasibility Study posted July 11, 2017:

-  [Priority Guiding Principles - City of San Diego Community Choice Aggregation \(CCA\) Feasibility Study](#)
-  [Climate Action Plan \(CAP\) PEIR Comments Letter](#)
-  [Climate Action Plan \(CAP\) PEIR Comments Addendum Letter](#)

CCA July 2017 final draft feasibility study:

-  [Executive Summary](#)
-  [Feasibility Study Main Report](#)
-  [Appendices](#)
-  [Exhibits](#)

The following information from “The Clean Coalition” has been presented as background for the presentations and discussion of Renewable Energy Integration at the August 2016 SEAB meeting and the following links were incorporated in the original RFI response:

- Industrial Economics, Inc. 2016. *Long Island Community Microgrid Project Feasibility Study, Independent Third-Party Benefit-Cost Analysis, (Appendix A)*
<https://www.nyserda.ny.gov/-/media/NYPrize/files/studies/8-Town-of-East-Hampton.pdf>
Independent confirmation of the value of the Clean Coalition’s Long Island Community Microgrid Project.
- EPRI. 2014. *The Integrated Grid: Realizing The Full Value Of Central And Distributed Energy Resources.*
<http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000003002002733>
Grid modernization is critical for integration of solar, wind, electric vehicles and other clean local energy resources.
- California Public Utilities Commission. 2016. *Distribution Resources Plan.*
<http://www.cpuc.ca.gov/General.aspx?id=5071> As the result of Clean Coalition led regulatory efforts, each California IOU was required to evaluate and plan for the inclusion of distributed energy resources.
- San Diego Gas & Electric. 2014. *Borrego Springs Microgrid Demonstration Project.*
<http://www.energy.ca.gov/2014publications/CEC-500-2014-067/CEC-500-2014-067.pdf>
...demonstration project highlighting microgrid resilience capabilities and foundation for a Community Microgrid expansion.
- Southern California Edison. 2016. *The Emerging Clean Energy Economy.*
<https://www.edison.com/content/dam/eix/documents/our-perspective/der-dso-white-paper-final-201609.pdf> Utility planning showing the need for grid coordination for large deployments of distributed energy resources.
- Rocky Mountain Institute. 2014. *Bridges to New Solar Business Models.*
http://www.rmi.org/rmi_sunshot_doe_bridge_solar_business_models
Value of distributed solar resources.
- U.S Department of Energy. 2014. *The Advanced Microgrid: Integration and Interoperability.*
<http://energy.gov/oe/downloads/advanced-microgrid-integration-and-interoperability-march-2014>
Highlights advanced microgrid functionality when both interconnected with the grid and in outages.
- NYSEDA. 2010. *Microgrids: An Assessment of the Value, Opportunities and Barriers to Deployment in the New York State.*
<https://www.nyserda.ny.gov/-/media/Files/Publications/Research/Electic-Power-Delivery/microgrids-value-opportunities-barriers.pdf> Benefits and barriers of traditional microgrids.
- Grimley, Matt & Farrell, John. (2016). *Mighty Microgrids.* Washington, DC: Institute for Local Self-Reliance.
https://ilsr.org/wp-content/uploads/downloads/2016/03/Report-Mighty-Microgrids-PDF-3_3_16.pdf
- Clean Coalition. (2016). *Hunters Point Community Microgrid Project Power Flow Analysis Methodology.* Menlo Park, CA.
http://www.clean-coalition.org/site/wp-content/uploads/2015/08/HPCMP-Grid-Modeling-Methodology-report-41_jv-30-Aug-2016.pdf
- Clean Coalition. (2016). *Feasibility assessment for the Long Island Community Microgrid Project.* Albany, NY: New York State Energy Research and Development Authority.
http://www.clean-coalition.org/site/wp-content/uploads/2016/03/FINAL-LICMP-Feasibility-Report-for-CC-website-22_kc-30-Aug-2016.pdf

LETTER RESPONDING TO REQUEST FOR ADDITIONAL INFORMATION:

COMMUNITY ENERGY ACTION NETWORK

February 1, 2017

Jack Clark, Deputy Director, Energy Conservation and Management Division
Environmental Services Department, City of San Diego **Response provided by Email**

RE: Request for Information 10079755-17-A for Program(s) to Meet the City's 100% Renewable Energy Goals

Dear Mr. Clark:

I am responding to your request for additional information regarding the response submitted on behalf of the Community Energy Action Network (CEAN) to the subject City of San Diego RFI. CEAN proposed that the City of San Diego implement an aggressive deployment of community-based microgrids. I have organized responses below with the question stated *in italics* and then response.

- 1. How do you propose that your organization and the City procure energy on behalf of residential, commercial, industrial, and agricultural customer when the City does not have the administrative oversight and responsibility to do so currently?***

CEAN and this respondent do not intend to procure energy on behalf of the customers listed. We do have the following suggestions and observations:

Since the City Climate Action Plan (CAP) sets forth enforceable goals and proposes actions to meet those goals, any program for procurement of energy should be under the control of the City or an agency empowered by and accountable to the City of San Diego. There appear to be the following options which could comport with those criteria:

- A. Formation of a CCA or participation in a CCA: The City Sustainable Energy Advisory Board (SEAB) has set forth Priority Guiding Principles for the CCA feasibility study underway. They include the potential for phasing in a CCA by geographic areas or customer classes or a combination of such factors. The feasibility study or subsequent business planning for implementation should evaluate the optimum administrative model and structure of a CCA.
- B. Establishment of a Municipal Utility: The City of San Diego Charter provides authority for the City to establish a municipal utility to provide energy services to its constituents. The Franchise Agreement for use of City-owned or

controlled public right of way provides for use by the City for municipal energy purposes. Modified and focused versions such as a Municipal Solar Utility have been proposed to the City in presentations before the City Rules Committee in June 2012 and more recently in June 2016 by “California Local Energy – Advancing Renewables”.

- C. Expansion of the current authorities of the City Water Utilities Department to provide electrical energy to other City facilities or other portions of the City and certainly to provide electricity for its own operations and proposed facilities associated with the “Pure Water” program as an enterprise fund entity within the City.
- D. Establishment of a Special District or Districts providing electrical energy to all or portions of the City of San Diego. Special districts can be constituted through the San Diego County Local Area Formation Commission procedures or in conjunction with other jurisdictions. This option may be pursued with adjacent jurisdictions or to provide services to unincorporated areas of the County adjacent to the City or City-owned or operated or controlled properties such as water utilities facilities outside of City boundaries.
- E. The City can proceed to expand the ability to provide net surplus energy at municipal facilities to wheel to other municipal facilities or areas under City control or contract and to other areas or communities that the City deems to be in the public interest for safety, security or other public purposes. If authority is needed to provide such a wheeling mechanism at a reasonable rate through the existing distribution network, the City can seek as necessary such authority from the State of California or negotiate such provisions within the franchise agreement for use of public right of way or make necessary findings of public necessity and benefit.

2. *Please describe an operational and administrative structure (third party, your organization, the City or etc.) for your proposal.*

CEAN has suggested a community micro-grid operational structure and implementation through a number of potential vehicles identified in the RFI response. Potential administrative structures are addressed in response to question #1 above. In addition, the response outlines the approach of identifying community-nodes and the utility substation and City facility roles as nodes in such an operational mode. It is suggested at response to item #D.5. that the City consider a pilot project for a community-based microgrid in an identified community of concern.

3. *What are the specific financing mechanisms that could bring your proposal to fruition?*
- a. *Please provide specific strategies and/or plans to bring your proposed concepts to market.*

Section D.4. b) of the submitted response to the City RFI suggests a number of potential funding sources and related financing mechanisms including the use of feed in tariffs in micro districts proposed by the Clean Coalition in Long Island, a nexus in impact and benefit of use of portions for the transit occupancy tax (TOT) mechanism, formations of cooperations and cooperatives, the mechanisms identified in the CCA feasibility and business plan studies and leveraging of investments in renewable energy, storage and related distribution facilities at City municipal facilities. Section D. 1 and D.4. a) and b) in the RFI response speak to the financial advantages of implementing the community micro-grid concept incrementally.

Investment in City municipal facilities to achieve energy efficiency and to generate and store and manage renewable energy generation presents potential funding streams for reinvestment in establishment of community-based microgrids. Identified energy cost savings from efficiency upgrades and generation can be managed as a revolving, reinvestment fund.

A commitment to maximize energy generation at municipal facilities and distribute that through various mechanisms identified provides the City a financial base for obtaining bond financing to advance community micro-grid projects. The City can evaluate the use of franchise fees derived from the use of public right of way for direct funding allocation or in a financing plan that helps establish the revolving reinvestment funding mechanism.

To the extent that the City Water Utilities Department has separate enterprise funds that must benefit water customers and the nexus between energy use and water resources is well established, City Council could authorize expenditures or bonds related to providing power for those facilities.

The City can leverage the public assets under their control such as potential reuse of the 166 acre stadium property which is under City and Water Utilities Department enterprise fund control.

The nexus between energy needs and impacts related to the tourist and visitor serving sector and facilities that support that economic sector such as the Convention Center can be evaluated for an allocation of existing or proposed increases in transient occupancy taxes for investments in community-based micro grids and other associated climate action strategy and actions including the transportation interface.

b. *Please provide specifics on if there are any partnership opportunities to bring your proposed concepts to market.*

The Response to RFI included extensive referral to projects under evaluation and proposed by the Clean Coalition (based in San Francisco). Other experienced and knowledgeable potential partners include entities who have presented information to the SEAB and/or city staff including SAGE Renewables, The Rocky Mountain Institute and the World Business Academy and CleanSpark. Contact information for those organizations should be on record or can be provided if necessary.

Other organizations that may be interested and/or have experience or knowledge or affiliations and/or members that might be of value in implementing a community-based microgrid system or pilot project include Center for Sustainable Energy, Grid Alternatives, California Solar Energy Industry Association, CleanTech San Diego and organizations represented on the SEAB.

San Diego Gas and Electric would, as the agency authorized to provide and distribute electricity within San Diego, be a necessary partner in the implementation of a microgrid project.

Jurisdictions that could be considered for partnerships in implementing community-based microgrids could include: County of San Diego, cities adjacent to City of San Diego boundaries, San Diego Unified School District, Poway School District, Community College districts operating within City of San Diego boundaries, San Diego Unified Port District, Tourism Marketing District, San Diego Convention Center, San Diego Housing Commission and affordable housing owners and operators funded through City funds, home owner associations, non-profit community-based development corporations and community development corporations operating in recognized communities of concern, CIVIC San Diego, entities administering special districts and assessment districts such as City-designated EcoDistricts, business improvement district and maintenance, parking, and lighting districts.

The Metropolitan Transit System (MTS) could be considered a potential partner that could benefit from a cooperation with the City of San Diego in meeting its energy needs for the light rail system and hybrid bus rapid transit operations including operation of stations and maintenance yards and facilities.

Large public and private colleges and universities could serve as potential nodes for community micro-rids. The UCSD microgrid has already demonstrated its ability to provide a resiliency back up source of power during the September 2011 southern California SDGE and IID electric grid failure. The “2030 District” designation and the Smart City San Diego present opportunities for partnerships to implement community-based microdistricts. There appears to be an opportunity to partner with SDSU in proposals to redevelop the Mission Valley stadium site; that 166 acre area could be developed as a pilot neighborhood microgrid power district.

Specific partners and combinations of partners and their roles as parties in interest, investors or agencies with interests would be based on the criteria and parameters selected for a pilot and/or phased in project and the cost benefit analysis for each participating entity.

4. *Is there any other information not included in your response of proposal or captured in the above questions that you believe is pertinent to the City in evaluating its energy options to achieve 100% renewable energy that you would like the City to consider?*

We encourage the Economic Development Department and Environmental Services Department to pursue necessary funding in the FY 2018 City Budget to be able to evaluate the options brought forward through the RFI and recommendations of the SEAB including potential of the proposed community-based micro district and the role of municipal facilities in a locally generated, distributed renewable energy resources integration plan.

Funding will be needed to provide necessary staffing and studies for pursuit of the Municipal Energy Strategy and to pursue a pilot community-based micro grid project in an identified community of concern and/or other target areas such as the Mission Valley stadium site.

Following a phased in, incremental implementation plan, the City can use returns on investments in municipal facilities retrofits through savings in costs of electricity to create not just net zero energy goals but funding mechanisms to produce surplus energy that can help stimulate development of additional distributed energy resources to benefit all communities in San Diego.

Thank you for the opportunity to amplify our response to the RFI. Please let me know if you have any clarifying questions and if there may be an opportunity to further discuss the proposal for a community-based micro grid system in the City of San Diego.

Sincerely,

s/ HC Powell

H.C. Jay Powell, Principal, Cooperations

Community Energy Action Network
(a San Diego-based cooperation advocating for local clean, renewable energy alternatives)

c/o 3191 North Mountain View Drive, San Diego, CA 92116
hcjpowell@cox.net (619) 813-8485