



2018 Local Sub-Area Energy Storage RFO

PARTICIPANTS' & OFFER FORM WEBINAR

March 7, 2018

Agenda

Topics

- Introduction
- Resolution E-4909 Overview
- Solicitation Overview
- PG&E Safety Standards
- Interconnection Information
- Energy Storage RA Agreement
- BTM CSA Overview
- Utility Ownership Projects Overview
- Evaluation Methodology
- Offer Submittal Process
- Keys to a Successful Offer
- Overview of Offer Forms
- Intermission
- Q & A

Presenter

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Team

Q&A / List of Attendees / Audio Replay

- PG&E will not take questions during the webinar.
- Participants should email questions to LocalSubAreaRFO@pge.com during the presentation.
 - Questions will be answered at the end of the webinar
 - PG&E might not address all questions during the Q&A portion of this webinar
 - After the conference, PG&E will compile and post a Q&A document on PG&E's Local Sub-Area RFO website, accessed via www.pge.com/rfo
- PG&E will post a list of attendees on PG&E's website. If you do not want your name or the name of your company published, please let us know by sending an email to LocalSubAreaRFO@pge.com by March 8 at 5pm PPT.
- PG&E plans to post a recording of the Webinar on PG&E's website (listed above)

Webinar Overview

- This presentation is intended to provide a summary level discussion of the information and requirements established in the RFO materials
- Participants should carefully review the Local Sub-Area Energy Storage Solicitation Protocol and all RFO materials, available on PG&E's website: www.pge.com/rfo
- To the extent that there are any inconsistencies between the information provided in this presentation and the requirements in the RFO materials, the RFO materials published on PG&E's website shall govern

CPUC Resolution E-4909 Overview

Overview of CPUC Resolution E-4909

- **PG&E ordered to hold a competitive solicitation within 90 days of the Resolution to address deficiencies in three local sub-areas**
 - Pease
 - Bogue
 - South Bay-Moss Landing
- **Resolution requires expedited procurement: Online dates may be as early as 2018**
- **PG&E must coordinate with CAISO to determine impact of resources on reducing or eliminating the sub-area deficiencies**
- **PG&E may solicit offers for energy storage and/or preferred resources**

Solicitation Overview

PG&E's Local Sub-Area RFO

Resources: Energy Storage located in South Bay-Moss Landing, Pease, or Bogue sub-area

Online dates: 2018, 2019 or 2020

Contract Structure:

- Third-party owned resources (same as PG&E's 2016 ES RFO)
 - Energy Storage RA Agreement for in-front-of-the meter projects
 - Behind the Meter Capacity Storage Agreement for behind-the-meter projects
- Utility-owned resources
 - Engineering, Procurement, Construction Agreement for utility-provided site at Moss Landing
 - Build-Own-Transfer Agreement for projects at any site within the sub-areas

Milestone	CAISO	CPUC	Target Dates
Issue RFO			2/28/2018
Offers Due			3/28/2018
Shortlist			4/18/2018
Submit Shortlist to CAISO for evaluation	Project Evaluation		4/18/2018
Negotiations			4/18/2018 - 5/31/2018
CAISO issues determination on impact on local sub areas			6/1/2018
Contract Execution & Potentially Start Construction			6/1/2018
CPUC Advice Letter Filing		Advice Letter Approval	6/29/2018
CPUC Advice Letter Approval			9/28/2018
Initial Online Date			12/1/2018 - 12/31/2020

RFO Schedule

DATE	EVENT
February 28, 2018	PG&E issues RFO. PG&E hosts site visit at Moss Landing Substation.
March 7, 2018	Participants' Webinar
March 8, 2018	Deadline to submit Confidentiality Agreement for access to additional utility-ownership contract information and additional technical information about the Moss Landing site.
March 28, 2018	Deadline for PG&E to receive Offers by 1:00 P.M. PPT
April 18, 2018	PG&E notifies selected Participants that their Offer(s) will be included on a list of Offers for which PG&E may seek to enter into or negotiate an Agreement related to that Offer ("Shortlist"). Shortlisted Participants are required to begin ISNet process as further described in Protocol Section V.C.
April 20, 2018 or earlier	Participants notify PG&E whether they accept Shortlist status and acknowledge acceptance of the Confidentiality Agreement.
April 23, 2017 or earlier	Deadline to submit Shortlist deposit, and any other requested documents
May 9, 2018	All shortlisted Participants are required to have completed safety prequalification with ISNet as further described in Section V.C.
June 28, 2018	PG&E submits Agreements for CPUC Approval

Key Solicitation Requirements

- **Minimum Size Requirements**
 - Offers at all connection levels must be at least 1 MW in size. Offers for utility ownership must be at least 10 MW in size.
 - Multiple ES resources can be aggregated to meet the minimum size requirement.
- **Commercial Online Date**
 - Online dates in 2018 - 2020
 - Utility-owned projects:
 - Moss Landing EPC – online by 12/31/2020
 - BOT Projects – online by 12/31/2020
 - Third-Party owned Projects are required to begin deliveries on the first day of the month. Any delays will result in COD (and payment) being deemed complete the following month

Local Sub-Area Deficiencies

Local Sub Area	Need
Bogue	Real power capacity and inherent reactive power capacity
Pease	Real power capacity and inherent reactive power capacity
South Bay-Moss Landing	Real power capacity and inherent reactive power capacity

Minimum Requirement for Site Control and Interconnection Status at Time of Offer

- **3rd Party Owned Projects – Transmission or Distribution Connected**
 - Interconnection Application filed and “deemed complete” by May 9 by the CAISO or PTO for April 2018 Cluster study process
 - Must have site control
- **3rd Party Owned Projects – Behind the Retail Meter**
 - No requirements for interconnection or site control
- **Utility-Owned EPC Project at Moss Landing**
 - No requirements for interconnection or site control (to be sited on PG&E land and PG&E to manage interconnection)
- **Utility-Owned BOT Project**
 - Phase I Study
 - Must have site control

Energy Storage Agreement Types

	Agreement Type	Configuration	Description
A	Energy Storage Resource Adequacy Agreement	Transmission or Distribution Connected	For energy storage projects that will provide RA.
B	Behind-the-Retail Meter Capacity Storage Agreement (BTM CSA)	Customer Connected	For customer connected energy storage projects that will provide RA with an energy settlement component.
C	Utility-owned EPC Project	Energy storage at PG&E owned Moss Landing substation site	Energy storage project at PG&E's Moss Landing substation to be built to PG&E specifications per Engineering, Procurement and Construction Agreement
D	Utility-owned BOT	Transmission or Distribution Connected Stand-alone energy storage	For a turnkey energy storage project to be sold to PG&E once complete.

CPUC Approval must be obtained for the Agreement to be effective

Credit and Collateral Requirements

Agreement Options	ES RA / BTM Capacity Product Agreement	Offers for Utility Ownership (EPC and BOT)
Pre-Commercial Operation Date (COD)		
Project Development Security (“PDS”)	\$15/kW within 5 days of Execution, and an additional \$45/kW within 5 days of CPUC Approval (total posted PDS of \$60/kW)	\$15/kW at Execution, and 15% of purchase price at CPUC Approval within 10 days after Regulatory Approval
Post-COD		
Delivery Term Security (“DTS”)	\$125/kW (Payment Quantity) or 10% of highest estimated Capacity Payments for any 36 months, whichever is higher	N/A
Post Closing Collateral for Performance and Warranty Periods	N/A	An acceptable warranty by an issuer acceptable to PG&E plus 10% of the purchase price for the duration of the warranty period

Independent Evaluator (“IE”)

- **Primary role of the IE is to:**
 - **Monitor RFO processes to ensure fair and equal treatment of all Participants**
 - **Monitor evaluation processes to ensure PG&E has implemented methodology as described and that offers are treated consistently**
 - **Report on RFO and proposed transactions to CPUC when filed for CPUC approval**
- **The IE performs an independent review of all offers**
- **The IE may review all proposal data and monitor all negotiations of Agreements**
- **IE for the 2018 LSA RFO is Wayne Oliver of Merrimack Energy Group**
 - **Copy Wayne Oliver on all correspondence at waynejoliver@aol.com**

Safety

Safety

- PG&E expects RFO Participants to recognize safety is of paramount importance.
- Participants are required to demonstrate that Projects can be designed, constructed, and operated safely.
- Key components of RFO safety review:
 - Project Safety: Offers are required to identify project safety risks and mitigation plans, as well as safety record of Participant and any identified contractors. See App. B1, B4, & B7(*For utility owned).
 - Prequalification: All shortlisted participants are required to register and complete prequalification with ISNet by May 9, 2018. See
- During the RFO, PG&E may request Participants provide additional information to demonstrate the safety of the project.
- Participant's demonstration of safety and the safety of its contractors is a continuous obligation through the term of the Agreement.

Safety – Prequalification

- RFO prequalification generally follows PG&E's Contractor Safety Program Requirements: <http://www.pge.com/contractorsafety>.
- Participants can initiate registration online by going to www.isnetworld.com.
ISN Customer Support: (800) 976-1303.
- Upon registration, Participants will be asked to provide the following:
 - **General Information** – Such as company data, contact info, industry classification;
 - **Management System Questionnaire** – Safety and health data and performance;
 - **Documents** – For verifying certain items such as OSHA Forms and Experience Modifier;
 - **Safety and Health Programs** – Written safety and health programs to be evaluated by ISN Review and Verification Services (RAVS) for compliance with regulatory and/or PG&E's standards.
- ISN can take at least 2 weeks to evaluate safety information. Participants should carefully monitor progress and quickly follow up as necessary.
- Satisfaction of prequalification process includes obtains a passing score according to PG&E's prequalification criteria.
- PG&E strongly encourages Participants to familiarize themselves and/or begin or process early (prior to shortlisting).
- Additional questions? Contact: Ted Maguire, ted.maguire@pge.com,
(415) 973-0888

Interconnection Information

Interconnection Information to be Provided with Offer (Protocol Appendix B5)

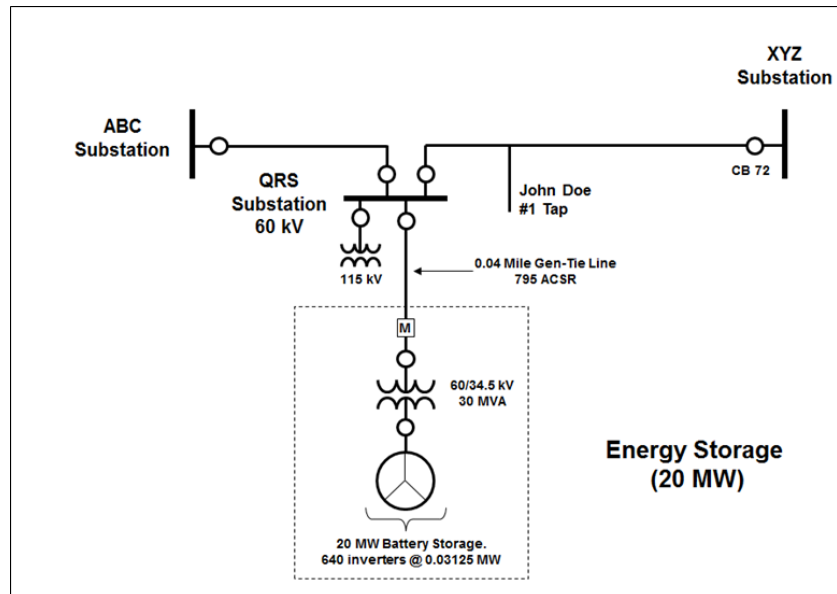
- **General information on Interconnection aspects of Project**
 - Interconnection capacity, point of interconnection, applicable Tariff, study procedure, requested deliverability, financial deposits made, etc.
- **Cost and Schedule for Upgrades**
 - Study results for Interconnection Facilities, Reliability Network Upgrades (RNU), Local Deliverability Network Upgrades (DNU), Area Deliverability Upgrades
- **Interconnection Status**
 - Completed studies, allocated deliverability
- **Supplemental Document Submittals**
 - proof of DNU / RNU costs and CODs, single line diagrams, transmission modeling files
- **Demonstration of Ability to Complete Interconnection and Achieve Full Deliverability Status by COD**
 - Deliverability assessment results from Phase I/II study, Distributed Generation (DG) deliverability allocation, executed Generator Interconnection Agreement (GIA), BTM deliverability via Proxy Demand Response
 - Projects lacking studies or agreements must have an expedited interconnection plan and a provide not-to exceed cost for refundable DNUs and RNUs

Interconnection Information to be Provided with Offer (Protocol Appendix B5), cont.

- **Documentation detailing your plans to expedite the interconnection process, including for example:**
 - **Performing an accelerated Phase II study (CAISO GIDAP Section 8.6).**
 - **Executing an Engineering & Procurement Agreement (GIDAP Section 12), funding procurement of long-lead-time equipment needed for network and facility upgrades shortly after the Phase I study completion, and continuing the Phase II study and interconnection agreement negotiations in parallel.**
 - **Taking responsibility for building Stand Alone Network Upgrades (CAISO Tariff) for the project.**
 - **Working with CAISO (or the Distribution Operator for distribution level interconnections) to request FERC to waive the CASIO (or Wholesale Distribution Tariff) timelines for some steps in the interconnection process (GIDAP Section 8.6).**
 - **Using less than the Interconnection Customer’s allowable turnaround times in the interconnection process.**
 - **Minimizing the construction schedule by proactively planning and coordinating with the PTO for operational clearances needed to construct the necessary network upgrades.**
 - **Strategically siting the offered project to minimize network upgrade and environmental permitting issues.**

Information to be Submitted for: ALL Offers

- Description of your company's experience implementing New Resources in CAISO.
- Single-Line Diagram like the example below except for Behind the Meter projects



- Chargeability Studies (not required) – if favorable, could be a positive in project viability assessment.

Energy Storage RA Agreement

Transaction

- **Product: All Capacity Attributes associated with Project**
 - **System RA, flex RA, local RA, plus any future defined characteristics that can be applied to Compliance Obligations**
- **Compensation: Contract Price in \$/kW month based on Delivered Capacity**
- **Amount of Capacity Attributes is specified in contract as of execution date based on Project Description in Appendix III**
 - **Potential change of RA rules is addressed in Section 3.2 of the Agreement**
- **Seller is Scheduling Coordinator**
 - **Seller retains CAISO revenues**
- **Seller must comply with Multiple Use Application Decision (D.18-01-003)**

Delivery of Product

- Seller must submit Supply Plans for the Contract Quantities in each Compliance Showing
- If entire Contract Quantities not delivered, Payment Quantity will be reduced proportionately (Confirmed Quantity)

Example

Contract Quantities	Payment Quantity
RA Attributes: 10 MW	10 MW
Flex RA Attributes: 20 MW	

If Seller delivers 10 MW of RA Attributes and 10 MW of Flex RA Attributes for a month:

$$\begin{aligned}\text{Confirmed Quantity} &= \frac{\text{Delivered Quantity (20 MW)}}{\sum \text{Contract Quantities (30 MW)}} \times \text{Payment Quantity (10 MW)} \\ &= 2/3 * 10 \text{ MW} \\ &= 6.67 \text{ MW}\end{aligned}$$

Term, Events of Default

Term

- **Seller will specify an Expected Initial Delivery Date (EIDD)**
 - **Delay beyond EIDD will be subject to delay damages and an Event of Default after 60 days**

Early Termination Rights

- **Either party may terminate if CPUC approval not received within 90 days**
- **Buyer may terminate if interconnection study indicates network upgrades in excess of cap in Agreement**

Events of Default

- **Material misrepresentation in metering, Supply Plan or Notice of delivery of Product**
- **Must deliver minimum threshold of Contract Quantities from Project**
 - **Seller must provide an average of at least 80% of Contract Quantity from Project over rolling 12 months and an average of at least 85% of Contract Quantity over rolling 24 months**

BTM Capacity Storage Agreement

Transaction

- Same as Capacity Storage Agreement, with added provisions addressing behind-the-meter customers and a simple Variable Settlement which is owed to Buyer
- Compensation: Contract Price based on Delivered Capacity minus Variable Settlement Amount
- Variable Settlement for a day is only based on the z highest DA Energy Prices, with z representing the duration of the resource:
$$= \text{Confirmed Quantity} * \text{Max}(0, (\text{Highest DA Energy Price} - \text{VOM}))$$

Seller bids VOM value
- Seller solely responsible for acquiring customers behind the meter
 - Customers must be located in local sub-area

Overview for Utility-owned EPC Project at Moss Landing substation

Utility-Owned EPC Project at Moss Landing



Figure 1: Conceptual Moss Landing Energy Storage Site Layout¹

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

Use Cases:

- Local capacity, market participation (capacity, energy, A/S)

Project Size: 195MW / 4 hour duration @ MV

- Participants can propose 100MW alternate offer

Requested Online Date: 12/31/2020

Interconnection:

- Interconnection to 115kV
- PG&E filed interconnection application previously

Moss Landing EPC: Supplemental Information Available

After participants sign a confidentiality agreement, PG&E will provide the following via data room:

- EPC and LTPMA agreement term sheets
- Geotech, surveying and existing site drawings
- Key PG&E Standard documents to guide design development
- Project scope documents, including a detailed division of responsibilities matrix, a site KMZ file, a PG&E Qualified Supplier List and typical PG&E switchgear drawings
- Site photos, videos, Q&A and scanned sign-in sheet from the site visit

Utility-owned Build, Own Transfer

Build, Own, Transfer Projects

- **All projects must be located in one of the applicable Local Sub-Areas and interconnected to PG&E's Transmission or Distribution System.**
- **Site control and Phase I (or equivalent) interconnection study required at time of offer submission**

Evaluation Methodology

Evaluation Methodology

- **QUANTITATIVE CRITERIA**
 - Net Market Value
 - Portfolio Adjusted Value
- **QUALITATIVE CRITERIA**
 - Project Viability
 - Supply Chain Responsibility
 - Credit
 - Safety

Net Market Value (1)

Net Market Value = (E + A + C) – (V + F) = Benefits - Costs

- **E = Energy value** captures the value associated with the electric energy price in the CAISO markets for each Offer over its delivery term.
- **A = Ancillary Services value** is based on Offer's Ancillary Service capability.
- **C = Capacity value** is based on
 - Projected monthly quantity of Net Qualifying Capacity for System RA or Local RA , and Effective Flexible Capacity for Flexible RA.
 - Offer's contribution to meeting future Resource Adequacy requirements in relevant local sub area.

Net Market Value (2)

$$\text{Net Market Value} = (E + A + C) - (V + F) = \text{Benefits} - \text{Costs}$$

- **V = Variable Cost** is based on
 - Cost of fuel (other than grid energy) and associated greenhouse gas (“GHG”) cost, variable O&M (“VOM”) for discharge, and/or Start-up Costs for discharge, if applicable, but does not include the market costs for Charging Energy.
- **F = Fixed Cost** is based on
 - For third-party owned resources, sum of projected monthly fixed payments (product of Payment Quantity Price and the monthly Payment Quantity specified in Offer)
 - For utility-owned resources, fixed cost will be determined by PG&E’s Cost of Service Model, which will determine revenue requirements
 - Annual fixed overhead cost, for contract administrative costs, and costs for scheduling into CAISO market if PG&E is the scheduling coordinator.

Portfolio Adjusted Value (“PAV”)

- **PAV modifies the NMV to account for elements that impact a particular Offer’s value in the context of the electric portfolio of the PG&E’s service territory**
- **PAV calculations make explicit and systematic adjustments to NMV to reflect portfolio effects and preferences that benefit the customers in the PG&E’s service territory**
- **PG&E will evaluate PAV by adjusting NMV by the following components:**
 - **Cost of Transmission Network Upgrade**
 - **Increased System Efficiency**
 - **Avoided Renewable Curtailment**
 - **Delivery Period**

Qualitative Factors

Qualitative factors PG&E may consider include:

- **Project Viability**
- **Credit**
- **Supply Chain Diversity**
- **Safety**

Note: Participants should limited Agreement Modifications to only those required to accurately describe the Project.

Offer Submittal Process

Document Conflicts

- This following sections describe the Offer Form in general terms.
- Any inconsistency between the information in this presentation and the requirements of the RFO materials must be resolved in favor of the RFO materials.
- Participants should carefully review the Local Sub-Area Energy Storage Solicitation Protocol and all RFO materials, available on PG&E's website: www.pge.com/rfo

Website and Communications

- The Local Sub-Area Energy Storage RFO website (select “2018 Local Sub-Area Energy Storage RFO” link at www.pge.com/rfo) includes everything you need to submit for an offer, including but not limited to:
 - RFO documents
 - Detailed instructions for submitting offer(s) through Power Advocate
 - Announcements, updates, and Q&A
- All communications should be directed to: LocalSubAreaRFO@pge.com, with a copy to the Independent Evaluator at waynejoliver@aol.com

Offer Submittal Process – Power Advocate

- Offers must be submitted via the online platform Power Advocate.
 - In order to submit an Offer, participants *must first pre-register* with Power Advocate. The links can be found on the Local Sub-Area RFO website.
 - PG&E strongly encourages you to register well in advance of Offer due dates.
- Detailed instructions for submitting offer(s) and using Power Advocate are available on PG&E’s website www.pge.com/rfo under “2018 Local Sub-Area RFO.”
- **IMPORTANT:** Two separate Power Advocate links
 - One for third-party owned projects offers
 - <https://www.poweradvocate.com/pR.do?okey=77649&pubEvent=true>
 - One for utility-owned projects offers
 - <https://www.poweradvocate.com/pR.do?okey=77650&pubEvent=true>

Offers Allowed Per Participant

- Participants submitting Offers for Transmission or Distribution interconnected Projects may submit up to five (5) Offers per interconnection point
- Participants submitting Offers for BTM Projects may submit up to twenty (20) Offers for each of the three (3) local sub-areas

Offer Submittal Process

- **Offers must be received by PG&E through Power Advocate by the deadline – March 28, 2018 by 1:00 PM PPT**
- **Offer package must contain complete and accurate information**
- **Offer package must contain all required information, and must be organized as described in the Solicitation Protocol Section VI.D, Required Information.**
- **Failure to respond to inquiries by PG&E regarding incomplete or incorrect information could result in disqualification for the RFO**
- **By submitting an Offer in this RFO, each Participant is required to abide by the confidentiality obligations specified in Section IX of the Solicitation Protocol and by selecting “Yes” in the Acknowledgements and Authorizations section of the Participant Information tab of the Offer Form.**
- **If Participants have any questions about the forms, they should submit questions to LocalSubAreaRFO@pge.com and cc the IE at waynejoliver@aol.com**

Offer Submittal

Complete Energy Storage Offer Package (by March 28, 2018 by 1:00 PM PPT)

- **Introductory Letter**
- **Appendix A: Offer Form (excel)**
- **Appendix B1: Project Description**
- **Appendix B2: Site Control**
- **Appendix B3: Project Milestone Schedule**
- **Appendix B4: Experience Qualifications**
- **Appendix B5: Electric Interconnection (and most recent interconnection study or description of status of Project interconnection, if required)**
- **Appendix B6: Organizational and Financial Information**
- **Appendix B7: Utility Ownership Additional Information (if applicable)**
- **Appendix C: FERC 717 Waiver**

Post-Shortlist Requirements

- **Shortlist Offer Deposit**
- **Appendix D: Confidentiality Agreement**
- **Appendix F1 – F6: Redline of relevant Agreement or term sheet**
- **Appendix G1: Letter of Credit (if applicable)**
- **Appendix G2: Request for Taxpayer ID Form (if applicable)**
- **Preliminary Site Safety Plan**

Keys to a Successful Offer

Keys to a Successful Proposal

- Expect a strong solicitation response
- Review the materials on our website at www.pge.com/rfo
- Submit a complete Offer Package by the deadline
 - Eligibility requirements
 - Competitively priced and accurately detailed Offer (containing data consistent with contract fields)
- Respond promptly to inquiries by PG&E regarding your Offer
- If you have any questions, please send all communications to LocalSubArea@pge.com and cc the IE at waynejoliver@aol.com

Offer Form

Relationship between Offer Forms and Executed Agreements

- Data contained in Offer Forms must be consistent with Contract Values
- PG&E may be unable to proceed with Offers or execute Agreements for Projects if there is inconsistency between data contained in Offer Forms and the corresponding data in relevant Agreements.

APPENDIX III
OPERATIONAL CHARACTERISTICS

The following describes the Operational Characteristics to determine the amount of Capacity Attributes of Product.

Physical Location and Point of Interconnection

Shall be as set forth in Appendix II-A.

Discharging and Charging

Maximum continuous discharge power (Dmax): MW

Minimum continuous discharge power (Dmin): MW

Maximum discharge duration at constant Dmax : (hours)

Maximum continuous charge power (Cmax): MW

Minimum continuous charge power (Cmin): MW

Maximum charge duration at constant Cmax: (hours)

Amount of Energy released to fully discharge: MWh

Amount of Energy required to fully charge: MWh

Round-trip efficiency: _____ %

Ramp Rates

[Describe ramp rates. If ramp rates vary with loading level, please provide a ramp rate for each segment within the operational range in which it differs. If ramp rates vary based on the operating mode (e.g. regulation), please provide separately.]

Dmin to Dmax: MW/second

Cmin to Cmax: MW/second

Dmax to Dmin: MW/second

Cmax to Cmin: MW/second

Pacific Gas and Electric Company[®]
Participant Proposal - Operating Characteristics
Version 2018.01
There are 36 missing or incorrect values on this tab

The following describes the Operational Characteristics of the Project to be constructed, operated and maintained by Seller through the Term in accordance with the Agreement.

Project Size

Total capacity of the project.

Nameplate capacity : MW

Discharging and Charging

Maximum continuous operating discharge power level (Dmax): MW

Minimum continuous operating discharge power level (Dmin): MW

Maximum discharge duration at constant Dmax: (hours)

Maximum continuous operating charge power level (Cmax): MW *(Please insert negative value)*

Minimum continuous operating charge power level (Cmin): MW *(Please insert zero or negative value)*

Round-trip efficiency: %

Amount of Energy released upon full discharge (normal operating cycle): 0.00 MWh

Amount of Energy required to fully charge (normal operating cycle): 0.00 MWh

Maximum charge duration at constant Cmax: 0.00 (hours)

Ramp Rates

Describe ramp rates. If ramp rates vary with loading level, please provide a ramp rate for each segment within the operational range in which it differs. If ramp rates vary based on the operating mode (e.g. regulation), please provide separately.

Dmin to Dmax: MW/second

Cmin to Cmax: MW/second *(Please insert negative value)*

Dmax to Dmin: MW/second *(Please insert negative value)*

Cmax to Cmin: MW/second

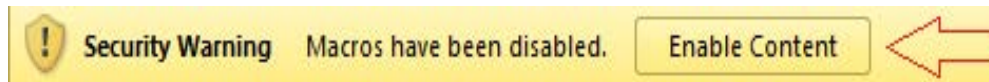
Example of contract fields and corresponding Offer Form fields

Offer Form - Instructions

1. Download the most recent version of the Offer Form, Version 2018.1 (uploaded to the Local Sub-Area ES RFO website on 2/28/18). Do not use any earlier versions of this Offer Form!
2. Enable macros when opening the Offer Form. This can be done in two ways:
 - a. Enable macros on the “Microsoft Excel Security Notice” that is displayed before the form opens...



- b. Enable macros by clicking the “Enable Content” button that is often displayed at the top of the screen when the form first opens:



3. Fill out the tabs from left to right, and fill out individual cells on each tab from top to bottom.
4. Save early and often! One exception: Generate Offer ID and save the file using Offer ID as file name (as described in upcoming slides).
5. Every cell with a yellow background must be filled in. As these fields in are filled in, the yellow background will disappear. Once all fields on a tab have been filled in, you will see the word "Complete" appear at the top of the page. If the word "Complete " does not appear, the form will be deemed invalid.

Offer Form – Instructions, cont.

6. **Grayed out cells are auto-calculated cells. These don't need to be filled out.**
7. **The workbook is set to recalculate automatically; however, if for some reason it is not refreshed automatically, press F9 to refresh.**
8. **DO NOT COPY-and-PASTE data from old workbooks into new workbooks as that can confound the operation of macros.**
9. **Participants are encouraged to take every opportunity to fully describe their proposal. The inclusion of free form blocks allows the Participant to describe aspects of their proposal in more detail. In particular, if the Offer Form does not request all the important information associated with your proposal, Participants should use these free form blocks to fully describe your proposal.**
10. **If the Offer Form is behaving oddly, then close and reopen the Offer Form to reset.**
11. **Participants must submit an Excel form – no other formats will be accepted.**

Offer Form – Instructions, cont.

Agreement Type	Required Offer Form Tabs	Description
Energy Storage Resource Adequacy Agreement	Participant Information	This tab asks about general counterparty information, ownership, developer information, and confirmation that the counterparty acknowledges the protocol.
	Project Information	This tab asks about general project information, including information on: project name and location, electric interconnection, signal response and control, energy storage technology, storage unit specifications, and seller security requirements.
	Operating Information	This tab asks about operating characteristics of the energy storage system, including charging/discharging parameters, ancillary services information, ramp rates, system response and start-up times, run-time limitations, daily constraints, emission rates (if applicable), and flexible RA conditions.
	RA Offers	This tab asks for additional information for RA offers: price, offered MW, and anticipated facility maintenance schedules.
	Development Experience	This tab asks for a general assessment on developer experience with similar projects and other generation projects.
	Supply Chain Responsibility	This tab is a questionnaire about supply chain responsibility qualifications.
Behind The Retail Meter Capacity Storage Agreement	Participant Information	This tab asks about general counterparty information, ownership, developer information, and confirmation that the counterparty acknowledges the protocol.
	Project Information	This tab asks about general project information, including information on: project name and location, electric interconnection, signal response and control, energy storage technology, storage unit specifications, and seller security requirements.
	Operating Information	This tab asks about operating characteristics of the energy storage system, including charging/discharging parameters, ancillary services information, ramp rates, system response and start-up times, run-time limitations, daily constraints, emission rates (if applicable), and flexible RA conditions.
	Third Party BTM	This tab asks for additional information for BTM offers: price, offered MW, variable settlement elements, and anticipated facility maintenance schedules.
	Development Experience	This tab asks for a general assessment on developer experience with similar projects and other generation projects.
	Supply Chain Responsibility	This tab is a questionnaire about supply chain responsibility qualifications.

(1) Items in **red** in the center column in the table above are the names of tabs that are displayed only when the value in the first column is selected as the "Contract Type" on the "Project Information" tab (cell C19).

Offer Form – Instructions, cont.

Agreement Type	Required Offer Form Tabs	Description
Engineering, Procurement, Construction Agreement for Utility Ownership and Build, Own, Transfer Agreement for Utility Ownership	Participant Information	This tab asks about general counterparty information, ownership, developer information, and confirmation that the counterparty acknowledges the protocol.
	Project Information	This tab asks about general project information, including information on: project name and location, electric interconnection, signal response and control, energy storage technology, storage unit specifications, and seller security requirements.
	Operating Information	This tab asks about operating characteristics of the energy storage system, including charging/discharging parameters, ancillary services information, ramp rates, system response and start-up times, run-time limitations, daily constraints, emission rates (if applicable), and flexible RA conditions (if applicable).
	Utility Owned Offers Only	This tab asks about utility ownership-specific information, including site description, PSA purchase price, operations/maintenance/ decommissioning costs, and additional operating characteristics.
	Degradation	This tab asks for degradation information on discharge power, energy capacity, efficiency degradation, and heat rate degradation (if applicable).
	Development Experience	This tab asks for a general assessment on developer experience with similar projects and other generation projects.
	Supply Chain Responsibility	This tab is a questionnaire about supply chain responsibility qualifications.

(1) Items in **red** in the center column in the table above are the names of tabs that are displayed only when the value in the first column is selected as the "Contract Type" on the "Project Information" tab (cell C19).

Offer Form - Validation

No data entry required on this tab. This tab shows all of the potential tabs available (although not all will be applicable for every project), and the number of values missing on each tab in the Offer Form. Please make sure that all required inputs highlighted in yellow are correctly filled in (i.e., there are 0 missing or incorrect values), before submitting the Offer Form.

Tab	Validation Status
Participant Information	There are 31 missing or incorrect values on this tab
Project Information	There are 33 missing or incorrect values on this tab
Operating Information	There are 41 missing or incorrect values on this tab
Development Experience	There are 5 missing or incorrect values on this tab
Capacity Storage Agreement	Not applicable
RA Offers Only	Not applicable
Third Party BTM	Not applicable
PSA Offers Only	Not applicable
Degradation	Not applicable
Supply Chain Responsibility	There are 13 required fields that are not yet filled in.

Offer Form – Participant Information

Participant Information

Counterparty/Legal Entity Name			
Street Address			
City		State <Choose>	Zip Code
Country			
Website			
Authorized Contact #1		Authorized Contact #2	
First Name		First Name	
Last Name		Last Name	
Title		Title	
Phone 1		Phone 1	
Phone 2		Phone 2	
Email		Email	

Provide the name of the legal entity that will be obligated under the agreement type that is selected.

Identify all current Project owners

Participant must select "Yes" for each of the Acknowledgement, Participant, and Attestation sections.

Project Developer Information (may be the same as Participant)

Developer Name			
Street Address			
City		State <Choose>	Zip Code
Country			

Owners of Participant Entity or Project

Name	Ownership %	Website URL
	0%	Total must be 100%

Acknowledgement of Protocol

By selecting "Yes" participant hereby agrees to the terms of the Solicitation Protocol. Participant acknowledges that any costs incurred to become eligible or remain eligible for the solicitation, and any costs incurred to prepare an offer for this RFO are solely the responsibility of Participant.

Electronic Signature		Select 'Yes' to certify that the typed name acts as your electronic signature.
Title		

Participant Authorization

By selecting "Yes", participant hereby confirms that they are "a duly authorized representative of Participant."

Electronic Signature		Select 'Yes' to certify that the typed name acts as your electronic signature.
Title		

Attestation

By providing the electronic signature, below, Participant hereby attests that all information provided in this Offer Package and in response to this Energy Storage RFO is true and correct to the best of Participant's knowledge as of the date such information is provide.

Electronic Signature		Select 'Yes' to certify that the typed name acts as your electronic signature.
Title		

Offer Form – Project Information

Offer Information

Agreement Type - Select a value in this field before proceeding

- <Choose>
- Energy Storage Resource Adequacy Agreement
- Behind The Retail Meter Capacity Storage Agreement
- Engineering, Procurement, Construction Agreement for Utility Ownership
- Build, Own, Transfer Agreement for Utility Ownership

This “Agreement Type” question is important – selection impacts which other tabs and fields will become visible and highlighted.

Product(s) Offered - Choose all that apply:

"Yes" must be specified for at least one of the products.

<input type="checkbox"/>	Flexible Resource Adequacy	<input type="checkbox"/>	Non-spinning Reserves (Ancillary Services)
<input type="checkbox"/>	Resource Adequacy	<input type="checkbox"/>	Spinning Reserves (Ancillary Services)
<input type="checkbox"/>	Energy	<input type="checkbox"/>	Regulation Up/Down (Ancillary Services)
		<input type="checkbox"/>	Regulation Energy Mgmt. (REM) (a subset of Reg Up/Down)

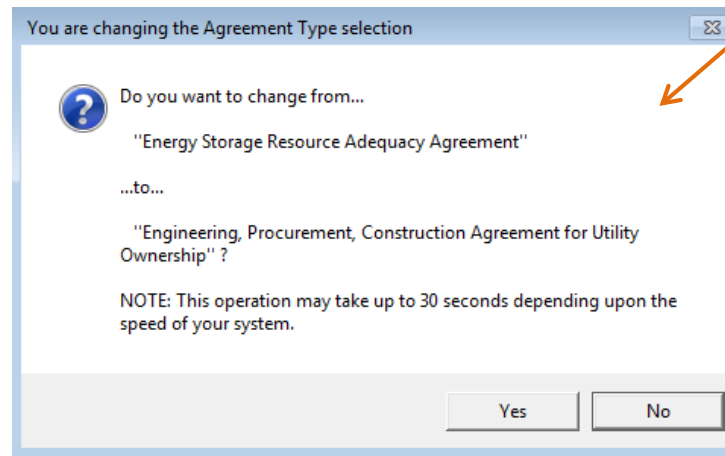
Depending on Agreement Type selected these fields will either auto populate or become editable.

Warning - Switching Between Agreement Types Clears Fields!

When the Agreement Type in cell C19 of the “Project Information” tab is changed, a message balloon confirming your change is displayed.

Agreement Type

Energy Storage Resource Adequacy Agreement



Changing the Agreement type will hide Agreement specific tabs and open new tabs. This will erase data that has been entered in an Agreement specific tab. Please save often.

Offer Form – Project Information

The Project Information section is specific to physically where the project is located.

Project Information			
Full Legal Project Name	<input type="text"/>		
Street Address	<input type="text"/>		
City	<input type="text"/>	State	<input type="text" value="<Choose>"/>
County	<input type="text"/>	Zip Code	<input type="text"/>
Latitude	<input type="text"/> degrees	Longitude	<input type="text"/> degrees
Type of Site Control	<input type="text" value="<Choose>"/>		
Energy Storage Facility Status	<input type="text" value="<Choose>"/>		
	Is energy storage to be co-located with existing generation?	<input type="text" value="<Choose>"/>	
	Is Energy Storage to be co-located with generation that is not owned by PG&E, but is under an existing contract with PG&E?	<input type="text"/>	
PG&E log number, if this project has an existing contract with PG&E	<input type="text"/>	Existing Contract Expiration Date	<input type="text"/>
	CAISO Resource ID if available	Existing Contract Technology Type	<input type="text"/>
	Describe existing contract type		
Project funding from state or federal programs?	<input type="text" value="<Choose>"/>		

Note: Projects must interconnect to the CAISO system.

Offer Form – Project Information

Storage Unit Specifications

Storage Technology	<Choose>
Storage Technology D	<Choose>
	Lithium Ion (Li Ion) Batteries
	Zinc Air (Zn air) Batteries
	Sodium Sulfur (NaS) Batteries
	Flow Batteries
	Reversible Fuel Cells / Electrolysis
	Compressed Air Energy Storage (CAES)
	Flywheel

Use this dropdown to choose Storage Method. Add any additional detail in the text box as appropriate

The % column is calculated based on: $(\$ \text{ Offered}) / (\$ \text{ Required})$.

Seller Security Requirements

Calculations are illustrative and final amounts are subject to confirmation by PG&E's Credit Department for any executed contract.

	Required	Offered	%
Project Development Security (\$)*	600,000.00	\$500,000	83%
Delivery Term Security Offered (\$)*	1,250,000.00	\$1,250,000	100%

* Required amounts are calculated per applicable Contract Agreement type. For an RA Only, CSA, and BTM CSA, Project Development Security (PDS) is \$60/kW x Payment Quantity; and Delivery Term Security (DTS) is \$125/kW x Payment Quantity or 10% of capacity payments up to 3 years, whichever is higher.
For a PSA, the PDS is 10% of the purchase price.

The Delivery Term Security calculation may be updated, depending on what values are entered for capacity payments on the Agreement specific tab.

Offer Form – Project Information

Electrical Interconnection Information		
<i>Please provide this information from the latest interconnection study, if available. For storage added to generation with an existing interconnection, provide information about the additional costs and timing associated with the storage only (cells I94 – I97, I99).</i>		
Interconnection App. Status	<Choose>	
Interconnecting Utility	<Choose>	
Interconnection Queue	<Choose>	
Queue Number		
Deliverability Status	Full Capacity Deliverability	
Interconnection part of Cluster 5 or Later Studies?	<Choose>	
Area Deliverability Option		
New Interconnection Agreement Capacity	MW	
Interconnection Voltage	kV	
Delivery Market (Existing zone)	NP15	
CAISO Transmission Access Charge Area	PG&E	
Connecting Substation		
Clarifications		
	Direct Assigned Cost (\$)	
	Area Delivery Network Upgrade Costs (\$)	
	Local Delivery Network Upgrade Costs (\$)	
	Reliability Network Upgrade (RNU) Costs (\$)	\$0
	Refundable Portion of RNU Costs	
	Buyer's Cap on Refundable LDNU plus RNU Costs	
	RNU Upgrade Construction Time (months)	
	LDNU/ADNU Construction Time (months)	
	Calendar Year Basis for RNU Costs	
	Calendar Year Basis for LDNU Costs	
	Interconnection COD	
	Deliverability Date	

Deliverability

If offering an RA product, Full Capacity Deliverability is required

Interconnection Application Status

This is a required for all project types. For RA Only UOG BOT the minimum requirement is "Application submitted"

Network Upgrade Costs and Dates

For RA and UOG BOT: the upgrade costs are a required field, if there are no costs for a line enter "0". The year these Costs are based on along with dates for Interconnection and Deliverability are also a requirement. For all other projects, provide if known.

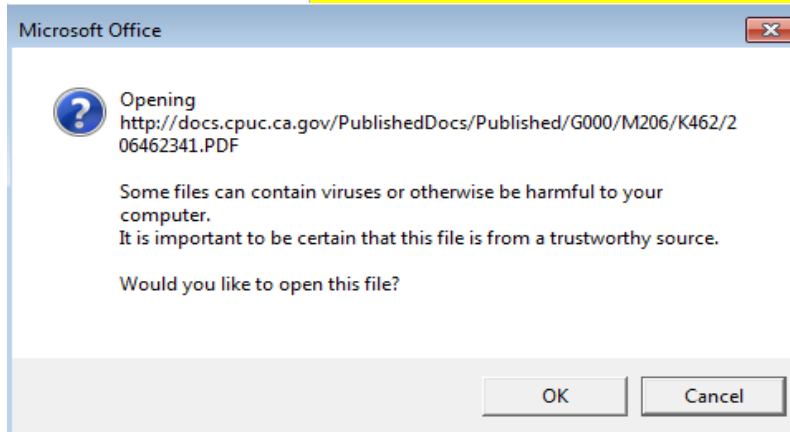

Offer Form – Project Information

Multi-Use Application

Per CPUC D.18-01-003 Adopted Rule 9, storage provider is required to list any additional services the storage resource will provide outside of this solicitation.

[Link to CPUC D.18-01-003 Adopted Rule 9](#)

Reference Table 1 within the Decision for a list of services.



Use the link to access CPUC D.18-01-003. Describe any additional value streams as required in Appendix A Adopted Rules (see page 33 of 55 of link).

Offer Form – Operating Information

Sections within the Operating Characteristics tab include:

- **Project Size (nameplate capacity)**
- **Discharging & Charging**
- **Ramp Rates**
- **System Response Time**
- **Start and Other Run Limitations**
- **Ancillary Services (as defined by CAISO Tariff)**
- **Voltage Services**

Offer Form – Operating Information

Voltage Services

Generator voltage regulation range (+/-): volts p.u.

Maximum reactive power leading: Mvar

Maximum reactive power lagging: Mvar

Description of Voltage services to go here

Offer Form – Development Experience

Project Development Experience

Select the option on the right that best matches the project status or experience. Answers are listed within the drop down lists in order of highest → lowest level of experience, so if multiple answers are applicable then select the highest answer on the list.

Project Development Experience	<Choose>
Operation and Management Experience	Have completed one or more energy storage projects that are in commercial operation
Site Control	Have completed one or more energy storage projects as a pilot/demonstration project
Permitting	Have not completed an energy storage project in commercial operation or as a pilot, but have completed one or more electricity generation projects
Project Finance	In development of a project
	No project development experience
	<Choose>

Select the most applicable answer to the Participant/Developer for each of the 5 questions in the dropdowns. Answers are listed in order of highest → lowest level of experience, so if multiple answers are applicable then select the highest answer on the list (as we did in the example above, for the question about Project Development Experience).

Offer Form – Supply Chain Responsibility

If certified as one of listed groups please select “Yes” and then fill in Certification Agency and Certification #

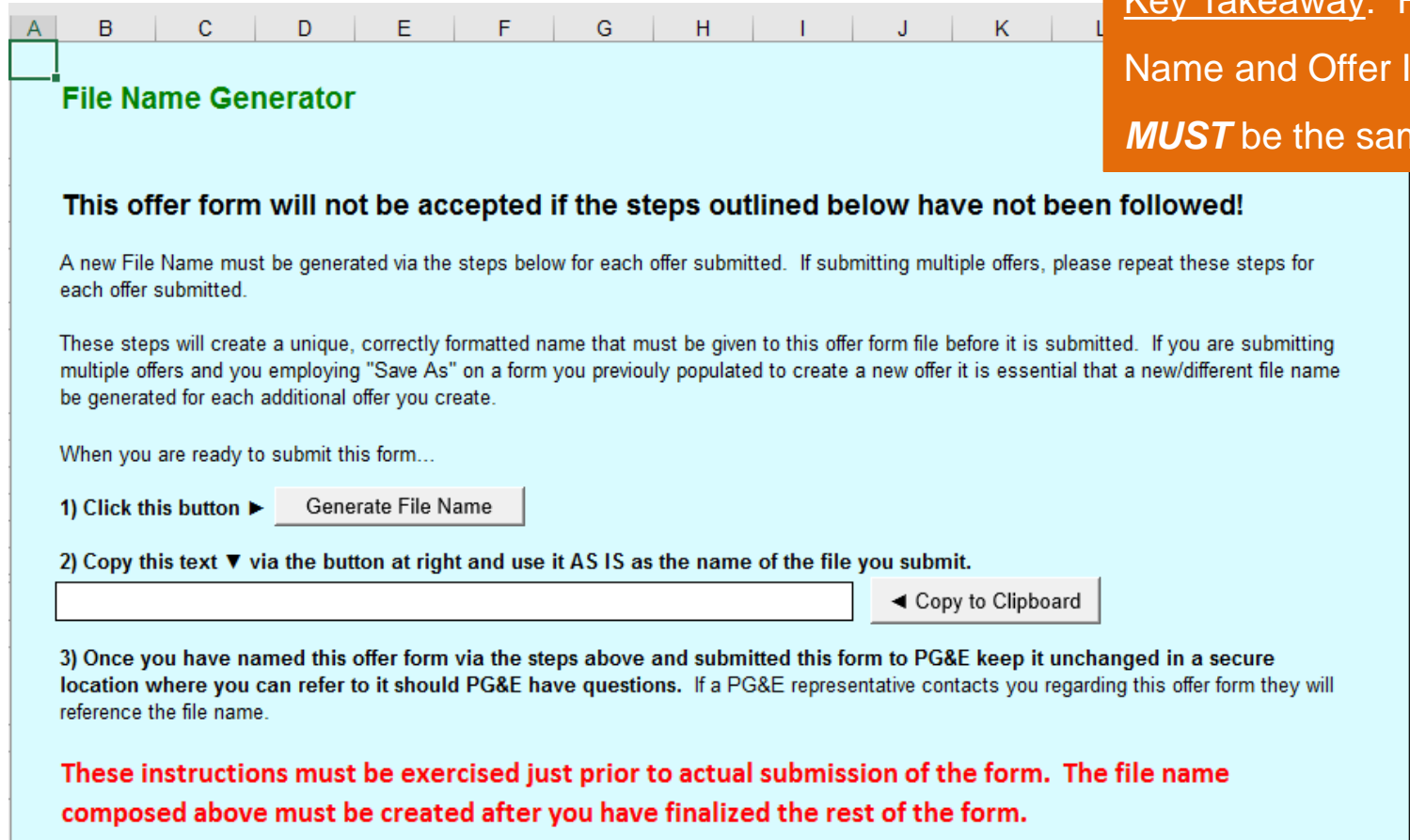
Please answer remaining questions on tab. Participant may be asked to provide more information if “Yes” is selected.

Supply Chain Responsibility	
<p>1 Is your company certified as a minority, woman, service disabled veteran-owned (DVBE) business, lesbian, gay, transgender (LGBT) business? If yes, please provide your certification #(s).</p>	<p>Select "Yes" for all that apply</p> <p>Minority <input type="button" value="<Choose>"/></p> <p>Women <input type="button" value="<Choose>"/></p> <p>DVBE <input type="button" value="<Choose>"/></p> <p>LGBT <input type="button" value="<Choose>"/></p>
<p>2 Is your company a certified small business?* If yes, please provide your certification #(s)</p> <p><i>*For information about Small Business standards, please refer to one of the following sites: (1) California Department of General Services: http://www.dgs.ca.gov/pd/Programs/OSDS.aspx (2) Small Business Administration: https://www.sba.gov/contracting/getting-started-contractor/qualifying-small-business</i></p>	<p>Select "Yes" if your company is a certified small business.</p> <p><input type="button" value="<Choose>"/></p>
<p>3 What was your company's prior year spending with certified minority, women, service disabled veteran and LGBT businesses as a percentage of your company's total produrement base?</p>	<p>Applicable? <input type="button" value="<Choose>"/></p>
<p>4 What was your company's prior year spending with certified small businesses as a percentage of your company's total procurement base (including all federal, state or local small business programs)?</p>	<p>Applicable? <input type="button" value="<Choose>"/></p>
<p>5 Does your company track diversity spending of its largest suppliers? If so, describe your process and how you ensure the accuracy of the subcontracting data reported.</p>	<p>Select Yes/No <input type="button" value="<Choose>"/></p>
<p>6 Does your company have an employee(s) responsible for your supplier diversity program? If so, what is the cumulative number of FTEs dedicated to supplier diversity (e.g. 1, 2.5, 4.5, etc.)?</p>	<p>Applicable? <input type="button" value="<Choose>"/></p>
<p>7 Does your company have specific programs designed to recruit and develop small, diverse suppliers/subcontractors (e.g. outreach, training, mentorship, etc.)? Please describe each of these programs and list any suppliers that you have developed over the last twelve months.</p>	<p>Select Yes/No <input type="button" value="<Choose>"/></p>
<p>8 Does your company have a supplier diversity web page? If so, please provide the website</p>	<p>Select Yes/No</p>

Offer Form – File Name

VERY IMPORTANT! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN INVALID OFFER

Key Takeaway: File Name and Offer ID ***MUST*** be the same



File Name Generator

This offer form will not be accepted if the steps outlined below have not been followed!

A new File Name must be generated via the steps below for each offer submitted. If submitting multiple offers, please repeat these steps for each offer submitted.

These steps will create a unique, correctly formatted name that must be given to this offer form file before it is submitted. If you are submitting multiple offers and you employing "Save As" on a form you previously populated to create a new offer it is essential that a new/different file name be generated for each additional offer you create.

When you are ready to submit this form...

1) Click this button ►

2) Copy this text ▼ via the button at right and use it AS IS as the name of the file you submit.

3) Once you have named this offer form via the steps above and submitted this form to PG&E keep it unchanged in a secure location where you can refer to it should PG&E have questions. If a PG&E representative contacts you regarding this offer form they will reference the file name.

These instructions must be exercised just prior to actual submission of the form. The file name composed above must be created after you have finalized the rest of the form.

Additional Tabs for Specific Contract Types

- Third Party Owned
 - Interconnection description
 - Third Party RA Offer tab: price
 - Third Party BTM Offer tab: price
- Utility Owned Resources
 - Interconnection description (for BOT only)
 - Utility Owned tab: price, additional operating characteristics
 - Degradation tab

Offer Form – Interconnection Location

Applies to: ES RA, BTM, UoG BOT Projects

Agreement Selected: Energy Storage Resource Adequacy Agreement

Interconnection Option

<Choose>

Per your selection immediately above you have declared that you will connect to a line between two sub stations.
Please select "Yes" beside the two substations that are associated with the line you will connect to.

This project will connect here

Select from this column first ▼

Substation Name	County	City	Sub-Area	Interconnection Voltage
ALMADEN SUB	Santa Clara	San Jose	MLSB	
AMES DIST SUB	Santa Clara	Mountain View	MLSB	
AMES TRANS SUB	Santa Clara	Mountain View	MLSB	
ANZAR JCT SW STA SUB	San Benito	San Juan Batista	MLSB	
APPLD MATERIALS SW STA SUB	Santa Clara	Sunnyvale	MLSB	
ARANA SUB	Santa Cruz	Santa Cruz	MLSB	
BEN LOMOND SUB	Santa Cruz	Santa Cruz	MLSB	
BIG BASIN SUB	Santa Cruz	Santa Cruz	MLSB	
BIG TREES SUB	Santa Cruz	Felton	MLSB	
BLAINE ST SUB	Santa Cruz	Santa Cruz	MLSB	
BORONDA SUB	Monterey	Salinas	MLSB	
BRITTON SUB	Santa Clara	Sunnyvale	MLSB	
BUENA VISTA SUB	Monterey	Salinas	MLSB	
BURNS SUB	Santa Cruz	Santa Cruz	MLSB	
CAMP EVERS SUB	Santa Cruz	Santa Cruz	MLSB	
CAMPHORA SUB	Monterey	Monterey	MLSB	
CARMEL SUB	Monterey	Carmel	MLSB	
CASSERLY SUB	Santa Cruz	Watsonville	MLSB	
CASTROVILLE SUB	Monterey	Castroville	MLSB	
CLIFF DRIVE SUB	Santa Cruz	Santa Cruz	MLSB	
COYOTE SW STA	Santa Clara	San Jose	MLSB	
CRAZY HORSE CANYON SW STA	Monterey	Prunedale	MLSB	
CRUSHER SUB	Santa Cruz	Bonny Doon	MLSB	
DEL MONTE SUB	Monterey	Monterey	MLSB	
DIXON LANDING SUB	Alameda	Fremont	MLSB	
DOLAN RD SUB	Monterey	Moss Landing	MLSB	
EDENVALE SUB	Santa Clara	San Jose	MLSB	
EL PATIO SUB	Santa Clara	Campbell	MLSB	
EMERALD LAKE SUB	San Mateo	Emerald Lake	MLSB	

1) Identify if Project connects directly to substation or between two substations

2) Select "Yes" indicating which substation(s) Project connects to

3) Select appropriate Interconnection Voltage (only required for one substation)

Offer Form – Third Party RA Projects Only

Contract Month - Offers				
Contract Month	Contract Price (\$/kW of PQ/Month)	Payment Quantity (MW)	Contract Quantities	
			Flexible RA Attributes (MW)	RA Attributes (MW)
January			0.00	0.00
February			0.00	0.00
March			0.00	0.00
April			0.00	0.00
May			0.00	0.00
June			0.00	0.00
July			0.00	0.00
August			0.00	0.00
September			0.00	0.00
October			0.00	0.00
November			0.00	0.00
December			0.00	0.00
Avg. \$/kw month	\$0.00			
Contract Price Escalation Rate			Notional Value	\$0.00
		Buyer's Cap on Refundable LDNU plus RNU Costs		

Payment Quantity Multipliers (applies month-to-month and year "1"-to-year "n" for the Payment Quantity values provided above for year 1)

Year	Payment Quantity Multiplier	Year	Payment Quantity Multiplier	Year	Payment Quantity Multiplier
1	1.00				

Offer Form – Third Party BTM Projects Only

Contract Month - Offers				
Contract Month	Contract Price (\$/kW of PQ/Month)	Payment Quantity (MW)	Contract Quantities	
			Flexible RA Attributes (MW)	RA Attributes (MW)
January			0.00	0.00
February			0.00	0.00
March			0.00	0.00
April			0.00	0.00
May			0.00	0.00
June			0.00	0.00
July			0.00	0.00
August			0.00	0.00
September			0.00	0.00
October			0.00	0.00
November			0.00	0.00
December			0.00	0.00
Avg. \$/kw month	\$0.00			
Contract Price Escalation Rate			Notional Value	\$0.00
		Buyer's Cap on Refundable LDNU plus RNU Costs		

Offer Form – Third Party BTM Projects Only

Payment Quantity Multipliers (applies month-to-month and year "1"-to-year "n" for the Payment Quantity values provided above for year 1)

Year	Payment Quantity Multiplier	Year	Payment Quantity Multiplier	Year	Payment Quantity Multiplier
1	1.00				

Energy Settlement Elements

Contract Year	Variable O&M (\$/MWh)	Duration (hours)
1		

Offer Form – Utility Owned Offers Only



Utility Ownership Offers - additional questions

Version 2018.01

There are 10 missing or incorrect values on this tab

Dollar values should be rounded to nearest thousand dollars.

Site Description		Timing										
		Total	Units	Project Close	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
a.	Project Site	MOSS LANDING PP SUB (South Bay - Moss Landing)										
b.	Guaranteed Dmax (MW) at Year 1 - End of LTPMA Term		MW									
c.	Guaranteed Discharge Duration (hours)	4	Hours	◀ Minimum requirement for the selected Engineering, Procurement, Construction Agreement for Utility Ownership site.								
Contract/Purchase Price (\$)		Total										
a.	Purchase Price (do not include decommissioning or land costs)											
b.	Land cost, if any											
Operations, Maintenance, and Decommissioning Costs		Total	Units	Timing								
Maintenance and other related annual costs should match goods and services as well as estimated costs listed in LTPMA.				Project Close	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
a.	Preventative Maintenance Services Fee (see LTPMA - inclusive of ongoing monitoring, reporting, training costs)	\$ -										
b.	Performance Guarantee Fee (see LTPMA for annual performance guarantee and warranty requirements)	\$ -										
c.	Decommissioning Costs (at Year TBD)		\$	\$ -								
TOTAL		\$ -										
d.	Variable O&M if any ⁽¹⁾		\$/MWh discharged	\$ -								
e.	Maximum Planned Maintenance Outage Hours (See LTPMA):		hours									
f.	Expected yearly forced outage hours (see LTPMA for availability guarantee requirements)		hours									
Other Operating Characteristics		Value	Units	Maximum value allowed...								
See LTPMA for Definitions				...per day	...per year							
a.	Hourly Standby Energy Consumption		kWh	d. Does your Facility have Deep Discharge Constraints?	<Choose>							
b.	Auxiliary Load Peak Load		kW	e. Below what % State of Charge would Facility be in a Deep Discharge?		%						
c.	Annual Auxiliary Load Energy Consumption		MWh	f. Maximum Number of Deep Discharges Per Facility?								
Note (1)		Do not include cost of electricity. Please include any consumables, water, chemical, or any other materials needed based on actual charging and discharging of the Project.										

Offer Form – Utility Owned Offers Only

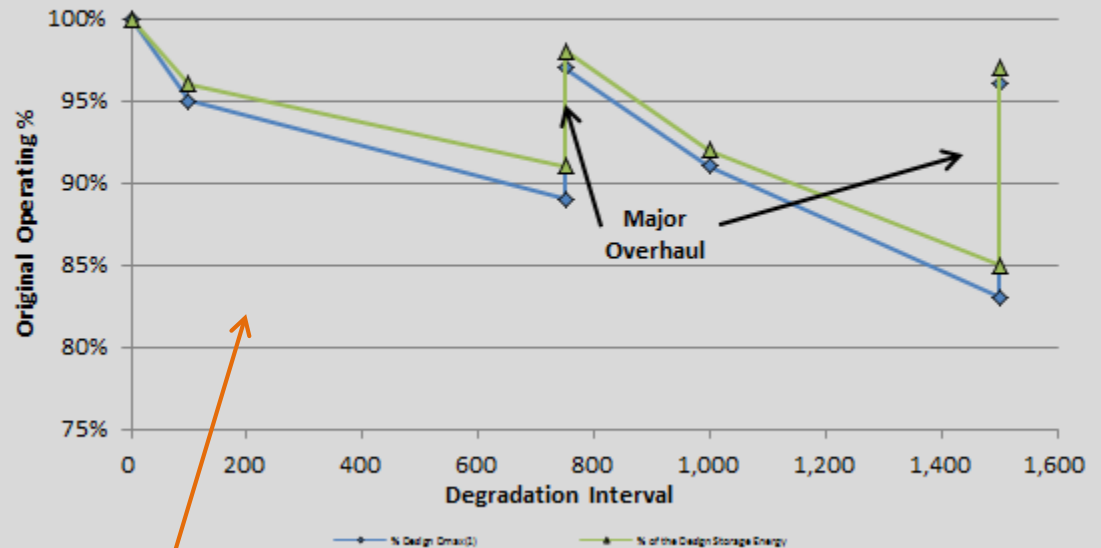
Degradation tab

This tab asks for how various operating parameters of Participant's energy storage will degrade.

*** DEGRADATION EXAMPLE ***

Example: Degradation and Overhaul Impacts on Design Dmax and Design Storage Energy

Degradation Intervals (hours)	% Design Dmax ⁽¹⁾	% of the Design Storage Energy
0	100.00%	100.00%
100	95.00%	96.00%
750	89.00%	91.00%
750	97.00%	98.00%
1,000	91.00%	92.00%
1,500	83.00%	85.00%
1,500	96.00%	97.00%



The graph automatically populates based on the values that Participant enters in the table on the left.

Key Takeaways

Key Takeaways

- **Offer Form**
 - Enable macros in the Excel file.
 - Submit a separate Offer Form for each Offer.
 - Ensure the file name is the same as the pre-populated Offer ID.
 - Be clear about what Offer is submitted with each Excel file (in earlier slides). Use the “Copy to Clipboard” function on the Validation Tab to have consistent file names that match Offer ID.
 - Pay attention to the contract type selected.
 - Pay attention to “Units” i.e. kW vs MW, hours vs minutes
 - Be sure all fields are filled in completely. Check Validation tab to confirm.
 - Data contained in Offer Forms must be consistent with Contract Values
- **Power Advocate**
 - Try uploading draft files to become familiar with the process and timing.

Intermission

Q & A