



CITY COUNCIL AGENDA REPORT

City of Anaheim PUBLIC UTILITIES DEPARTMENT

DATE: SEPTEMBER 26, 2017

FROM: PUBLIC UTILITIES DEPARTMENT

SUBJECT: UPDATED ENERGY STORAGE SYSTEM PLAN AND
DETERMINATION OF ASSEMBLY BILL (AB) 2514
PROCUREMENT TARGETS

ATTACHMENT (Y/N): YES **ITEM #**

RECOMMENDATION:

That the City Council, by Resolution:

- 1) Determine that a procurement target of up to 11 megawatts (MW) of energy storage systems by December 31, 2026 is appropriate for the Public Utilities Department, subject to City Council authorization for future capital expenditures; and
- 2) Authorize the Public Utilities General Manager, or designee, on behalf of the City of Anaheim (City), to prepare, execute, and submit any documents and take such actions, as necessary, in connection with the above determination.

DISCUSSION:

The Public Utilities Board recommended that the City Council approve these actions at its meeting of August 23, 2017.

The State of California is a world leader in sustainable resources, and has been systematically requiring private and public utilities to increase the addition of renewable supplies such as wind and solar. As a result, the operation of the regional power grid has had to adjust to intermittent supplies that do not provide consistent output throughout the day. In a report jointly developed by the California Energy Commission (CEC), California Independent System Operator (CAISO), and the California Public Utilities Commission (CPUC), they concluded that "the next step in this fast-moving shift towards a more sustainable grid is energy storage (ES) technology" (Attachment 2). ES technologies include batteries and other systems that are able to store power for later use in a controlled manner.

Assembly Bill (AB) 2514 was enacted in 2010 and requires the governing boards of local publicly owned electric utilities to conduct an evaluation, by October 1, 2014, and every three years thereafter to determine future procurement targets, if any, for each utility to procure viable and cost-effective ES systems. Public utilities are then required

to report their findings and determinations to the CEC. Pursuant to Resolution No. 2014-146, on August 12, 2014, City Council determined that ES systems were not viable or cost-effective for the Public Utilities Department (Department) to set procurement targets at that time.

Since 2014, there has been substantial progress towards the commercialization of ES systems, and approximately 355 Megawatts (MW) have been deployed in California. In 2017, the Department conducted an updated evaluation of ES systems by reviewing recent installations, conducting site visits, and performing related due diligence on the emerging ES market. As a result of the evaluation, the Department considers taking incremental steps towards integrating ES within its local grid to be prudent as solar and wind are projected to increase over time resulting in excess generation during certain times of the day. The Updated Energy Storage System Plan (Updated Plan) therefore includes an ES procurement target of a 1 MW pilot project, to be completed by December 31, 2021, and, depending on the results of the pilot project and future ES technologies, up to 10 MW of additional ES to be completed by December 31, 2026 (Attachment 3). The procurement targets do not obligate the Department to invest in ES systems without City Council authorization in the future.

The Department anticipates that ES system technologies will continue to mature, and costs for development and deployment will correspondingly decline. For example, a lithium ion battery system typically costs \$2.5 million for a 1 MW system in 2017, and that cost is expected to decrease by as much as 50% by 2021 when a pilot system is considered for procurement. The ES System projects are more fully described as follows:

1. **1 MW ES pilot project at Harbor Substation:** The Department is in the process of planning for a 1 MW ES pilot project at its new Harbor Substation, which is located in a strategic load center serving high density developments in the Platinum Triangle area of the City. Harbor Substation is currently being designed, and will include provisions for a 1 MW ES pilot system that is fully dispatchable and integrated with the Department's other power resources. The Harbor Substation installation will allow staff to gain first-hand experience and validate the conceptual assumptions for future ES deployments, whether through the Department's procurement or by private corporations interconnected to the local grid.
2. **10 MW ES installation at Canyon Power Plant:** Canyon is a 200 MW gas-fired peaking power plant that provides fast start-up to mitigate ramping when solar generation is typically coming off-line. The Department is currently evaluating the most appropriate application of ES at Canyon, if any, which may be a stand-alone system, or coupled with existing generating facilities in a hybrid manner that combines the speed of batteries with the efficiency of gas turbines. As battery ES technologies continue to mature and gain higher market share, different applications and control systems will be implemented and tested in California, allowing the City to apply the solution best suited to its resource needs. With Anaheim's own pilot at Harbor Substation being completed, Anaheim expects to have more data and experience on how to optimize the operation of ES and demonstrate value to

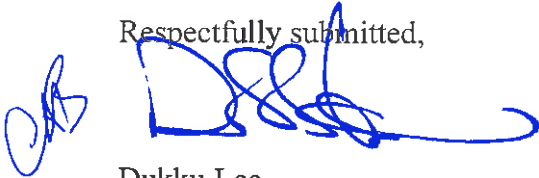
Anaheim customers prior to seeking City Council approval on future procurements and CEC authorization as the Canyon site is within CEC's jurisdiction.

As energy and environmental polices drive electric grid changes by bringing more intermittent renewable energy resources on line, the potential benefits of ES becomes more apparent. ES may offer potential solutions by enabling renewables integration, grid optimization, and greenhouse gas reduction. The recommended Harbor Substation ES pilot project and the possible ES installation at Canyon Power Plant will help address new operational challenges to ensure a reliable and efficient electric grid for the foreseeable future.

IMPACT ON BUDGET:

There is no budgetary impact to submit the necessary findings in accordance with AB 2514. Future capital project costs are subject to City Council approval.

Respectfully submitted,



Dukku Lee
Public Utilities General Manager

Attachments:

1. Resolution
2. *Advancing and Maximizing the Value of Energy Storage Technology: A California Roadmap*, December 2014
3. Updated Energy Storage System Plan dated July 2017