PG&E’s Bidders’ Webinar

Distribution Resources Plan (DRP)
Demonstration Project D RFO

May 24, 2017
# Agenda

## Topics
- Introduction
- Goals of DRP
- Demo D Overview
- Distribution Services Needed
- Solicitation Overview
  - Eligibility
  - Customer Engagement Support
  - Term Sheet
  - Evaluation Methodology
- Offer Submittal Process
- Offer Form
- Intermission
- Q & A

## Presenter
- Sandy Burns
- Michael Puckett
- Michael Puckett
- Michael Puckett
- Sandy Burns
- Sandy Burns
- Al Gaspari Jr
- Andrew Lee
- Andrew Lee
- Izzy Carson
- Izzy Carson
- Team
Webinar Format

- PG&E will not take questions during the webinar

- Participants should email questions to DRPRFO@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 webinar, PG&E will compile and post a Q&A document on PG&E’s DRP RFO website, accessed via www.pge.com/rfo/DRP2017

- PG&E may 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 send an email to DRPRFO@pge.com by May 25, 2017

- PG&E plans to post a recording of the webinar on PG&E’s DRP RFO website
This presentation is intended to provide a summary of the information and requirements set forth in the RFO materials.

Participants should carefully review the DRP Solicitation Protocol and all RFO materials, available on PG&E’s DRP RFO website.

To the extent that there are any inconsistencies between information provided in this presentation and the requirements in the RFO materials, the RFO materials published on PG&E’s website shall govern.
Communications and Website

- RFO website (www.pge.com/rfo/DRP2017) provides everything you need to submit an Offer, including (but not limited to) the following:
  - RFO materials
  - Detailed instructions for submitting Offers(s) using Power Advocate and to the IE
  - Announcements, additional resources, and Q&A
- All solicitation communications should be directed to: DRPRFO@pge.com with a copy to the Independent Evaluator at Alan.Taylor@sedwayconsulting.com
## DRP Demo D RFO Schedule

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>May 16, 2017</strong></td>
<td>PG&amp;E issues DRP Demonstration Project D RFO</td>
</tr>
<tr>
<td><strong>May 24, 2017</strong></td>
<td>Participants’ webinar</td>
</tr>
<tr>
<td><strong>July 17, 2017 by 1:00 PM PPT</strong></td>
<td>Deadline for Participants to submit Offers via Power Advocate</td>
</tr>
<tr>
<td><strong>July 18, 2017</strong></td>
<td>Deadline for IE to receive a flash-drive of Offers</td>
</tr>
<tr>
<td><strong>September 29, 2017</strong></td>
<td>Participants Notified of Eligibility for Shortlisted Offer Negotiations</td>
</tr>
<tr>
<td><strong>October 13, 2017</strong></td>
<td>Participants notify PG&amp;E whether they accept Shortlist status</td>
</tr>
<tr>
<td><strong>June 2018</strong></td>
<td>Target Advice Letter filing with the CPUC</td>
</tr>
</tbody>
</table>
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 process and proposed transactions to CPUC when filed for CPUC approval

• The IE may review all Offer data and communications with Participants

• 2017 DRP RFO IE is Sedway Consulting. Contact is:
  Alan Taylor (Alan.Taylor@sedwayconsulting.com)
Goals of DRP
Goals of DRP

- Modernize distribution system to accommodate expected DER growth through two-way power flow
- Enable customer choice of new electric DER technologies and services
- Identify and develop opportunities for DERs to realize grid benefits
What are Distributed Energy Resources?

Distributed Energy Resources (DER) means:

- Distributed Renewable Generation
- Energy Storage
- Energy Efficiency
- Demand Response
- Electric Vehicles
Demo D Overview

• CPUC has directed IOUs to procure distribution services from third party owned DERs in order to demonstrate DER capabilities in deferring traditional “wires” investments for two demonstration projects beginning in 2020: “Demo C” and “Demo D”

• Per CPUC filing, Demo D is focused on integrating high penetrations of DERs into utility distribution planning and operations

• PG&E has selected Huron Substation as the location for Demo D

• Objectives include:
  – Operation of Aggregated Fleet of Dispersed DERs
  – Multiple Applications of DERs
  – Competitive Solicitation of DERs
Huron Substation Location Overview

- **Location:** Huron Substation, Fresno County
- **1,840 electric service points**
- **Summer Peaking Area**
- **Electrical Service:**
  - Four (4) electric distribution feeders powered at 12 kilovolts (kV) from Huron Substation provides service to end users
  - Two (2) dedicated generation tie feeders interconnecting 20 megawatts (MW) of utility photovoltaic (PV) plant
  - 1 Huron Substation Transformer Bank (70/12 kV)
- **Customer Base:**
  - Agricultural (97 service points)
  - Residential (1513 service points)
  - Commercial and Industrial (236 service points)
- **PV Capacity:**
  - 20 MW of utility PV tied directly to Huron Substation
  - 207 kilowatts (kW) at Feeder Number (No.) 1116
  - 886 kW at Feeder No. 1112

Symbols:  
- △ = Huron Bank 1
- 1112 =  
- 1106 =  
- 1116 =  
- 1108 =  

Distribution feeder configurations as of May 1, 2017
Customer Composition Served by Huron Substation

<table>
<thead>
<tr>
<th>Customer Sector</th>
<th>Total Service Points</th>
<th>Peak Day Demand (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>1513</td>
<td>6.58</td>
</tr>
<tr>
<td>Commercial</td>
<td>204</td>
<td>0.76</td>
</tr>
<tr>
<td>Industrial</td>
<td>32</td>
<td>0.37</td>
</tr>
<tr>
<td>Agricultural</td>
<td>97</td>
<td>8.54</td>
</tr>
</tbody>
</table>

* Service point count as of February 1, 2017
Historical Peak Load: Day Shape by Customer

Peak Load: 16.25 MW
Time of Peak: 7 PM

Hour Beginning [July 1, 2016]
Historical Minimum* Load: Day Shape by Customer

- Peak Load: 6.92 MW
- Time of Peak: 7 AM

* Minimum load day within the “Summer” months defined by distribution planning cycle
## Solar and DR Customers Served by Huron Substation

### PV Interconnections*

<table>
<thead>
<tr>
<th># of Customer PV Installations</th>
<th>Total PV Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>79</td>
<td>1.1</td>
</tr>
</tbody>
</table>

* Customer interconnection values based on total number of customers interconnected as of May 1, 2017

### Demand Response

<table>
<thead>
<tr>
<th># of Customers Participating in BIP and PDP</th>
<th>Reduction to Peak Demand (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>128</td>
<td>2.27</td>
</tr>
</tbody>
</table>
Distribution Capacity Need: Huron Substation
Loading Forecasts – Reverse Flow

- **Reverse flow** overload is forecast beginning in 2020
  - Overload occurs during middle of the day in summer and shoulder months, driven by low customer load and high PV generation
  - 2022 forecasts for reverse flow through the bank shown below to illustrate DER procurement need assuming 3 year contract (beginning of 2020 – end of 2022)

### 2022 Summer Reverse Flow

<table>
<thead>
<tr>
<th>Month</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading (MW)</td>
<td>-20</td>
<td>-15</td>
<td>-5</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

### 2022 Winter Reverse Flow

<table>
<thead>
<tr>
<th>Month</th>
<th>November</th>
<th>December</th>
<th>January</th>
<th>February</th>
<th>March</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading (MW)</td>
<td>-20</td>
<td>-15</td>
<td>-5</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>
Distribution Capacity Need: Huron Substation Loading Forecasts – Peak Load

- **Peak load** is forecast to hit the bank limit in 2022
  - Peak occurs in evenings in June and July, driven by pumping and AC load
  - 2022 forecasts for peak load shown below to illustrate DER procurement need, assuming 3 year contract (beginning of 2020 – end of 2022)
  - 2024 forecasts are also shown for peak
  - Winter months are well within bank limits throughout the 2020-2024 period

**2022/2024 Summer Peak Load**

**2022 Winter Peak Load**
Participants may Offer one or both products:

1. Hosting capacity
   - Total procurement of 4 MW
   - Need exists February – October, every day of each month
   - Participants will be required to offer either 3- or 6-hour blocks
     ▪ 10am – 1pm; or 1pm – 4pm; or 10am – 4pm

2. Load capacity
   - Total procurement of 2 MW
   - Need exists for June and July, every day of each month
   - Participants will be required to offer either 3- or 6-hour blocks
     ▪ 6pm – 9pm; or 9pm – 12am (midnight); or 6pm – 12am (midnight)

Participants cannot operate in certain ways during Restricted Periods

- No load increase from 5pm to 7am every day, April through October
- No load decrease from 9am to 5pm every day of the year
Solicitation Overview
RFO Design (1/4)

• **Product**
  – PG&E is purchasing distribution services only: hosting capacity and load capacity
    ▪ No RA, energy, ancillary services, RECs, other attributes
  – PG&E is looking for delivery terms of 3 or 5 years
  – Initial Delivery Date
    ▪ February 1, 2020 for hosting capacity
    ▪ June 1, 2020 for load capacity

• **Project size**
  – Minimum size of 0.5 MW
  – Maximum size of 2 MW for load capacity and 4 MW for hosting capacity
  – Offers must be in increments of 0.5 MW
  – Offers must be the same size for all the delivery months, delivery hours, and for the length of the delivery term

• **Offers**
  – There are no limits on the number of offers
  – Offers may be mutually exclusive/inclusive of each other
RFO Design (2/4)

- **Project eligibility**
  - DERs: Renewable distributed generation, energy storage, energy efficiency, demand response, electric vehicles
    - For hosting capacity, Projects cannot be strictly an increase in load
  - Participants may be either in-front-of-the-meter or behind-the-meter
  - Participants may offer one technology or a portfolio
    - If offering a portfolio, Participants must identify the composition of the portfolio
  - Participants may offer one resource or an aggregation

- **Measurement and verification**
  - Participants must submit a measurement and verification plan with their offers
  - Behind the meter Projects using a baseline methodology may require a customized approach
RFO Design (3/4)

• **Interconnection**
  – Project must connect to specified lines/feeders
  – No specific interconnection milestone required, but Participants must demonstrate they can meet the online date
  – Participants can utilize the Integration Capacity Analysis (ICA) map on PG&E’s DRP RFO website to get an indicative understanding of current capacity on the distribution lines in the Huron area

• **Double payments/double counting**
  – Projects must be fully or partially incremental to PG&E’s programs, tariffs, and solicitations
    - Examples and links to PG&E’s programs are provided on the PG&E DRP RFO website
  – Participants must submit Appendix B5 of the RFO materials to demonstrate how their Offer is incremental
  – Submit any questions on incrementality to DRPRFO@pge.com
Examples of fully incremental, partially incremental, and non-incremental Projects

<table>
<thead>
<tr>
<th>Resources can be:</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully Incremental</td>
<td>Add-on’s to existing DERs; New programs; EE Technology not included in Portfolio</td>
</tr>
<tr>
<td>Partially Incremental</td>
<td>Enhanced uptake of DER over base</td>
</tr>
<tr>
<td>Not Incremental</td>
<td>Rooftop PV compensated under NEM; DG or ES compensated under SGIP; EE or DR portfolio resources without enhancement</td>
</tr>
</tbody>
</table>
Customer Engagement Support
Customer Engagement Support

• PG&E is offering support to Participants with behind-the-meter Projects to improve the chances of success in acquiring customers

• For all Participants, PG&E will provide a customer facing website to enable customers in the area to validate that this is a PG&E solicitation

• PG&E is also offering additional resources to support customer acquisition: Offers should reflect Participant’s value of such support
  – Participants must include in their Offers the number of hours of PG&E Customer Relationship Manager support it wants
  – Final scoping of support is subject to negotiation

Example of services for 50 hours
• Assist in evaluating and executing co-branding opportunities
• Customer engagement support for Participants’ identified targets

Example of services for 200 hours
• Same as 50 hours plus:
• Assist with development of outreach plans
• Assist in identifying high potential customers
Term Sheet Overview
Transaction

• Product: Distribution Services in accordance with Operating Parameters
  – Distribution hosting capacity: increase load or reduce generation during specified hours
  – Distribution load capacity: decrease load or increase generation during specified hours
  – Sellers are free to monetize other revenue streams
  – Seller is free to operate the resource how it wants outside of the Restricted Periods

• Seller commits to provide Product at Contract Quantities
  – Seller may sell excess amount of Product from Project to third parties
  – Seller may sell other attributes of the Project to third parties

• Sellers will be instructed on whether they are required to provide hosting capacity or load capacity by 8 am day-ahead
  – No limit to number of dispatches per month
  – Seller will provide PG&E with real-time visibility into DER performance
  – Sellers are required to install a communications system and equipment for PG&E to be able to remotely monitor Project status on an aggregate and individual unit basis
Payment and Delivered Energy

- Compensation:
  - Fixed price ($/kw-month)
  - Variable price ($/kwh) for amount of Distribution Services Project provides when required
- If Contract Quantities are not delivered, fixed payment will be reduced

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥1.00</td>
<td>100%</td>
</tr>
<tr>
<td>≥0.90 and &lt; 1.00</td>
<td>Ratio</td>
</tr>
<tr>
<td>≥0.80 and &lt; 0.90</td>
<td>Ratio x 50%</td>
</tr>
<tr>
<td>≥0.75 and &lt; 0.80</td>
<td>0</td>
</tr>
<tr>
<td>&lt; 0.75</td>
<td>Ratio – 75% (Seller will pay PG&amp;E)</td>
</tr>
</tbody>
</table>
Project Site and Customers

• Sellers are solely responsible for acquiring Customers

• Sellers may remove or replace Sites/Customers, provided that changes are in accordance with safety provisions

• Seller must provide PG&E a list of Customers and satisfy incrementality criteria prior to Initial Delivery Date
  – Changes to initial Customer list must continue to satisfy incrementality criteria

• Seller’s marketing materials that reference PG&E are subject to written approval by PG&E

• Seller is responsible for all marketing activities, provided that PG&E may provide specified type of assistance and number of hours of customer representative time
Performance Assurance

“Project Development Security” is due to PG&E within five (5) business days following CPUC approval of the agreement and must be in the form of a letter of credit or cash and in the following amounts:

- $60 per kW for all new resources
- $25 per kW for existing resources

“Delivery Term Security” is due to PG&E before the Initial Delivery Date and will be held by PG&E throughout the delivery term

- Maximum of $125/kw or 10% of the sum of the highest 36 months of fixed payments

Damage Payment/Termination Payment

- In an event of default, defaulting party will owe non-defaulting party an amount equal to the performance assurance
Conditions Precedent

• If CPUC Approval has not occurred on or before 180 days from the date on which PG&E files the agreement with the CPUC, then either party may terminate the agreement.

• Initial Delivery Date shall not occur until Seller:
  – Has constructed the Project and provided certification from an independent engineer that Project is commercially operable and constructed in accordance with the safety requirements.
  – Has passed an initial Performance Test demonstrating that the Project is capable of delivering Distribution Service.
  – Has provided PG&E with a list of Sites and Customers and PG&E has verified that such Sites/Customers are incremental.
  – Has provided Delivery Term Security.
Events of Default

• Failure to meet a Critical Milestone

• Failure to meet Initial Delivery Date

• Monthly Distribution Services Factor for any calendar year is less than 75%

• Results of Performance Test shows that the Project provides less than 85% of Contract Capacity

• Seller does not operate in accordance with the Restricted Periods for more than 3 days per year
Evaluation Methodology
Evaluation Criteria: Least Cost, Best Fit

• **Quantitative Factors**
  – Distribution deferral value
  – Contract payments
  – Customer engagement/support costs
  – Administrative costs

• **Qualitative Factors**
  – Project viability (including interconnection and site control assessment and developer experience)
  – Credit
  – Technology, counterparty diversity
  – Small business enterprise
Offer Submittal Process
Offer Submittal

- Offers must be submitted via the online platform at Power Advocate. Only accepted registrants are permitted to submit Offers.
  - Register through Power Advocate at: https://www.poweradvocate.com/pR.do?okey=69550&pubEvent=true
  - PG&E strongly encourages you to register well in advance of Offer due date of July 17th at 1:00 PM (PPT).

- Offer materials must also be submitted to the IE on a USB flash drive, no later than July 18th at the following address:

  Sedway Consulting, Inc.
  821 15th Street
  Boulder, CO 80302

- PG&E will only consider Offers that, as of the submittal deadline, are complete and conforming Offers.
Keys to a Successful Proposal

• Sellers may choose to submit multiple Offers. Variations include:
  – Term (3 or 5 year)
  – Time block
  – With or without customer engagement support
  – Pricing
Required Offer Submission Forms

• Offer package must be in the format as specified in the 2017 DRP RFO Protocol.
• Introductory Letter. Format: MS Word
• Fully Completed Offer Form (Appendix A). Format: MS Excel
• Supplemental RFO Appendix Document (Appendices B1 through B7). Format: MS Word or PDF as noted
• Interconnection Studies, if applicable. Format: PDF or MS Word

Note: Incomplete documentation will require additional communication to resolve any issues.
Offer Form
Offer Form Structure

- Instructions
- Validation Worksheet
- Participant Information
- Project Description
- Pricing Sheet
- Supply Chain Responsibility
Offer Form – Instructions

- Be sure to **ENABLE MACROS** when opening the Offer Form.

- Instruction tab provides clear directions on completing the offer form.

- Please make sure you save and submit the form in Microsoft Excel “.xlsb” format. **No other formats will be accepted.**

- Each cell with a yellow background **must** be filled out. Once completed the yellow background will disappear.

- Grayed out cells are auto-calculated cells.

- If the word “Complete” does not appear at the top of the page the form will be deemed invalid and returned to you.
- Complete legal entity name

- At least one authorized contact

- Read through each attestation and affirmation on the Participant Information tab. A number of these items are specific to and/or new to this RFO.
Offer Form – Product Description

- Name file to match bid ID
- Offer Variant Exclusions
## Offer Form – Product Description

1. **Select Term**
   - Term (Years): 5
   - Delivery Term: 2020 – 2024
   - Offered Time Slot - FEBRUARY through OCTOBER

2. **Select Time Slot**
   - Delivery Hours (per your selection above): 10:00 - 16:00
   - Delivery Months: Feb-Oct
   - Delivery Days: All

3. **Select Contract Capacity**
   - Contract Capacity (MW): 4

4. **Select Technology and Time Slot**
   - Technology: 4
   - Time Slot MW:
     - 10:00 - 13:00: 4
     - 13:00 - 16:00: 4

---

### Distribution Hosting Capacity Details

<table>
<thead>
<tr>
<th>Services To Be Performed</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Capacity (MW)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Delivery Days</td>
<td>All</td>
<td>All</td>
<td>All</td>
<td>All</td>
<td>All</td>
</tr>
<tr>
<td>Increase in Net Loading Sought by PG&amp;E Per Month (MW) - not editable</td>
<td>[only increments of 0.5 MW permitted]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**I affirm that I can perform these Distribution Services for sub station Demo D**

**Technology**

Specify the technology or technologies you intend to employ. Select from the drop-down list or, if the technology you intend to use is not included in the drop-down list, key in the technology name.
Offer Form – Product Description

1. Select Term
   - Term (Years)
   - 2020 - 2024

2. Select Time Slot
   - 18:00 - 21:00
   - 21:00 - 24:00
   - 18:00 - 24:00

3. Select Contract Capacity
   - Reduction in Net Loading Sought by PG&E Per Month (MW) - not editable
   - Contract Capacity (MW) - JUNE & JULY [only increments of 0.5 MW permitted]
   - 2

4. Select Technology and Time Slot
   - Technology 1
     - Behind the Meter - Energy Storage
   - Technology 2
     - <Choose>
   - Technology 3
     - <Choose>
   - Technology 4
     - <Choose>
   - Technology 5
     - <Choose>
   - Time Slot MW
     - 18:00 - 21:00
     - 21:00 - 24:00
Offer Form – Pricing

*Customer Engagement Support for Behind the Meter Projects only

- Enter Fixed Capacity Price in $/kW-Month
- Enter Variable Price in $/kWh
Intermission
Q & A