



CITY OF HAYWARD

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Cover Memo

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DATE: July 11, 2016

TO: Council Sustainability Committee

FROM: Director of Utilities and Environmental Services

SUBJECT

Renewable Energy Generation Potential at City Facilities & Establishment of a Cumulative Municipal Zero Net Energy (ZNE) Goal

RECOMMENDATION

That the Committee reviews and comments on this report and recommends that staff schedule this item for consideration by Council to set a goal of achieving cumulative municipal ZNE using renewable energy by 2025.

BACKGROUND

During the December 10, 2015 meeting, the Committee asked staff to present a report about City-wide renewable energy use and to provide a timeline for achieving cumulative Zero Net Energy for City facilities.

Hayward's General Plan includes the following policies and implementation programs related to renewable energy.

Policy NR-4.4 Energy Resource Conservation in Public Buildings - The City shall continue to require all public facilities and services to incorporate energy and resource conservation standards and practices.

Policy NR-4.10 Public Renewable Energy Generation - The City shall ensure that all new City-owned facilities are built with renewable energy, as appropriate to their functions, and shall install renewable energy systems at existing City facilities where feasible.

Policy NR-4.11 Green Building Standards - The City shall require newly constructed or renovated public and private buildings and structures to meet energy efficiency design and operations standards with the intent of meeting or exceeding the State's zero net energy goals by 2020.

DISCUSSION

Hayward has been producing renewable electricity for decades. Current renewable energy facilities include the combined heat and power (operating since 1982 and replaced in 2015), solar photovoltaic

(PV) on the roof of the animal shelter/landscape building on Barnes Court (2005), solar PV at the Water Pollution Control Facility (2010), solar PV at the Utilities Center (2012), and solar PV at the corporation yard (2012). These facilities in total produce more than 12 million kWh annually, or approximately half of the electricity consumed at all City facilities. Ultimately, all of the energy needs of all City facilities will need to be met by renewable energy in order to meet the City's long term goals.

In 2015, the City purchased approximately 9.4 million kWh of electricity, which includes buildings, traffic signals, streetlights, and water/wastewater pumping. This is the amount that would need to be generated from new renewable sources in order to "zero out" the City's electricity use. The City also consumes approximately 157,000 therms of natural gas per year, mostly for space and water heating, which is equivalent to roughly 4.6 million kWh. To generate enough electricity to achieve ZNE, approximately 14 million kWh would need to be generated. Attachment I lists the facilities staff identified where renewables (solar PV and cogeneration) could be installed. If all potential sites were installed, approximately 15.6 million kWh could be generated annually. Actual generation will depend on technologies available at the time of installation - such as panel efficiency, panels per square foot, and tracking versus fixed systems.

Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) Tariff - Following completion of the Water Pollution Control Facility (WPCF) cogeneration facility in December of 2014, the City switched electric service from Pacific Gas and Electric's (PG&E) net metering tariff to the Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) tariff. Due to the size of the cogeneration and solar facilities (more than two mega-watts), net energy metering (NEM), which is limited to one megawatt, was no longer applicable. The RES-BCT tariff allows local governments with one or more eligible renewable generating facilities to export energy to the grid and receive generation credits (in dollars) to other "benefitting accounts" at other City facilities. The program allows up to five megawatts of renewable generation per generating account. The solar array and cogeneration facility at the WPCF qualify as renewable generating facilities. Benefitting accounts include three reservoirs with associated booster pump stations, two sewer lift stations, City Hall, and several other smaller accounts.

The California Public Utilities Commission (CPUC) created the RES-BCT tariff system to allow local governments to generate electricity at one account and transfer any available credits to other accounts owned by the same local government in order to provide incentives for creating and using renewable energy. The CPUC mandated that 250 MW be set aside for RES-BCT tariffs, of which PG&E's share is 105.25 MW. As of the third quarter of 2015, PG&E had nine customers under the RES-BCT tariff with a total of 8.4 MW interconnected. The City of Hayward is currently PG&E's largest customer operating under the RES-BCT tariff. PG&E indicates they expect it will take some time before all the RES-BCT tariffs have been allocated. Therefore, the City can likely benefit from setting up one or more additional RES-BCT arrangements provided facilities can be identified with significant excess renewable energy that can be applied to other City facilities.

An important restriction with RES-BCT is that neither the generating account, nor any of the benefitting accounts can be on net energy metering. This means that if a facility has a solar array that produces more energy than is consumed by the facility in the day time, the ability to export to the grid or spin the meter backwards is no longer an option. Therefore, benefitting accounts must be those facilities that always consume more energy than they generate (even if a solar array is part of the facility). Setting up additional RES-BCT accounts for City facilities with the potential to generate excess power is an option that the City may consider in the goal to reach zero net energy city-wide.

Staff estimates that construction of solar PV necessary to achieve ZNE will cost approximately twenty to thirty million dollars, depending on the type of installation (rooftop versus on canopies or poles), and will take several years to design and install. Staff recommends setting a goal of 2025 for the year by which City facilities will be carbon neutral. The provision of solar PV should be seriously considered and implemented at each and every new building and substantial retrofit or rehab project. In addition, to achieve the goal, consideration should be given to implementing stand-alone PV projects such as installing canopies with PV panels at municipal parking lots throughout the City and on rooftops of existing City-owned buildings.

NEXT STEPS

If the Committee recommends this action, staff will prepare a report for consideration by the full Council. Following favorable Council action, staff will prioritize installation of renewable energy facilities with those that are the most cost-effective and for which funding has been identified in the Capital Improvement Program. Staff will identify potential funding sources for additional projects.

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Recommended by: Alex Ameri, Director of Utilities and Environmental Services

Approved by:



Fran David, City Manager

Attachments:

Attachment I

Table Listing Potential Renewable Energy Facilities