CITY OF SAN DIEGO

PURCHASING & CONTRACTING DEPT.
1200 Third Avenue, Suite 200
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REQUEST FOR INFORMATION (RFI) COVER SHEET
PROGRAM(S) TO MEET CITY'S 100% RENEWABLE ENERGY GOALS
ADDENDUM B

Subject: Solutions to Support the City of San Diego's Goal of 100% Renewable Energy

Date Issued: September 23, 2016

Response Date and Time (Closing Date): October 28, 2016 at 3:00 p.m.

Questions/Comments Due Date: October 5, 2016 at 5:00 p.m.

City Contact Name and Information: Maureen Medvedyev, Principal Procurement Specialist, Mmedvedyev@sandiego.gov

Respondent's Information:

Respondent Name: Daniel Bove

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Website: http://www.currentbyge.com/

Authorized Representative Name and Title: Erik Schiemann, GM - Solar

Representative's Original Signature: 

Date Signed: October 20, 2016

TO BE CONSIDERED, RESPONDENT MUST :

1) **Provide all requested information identified in this Cover Sheet.**
2) **Submit all requested information described in the RFI.**
3) **Submit all requested information on or before the Closing Date.**

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October 20, 2016

We congratulate the City of San Diego on their ambitious goals and are excited to offer a partnership to achieve a modern, efficient and sustainable city. Current, powered by GE, recognizes the magnitude of San Diego's renewable energy & carbon goals and encourages broad adoption of several strategies to achieve this great undertaking.

As such, we suggest a phased approach for deploying programs and strategies to achieve 100% renewable energy by 2035, beginning with actionable and economic projects today. Our approach not only provides immediate steps (quick wins) to address the goals of renewable energy use and reduction of greenhouse gas (GHG) emissions, but an actionable and long-term roadmap to the deployment of distributed energy.

1. *Please provide a detailed description of the concept (project or program) you are submitting for consideration. Where not otherwise addressed below, please include discussions such as feasibility, impact/benefits, timeframe, costs, and examples of similar successes.*

With specific focus on strategies 1 & 2 from the Climate Action Plan, we propose the following implementation strategy:

A. Near-term (6-12 months) – contract for and deploy behind-the-meter solar & EV charging station installations that provide an immediate reduction in kWh costs through a PPA arrangement,
B. Mid-term (12 – 18 months) – contract for and deploy technically and economically viable behind the meter storage installations that provide an immediate deduction in demand charges.

We propose the longer-term action of identifying market indicators that trigger implementation of a suite of other energy and/or GHG emissions reduction technologies [LED upgrades, storage, controls, Hybrid Electric Gas Turbines and offsite solar] along with the associated financing to further enable reductions in energy usage and costs, as well as demand response market participation opportunities.

2. *The City is interested in how recommendations will fit into CAP efforts. For each proposed project or program, identify which goals of the CAP and objectives referenced in section I.C will be achieved, and how they will be achieved.*

Strategy 1 (Energy & Water Efficient Buildings) - we propose an energy efficiency rollout via LED retrofits and the implementation of building control technologies throughout the City's facilities to enable the reduction of energy consumption at municipal facilities by 40% by 2035 goal.

Strategy 2 (Clean and Renewable Energy) - with GHG emissions goals to be 51% below 2010 baseline by 2035, several strategies must be adopted in parallel: for municipal-owned facilities, local businesses and residents. The program recommended by Current, powered by GE, is the integration and use of solar photovoltaic (PV) systems, EV charging stations and energy storage technologies contracted through a Power Purchase Agreement (PPA) for municipal-owned facilities.

Attaining the of objectives in Bundling the technologies with this financing mechanism enables the City to reduce GHG emissions with long-term power production from green source and cost savings on the first day of operation. Through a phased integration approach, i.e. near-term, mid-term and long-term implementation of technologies, the City achieves a sustainable path to achieving the CAP while providing for the flexibility to pivot to larger California initiatives related to renewable energy technology deployments.

***3**. Does the project or program support the City's renewable energy goals? How?*

The program being proposed by Current, is distributed energy focused, clearly aligning with the City's energy goals. We propose onsite, behind-the-meter, solar installations at City facilities. Our program further enhances its renewable offering with the integration of battery storage in the future. We realize that City-owned buildings and land are limited and as such, we propose three additional long-term actions:

A. Evaluation of the use of contracting offsite power from a solar farm in CAISO to increase the City's procurement of renewable power as a longer-term action.
B. Engagement and enablement of local businesses and residents to contract for solar energy through Community solar application.
C. Evaluation of a City of San Diego incentive program for private adoption of behind-the-meter renewable energy, LED adoption and energy storage technologies.

4. *What are specific technologies and estimated costs required to implement recommendations, and what might be appropriate funding mechanisms? Identify parties that may incur the costs (e.g., City, residents, businesses, …etc.).*

The specific technologies that Current would propose be implemented are solar PV modules, LED lighting, battery storage and building controls. Solar PV modules are a proven technology and its associated costs are decreasing annual over the past 5 years.

With our business model, GE would own and operate the solar PV and Energy Storage systems through a PPA contract with the City and any local businesses. With such a financial mechanism, neither the City or local businesses would incur costs.

5. *What is an estimated timeframe for implementation of projects or programs submitted, and what are the factors that may contribute to accelerating or slowing the implementation timeline?*

We believe construction of the onsite, behind-the-meter, solar roll-out at City facilities could beginning 2Q 2017. Accelerating that timeframe is contingent on structural assessments of the rooftops, land development for any solar canopy installations and approval from SDG&E for interconnection of the systems to the grid. The conversion to LED lighting would follow a similar roll-out plan, but could be accelerated depending on the timely execution of contracts. With storage technologies and their respective financing still evolving, we would estimate the integration of battery storage would begin in 2018.

The opportunity to accelerate this deployment lies in a true partnership between developer and the City, to quickly move through site due diligence, contracting, and economic analysis. Further opportunities may lie in synergies of deploying multiple technologies at one facility, IE- energy storage, solar, and EV charging.

***6**. Who are potential participants in the implementation and operation of the proposed projects or programs?*

The potential participants in the implementation and operation of our proposed solar, LED and storage solutions are the City, GE, local business executives, our installation partners and the resources we contract for the on-going operating and maintenance of the systems. GE's extensive relationships with the construction firms who have been leaders in the deployment of green energy in California allow us to select local partners who provide jobs to the community. GE and our partners share the common goal of putting the project first by building the best facility to deliver low costs clean energy to our customers. We do this through knowledge sharing in innovative project design and technology development.

***7.** How is the specific project or program new or different than what the City is currently doing, and how can it potentially be integrated with existing or future projects or programs?*

Solar systems are easily integrated with other energy reduction programs. Current's approach is different from the City's current efforts as it focuses on the phased roll-out and integration of clean energy technologies. We recommend a specific distributed energy program to be activated over the next year; followed on with the implementation of additional technologies that continue to reduce dependency on brown power, reduce energy costs and CO2 emissions and drive resiliency in the City's energy supply.

We believe that the adoption of onsite, distributed energy resources reduces the amount of offsite power generation that is needed while enabling the City of San Diego to potentially participate in larger California market-based efforts, such as DRAM.

***8.** What are potential obstacles to implementation, including compliance requirements, regulatory barriers, technological or market feasibility, financing limitations and/or other parameters? Identify potential solutions for each.*

The obstacles to implementing onsite, behind-the-meter solar PV systems and EV charging stations are relatively minor. As the technology is widely deployed across California, the compliance requirements are primarily related to building codes and interconnection to the utility grid. PPA financing has become the core contracting mechanism with robust tax appetite available. The pace of installations will be key to ensure the project investor(s) can monetize the Federal Investment Tax Credit prior to its step downs from the current 30% level. We suggest the development of a core team within the City of San Diego to pair with the developer to solve minor issues in a time-effective manner throughout the project implementation.

We propose a long-term approach to the integration of energy storage due to the current technological, market and financing complexities of the technology. As a major provider of energy storage, GE continues to evolve the technology to improve performance and reliability of such applications. The use of the technology at scale is still evolving and the application has been much more focused on utility-scale applications. With the limits to storage dispatchability, the ease of financing such applications is limited. As demand response regulations and incentives continue to be introduced, the application of energy storage will become more viable in small-to-mid sized systems.

Community Solar solutions have scalability constraints due to interconnection rules and limitations to the amount of energy that can be contracted to the 'anchor' client. Additionally, financing the project through a PPA mechanism requires the engagement of a different project equity investor. The need to have an investor with the business model to finance many <20kw systems can prove challenging due to higher transaction costs and credit risks. GE, as an investor in a residential energy financing company, believes we can create the strategic alliance to bring the diverse equity to a Community Solar solution.

9. *What are the estimated results of the proposed concept(s), including the potential for greenhouse gas emissions reductions, numbers of residents and/or businesses accessing the program, economic impacts, …etc.?*

Each kilowatt-hour of energy generated by the onsite solar systems equates to a 0.7kg reduction of CO_2 emissions. Reducing CO_2 emissions is a critical tenant of the City's Climate Action Plan. When funded through the contractual mechanism of a Power Purchase Agreement (PPA), there are no out-of-pocket costs to the City. The resulting absolute emissions reduction is tied one-to-one with the amount of kW of solar PV awarded by the City.

As Current, powered by GE, we work with our core customers are Commercial, Industrial, Municipal, Education and Healthcare segment, to deploy more distributed PV in the City, which would be additive to the City's goals. Any additional onsite clean energy contracted with said customers facilitates the Climate Action Plan through further reductions in CO_2 emissions. Our investment in a California-based residential solar financing company, will allow us to education homeowners as to the benefits of installing solar on their homes and provide a similar contracting mechanism that provides for a no out-of-pocket experience. Further, we would evaluate the viability of Community Solar to provide business and homes with the ability to purchase solar energy from offsite solar farm. Enabling the City, business and residential communities to lower energy costs will allow them to invest those dollars saved back into the community.

10. *Include any other comments that you would like to offer that were not previously addressed*.

GE has been a leader and innovator in the energy business since 1878. Since the 1980's, GE has participated in the Research & Development, manufacturing, project development and financing segments of the solar market. Further accelerating GE's presence in the renewables space, our full-scope solar development business has been in operations for the past 3-years. The GE Company currently has 17GW of active projects across the renewable energy spectrum equating to an investment of over 10B US dollars.

GE is well-versed in innovative project designs that integrate battery storage, wind generation and natural-gas backup to solve customer challenges. Given GE's global scale and robust renewable energy experience, we have developed invaluable perspective on what it takes to make projects work and how to best execute projects to meet customer needs. To do so, we retain a wide range of vetted partners and suppliers. Our capabilities throughout the energy value chain capabilities lend themselves well to being the clean energy partner for the City of San Diego.