

DOCKETED

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CALIFORNIA ENERGY COMMISSION

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Ms. Barbara McBride
Director of Environmental Services
Calpine Corporation
4160 Dublin Blvd.
Dublin, CA 94568

December 13, 2017

**Re: Post-Certification Petition for Los Esteros Critical Energy Facility
(03-AFC-02C), Staff's Data Requests, Set 1, A1 through A23**

Dear Ms. McBride,

Pursuant to Title 20, California Code of Regulations, section 1716, the California Energy Commission staff requests the information specified in the enclosed data requests regarding the proposal to add battery storage at the Los Esteros Critical Energy Facility. The information requested is necessary to: 1) more fully understand the proposed changes to the facility, 2) assess whether the changes would be constructed and the facility would continue to operate in compliance with applicable regulations, 3) assess whether the changes will result in significant environmental impacts, and 4) assess potential mitigation measures.

These data requests, numbered A1 through A23, are being made in the technical areas of Air Quality, Cultural Resources, Hazardous Materials Management, Land Use, Socioeconomics, Traffic and Transportation, Transmission System Engineering, and Worker Safety and Fire Protection. Written responses to the enclosed data requests are due to the Energy Commission staff on or before January 15, 2018.

If you are unable to provide the information requested, need additional time, or object to providing the requested information, please send a written notice to me within 20 days of receipt of this notice. The notification must contain the reasons for the inability to provide the information or the grounds for any objections (see Title 20, California Code of Regulations, section 1716 (f)).

If you have any questions regarding the enclosed data requests, please call me at (916) 653-8236 or email me at John.Heiser@energy.ca.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "John Heiser".

John Heiser
Siting Project Manager

Enclosure (Data Request Packet)
cc: Docket (03-AFC-02C)
POS List

**POST-CERTIFICATION PETITION FOR LOS ESTEROS
CRITICAL ENERGY FACILITY
(03-AFC-02C)**

Energy Commission Staff's Data Requests Set 1, A1 - A23

DECEMBER 13, 2017

Technical Area: Air Quality
Author: Jacquelyn Record

BACKGROUND

The petition request does not address the extent to which operation of the proposed new 6 MW/18 MWh and/or 6 MW/6MWh batteries (hereinafter called the “battery storage component”) would be integrated with operation of the existing combustion turbines at the Los Esteros Critical Energy Facility (LECEF). The amendment request states that no conditions of certification would need to change and that the facility would continue to meet all emission limits. Staff would like to understand how the integration of batteries would not affect existing conditions of certification.

DATA REQUESTS

- A1. Please describe how the batteries would be operated in conjunction with the existing generation equipment.
- A2. Please describe the combined operations of the batteries and generation units with respect to:
 - a. increases or decreases in the number of combustion turbine startup and shut downs, per day, month and year;
 - b. the increase or decrease in the duration of the combustion turbine startup and shut downs;
 - c. whether the existing combustion turbines can or would be used to recharge the battery storage component; and,
 - d. any limitations placed on the use of the batteries, given they would be interconnected at the 4160V auxiliary bus.

Technical Area: Cultural Resources
Author: Melissa Mourkas

BACKGROUND

The battery storage system would be located on the northern portion of the LECEF site. The installation of the battery would be on a concrete foundation. The project would also include an interconnection to the existing 4160V auxiliary bus and installation of a new meter for monitoring flow battery activity. The petition lacks information relative to ground-disturbing activities that may be required to install the new facilities. For staff to better understand the potential for ground-disturbance during the construction activities, staff requests the following information.

DATA REQUESTS

- A3. Please provide the depth and lateral extent of ground disturbance and excavation that is anticipated for the installation of the battery's concrete foundation and secondary containment structure for both of the proposed storage systems.
- A4. The northern portion of the site where the battery installation would occur appears in historical aerial imagery to have been used as a construction laydown area.
 - a. Please describe the current nature of the soil or pavement where installation of the battery and foundation would occur and;
 - b. Please describe the use of this portion of the site from when the project was first undertaken to the present.
- A5. Would ground-disturbing activities be required for the interconnection to the existing auxiliary bus? If so, please describe the depth and extent of excavation anticipated and provide a site map with the location of the interconnection relative to other plant facilities.
- A6. Would ground-disturbing activities be required for the installation of the new meter? If so, please describe the depth and extent of excavation anticipated and provide a site map with the location of the interconnection relative to other plant facilities.
- A7. The petition does not identify the location of a construction laydown area.
 - a. Please provide a map showing the location of the proposed construction laydown area relative to other plant facilities and;
 - b. Please indicate whether any ground-disturbing activities would take place in preparation or use of that location.

Technical Area: Hazardous Materials Management
Author: Brett Fooks

BACKGROUND

Section 3.1.5 of the petition states that the vanadium electrolyte would be enclosed in double-walled tanks and that in the case of catastrophic failure the electrolyte would be 100 percent contained. Staff needs additional information on the tank construction and the layout of the secondary containment of the vanadium redox flow batteries.

DATA REQUESTS

- A8. Please describe the materials of which the tank would be constructed that would hold the vanadium electrolytes.
- A9. Please clarify if there would be secondary containment around the electrolyte tanks to help contain a catastrophic failure. Please clarify the assumptions going into the catastrophic failure.
- A10. Please provide any preliminary drawings that show outline of the vanadium redox flow battery installation with the secondary containment.

BACKGROUND

Section 3.1.5 of the petition states that the proposed lithium ion batteries are non-toxic and non-hazardous, but the safety data sheets have not been provided to verify this statement.

DATA REQUEST

- A11. Please provide the safety data sheets for the materials in the lithium ion batteries.

BACKGROUND

Section 3.1.5 of the petition mentions that secondary containment would be provided for the lithium ion battery installation as specified by the battery manufacturer. Staff would like clarification on what form the secondary containment would take.

DATA REQUEST

- A12. Please provide a written narrative and any preliminary drawings describing the secondary containment for the lithium ion battery installation.

Technical Areas: Land Use & Socioeconomics
Author: Ellen LeFevre

BACKGROUND: System Layout Dimensions

Page 2-1 of the petition states the proposed battery installation system layout would be approximately 167 feet wide by 112 feet in length and 20 feet in height. It is not clear if these dimensions are intended to describe the system layout for the vanadium flow batteries, the lithium-ion (Li-ion) batteries, or both.

DATA REQUEST

A13. Please clarify if the approximately 167' x 112' x 20' system layout dimensions would accommodate the vanadium flow batteries, Li-ion batteries, or both. Would the dimensions change if only one battery type or both are used and what would they be?

BACKGROUND: Construction and Installation Workforce

Pages 3-3 to 3-4 of the petition state at peak construction there would be approximately 25 workers for a 6-month period. It is not clear if this workforce and time period estimation would apply to the construction and installation for the vanadium flow batteries, Li-ion batteries, or both.

DATA REQUEST

A14. Please provide additional information specifying the necessary workforce and timeframe for the construction and installation of each of the three proposed possible scenarios of vanadium batteries, Li-ion batteries, and both.

Technical Areas: Traffic and Transportation
Authors: Jon Fong and John Hope

BACKGROUND

Staff needs information on the anticipated amount and duration of associated vehicle traffic to conduct its analysis of the traffic and transportation effects of the proposed changes to the facility.

DATA REQUESTS

A15. Please provide the following information for the Traffic analysis.

1. Number of heavy-haul truck trips anticipated.
2. Number of worker vehicle trips (or number of construction workers anticipated).
3. Number of days for completion of construction activities.

Technical Area: Transmission System Engineering
Authors: Sudath Edirisuriya and Mark Hesters

INTRODUCTION

Staff needs to determine the system reliability impacts of the project interconnection and to identify the interconnection facilities, including downstream facilities, needed to support the reliable interconnection of the proposed battery project modification to the LECEF. The modification of the facility must comply with the Utility Reliability and Planning Criteria, North American Electric Reliability Council (NERC) Planning Standards, NERC/Western Electricity Coordinating Council (WECC) planning standards, and California Independent System Operator (California ISO) Planning Standards. In addition the California Environmental Quality Act. (CEQA) requires the identification and description of the “Direct and indirect significant effects of the project on the environment.” For the compliance with planning and reliability standards and the identification of indirect or downstream transmission impacts, staff relies on the study reports and electrical diagrams as well as the reviews from both Pacific Gas and Electric Company and the California Independent System Operator (ISO) regarding the interconnecting grid reliability standards. The studies analyze the effects of the proposed project on the ability of the transmission network to meet reliability standards. When the studies determine that the project would cause the transmission system to violate reliability requirements, the potential mitigation or upgrades required to bring the system into compliance are identified. The mitigation measures often include modification and construction of downstream transmission facilities. CEQA requires environmental analysis of any downstream facilities for potential indirect impacts of the proposed modification.

BACKGROUND

Staff needs to understand how the proposed Vanadium battery 6MW/18 MWh and/or additional 6MW/6MWh Lithium-ion battery project would be interconnected to the 4.16 KV low side of the power transformer. Additionally, staff needs to know the necessary components, with their ratings, for interconnection.

DATA REQUEST

A16. Please provide the one-line diagram of the proposed battery project’s interconnection to the 4.16 KV plant low voltage system. Indicate the battery types, inverter capabilities, feedback software system information, and the arrangements, with ratings, of the components of the LECEF.

BACKGROUND

Staff would like to understand how the proposed project would enhance the grid reliability and whether the modification has been coordinated with the California ISO.

DATA REQUEST

A17. Please provide a description of how the project would utilize the batteries for grid reliability (voltage, frequency) or store/supply power to the grid. If the proposed battery project increases the output of the LECEF, or receives power from the grid for storage purposes, indicate whether or not the interconnection of the battery project has been coordinated with California ISO.

BACKGROUND

Staff would like to know the inverter capabilities and their magnitudes in supplying Volt ampere reactive (Var) to the grid for voltage regulation.

DATA REQUEST

A18. Please provide the inverter capabilities and describe their ability to provide Var to the system for voltage regulation and to maintain a 0.95 or Unity power factor at the plant point of interconnection.

Technical Area: Worker Safety and Fire Protection
Author: Brett Fooks

BACKGROUND

Section 3.1.14 of the petition states a lithium ion battery system would have fire suppression as specified by the battery manufacturer. However, no information has been provided about the fire suppression system.

DATA REQUESTS

- A19. Please provide a written narrative detailing what fire protection and life safety systems would be provided for the lithium-ion battery installations. Please clarify if the fire suppression system would be water, a clean agent, or both.
- A20. Please provide a written narrative of the general procedures and life safety measures that would be provided to help prevent and control any incipient fires in the lithium-ion battery installation.

BACKGROUND

Section 3.1.14 of the petition states that the vanadium redox battery system would have a fire alarm to shut down the system in case of a fire and that the hydrogen generated would be continually purged from the package. Staff does not have enough detail of the system to know how this system operates.

DATA REQUESTS

- A21. Please provide preliminary drawings of the vanadium redox flow battery installation showing the location of the hydrogen purge and the location of the fire alarm or alarms.
- A22. Please provide a written narrative of the general procedures that on-site personnel would have to use to when interacting with the vanadium redox flow battery installation.
- A23. Please provide any information related to the safety of the battery installation.