



The City of San Diego

Staff Report

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TO: City Council

FROM: Sustainability Department

SUBJECT: 25-Year Energy Management Services Agreement with Shell New Energies U.S., LLC for Microgrid Projects at Eight City Facilities

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Council District(s): 4, 5, 8, 9

OVERVIEW:

This item presents to Council a renewable microgrid project to be installed at eight (8) City facilities. The renewable microgrids include solar photovoltaic (PV) systems, battery energy storage systems (BESS), microgrid controls, and electric vehicle (EV) charging stations. The microgrids will allow the eight facilities to isolate from the grid and be powered by renewable electricity during power outages, increasing resiliency in response to energy disruptions. The microgrids will also reduce energy consumption and greenhouse gas (GHG) emissions during normal, grid-tied operations.

PROPOSED ACTIONS:

1. Introducing and adopting an ordinance authorizing the Mayor or his designee to execute a 25-year Energy Management Services Agreement with Shell New Energies US, LLC for Renewable Microgrid Systems at Eight (8) City-Owned Facilities.
2. A resolution determining that the microgrid portfolio project at eight City facilities is statutorily exempt from California Environmental Quality Act (CEQA) pursuant to Public Resources Code Section 21080.35 and categorically exempt pursuant to CEQA Guidelines Sections 15301 and 15304.

DISCUSSION OF ITEM:

Microgrids are standalone power grids that allow a building or set of connected buildings to “island” or isolate from the grid and continue to operate during grid outages, relying on power stored onsite. *Renewable* microgrids rely solely on renewable energy generated and stored onsite to remain energized during outages. Microgrids increase resilience, meaning the ability to prepare for and adapt to changing conditions, and to withstand and recover rapidly from disruptions. When the grid is functioning, renewable microgrids provide significant energy and GHG reductions based on onsite power generation and energy storage at lower rates than offered by the incumbent utility or energy provider. Additionally, *smart* microgrids enable dynamic shifting of a facility’s energy load, allowing energy consumption and

demand to be optimized in response to grid signals and energy pricing. For example, microgrids allow for release of energy from onsite BESS to support building needs when prices charged by the local utility provider are high, and shifting use of grid energy to when utility prices are low, resulting in decreased energy operating costs.

Microgrid installations at City facilities support the Climate Action Plan. Action 1.2 requires the City to reduce municipal energy consumption from a 2010 business-as-usual baseline by 15% in 2020 and an additional 25% in 2035, goals also reflected in the Municipal Energy Strategy. Strategy 5 of the CAP calls for programs and policies that increase the City's ability to "absorb disturbance and ... retain essentially the same function" (i.e. resiliency). Microgrids help the City work toward both the municipal energy reductions and the resiliency goals established in the CAP.

Project Description

In November 2019, the City of San Diego was invited by Gridscape Solutions Inc. (Gridscape) to participate in an Advanced Solar Emergency Microgrids grant previously awarded by the California Energy Commission (CEC). The grant project is intended to demonstrate the viability of generating energy savings from the microgrid systems while increasing electrical infrastructure resiliency, reducing greenhouse gas (GHG) emissions, and optimizing energy performance via deployment of smart, connected, distributed energy systems at critical facilities.

The Sustainability Department worked with Asset Managing Departments to identify the following eight City facilities for participation in the project:

1. Dolores Magdaleno Memorial Recreation Center, 2902 Marcy Ave, San Diego, CA 92113
2. Cesar Chavez Recreation Center/Larsen Field, 455 Sycamore Road, San Ysidro CA 92113
3. Southcrest Recreation Center, 4149 Newton Ave, San Diego, CA 92113
4. Fire Station #19, 3434 Ocean View Blvd, San Diego, CA 92113
5. Fire Station #29, 198 W San Ysidro Blvd, San Ysidro, CA 92173
6. Police Station – Mid-City, 4310 Landis Street, San Diego, CA 92105
7. Police Station – Southeastern Division, 7222 Skyline Drive, San Diego, CA 92114
8. Police Station – Northeastern Division, 13396 Salmon River Road, San Diego, CA 92129

These eight facilities were chosen based on their ability to serve communities during grid outages – either as shelters or supply distribution centers (Recreation Centers) or by providing critical health and safety services (Fire & Police Stations). Sites 1-6 score 'very low' or 'low' on the City of San Diego's Climate Equity Index. Sites 1-4 are in disadvantaged communities as defined by the CEC and qualify for grant funds. The energy use and cost profiles at all sites make microgrid installations financially appealing.

The installations will consist of solar PV on rooftop or carport structures; battery energy storage systems; smart inverters; microgrid controls allowing the buildings to 'island' from the grid; and software that will monitor, collect, and display energy performance data. Four of the sites will receive EV charging stations. Most sites will also receive alterations and/or improvements to facilitate installation of the listed equipment (e.g. Memorial Rec Center will receive a new roof; several trees will be removed from parking lots to accommodate solar shade structures).

The facilities will have the capability to "island" from the electricity grid and operate fully powered during power outages without the use of diesel-powered backup generators (existing diesel-powered backup generators at Police and Fire Stations will tie in to the microgrid system in case they are ever needed). While the grid is operational, the solar energy generated onsite will be used to power facility end-uses and charge the onsite BESS. Energy will be discharged from the battery during peak pricing periods and

to minimize or eliminate electricity demand charges from SDG&E. Grid-tied operation of the PV and BESS will result in ongoing GHG reductions and reduced energy costs at the eight sites.

Project Partners

Shell New Energies US, LLC (Shell New Energies) is the project funder, system owner, and energy provider. City of San Diego is the project host and purchaser of energy generated and stored by the microgrid systems. Gridscape Solutions is the project developer and prime CEC grant recipient. Green Realities, LLC is the contractor/installer.

25-Year Energy Management Services Agreement

Shell New Energies is covering upfront project costs of \$4,969,155, less \$950,000 in CEC grant funding allocated by Gridscape Solutions, Inc., the grant recipient. As proposed in the Energy Management Services Agreement (EMSA) between the City and Shell New Energies, Shell New Energies will own the systems and sell to the City renewable energy generated by the solar PV and electric demand capacity stored in the onsite BESS. The contract term shall be for a period of 25 years beginning on the Commercial Operation Date. The City shall pay for electricity generated by the PV systems at a rate of \$0.18/kWh with a 2.5% annual escalation rate. The City shall pay for electric demand capacity (kW reduction) from the battery energy storage systems at a price of \$78,000 in year one, with a 2.5% annual escalation rate. Some energy will still be purchased from the grid at rates established by the local utility provider (SDG&E followed by San Diego Community Power). The EMSA includes performance guarantees for the solar PV generation and the electric demand charge reduction from the BESS, along with provisions for ongoing measurement and verification to assess system performance and ensure the City is compensated in case the systems do not perform as guaranteed. As system owner, Shell New Energies is responsible for ensuring the microgrid stays functional and will perform ongoing monitoring and maintenance to ensure the systems perform as guaranteed.

The project will be operational approximately 20 months from the notice to proceed. The 25-year agreement will commence on the commercial operation date (COD) of the final installed microgrid system, expected to be March 2023. Beginning in year eight, the City has the option to purchase the system from Shell New Energies at prices outlined in the Early Termination Schedule and take over ongoing operations and maintenance. Across the 25 years, the BESS will likely be replaced two times (at approximate 11-year intervals). The useful life of solar PV systems is approximately 30 years. At the end of the 25-year agreement, the City has the option to release the equipment back to Shell New Energies for removal or purchase the systems at a Fair Market Value and continue operating them and performing ongoing maintenance.

Estimated Savings

Year 1 (FY24) avoided energy costs associated with the 8 microgrids are projected at \$57,000 and result from paying for energy at the eight sites at rates that are lower than charged by SDG&E. These avoided costs increase year over year due to an annual payment escalation rate of 2.5% to Shell New Energies, compared to an assumed annual utility bill escalation rate of 4% by the local utility provider. (SDG&E annual escalation rates vary. For context, the commercial time of use rate increased 17% from Oct 2018 to April 2020.) 25-year cumulative avoided energy costs are projected at \$6,000,000. Annual GHG reductions are estimated at 1,270 tons CO₂e. In addition, eight City facilities will be able to function without GHG emissions and provide important community services during power outages.

Should the local utility provider increase electricity rates below the 2.5% annual increase offered by Shell New Energies, energy cost reductions would be lower than anticipated. However, this risk is somewhat offset by the increased certainty inherent in this agreement. Specifically, rather than be subject to rate fluctuations by the local utility provider, at these 8 sites the City is locking in a known rate for the next 25

years, increasing the accuracy and stability of budget forecasts at these sites. Best available data and market history indicate that the City will experience net savings from year one, and those savings will increase over the length of the contract term as the anticipated delta between the escalators increases. Further, the City should not ignore the value of increased resiliency provided by the microgrid systems. As microgrid systems proliferate, the clean energy industry is homing in on a dollar value for resiliency benefits equal to 25% of the system cost, implying that the clean energy proposed for purchase from Shell New Energies is worth 25% more than the City is agreeing to pay.¹ Future microgrid projects considered by the City will likely include a resiliency adder in the project costs (25% or similar) as the market coalesces around a standard value of resiliency.

Energy savings estimates are based on calculations performed by Gridscape and Shell New Energies using industry-accepted clean energy software tools (Helioscope and Energy Tool Base) that consider historic weather data, site specifics including historic energy consumption, energy rate tariffs and solar insolation, and proposed system specifications to model energy performance and anticipated savings. City staff provided historic energy consumption data for input into the tools. Staff reviewed the calculations performed by Gridscape and Shell New Energies and are confident that the energy savings estimates are accurate based on the best available information.

During spring 2021, in preparation for re-docketing this item for hearing, City staff worked with Shell New Energies to make minor adjustments to the contract terms. The performance period for both solar and battery capacity guarantees was reduced to an initial three-years (down from five years), followed by annual periods. The emergency response window for Shell New Energies was reduced from five days to "as soon as possible."

Staff has conducted a thorough review of the proposed project and proposed agreement terms and has concluded that it is in the City's best interest to execute an agreement with Shell New Energies US, LLC to deploy renewable microgrid systems at eight City facilities.

Staff has secured sole source approval from Purchasing and Contracting as pursuit of a competitive bid would eliminate access to \$950,000 in CEC grant funds, making a solicitation for proposals undesirable and impractical.

City Strategic Plan Goal(s)/Objective(s):

Goal #2: Work in partnership with all our communities to achieve safe and livable neighborhoods.

Objective #3: Invest in infrastructure.

Goal #3: Create and sustain a resilient and economically prosperous City

Objective #1: Create dynamic neighborhoods that incorporate mobility, connectivity and sustainability.

Objective #4: Prepare and respond to climate change

Fiscal Considerations:

Year 1 (FY24) energy costs under the EMSA are estimated at \$342,934 shared across the three participating departments. Year 1 (FY24) avoided energy costs (savings) are estimated at \$57,000. The project is expected to generate cumulative 25-year avoided energy costs of \$6,000,000. Sustainability Department has carved out approximately \$25,000 in its FY22 operating budget to cover contingency costs related to construction of the proposed microgrids.

¹ <https://clean-coalition.org/disaster-resilience/>

Charter Section 225 Disclosure of Business Interests:

N/A; no individual owns more than 10% of the contracting entity or will receive more than 10% of the contracted amount.

Environmental Impact:

The proposed adoption of a 25-year Energy Management Services Agreement with Shell New Energies US, LLC is consistent with the Final Program Environmental Impact Report (PEIR) prepared for the Climate Action Plan (Project No. 416603 / SCH No. 2015021053), which was certified by San Diego City Council Resolution R-310176 on January 4, 2016. The environmental impacts of the proposed activity were adequately addressed in the Final PEIR and pursuant to CEQA Guidelines Section 15162 there is no change in circumstance, additional information, or project changes to warrant additional environmental review. Because the prior environmental document covered this activity as a part of the previously approved project, this activity is not a separate project for purposes of CEQA review pursuant to CEQA Guidelines Sections 15378(c) and 15060(c)(3).

Furthermore, the installation of renewable microgrids at eight (8) City facilities is statutorily exempt from CEQA pursuant to CEQA Section 21080.35, as added by SB 226, which exempts the installation of a solar energy system, including all associated equipment, on the roof of an existing building or at an existing parking lot. For the purposes of this section, "associated equipment" consists of parts and materials that enable the generation and use of solar electricity or solar-heated water, including any monitoring and control, safety, conversion, and emergency responder equipment necessary to connect to the customer's electrical service or plumbing and any equipment, as well as any equipment necessary to connect the energy generated to the electrical grid, whether that connection is onsite or on an adjacent parcel of the building and separated only by an improved right-of-way.

The installation of renewable microgrids at eight (8) City facilities is also categorically exempt from CEQA pursuant to CEQA Guidelines Section 15301 (Existing Facilities) which exempts the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use; and Section 15304 (Minor Alterations to Land) which exempts minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees except for forestry or agricultural purposes. The proposed activities could involve minor improvements to the existing facilities and sites to facilitate the installation of these renewable microgrid systems, which will result in a negligible expansion of the existing use of these sites. The exceptions to the exemptions listed in CEQA Guidelines Section 15300.2 would not apply in that no cumulative effects were identified, no significant effects on the environment were identified, the project is not adjacent to a scenic highway, no historical resources would be affected by the action, and the project was not identified on a list of hazardous waste sites pursuant to Section 65962.5 of the Government Code.

Equal Opportunity Contracting Information (if applicable):

N/A

A request for a sole source contract with Shell New Energies US, LLC to develop, own and operate eight renewable microgrids for City of San Diego has been approved by Purchasing and Contracting Department of City of San Diego (see attached approval #4169).

Previous Council and/or Committee Actions:

N/A

Key Stakeholders and Community Outreach Efforts:

City staff who are managing the project will coordinate with community partners to educate and engage stakeholders on project design, implementation, and accomplishments. In addition, staff and CEC grant

partners will share lessons learned and best practices with other jurisdictions around the State to facilitate adoption of innovative energy strategies.

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