

2018 Local Sub-Area Energy Storage RFO

Moss Landing Substation EPC Project

Pacific Gas and Electric Company (“PG&E”) is soliciting offers for an energy storage system (“ESS”) that would enable PG&E to provide local capacity and related services to contribute to local area reliability at the Moss Landing substation.

PG&E is soliciting offers for the engineering, procurement and construction of an ESS project, built to PG&E specifications, on PG&E-owned land within the Moss Landing Substation. This transaction would be constructed under an Engineering, Procurement, and Construction (EPC) agreement per the term sheet provided in this solicitation (Appendix F3). Scope delineation between PG&E and the contractor would be per the Division of Responsibility (DOR) matrix provided via ESFT.

The proposed project site is illustrated in Figure 1.



Figure 1: Conceptual Moss Landing Energy Storage Site Layout¹

Address: Highway 1 and Dolan Road, Moss Landing, CA 95039

¹ Note: this conceptual layout is preliminary and should not be used for preliminary design – please refer to the site KMZ file provided via ESFT for more detailed layout details

2018 Local Sub-Area Energy Storage RFO**Moss Landing Substation EPC Project****Contractor's Responsibilities:**

If selected through the RFO process, the entity charged with constructing the ESS Project (the "Contractor") would enter into an EPC contract with PG&E, under which the Contractor must cause the ESS Project to be constructed, completed, tested and readied for placement into commercial operation, all on a turnkey basis. PG&E will accept the Project once it is constructed to specification and the ESS has satisfied all performance and milestone guarantees. Performance and milestone guarantees include, but are not limited to, guaranteed maximum power, discharge and charge duration, duty cycle, round-trip efficiency, and commercial operation date as laid out in the EPC agreement term sheet shared in the solicitation materials.

The Contractor will also be required to enter into a Long-Term Performance and Maintenance Agreement (LTPMA) with PG&E. The LTPMA will cover the warranties and long-term performance guarantees associated with the ESS as well as the required maintenance services for the ESS project over a specified period of years.

PG&E will provide a detailed ESS technical specification and associated site-specific information once interested participants sign a confidentiality agreement. Consistent with PG&E's previous energy storage solicitations, PG&E substation design and construction standards will form the basis of the technical specification. Bidders should be familiar with, and knowledgeable of, PG&E's standards prior to submitting a bid. The contractor and all subcontractors must adhere to all PG&E and industry standards and requirements during engineering, design, construction, and testing of the ESS.

Project Use Cases and Interconnection Description:

PG&E anticipates using the ESS to provide local capacity and to participate in CAISO markets. Market participation signals may vary from four-second frequency regulation set points to bulk energy time shifting. PG&E is requesting a system built to meet the operational requirements set forth in the EPC agreement term sheet.

The ESS located at the Moss Landing substation will be interconnected at 115kV. For the Moss Landing project, PG&E has already filed an application for interconnection and the main interconnection facilities will not be in the contractor's scope of work. As noted in the DOR matrix, the Contractor's electrical physical scope of work will include the medium voltage (MV) cabling from the pad-mount transformers to the MV switchgear, but will not include the MV switchgear or anything beyond the MV switchgear to the point of HV interconnection.

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PG&E filed an interconnection request for up to 182.5MW at the 115 kV point of interconnection and has completed Phase 1 results via CAISO's interconnection process.

PG&E is requesting Offers for either 205MW ESS with a required 4-hour duration, as measured at the MV metering in the PG&E-furnished switchgear with power factor equal to 1². As noted in the protocol, bidders may also propose an alternate 100MW ESS at MV project, but all bidders must propose 205MW/4-hour as their base proposal. This 205MW/100MW value should be inclusive of any thermal management loads, but exclusive of station loads for energy storage as defined by the CPUC³.

PG&E will work with shortlisted bidders on more detailed design calculations to ensure the 182.5MW at the point of interconnection is achieved given the ESS design and the proposed design characteristics of the PG&E furnished generation step up transformer and associated equipment. To the extent the sizing of the ESS needs to be revised after completing these calculations, bidders will be able to refresh bids.

The required commercial operational date is December 31, 2020.

Base proposals must have an LTPMA term of 20 years. Alternate offers can have LTPMA terms between 10 and 20 years.

Supplementary Materials Provided to Bidders:

PG&E will provide the technical specifications, preliminary project drawings, a detailed site survey and a geotechnical report to bidders via ESFT after bidders sign a confidentiality agreement.

Next Steps:

Parties interested in participating in this solicitation can find the latest details on the PG&E website (<http://www.pge.com/rfo/localsubarea>). All updates to RFO materials, including the updates described above will be posted to the website. In the event of a conflict between this document and the RFO materials, the RFO materials govern.

² The Moss Landing project will need to be FERC 827 compliant. PG&E plans to use inverter capabilities to provide the required reactive power for FERC 827 compliance. In the initial PSLF modeling, the 182.5MW available at the point of interconnection while compliant with FERC 827 resulted from approximately 205MW of generation at MV, net of auxiliary loads.

³ CPUC Decision 17-04-039: <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M185/K070/185070054.PDF>