

CONTRACT OPPORTUNITY ANNOUNCEMENT

Version: Monday, July 31, 2017

Contract Opportunity Announcement

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| <input type="checkbox"/> | Professional Service Contract |
| <input type="checkbox"/> | Engineering, Procurement and Construction Contract |
| <input type="checkbox"/> | Service Contract |
| <input checked="" type="checkbox"/> | Material Requirement |
| <input checked="" type="checkbox"/> | Other |

Contract Opportunity Title: EPIC 2.03: EPIC 2.03 Smart Inverter Expansion Project

Deadline: **August 16, 2017**

Contract Opportunity Description:

A. Project Background and General Scope of Work

Pacific Gas and Electric Company ("PG&E") is preparing to release a Request for Proposal (RFP) to solicit proposals from bidders to expand the Electric Program Investment Charge (EPIC) 2.03 Smart Inverter project and to gain additional engineering learnings.

PG&E's EPIC project 2.03 is part of the Electric Program Investment Charge (EPIC) Program, established by the California Public Utilities Commission, which provides funding for applied research and development, technology demonstration and deployment, and market facilitation for clean energy technologies for the benefit of California electric ratepayers. The project is intended as a demonstration of a new and novel technology to understand technical feasibility and potential value prior to moving forward with a full scale deployment. This work is in addition to the current and ongoing Smart Inverter field demonstration.

PG&E is looking for one or more bidders to help support one or more of the following learnings:

- Understand current and future Smart Inverter Working Group (SIWG) functionalities, the effectiveness of using Phase 1 autonomous functions, Phase 2 communications, and available Phase 3 functions;
- Understand operating characteristics of different Smart Inverter technologies;
- Verify Smart Inverter impacts on feeders across different geographies within the PG&E footprint;
- Evaluate inverter technology to better inform PG&E's expected level of control and curtailment of Smart Inverters;
- Explore additional Smart Inverter vendor and technology implementation and integration challenges;
- Evaluate other customer impacts and third-party integration of Smart Inverters;
- Support the development of PG&E's Smart Inverter and Integrated Grid Strategy work;
- Evaluate additional Smart Inverter use cases;

One main catalyst for smart inverter expansion at PG&E is directly related to mandates from the California Public Utility Commissions (CPUC) Electric Rule 21, specifically the mandatory use of smart inverters with autonomous functions after September 2017. The next phase of smart inverter testing/integration at PG&E will build upon the learnings achieved under the EPIC 2.02 (DERMS), EPIC 2.03 (Smart Inverter Capabilities), and EPIC 2.19C (BTM Battery Storage).

PG&E is soliciting bidders to provide proposals for 5 areas:

- 1. Aggregation Platform for Smart Inverter Monitoring & Control:** Leverage the vendor's existing Aggregation Platform to interact directly via a portal or through APIs with smart inverters to support field demonstrations.
- 2. Integration with PG&E's Monitoring & Control Platform:** Work with PG&E to integrate smart inverter technologies to facilitate direct interaction with smart inverters and to receive individual asset performance data.
- 3. Customer Engagement:** Support PG&E with customer engagement activities which includes engaging existing customers and/or acquiring new customers (if needed) to participate in Project. Customer types can include both residential and/or C&I. Primary focus for this project would be to approach existing customers for retrofits. The handoff to PG&E will occur when devices have been successfully installed, passing city inspection by the AHJ (Authority Having Jurisdiction), interconnected and commissioned.
- 4. Field Demonstration Support:** Support PG&E's Field Demonstrations, planned to begin in March 2018 and end in December 2018 / Q1 2019.

5. **Modeling / Data Analytics Support:** Work with PG&E to develop models, extract data and perform analytics to further inform learnings and understand on a PG&E-wide scale areas of great distress to determine the cost/ benefit of smart inverter PV penetration.

Bidders can respond to any or all of the areas set forth in this Contract Opportunity Announcement (COA).

B. Project Specifics :

The successful bidder(s) will work with PG&E to create specifications for the provided use cases; work with PG&E to ensure field devices are installed, are functioning, are remotely configurable and controllable, and are producing data required for analysis; and modeling tool specifications are developed and approved to produce the desired outcomes. More specifically, the bidder shall be able to conduct the following major tasks:

Field Demonstrations

- Engage with customers identified by PG&E to retrofit or install new inverters in the field.
- Work with PG&E to co-brand marketing materials and collateral to ensure that messaging is consistent and as intended.
- Demonstrate that hardware and two-way inverter communication is functioning as expected.
- Develop utility facing aggregation portal to meet PG&E's specific monitoring and control requirements.
- Configure assets, work with PG&E to develop hierarchy trees, support aggregation, etc.
- Support field demonstrations by ensuring inverter up times do not fall below an agreed upon percentage, devices are functioning as expected, and data files are producing accurate information.

Modeling / Data Analytics

- Develop a model that will inform engineering learnings such as % or real power when volt-watt and volt-var is turned on; latency when signaling a certain set-point before the inverter reacts; SI effects on the primary and secondary. Work with PG&E to define specifications.
- Develop a report of findings and a PG&E-wide cost / benefit analysis to determine the level of SI penetration that would be beneficial to PG&E's grid.

C. Bidding Instructions

The following answers to be submitted if interested in participating in **field demonstrations**:

- Provide a bio of organization, level of active SI engagement, company's strategic vision, areas of penetration, # of PVs and kW installed on PG&E feeders, residential versus C&I, customer versus 3rd party owned. Include types of inverters that are currently used, list and description of functionality.

The following answers to be submitted if interested in participating in **modeling / data analytics**:

- Provide a bio of organization, 3-4 modeling qualifications specific to PV type analytics or similar in nature.

E. Minimum Bidder Requirements:

Safety: PG&E is committed to providing safe utility (electric and gas) service to its customers. As part of this commitment PG&E may seek information from Participants regarding the safety history and practices of the entities that will construct, operate, or maintain the Projects and safety information related to the technology for the Project. For example, Projects selected by PG&E may need to provide an independent third party engineer report detailing the safety of the technology and verifying the safety history and practices of the entities identified by Participant to construct and operate the Project. Each of the Agreements will contain specific requirements intended to ensure that the entities that construct, operate, or maintain the Project, as applicable, do so in a safe, reliable and efficient manner that reasonably protects the public health and safety of California residents, business, employees, and the community.

Successful participants must agree to the following EPIC terms and conditions:

- **Ownership of Intellectual Property Rights:** PG&E shall own all proprietary rights, including, but not limited to, exclusive patent and copyright rights, in and to any and all inventions, software, works of authorship, designs or improvements of equipment, tools or processes, including the items referenced in the Section titled "Ownership of Deliverables" (collectively, the "Developments"), conceived by Contractor in the performance of the work performed in the Contracts identified herein, and Contractor shall retain no ownership, interest or title in or to them. Contractor agrees to assign and hereby assigns all its right, title and interest in and to the patents, copyrights and other intellectual property rights in the Developments and hereby agrees to fully cooperate and to do all things reasonably necessary to allow PG&E to claim sole ownership, including the execution of documents deemed necessary by PG&E. Contractor shall retain ownership, interest or title in all Intellectual Property and knowledge acquired or developed prior to the EPIC engagement.
- **Indemnification:** Vendor will indemnify and hold harmless the California Public Utilities Commission, the California Energy

Commission ("CEC"), and their employees free from any liability for use of EPIC Funded Intellectual Property."

Upon Successful determination of qualifications, vendor shall be in acceptance to complete a Non-Disclosure Agreement "NDA" with PG&E.

PARTICIPATION IN ANY SUBSEQUENT BIDDING PROCESS OR NEGOTIATION, INCLUDING ANY REQUEST FOR PROPOSAL FOR THESE PRODUCTS AND SERVICES WILL BE SUBJECT TO MEETING THE CRITERIA LISTED ABOVE.

Vendors interested in pre-qualifying for this work should download the attached file entitled "COA Bidder Submission – EPIC 2.03 Smart Inverter Expansion", complete the form, and return it as a PDF attachment to the PG&E Contact listed below.

Naming convention for attached file: "[Bidding Company Name] COA Response Form – EPIC 2.03 Smart Inverter Expansion.pdf"
Deadline: 5 PM PST on August 16th, 2017

REQUEST FOR OFFERS WILL BE BY INVITATION ONLY

PG&E Contact: Brendan Kearney
Contact E-Mail Address: BAK8@pge.com

PG&E Contact: Julie Hoover
Contact E-Mail Address: JZHJ@pge.com