

2016 ES RFO

Distribution Deferral Asset Project

Pacific Gas and Electric Company (“PG&E”) is soliciting offers for a new dual-use energy storage system (“ESS”) that would enable PG&E to defer otherwise necessary investments at the Llagas substation, to provide Resource Adequacy capacity credit and to participate in the CAISO markets. PG&E is soliciting offers for the development of this ESS project on PG&E-owned land as part of PG&E’s 2016 Energy Storage Request for Offers (“RFO”). The deferred investment involves the upgrade of a substation transformer. The proposed project site is illustrated in Figure 1.



Figure 1: Llagas Substation Site Layout

Address: 601 Renz Lane, Gilroy, CA 95020

Seller’s Responsibilities:

If selected through the RFO process, the entity charged with developing the ESS Project (the “Seller”) would enter into a Purchase and Sale Agreement (“PSA”) with PG&E, under which the Seller must cause the ESS Project to be constructed, completed, tested and readied for placement into commercial operation, all on a turnkey basis until PG&E pays the purchase price set forth in the PSA. 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.

Once placed into commercial operation, the ESS Project must meet all performance guarantees as specified in the PSA. The Seller is required to warrant equipment and performance for periods defined in the PSA in order to protect the economic viability of the Project.

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PG&E is currently updating the ESS technical specification and anticipates releasing the detailed specification with the issuance of the RFO. Consistent with PG&E's previous energy storage solicitation, PG&E design and construction standards will form the basis of the specification. Bidders should be familiar with and knowledgeable of PG&E's standards prior to submitting a bid. The Seller and all subcontractors must adhere to all PG&E and industry standards and requirements during engineering, design, construction, and testing of the ESS Project.

Project Use Cases and Interconnection Description:

PG&E anticipates using the ESS for both transformer bank load management and CAISO market participation. Market participation signals may vary from four-second frequency regulation set points to bulk energy time shifting. PG&E will release a projection of the site-specific duty cycle with the issuance of the RFO.

The ESS will be interconnected to the distribution substation. PG&E has already filed an application for interconnection under the Wholesale Distribution Tariff and the main interconnection facilities will not be in the Seller's scope of work.

Project Timing and Sizing:

PG&E is requesting a minimum 10MW/40MWh ESS for a November 1, 2021 commercial operation date. PG&E's distribution deferral need starts in the summer of 2022, and consistent with the 2014 ESRFO, PG&E intends to size the system for a ten year distribution deferral need. To this end, PG&E is seeking an ESS with the capability of **at least 10MW/40MWh from commercial operation through the end of October 2031.**

PG&E has filed an interconnection application for 20MW and will entertain offers between 10 and 20MW that meet the requirements above.

Changes to the PSA Pro-Forma:

PG&E's pro-forma PSA as released in the spring 2016 ESRFO CPUC application will be modified over the coming months to reflect, among other things, that PG&E is providing land, that PG&E has filed the interconnection application and that the Seller will only be responsible for local non-discretionary permits. A final pro-forma will be released along with RFO launch in December 2016.

Supplementary Materials Provided to Bidders:

PG&E will provide a detailed site survey, a geotechnical report and preliminary switchgear drawings to bidders as part of the RFO.

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Clarification of costs covered by PG&E and Participant:*-Non-exhaustive, list is focused on borderline*

<u>PG&E Covering</u>	<u>Participant Covering</u>
<u>PG&E revenue meter in switchgear (materials, installation, testing)</u>	<u>Grounding study</u>
<u>CAISO metering, RIG, UPS for same (materials, installation, testing)</u>	<u>C30 install - will wire power and points</u>
<u>ACME security (card readers for switchgear)</u>	<u>Nexus metering - will wire power and input signals</u>
<u>SCADA screen development</u>	<u>Three 19" Lucasey racks in switchgear</u>
<u>SCADA testing pre-energization (relays, C30, Nexus meter, interface between PG&E SCADA server and bidder controller)</u>	<u>Switchgear accessories per Spec 3555</u>
<u>All interconnection facilities from bottom of riser pole to new breaker in substation</u>	
<u>WDT interconnection process/paperwork costs</u>	
<u>CAISO New Resource Implementation costs</u>	
<u>All telecoms equipment, PG&E SCADA server, all wiring between the same</u>	
<u>Third party site inspection testing/oversight during construction (geotech, concrete)</u>	
<u>MV switching suits (as needed)</u>	

Next Steps:

Parties interested in participating in this solicitation can find the latest details on the PG&E website (<http://www.pge.com/rfo/energystorage>). 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.