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CITY COUNCIL AGENDA REPORT

City of Anaheim PUBLIC UTILITIES DEPARTMENT

DATE: AUGUST 25, 2020

FROM: PUBLIC UTILITIES BOARD

SUBJECT: ENERGY STORAGE PLAN AND DETERMINATION OF
ASSEMBLY BILL 2514 PROCUREMENT TARGETS

ATTACHMENT (Y/N): YES

ITEM # 17

RECOMMENDATION:

That the City Council, by Resolution:

- 1) Adopt the Energy Storage (ES) Plan and determine that, subject to City Council authorization for future capital expenditures, the following ES procurement targets are appropriate, feasible, and cost-effective: (a) 0 MW of ES by December 31, 2021; and (b) up to 50 MW of ES by December 31, 2026; 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 City Council approve these actions at its meeting of July 22, 2020.

Power supply resources in California continue to become cleaner with legislative mandates establishing increasingly sustainable energy targets for electric utilities. However, as the amount of intermittent resources such as solar and wind have increased, operation of the electric grid has become more challenging, requiring optimal flexibility and dispatching capability to balance customer loads with available resources. ES systems are viewed as a complementary technology that allows renewable energy to be stored and used when needed to maintain grid reliability and mitigate an oversupply of solar energy during the middle of the day.

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 California Energy Commission (CEC). Pursuant to Resolution No. 2014-146, on August 12, 2014 City Council determined that ES systems

were not viable or cost-effective for Anaheim Public Utilities (APU) to set procurement targets at that time.

In 2017, APU conducted an updated evaluation of ES systems and recommended taking incremental steps towards integrating ES within its local grid. Resolution No. 2017-142 set an ES procurement target of a battery-based 1 Megawatt (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.

In 2020, APU conducted another updated evaluation of ES systems and observed the continued growth in solar and wind generation and the increased price volatility in the energy market that results in a future need for ES systems in Anaheim. APU's assessment is based on a number of factors, including: declining costs and improved safety and performance of ES system technologies; the retirement of local fossil-based generation; continued need for local grid reliability; and the increasing need for operational flexibility to integrate intermittent renewable resources. APU therefore recommends updating the procurement target as the following:

1. **0 MW by December 31, 2021:** As prices for ES systems technologies continue to decline, and wholesale energy prices are becoming increasingly volatile, APU has concluded that a larger ES system would capture additional savings such as infrastructure upgrades and engineering designs from a larger economy of scale and provide additional benefits with the increase in solar and wind generation. Also, Kraemer Power Plant, a local natural-gas resource, reached the end of its useful life and was no longer operational due to a lack of available components, resulting in its retirement in 2019 and a need to replace its capacity of 48MW. Based on these factors and the ES market's increased maturity in recent years, a small-scale, proof-of-concept pilot project is no longer required.
2. **Up to 50 MW by December 31, 2026:** In order to provide a market hedge and supply ancillary services needed to manage wind and solar volatility on the electric grid, APU has determined that a battery-based ES system up to 50 MW is appropriate to ensure local reliability, not increase greenhouse gas emissions, compensate for the retirement of Kraemer Power Plant, and complement other established peaking resources, such as Canyon Power Plant. APU is currently assessing siting requirements, interconnection feasibility, ownership options, and related pre-planning evaluations in preparation for utility-scale ES to be installed in the Fiscal Year 2022/23 timeframe. For context, 50 MW makes up about 10% of APU's typical summer peak demand.

In terms of the ES market, there is approximately 534 MW of utility-scale ES systems operating in California, according to the U.S. Department of Energy. By 2030, as much as 8,873 MW of battery ES systems is projected to be operating in the state. While the bulk of these systems are being deployed by investor-owned utilities, public utilities such as Glendale Water & Power, Imperial Irrigation District, and Sacramento Municipal Utility District have installed ES technologies in their respective service territories.

APU retained Ascend Analytics to validate the feasibility of ES specific to APU's situation. Based on their evaluation, a 50 MW, 2-hour duration system provides an optimal resource. The current estimated installation cost of a 50 MW 2-hour ES system is approximately \$43 million for a directly procured and installed resource. Depending on market pricing, a 2-hour ES system could achieve payback in 4 years. Another model being considered is a power purchase agreement that would enable a third party operator to lease the ES system to APU. Both models will be evaluated through a competitive solicitation in the future.

As APU works with other utilities and state agencies to address the new operational challenges of the electric grid, APU will plan for flexibility to add more ES capacity in the future to prepare for a more robust and reliable local supply, while maintaining affordable rates for customers.

IMPACT ON BUDGET:

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

Respectfully submitted,

Dukku Lee
Public Utilities General Manager

Attachments:

1. Resolution
2. APU Energy Storage System Plan Update Presentation dated July 22, 2020