

DOCKETED

Docket Number:	20-MISC-01
Project Title:	2020 Miscellaneous Proceedings.
TN #:	235996
Document Title:	AB 2514 Report 2020_Alameda Municipal Power
Description:	Submission in compliance with AB 2514 Battery Storage evaluation for POU's, Due 1/1/2021
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Organization:	Alameda Municipal Power
Submitter Role:	Public Agency
Submission Date:	12/17/2020 12:46:30 PM
Docketed Date:	12/17/2020



To: California Energy Commission
From: Alameda Municipal Power
Date: November 24, 2020
Re: Battery Storage Update Pursuant of AB 2514 Target From 2017

Adopted Energy Storage Targets & Policies

Adopted by Alameda’s governing board on November 13, 2017, Alameda Municipal Power (AMP) determined that the procurement of energy storage is neither viable nor cost-effective for the time period ending December 31, 2020.

Since this governing board decision, Alameda introduced an Interconnection Agreement to allow customers to interconnect battery storage systems paired with, or as an addition to BTM renewable generation. Additionally, Alameda engaged in multiple evaluation studies on the cost and viability of battery storage systems for different use cases which are described in this report.

Overview of Energy Storage Portfolio and Activities

AMP’s Interconnection Agreement & Customer-Owned BTM Storage

- Technology: Lithium-Ion batteries
- Location: BTM
- Installed Capacity:
 - Residential: 551.7 kWh (interconnected), 788.6 kWh (in application phase)
 - Commercial: 0 kWh
- Ownership: Customer-owned
- First interconnection: March 2019

Summary: AMP’s governing board adopted an interconnection agreement in February 2019 allowing customers to install BTM storage systems paired with, or as an addition to customer-sited renewable generation. AMP currently has 28 residential customers with BTM storage systems and 36 more in the application phase of storage installation. The average size of these systems is 21 kWh. Currently, no commercial customers have installed BTM storage systems.

Smart Electric Power Alliance (SEPA) Battery Storage Study

- Lithium-Ion batteries
- BTM and FTM
- Installed Capacity: N/A

- Ownership: Customer-owned, Utility-owned, Developer-owned, Hybrids
- Date Completed: September 2020

Summary: AMP engaged in a Battery Storage Study to determine the economic viability of customer-owned storage systems under different retail rate designs and load profiles and explore the current landscape of utility battery storage programs. The economic modeling resulted in estimates for customer savings as well as utility savings. AMP was one of several public power entities in Northern California involved in the study, meaning that economic modeling results are not specifically tailored to AMP's cost and benefit factors. Despite this, neither AMP's customer load shapes nor retail rates make energy storage systems more economically viable at their current costs. Additionally, AMP reviewed the utility programs that the study evaluated which included rebate incentives for utility-operated and customer-operated storage systems. Under AMP's current battery storage program, adoption of BTM storage is advancing with the aid of federal and state incentives and therefore AMP has not explored options for creating a battery storage rebate or similar incentive program at this time.

Renewables Request for Offers (RFO)

- Technology: Lithium-Ion batteries
- Location: FTM
- Installed Capacity: 21 MW up to 250 MW
- Ownership: Utility-owned, Developer-owned
- Date Completed: June 2020

Summary: AMP engaged in a Renewables RFO facilitated by the Northern California Power Agency (NCPA). The RFO received offers from several technology types, including standalone storage and solar plus storage projects, and for various value streams, including Resource Adequacy (RA)-only and energy tolling products. The key takeaways from the RFO results are that: (1) most utility-scale storage projects are sized in a way to capture economies of scale, however are much larger than any project AMP would invest in for its system alone; (2) current capacity-only prices make the economic viability of storage dependent on the season; (3), a full evaluation of AMP's portion of costs and benefits from a jointly-owned storage project is necessary to determine if any of these projects would be economically viable in the proposed timeframe (commercial operations in 2022 - 2024).

Battery Electric Storage Study at Combustion Turbine Project

- Technology: Lithium-Ion batteries
- Location: FTM
- Installed Capacity: 16 MW
- Ownership: Utility-owned (Joint Project Ownership)
- Date Completed: September 2020

Summary: AMP owns a portion of two combustion turbine (CT) generators, along with other members of NCPA. NCPA conducted a study to determine the cost and benefits of installing battery storage capacity on-site at the CT units. On-site battery storage would increase the value of the project by increasing the startup time of the generator and providing ancillary services, energy arbitrage, and RA capacity. At the time of the assessment, economic conditions made the project unfavorable in the near-term and the projected operational date with economic viability is 2029; however, a reassessment is planned for 2023.

Key Factors Impacting Energy Storage Procurement

To date, utility-owned battery storage systems have not presented viable nor cost-effective ways for providing customers with 100% carbon-free power at affordable rates, which AMP has provided since the beginning of 2020. The potential benefits of utility-scale battery storage projects are under evaluation in Alameda's Integrated Resource Plan in addition to the specific energy storage evaluation studies summarized in this report. Due to Alameda's load characteristics, battery storage does not present a strong economic opportunity for load shaping in the summer months.

With the downward trend in battery technology costs, Alameda will continue to monitor and evaluate the economic viability of battery storage systems, particularly as AMP plans to replace its expiring contracts and meet its resource needs.

For any additional details or questions regarding this report, please contact:

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