

Exhibit No. \_\_\_\_\_

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Application of San Diego Gas & Electric  
Company (U 902-E) for Approval of the Results  
from Its 2016 Track IV Local Capacity  
Requirement Preferred Resources Request for  
Offers.

Application No. 17-04-\_\_\_\_\_  
(Filed April 19, 2017)

**PREPARED DIRECT TESTIMONY OF  
PATRICK K. CHARLES**

**ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY**

**\*\*PUBLIC REDACTED VERSION\*\***

**April 19, 2017**



## TABLE OF CONTENTS

|      |   |    |
|------|---|----|
| I.   | PURPOSE .....   | 1  |
| II.  | 2016 PREFERRED RESOURCES LCR RFO -<br>INTRODUCTION / BACKGROUND .....   | 1  |
|      | A. Summary / Overview of the Track IV Authorization and RFO<br>Requirements .....   | 1  |
|      | 1. The Track IV Decision.....   | 1  |
|      | 2. Procurement Mechanisms / Status of Procurement .....   | 2  |
|      | 3. Procurement Timing .....   | 4  |
|      | 4. Impact of Carlsbad Decision (D.15-05-051) on the preferred resource<br>amounts .....   | 5  |
|      | B. Steps in the Procurement Process / Requirements for the Solicitation .....   | 7  |
|      | 1. Submission / approval of the conventional and preferred resources<br>procurement plans .....   | 7  |
|      | 2. CAISO involvement in the RFO process .....   | 8  |
|      | 3. Summary of Track 1 Decision RFO Requirements .....   | 11 |
| III. | PREFERRED RESOURCES LCR SOLICITATION PROCESS OVERVIEW .....   | 15 |
|      | A. RFO Structure and Schedule .....   | 15 |
|      | 1. Overlap with the storage proceeding in the case of Energy Storage .....  | 15 |
|      | 2. Regulatory framework allowing consideration of both utility owned<br>and third-party owned energy storage resources within the Preferred<br>Resources LCR RFO..... | 15 |
|      | 3. Solicitation milestones and schedule .....   | 17 |
|      | 4. Description of SDG&E's Preferred Resources LCR RFO Process .....   | 20 |
|      | 5. RFO Technological Neutrality.....  | 21 |
|      | 6. Independent Evaluator engagement and consultation with the CAM<br>PRG .....  | 22 |
|      | 7. Discussion of Solicitation Conformance Requirements .....  | 24 |
|      | a. General conformance requirements .....   | 24 |
|      | b. 2016 Energy Storage RFO Conformance Requirements<br>(footnotes from the version of this list included in the RFO<br>document have been removed for clarity) .....  | 25 |
|      | c. 2016 DR RFO Conformance Requirements .....   | 29 |
|      | B. Discussion of the major steps of the solicitation .....  | 31 |
|      | 1. RFO website / Power Advocate .....   | 33 |
|      | 2. Preferred Resources LCR RFO outreach efforts and results .....   | 34 |
|      | 3. Question and Answer Process and Results .....  | 35 |
|      | 4. Conformance Checks .....   | 36 |
|      | 5. Quantitative and Qualitative Evaluation / Shortlist Determination and<br>Notification .....  | 37 |
|      | 6. Appreciation notice issuance .....   | 38 |
|      | 7. Contract Negotiations .....  | 38 |
| IV.  | Safety Considerations .....   | 38 |
| V.   | PROPOSED ENERGY STORAGE TOLLING AGREEMENT CONTRACTS .....   | 40 |
|      | A. Overview .....   | 40 |
|      | B. Enel .....   | 40 |

|     |   |    |
|-----|---|----|
| 1.  | Overview.....   | 40 |
| 2.  | The Terms and Conditions of the Enel Agreement are Reasonable<br>and a Good Value.....  | 41 |
| C.  | AMS.....  | 42 |
| 1.  | Overview.....   | 42 |
| 2.  | The Terms and Conditions of the AMS Agreement are Reasonable<br>and a Good Value.....   | 43 |
| D.  | Powin .....   | 43 |
| 1.  | Overview.....   | 43 |
| 2.  | The Terms and Conditions of the Powin Agreement are Reasonable<br>and a Good Value..... | 44 |
| VI. | QUALIFICATIONS .....  | 45 |

## ATTACHMENTS

|               |  |
|---------------|--|
| Attachment A  | Preferred Resources LCR RFO: Energy Storage Product Type RFO Document  |
| Attachment A1 | 2016 LCR Preferred Resources RFO Energy Storage Code of Conduct  |
| Attachment B  | Preferred Resources LCR RFO: Demand Response Product Type RFO<br>Document  |
| Attachment C  | Conventional Procurement Plan  |
| Attachment D  | Preferred Resources Procurement Plan   |
| Attachment E  | Director, CPUC Energy Division Letter Approving SDG&E's Conventional<br>Procurement Plan   |
| Attachment F  | Director, CPUC Energy Division Letter Approving SDG&E's Preferred<br>Resources Procurement Plan  |
| Attachment G  | Energy Storage Power Purchase Tolling Agreement with Enel Green Power<br>North America, Inc. (This Document is Confidential in Its Entirety) |
| Attachment H  | Energy Storage Power Purchase Tolling Agreement with Advanced Microgrid<br>Solutions, Inc. (This Document is Confidential in Its Entirety)   |
| Attachment I  | Energy Storage Power Purchase Tolling Agreement with Powin Energy (This<br>Document is Confidential in Its Entirety)                         |
| Attachment J  | Independent Evaluator Report – 2016 LCR RFO April 5, 2017 (Portions of<br>this Document Are Confidential)                                    |

**PREPARED DIRECT TESTIMONY OF  
PATRICK K. CHARLES**

**I. PURPOSE**

My testimony describes San Diego Gas & Electric Company's ("SDG&E") 2016 Preferred Resources Track IV Local Capacity Requirement ("LCR") Request for Offers ("RFO") ("Preferred Resources LCR RFO") process and the third-party owned energy storage contracts that were signed as a result of the Preferred Resources LCR RFO.<sup>1</sup> The other contracts that resulted from the Preferred Resources LCR RFO, two utility owned energy storage resource contracts and one Demand Response ("DR") contract, are described in the testimony of Joshua Gerber and E Bradford Mantz, respectively.<sup>2</sup>

**II. 2016 PREFERRED RESOURCES LCR RFO - INTRODUCTION / BACKGROUND**

**A. Summary / Overview of the Track IV Authorization and RFO Requirements**

**1. The Track IV Decision**

On March 13, 2014, the California Public Utilities Commission ("CPUC" or "Commission") issued its Decision Authorizing Long-Term Procurement for Local Capacity Requirements due to Permanent Retirement of the San Onofre Nuclear Generating Station (the "Track IV Decision")<sup>3</sup> in the 2012 Long Term Procurement Plan ("LTTP") proceeding.<sup>4</sup> In the Track IV Decision, the Commission authorized SDG&E to procure between 500 megawatts

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<sup>1</sup> Three energy storage tolling agreements resulted from the Preferred Resources LCR RFO as follows: 1) Powin Energy (6.5 MW Don Lee project), 2) Enel Green Power North America (3 MW Pomerado project), and 3) Advanced Microgrid Solutions (4 MW Capistrano project).

<sup>2</sup> Citations to witness testimony herein are to the prepared direct testimony served concurrently with and in support of this application.

<sup>3</sup> Decision ("D.") 14-03-004 ("Track IV Decision")

<sup>4</sup> Rulemaking ("R.") 12-03-014.

1 (“MW”) and 800 MW of local capacity resources, including at least 25 MW of energy storage<sup>5</sup>  
2 and at least 175 MW of preferred resources (in accordance with the state of California’s Loading  
3 Order as defined in the Energy Action Plan)<sup>6</sup> in the San Diego local area<sup>7</sup> by 2022.

## 4 **2. Procurement Mechanisms / Status of Procurement**

5 In response to the San Diego local sub-area (“in-basin”) capacity need detailed in the  
6 Track IV Decision (and associated requirements, such as Resolution (“Res.”) E-4791),<sup>8</sup> and  
7 direction received in the Commission’s conditional approval of the Carlsbad Energy Center via  
8 D.15-05-051 (the “Carlsbad Decision”),<sup>9</sup> SDG&E continued to pursue in-basin preferred  
9 resource capacity. In short, with the issuance of the Carlsbad Decision, SDG&E’s authorization  
10 for the procurement of in-basin capacity from conventional resources was fulfilled.

11 SDG&E has conducted the following procurement efforts in order to fulfill the in-basin  
12 capacity need identified in the Track IV Decision: the 2014 Track IV Local Capacity  
13 Requirement All Source RFO, the 2016 expedited energy storage procurement effort in response  
14 to Res. E-4791, and the Preferred Resources LCR RFO. The 2014 Track IV Local Capacity

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<sup>5</sup> Track IV Decision, p. 143, ordering paragraph (“OP”) 2.

<sup>6</sup> See, [http://www.energy.ca.gov/energy\\_action\\_plan/2005-09-21\\_EAP2\\_FINAL.PDF](http://www.energy.ca.gov/energy_action_plan/2005-09-21_EAP2_FINAL.PDF), p. 2. The Energy Action Plan II issued September 21, 2005 and describes the loading order, or priority sequencing, of energy resources to meet increasing energy needs. These are: energy efficiency, demand response, renewable resources, distributed generation and combined heat and power. To the extent these resources are unable to satisfy the need, clean and efficient fossil-fired generation is listed as the final option.

<sup>7</sup> See, <https://www.caiso.com/Documents/Final2017LocalCapacityTechnicalReportApril292016.pdf> beginning at p. 102 for the California Independent System Operator (“CAISO”) definition of the San Diego Local sub-area.

<sup>8</sup> *Authorizing expedited procurement of storage resources to ensure electric reliability in the Los Angeles Basin due to limited operations of Aliso Canyon Gas Storage Facility*. (May 26, 2016).

<sup>9</sup> *Decision Conditionally Approving San Diego Gas & Electric Company’s Application for Authority to Enter into Purchase Power Tolling Agreement with Carlsbad Energy Center, LLC* (May 21, 2015). Further details regarding this decision and its impact on SDG&E’s procurement process are included below).

1 Requirement All Source RFO resulted in two contracts: an 18.5 MW Energy Efficiency contract  
2 with Willdan Energy Solutions (approved by D.16-12-041) and a 20 MW energy storage tolling  
3 agreement with Hecate Energy Bancroft, LLC (the Hecate Energy Bancroft, LLC contract was  
4 terminated in September, 2016, prior to the issuance of D.16-12-041). In response to Res.  
5 E-4791, 37.5 MW of energy storage resources were procured and these contracts were approved  
6 by Res. E-4798. The 37.5 MW of capacity associated with these approved energy storage  
7 contracts exceed the 25 MW minimum energy storage procurement requirement included in the  
8 Track IV Decision, and together with the Willdan Energy Solutions contract, help SDG&E  
9 toward meeting the 175 MW minimum preferred resource or energy storage requirement  
10 included in the Track IV Decision (and D.15-05-051, discussed in further detail, below).

11       Following its 2014 Track IV Local Capacity Requirement All Source RFO, SDG&E  
12 recognized the requirement for further in-basin preferred resources capacity procurement, and  
13 therefore issued its 2016 Preferred Resources LCR RFO on February 26, 2016. The Preferred  
14 Resources LCR RFO resulted in executing contracts totaling 88 MW of capacity (submitted for  
15 approval via this application), and bring SDG&E's total in-basin preferred resources and energy  
16 storage capacity total to 144 MW procured since the Track IV Decision was issued.<sup>10</sup>

17       The Track IV Decision included certain requirements for SDG&E's procurement of  
18 resources, key among them being timing (resources on-line by 2022), prior procurement plan  
19 approval, CAISO involvement, and requirements from D.13-02-015 (*Decision Authorizing Long-*  
20 *Term Procurement for Local Capacity Requirements*, or the "Track 1 Decision"). In accordance  
21 with the Track IV Decision, SDG&E's Preferred Resources LCR RFO sought resources within

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<sup>10</sup> This 144 MW results the sum of the 18.5 MW from the Willdan contract approved by D.16-12-041, plus the 37.5 MW from the expedited energy storage procurement approved by R. E-4798, plus the 88 MW of capacity associated with this application.

1 the following product types: 1) Energy Efficiency (“EE”), 2) Demand Response (“DR”), 3)  
2 renewable resources, 4) distributed generation, and 5) energy storage. As noted within the RFO  
3 documents,<sup>11</sup> this solicitation targeted up to 140 MW of capacity.<sup>12</sup>

### 4 **3. Procurement Timing**

5 Ordering paragraph 2 of the Track IV Decision states that the timing associated with the  
6 LCR need is “by the end of 2021.”<sup>13</sup> Additionally, OP 6 of the Track IV decision states that  
7 SDG&E’s RFO “shall include the elements specified by [OP] 4 of [D.]13-02-015.”<sup>14</sup> One of the  
8 elements included in OP 4 of the Track 1 Decision states that the RFO shall include “[n]o  
9 provision limiting bids to any specific contract length.”<sup>15</sup> SDG&E incorporated these  
10 requirements into its RFO instruction documents by including participation criteria that specified  
11 that some portion of the program or project delivery term must include all of calendar year  
12 2022,<sup>16</sup> but that any contract delivery term could be offered and found conforming.

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<sup>11</sup> See, e.g.  
<https://www.sdge.com/sites/default/files/documents/603812337/2016%20SDGE%20PrefRes%20RFO%20Energy%20Efficiency.pdf?nid=17156> p. 3. The other RFO instruction documents issued by SDG&E on February 26, 2016 contain similar language. The Energy Storage and Demand Response RFO documents are included with this testimony as Attachment A and Attachment B.

<sup>12</sup> This 140 MW target resulted from the 200 MW preferred resources requirement included in the Track IV Decision minus a conservative view of the capacity associated with the contracts that were in negotiation as of January / February of 2016 resulting from SDG&E’s Preferred Resources LCR RFO of approximately 60 MW. This total includes the 18.5 MW Willdan contract, the 20 MW Hecate contract and [REDACTED]

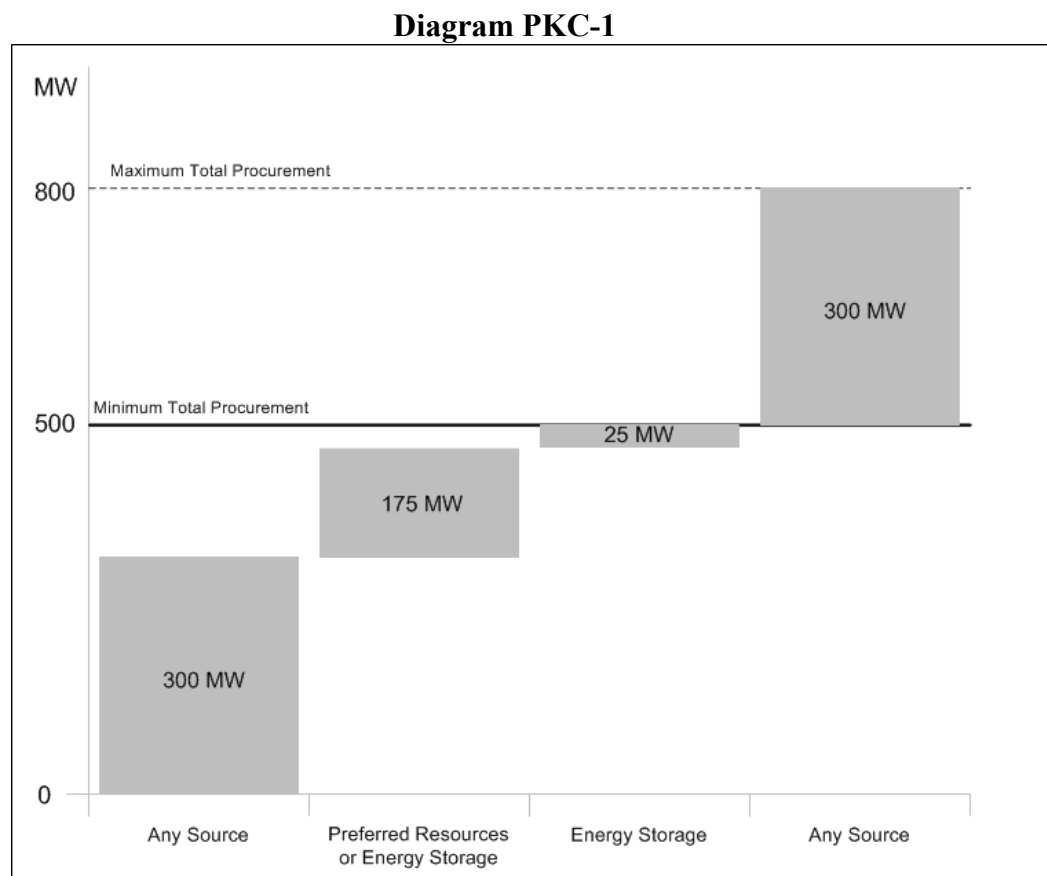
<sup>13</sup> Track IV Decision, p.143, OP 2.

<sup>14</sup> Track IV Decision, p. 144 OP 6 (referencing D.13-02-015, the Track 1 Decision, OP 4).

<sup>15</sup> Track 1 Decision, p. 132, OP 4(f).

<sup>16</sup> For example, see p. 10 of SDG&E’s Energy Storage RFO – Attachment A hereto - (participation criteria 5) and p. 7 of SDG&E’s Demand Response RFO – Attachment B - (participation criteria 2). Similar requirements are included in the other three RFO instruction documents issued by SDG&E on February 26, 2016.

1            Ordering paragraph 2 of the Track IV decision specifies that SDG&E is “authorized to  
2 procure between 500 MW and 800 MW of electrical capacity.”<sup>17</sup> Diagram PKC-1 below  
3 summarizes the initial resource type requirements and overall authorization (from Chart 3 in the  
4 Track IV Decision, p. 98):



#### 4.      **Impact of Carlsbad Decision (D.15-05-051) on the preferred resource amounts**

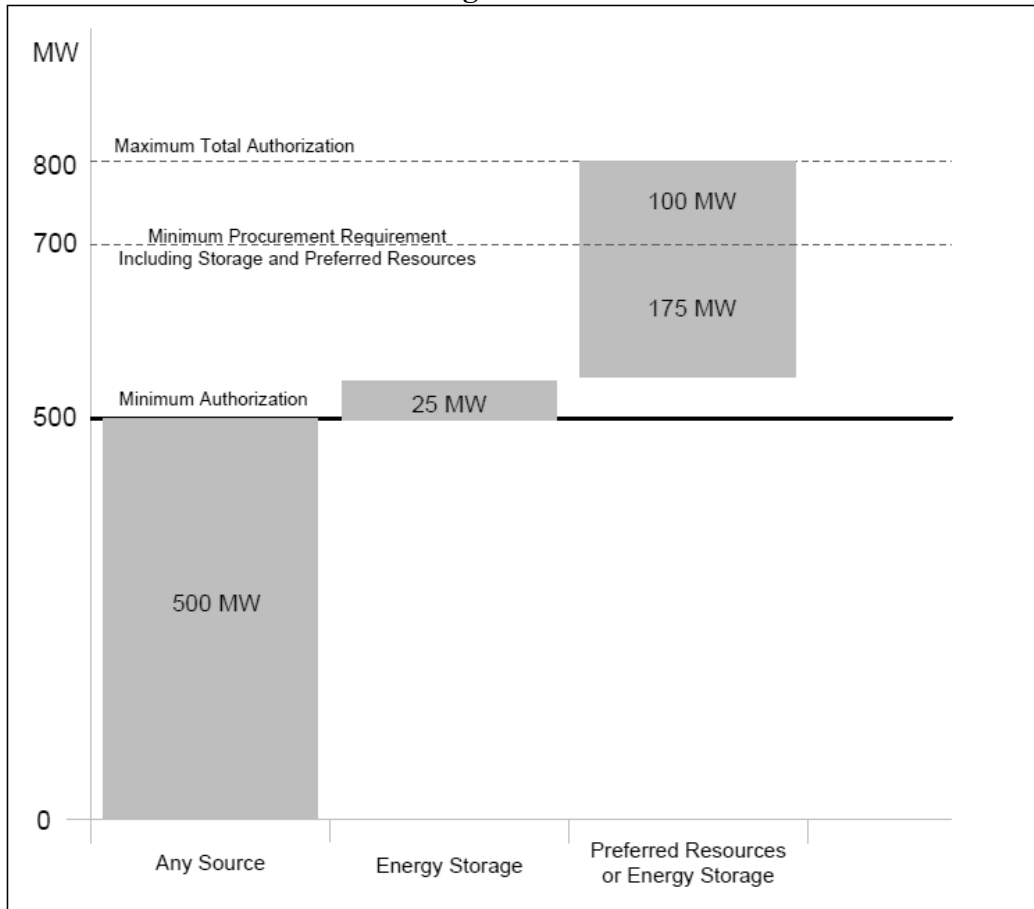
32            The Carlsbad Decision approved SDG&E’s proposed tolling agreement with the Carlsbad  
33 Energy Center, but reduced the authorized capacity of the plant from 600 MW to 500 MW and  
34 stated that “[a]ll of the 100 megawatts in residual procurement authority resulting from the  
35 reduction of the purchase power tolling agreement must consist of preferred resources and

<sup>17</sup> Track IV Decision, p. 143, OP 2.



energy storage.”<sup>18</sup> Based on this guidance, SDG&E’s adjusted Track IV procurement authorization (post-Carlsbad Decision) is summarized in diagram PKC-2, below:

**Diagram PKC-2**



The authorization associated with the 500 MW from “any source” is fulfilled by the 500 MW Carlsbad Energy Center tolling agreement approved by the Carlsbad Decision. As stated above, given prior procurement since the issuance of the Track IV Decision, and the contracts for which this application is seeking approval, the 25 MW minimum energy storage requirement has been exceeded and overall, 144 MW of in basin preferred resources has been procured by SDG&E.

<sup>18</sup> D.15-05-051, p. 37, OP 2.

1           **B.       Steps in the Procurement Process / Requirements for the Solicitation**

2                   **1.       Submission / approval of the conventional and preferred resources**  
3                   **procurement plans**

4           Ordering Paragraph 7 of the Track IV Decision required that SDG&E submit, within 90  
5 days of the effective date of that decision, “a procurement plan to be reviewed and approved in  
6 writing by the Director of the Energy Division.”<sup>19</sup> On May 1, 2014, SDG&E submitted its  
7 Conventional Procurement Plan (“CPP”) and its Preferred Resources Procurement Plan  
8 (“PRPP”) to the Director of the Commission’s Energy Division as required. Energy Division  
9 reviewed these plans and requested modifications. Accordingly, SDG&E resubmitted a  
10 modified version of the CPP on July 16, 2014 and a modified version of the PRPP on July 18,  
11 2014. The CPP was approved on July 17, 2014 and the PRPP was approved on July 22, 2014.<sup>20</sup>  
12 As stated in its CPP, with a reliability need starting as early as 2018, SDG&E diligently pursued  
13 a bi-lateral agreement for the Carlsbad Energy Center which is consistent with OP 3 of the Track  
14 IV Decision that authorizes bi-lateral contracts to meet local capacity requirements.<sup>21</sup> SDG&E  
15 did not engage in further procurement activities related to the local capacity requirement until  
16 receiving Energy Division approval of its CPP and PRPP. The first of these activities was the  
17 issuance of the 2014 All Source LCR RFO on September 5, 2014.

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<sup>19</sup> Track IV Decision, p. 144, OP 7.

<sup>20</sup> Attachment C is SDG&E’s CPP. Attachment D is SDG&E’s PRPP. Attachment E is the letter from Energy Division approving SDG&E’s CPP. Attachment F is the letter from Energy Division approving SDG&E’s PRPP.

<sup>21</sup> Track IV Decision, p. 144, OP 3, states, “Southern California Edison Company and San Diego Gas & Electric Company are authorized to procure bilateral contracts to meet authorized local capacity requirements as specified in this Order, including bilateral contracts consistent with the provisions of Public Utilities Code Section 454.6.”

## 2. CAISO involvement in the RFO process

Track IV Decision, OP 6, directs that SDG&E's RFO shall include the elements specified by OP 4 of the Track 1 Decision, which finds that the "resources must meet the identified reliability constraint identified by the ... [CAISO]"<sup>22</sup> and that "the consideration of costs and benefits must be adjusted by their relative effectiveness factor at meeting the ... [CAISO] identified constraint."<sup>23</sup> Additionally, OP 4 of the Track IV decision directs that SDG&E "shall work with the ... [CAISO] to determine a priority-ordered listing of the most electrically beneficial locations for preferred resources deployment."<sup>24</sup>

SDG&E works with the CAISO routinely, and in this case, communications regarding the in-basin capacity RFOs began at the end of Q1 2014. On April 23, 2014, the CAISO issued Locational Effectiveness Factors ("LEFs") for the San Diego Area ("April 2014 LEF Report").<sup>25</sup> The April 2014 LEF Report states that "this information is being provided to assist SDG&E with the direction received from the CPUC in D.13-02-015 to take into account the locational effectiveness of resources as determined by the ISO."<sup>26</sup> In this study, the CAISO provides two study scenarios, scenario A and scenario B. These scenarios differ based on the presence (or absence) of potential transmission upgrades such as the successful installation of a phase-shifting transformer at the Imperial Valley substation. In scenario A, the CAISO assumes that the phase-

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<sup>22</sup> Track 1 Decision, p. 132, OP 4(a).

<sup>23</sup> *Id.* at OP 4(c).

<sup>24</sup> Track IV Decision, p. 144, OP 4.

<sup>25</sup> Clarification to the CAISO Board-Approved 2013-2014 Transmission Plan: Locational Effectiveness Factor Calculations in the San Diego Area ("April 2014 LEF Report"), [https://www.caiso.com/Documents/LocationalEffectivenessFactors-SanDiego\\_2013-2014.pdf](https://www.caiso.com/Documents/LocationalEffectivenessFactors-SanDiego_2013-2014.pdf) (April 23, 2014).

<sup>26</sup> April 2014 LEF Report, p. 1.

shifting transformer at the Imperial Valley substation is not completed, and scenario B assumes that full implementation of all transmission upgrades approved by the CAISO Board in the 2013-14 transmission plan for the LA Basin / San Diego area, including the phase-shifting transformer at the Imperial Valley substation. The below table, from page 2 of the April 2014 LEF Report and labeled Table PKC-1, summarizes the LEFs for the San Diego area:

**Table PKC - 1**

|                     |                   | Scenario A | Scenario B |
|---------------------|-------------------|------------|------------|
| San Diego Sub-areas | North & Northwest | 100%       | 100%       |
|                     | South & Southwest | 100%       | 92%        |
|                     | Eastern           | 100%       | 100%       |

On March 27, 2015, the CAISO updated the LEFs for the San Diego area (“March 2015 Update”).<sup>27</sup> The March 2015 Update states (p. 152):

In this section, the ISO has provided its calculation results for the analyses of locational effectiveness factors for the long-term 2024 LCR studies for the LA Basin / San Diego areas. As mentioned in chapter 3.2, because of new lower demand forecast provided by the CEC for the 2014–2024 time frame, the primary constraints for the LA Basin / San Diego are due to thermal loading concerns on the Imperial Valley phase-shifting transformers, due to an overlapping N-1-1 contingency of Ocotillo-Suncrest, followed by the ECO-Miguel 500 kV line, instead of the post-transient voltage instability as identified in the last transmission planning cycle. However, with load growth in the future, the post-transient instability could become the primary constraint again for the LA Basin / San Diego areas. Therefore, in this section, the ISO has provided calculations for the locational effectiveness factors for both the thermal loading as well as for the post-transient voltage instability concerns.

The March 2015 Update further states (p. 158):

Table 3.3-2 provides the results of the LEF calculations in the LA Basin and San Diego areas to mitigate identified post-transient voltage instability concerns.

<sup>27</sup> 2014-2015 Transmission Plan (March 27, 2015), Section 3.3, p. 152, <http://www.caiso.com/Documents/Board-Approved2014-2015TransmissionPlan.pdf>

Please note that for this planning cycle the constraints caused by post-transient voltage instability are secondary to the thermal loading concerns. What this means is that the constraints caused by thermal loading concerns trigger higher local resource needs for the long-term LCR analyses for the combined LA Basin / San Diego area in this planning cycle. In the future, with load growth, resource changes, and transmission changes, the post-transient voltage instability may become the primary constraints again.

The portion of CAISO table 3.3-2 from the March 2015 Update (p. 160) associated with the San Diego Area is shown below in table PKC-2:

**Table PKC-2**

| Areas          |                      | Calculated LEFs<br>(in %) |
|----------------|----------------------|---------------------------|
| San Diego Area | South &<br>Southwest | 100                       |
|                | North &<br>Northwest | 100                       |

On April 30, 2015, the CAISO published its 2016 Local Capacity Technical Analysis (“2016 LCT”), and within this report, the CAISO defines the various LCR areas and for the San Diego Sub-area, the report clearly states, “[a]ll units within this area have the same effectiveness factor.”<sup>28</sup> On April 29, 2016, the CAISO published its 2017 Local Capacity Technical Analysis (“2017 LCT”), and within this report, the CAISO did not provide the same level of detail regarding the San Diego Sub-area as that included in the 2016 LCT, and instead included analysis related to the San Diego sub-area and LA Basin area, combined.

Given the information included in the April 2014 LEF Report and the March 2015 Update as well as that contained in the 2016 LCT and 2017 LCT, and the fact that the phase-shifting transformer at the Imperial Valley substation has not been put in service, SDG&E treated all areas within the San Diego local sub-area as equally effective in its analysis of the

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<sup>28</sup> 2016 Local Capacity Technical Analysis – Final Report and Study Results, p. 100, <http://www.caiso.com/Documents/Final2016LocalCapacityTechnicalReportApr302015.pdf>.

1 offers received in response to the Preferred Resources LCR RFO. This approach is consistent  
2 with scenario A of the April 2014 LEF Report, the LEFs associated with post-transient voltage  
3 instability concerns from the March 2015 Update, and the CAISO's 2016 LCT. In the 2017  
4 LCT, the CAISO did not look specifically at the San Diego local sub-area as was done in the  
5 2016 LCT. Based on all of these facts, SDG&E believes that it is reasonable to conclude that all  
6 of the units in the San Diego local sub-area are equally effective. The testimony of Scot Rolfe  
7 further explains the least-cost, best-fit net market analysis used as part of the quantitative  
8 analysis of the offers received in response to SDG&E's Preferred Resources LCR RFO.

### 9 **3. Summary of Track 1 Decision RFO Requirements**

10 SDG&E's Preferred Resources LCR RFO included five product types, and for each  
11 product type a request for offer overview / instruction document was issued on February 26,  
12 2016. Within each of these documents, the resource type specific conformance requirements  
13 were included and are consistent with those required by the Track IV Decision and the Track 1  
14 Decision. Additionally, the evaluation approach for the Preferred Resources LCR RFO was  
15 described in each RFO document and the evaluation approach is also consistent with various  
16 requirements of the Track IV Decision and Track 1 Decision. For more information on the  
17 evaluation approach, please see the testimony of Scot Rolfe. Ordering Paragraph 4 of the Track  
18 1 Decision outlines the requirements for the Preferred Resources LCR RFO and the resources  
19 procured via the RFO. Specifically, OP 4 includes twelve specific requirements, all of which  
20 SDG&E included and/or considered as part of its Preferred Resources LCR RFO process. I  
21 address each of the twelve requirements below:

- 1 1. Meet the identified reliability constraint. SDG&E required that resources procured be  
2 located in the San Diego local sub-area (as defined by the CAISO),<sup>29</sup> and either be  
3 eligible to count for local RA (in the case of all resources except for Energy  
4 Efficiency or EE), or provide RA value (in the case of EE).
- 5 2. Demonstrably incremental. As a condition of conformance, SDG&E evaluated the  
6 offers received in response to its Preferred Resources LCR RFO to determine if they  
7 were demonstrably incremental to the Track IV study assumptions, as included in  
8 Attachment A to the May 21, 2013 Revised Scoping Ruling and Memo of the  
9 Assigned Commissioner and Administrative Law Judge (R.12-03-014). This  
10 requirement is further described in each of the five documents issued by SDG&E that  
11 make up its Preferred Resources LCR RFO. For energy storage resources, this is a  
12 straightforward requirement, since energy storage is a relatively new resource type.  
13 For a further explanation of how the DR offers / programs being proposed for  
14 approval via this application meet this requirement, please see the testimony of E  
15 Bradford Mantz.
- 16 3. Costs and benefits adjusted by the CAISO LEFs. Please see the above discussion  
17 regarding LEFs as well as the testimony of Scot Rolfe for a further explanation of this  
18 issue.
- 19 4. Count for local Resource Adequacy (“RA”). As a condition of conformance,  
20 SDG&E evaluated the offers received in response to its Preferred Resources LCR  
21 RFO to determine if they would meet the RA counting rules. In the case of the  
22 energy storage offers, please see the participation criteria description (section 3.A. of  
23 the Energy Storage RFO document, Attachment A hereto, p. 10). In particular,  
24 participation criterion number four on p. 10 reiterates this requirement, and criterion  
25 eight on p. 11 states that respondents must demonstrate “... how their project will  
26 meet the requirements of the current local RA counting rules.” Footnote 11, p. 11  
27 states:

28 See the following CPUC decisions for guidance: D.10-06-036, D.11-06-  
29 022, D.12-06-025 and D.13-06-024 among others. Additionally, see the

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<sup>29</sup> See footnote 5, p. 6 in the Energy Storage RFO – Attachment A hereto. For the DR RFO document – Attachment B - the requirement is that participating customers must be located in SDG&E’s service territory, as included in the ‘Participation Criteria’ section of that document, criteria number 1, p. 7.

CAISO's "Flexible Resource Adequacy Criteria and Must-Offer Obligation", Market and Infrastructure Policy Revised Draft Final Proposal of March 7, 2014. To summarize, currently the requirement for energy limited resources is availability of the resource for three consecutive days for four hours per day.

In short, the energy storage resources being proposed for approval via this Application will meet the three consecutive day, four hour per day requirement. In the case of DR, please see the DR RFO document, Attachment B, sections 3.A. – criterion number three, and 3.B. criterion number five beginning on page seven. Footnote four is referred to, and it states:

See the following CPUC decisions for guidance: D.10-06-036, D.11-06-022, D.12-06-025 and D.13-06-024 among others. Additionally, see the CAISO's "Flexible Resource Adequacy Criteria and Must-Offer Obligation", Market and Infrastructure Policy Revised Draft Final Proposal of March 7, 2014. To summarize, currently the least binding requirement is availability of the resource for three consecutive days for four hours per day.

5. Inclusion of all resource types. SDG&E's Preferred Resources RFO included five product types: EE, demand response, renewables, distributed generation, and energy storage. As stated above, the conventional product type was not included; this is because the Carlsbad Energy Center agreement fulfills the Track IV Decision authorization related to 'any source' and the Combined Heat & Power ("CHP") resource type was not included because a separate CHP RFO was issued on February 19, 2016, one week prior to the Preferred Resources RFO being issued. This was done in accordance with D.15-06-028, OP 7 (dictating timing – within 90 days of the second CHP program period; that is, no later than 90 days from November 24, 2015, that is, no later than February 22, 2016), and section 4.2.1 of the CHP Settlement Agreement adopted by D.10-12-035 (states CHP RFOs are to be exclusively for CHP). No offers received in response to the Preferred Resources LCR RFO were found to be non-conforming due to the resource type offered.
6. All contracts lengths considered. In its Preferred Resources LCR RFO, SDG&E did not exclude any offer due to the contract duration, but did require that at least some



1 portion of the offered delivery term include all of calendar year 2022 (the year of  
2 need targeted in the Track IV Decision).<sup>30</sup>

- 3 7. Consistency with the loading order and requirement to pursue all cost effective  
4 preferred resources consistent with least-cost, best-fit (“LCBF”) analysis. As stated  
5 in its Preferred Resources LCR RFO, SDG&E pursued resources in accordance with  
6 the loading order.<sup>31</sup> Mr. Rolfe provides the details regarding SDG&E’s evaluation  
7 approach, but at a high level, SDG&E observed the loading order in its Preferred  
8 Resources RFO by selecting two DR for shortlisting over other offers from lower  
9 loading order resource types that were available.
- 10 8. Minimize costs to ratepayers by observing LCBF principles. Please see the Direct  
11 Testimony of Mr. Rolfe for a discussion of this topic.
- 12 9. Total capacity procured within the levels authorized. In this application, SDG&E is  
13 seeking approval for a total of 88<sup>32</sup> MW of resources. As stated earlier, this total  
14 counts toward SDG&E’s in-basin preferred resource capacity, and when added to  
15 other procurement done after the Track IV Decision issued, totals 144 MW. This is  
16 well within the 200 – 300 MW of preferred resources authorization from the Track IV  
17 Decision.
- 18 10. Assessment of projected Greenhouse Gas (“GHG”) as part of the cost / benefit  
19 analysis. Please see the Direct Testimony of Mr. Rolfe for a discussion of this topic.
- 20 11. Appropriate consideration of flexibility of resources. Please see the testimony of Scot  
21 Rolfe for a discussion of this topic.
- 22 12. Use of the most up-to-date LEFs. Please see the above discussion regarding LEFs as  
23 well as the testimony of Scot Rolfe for a discussion of this topic.

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<sup>30</sup> Track IV Decision, p. 2 (“In this decision, we authorize ... [SCE] to procure between 500 and 700 MW, and ... [SDG&E] to procure between 500 and 800 MW by 2022 to meet local capacity needs...”), and p. 143, OP 2 (“... [SDG&E] is authorized to procure between 500 ... MW and 800 MW of electrical capacity in its territory to meet long-term local capacity requirements by the end of 2021”).

<sup>31</sup> See section 5.D. under “Qualitative Evaluation” at p. 19 of the Energy Storage RFO, Attachment A, and section 4.C. at p. 13 of the DR RFO, Attachment B.

<sup>32</sup> The 88 MW is the sum of the DR agreement (4.5 MW) and two utility owned energy storage agreements (70 MW) and three third-party owned, energy storage tolling agreements (13.5 MW).

### **III. PREFERRED RESOURCES LCR SOLICITATION PROCESS OVERVIEW**

#### **A. RFO Structure and Schedule**

As stated above, SDG&E's Preferred Resources LCR RFO consisted of RFO documents for each of five different product types: Energy Efficiency, DR, Renewables, Energy Storage and Distributed Generation.

##### **1. Overlap with the storage proceeding in the case of Energy Storage**

SDG&E's Preferred Resources LCR RFO includes an energy storage product type, and the discussion of the three third-party owned energy storage tolling agreements entered into as a result of the RFO is included below (the discussion of the two utility owned energy storage contracts is included in the testimony of Mr. Joshua Gerber). The Preferred Resources LCR RFO (and the energy storage product type) comprise one component of SDG&E's overall energy storage procurement effort for the 2016 bi-annual energy storage cycle (the subject of SDG&E's Application ("A.") 16-03-003 approved by D.16-09-007), with a second component being an energy storage RFP for a 3 MW/12 MWh energy storage system for installation at the distribution level to address power quality issues and enable some measure of distribution infrastructure deferral. In short, the energy storage contracts entered into as a result of the Preferred Resources LCR RFO will count toward SDG&E's energy storage procurement mandate as detailed in D.13-10-040 as well as count toward the local capacity preferred resource requirement.

##### **2. Regulatory framework allowing consideration of both utility owned and third-party owned energy storage resources within the Preferred Resources LCR RFO**

As stated above, the Preferred Resources LCR RFO is one component of SDG&E's overall energy storage procurement effort as outlined in A.16-03-003 (SDG&E's "Energy Storage Procurement Framework Application") as approved by D.16-09-007. SDG&E filed

1 A.16-03-003 as required by D.13-10-040 (“Energy Storage Procurement Framework Decision”).  
2 The Energy Storage Procurement Framework Decision contains a host of requirements that the  
3 IOUs must adhere to, including that the utilities “shall consider all forms of resource ownership”  
4 including utility owned.<sup>33</sup> In order to fulfill this requirement, the Preferred Resources LCR RFO,  
5 energy storage product type, included provisions for the fair and consistent consideration of both  
6 third-party owned and utility owned energy storage resources.<sup>34</sup> In order to fairly and  
7 consistently manage both third-party owned and utility owned energy storage offers within the  
8 Preferred Resources LCR RFO, SDG&E not only relied upon the involvement and oversight of  
9 the Independent Evaluator (“IE”) and Procurement Review Group (“PRG” - as discussed in  
10 more detail below), but it put in place a strict code of conduct that defined roles for the bid  
11 evaluation team and cost development team (as well as those that advised those teams, managed  
12 them, and who provided oversight) and also outlined activities and communications that would  
13 not be permitted under the code.

14 D.07-12-052<sup>35</sup> established this regulatory approach (or framework), and requires as a  
15 precondition for conducting an RFO seeking utility ownership options, that an IOU, in  
16 conjunction with its IE, PRG, and staff of the Commission’s Energy Division, shall develop a  
17 strict code of conduct. This code is to be signed by all IOU personnel involved in the RFO  
18 process, and is designed to prevent sharing of sensitive non-public information between utility  
19 personnel involved in developing cost estimates for utility ownership bids and utility personnel

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<sup>33</sup> See D.13-10-040, Appendix A, p. 6.

<sup>34</sup> See Attachment A, section 1, pp. 4-5.

<sup>35</sup> *Opinion Adopting [the IOU’s 2006] Long-Term Procurement Plans* (December 20, 2007).

1 who create the bid evaluation criteria and select winning bids.<sup>36</sup> SDG&E also utilized this same  
2 framework as part of its 2014 Track IV Local Capacity Requirement All Source RFO.  
3 SDG&E's energy storage code of conduct was explained and provided to the personnel involved  
4 with managing the solicitation and who were designated as members of the following teams: 1)  
5 Bid Evaluation team - 27 team members, 2) Cost Development team - 5 team members, 3)  
6 Advisor team - 33 team members, 4) Manager/Supervisor team - 16 team members and 5)  
7 Oversight team - 7 team members.<sup>37</sup> Signed code of conduct forms were gathered from team  
8 members and strict adherence to the code of conduct communication and activities provisions  
9 were followed throughout the course of the Preferred Resources LCR RFO.

### 10 **3. Solicitation milestones and schedule**

11 SDG&E's Preferred Resources LCR RFO had numerous milestones, but major  
12 milestones included: 1) the issuance of the documents on February 26, 2016, 2) the closing date  
13 (or date upon which the offers were due) on July 1, 2016, 3) shortlist notification on October 28,  
14 2016, and 4) the contract execution dates (March 30, 2017).

15 The schedule from the Energy Storage solicitation is included below as table PKC-3, and  
16 the DR solicitation schedule is in table PKC-4.

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36 SDG&E's 2016 LCR Preferred Resources RFO Energy Storage Code of Conduct is Attachment A1 hereto.

37 The instructions, code of conduct and team listings for the Preferred Resources LCR RFO were initially promulgated via e-mail on February 4, 2016. As team members were added or departed, team listings were updated and signed code of conduct forms collected from new team members. Team listings were initially assembled on February 4, 2016 and were subsequently updated on February 11, 24, 25 and 29 as well as June 20. The number of team members shown is from the final team listings as of June 20, 2016.

**Table PKC-3**  
**2016 Energy Storage RFO Schedule**  
 (footnotes from the version of these schedules included in the RFO documents have been omitted for clarity)

| NO. | ITEM  | Date  |                      |                      |
|-----|---|---|----------------------|----------------------|
|     |   | ESSPPTA <sup>38</sup>   | ESSBOT <sup>39</sup> | ESSEPC <sup>40</sup> |
| 1   | RFO Issued  | 2/26/2016   |                      |                      |
| 2   | Pre-Bid Conference / Bidder Outreach Event  | April 13, 2016  |                      |                      |
| 3   | DEADLINE for Respondents to provide a written expression of interest to SDG&E (e-mail to <a href="mailto:2016ESSEPCBOTRFO@semprautilities.com">2016ESSEPCBOTRFO@semprautilities.com</a> or other written correspondence) containing company name and contact information by 5:00PM          | N/A   | 3/11/2016            | 3/11/2016            |
| 4   | Nondisclosure Agreements (NDAs) sent out to Respondents expressing interest.  | N/A   | N/A                  | 3/11/2016            |
| 5   | DEADLINE to receive Executed NDA. This information should be e-mailed to <a href="mailto:2016ESSEPCBOTRFO@semprautilities.com">2016ESSEPCBOTRFO@semprautilities.com</a> by 5:00pm to receive PowerAdvocate registration details required for Commercial Viability Details submission.       | N/A   | N/A                  | 3/18/2016            |
| 6   | DEADLINE TO SUBMIT QUESTIONS. Question submittal cut-off date. Answers to all questions will be posted on the website no later than June 24, 2016.  | 6/17/2016 – date applies to ESSPPTA, ESSEPC and ESSBOT  |                      |                      |
| 7   | DEADLINE TO REGISTER for PowerAdvocate access / to download RFO forms and documents   | 6/24/2016   | See Addendum         | See Addendum         |
| 8   | CLOSING DATE:<br>For ESSPPTA offers: offers must be uploaded to and received on Power Advocate ® no later than 1:00 PM Pacific Prevailing Time on July 1, 2016 For ESSEPC and ESSBOT Offers: SDG&E's Cost Development Team will submit final offer documents on or before the CLOSING DATE. | 7/1/2016 – date applies to ESSPPTA. For ESSEPC and ESSBOT Offers, SDG&E's Cost Development Team will submit the final offer documents on or before the CLOSING DATE |                      |                      |
| 9   | SDG&E Begins Bid Evaluation Process   | 7/2/2016  |                      |                      |

<sup>38</sup> Energy Storage System Power Purchase Tolling Agreements.

<sup>39</sup> Energy Storage System Turn-Key Build Own Transfer Agreements.

<sup>40</sup> Energy Storage System Turn-Key Engineering Procurement and Construction Agreements.

|  |   |   |
|--|---|---|
| 10   | Shortlist determination   | 10/24/2016  |
| 11   | SHORTLIST NOTIFICATION<br>SDG&E notifies Shortlisted Bidders  | 10/28/2016  |
| 12   | SHORTLISTED BIDDERS<br>ACCEPTANCE/WITHDRAWAL<br>Letter due from Shortlisted Bidders indicating:<br>a. Withdrawal from SDG&E's solicitation;<br>OR<br>b. Acceptance of shortlisted standing and including Shortlist Acceptance Fee<br>SHORTLIST NOTIFICATION | +10 Days<br>after Shortlist Notification<br>Date applies to ESSPPTA, ESSEPC<br>and ESSBOT                 |
| 13   | SDG&E issues appreciation notices to unsuccessful Respondents   | +3 Weeks<br>after Shortlisted Bidders<br>accept/withdraw<br>Date applies to ESSPPTA, ESSEPC<br>and ESSBOT |
| 14   | SDG&E commences with ESSPPTA, ESSBOT, and ESSEPC negotiations   | +11 Days after Shortlist Notification<br>Date applies to ESSPPTA, ESSEPC<br>and ESSBOT                    |
| 15   | Target date to complete contract negotiations   | End of Q1, 2017   |
| 16   | SDG&E Submits agreements to CPUC for approval   | Q2 2017<br>Date applies to ESSPPTA, ESSEPC<br>and ESSBOT  |
| * Negotiation time will vary depending on proposal specifics including proposed contract modifications. SDG&E Submits Advice letters with ESSPPTAs or applications with ESSBOTs and ESSEPCs to CPUC for approval |   |   |

**Table PKC-4  
2016 DR RFO Schedule**

| NO  | ITEM   | DATE   |
|-----|--|--|
| 1.  | RFO Issued   | February 26, 2016  |
| 2.  | Pre-Bid Conference / Bidder Outreach Event   | April 13, 2016   |
| 3.  | DEADLINE TO SUBMIT QUESTIONS<br>Question submittal cut-off date.<br>Answers to all questions will be posted on the website no later than June 24, 2016   | June 17, 2016  |
| 4.  | DEADLINE TO REGISTER for PowerAdvocate® access / to download RFO forms and documents   | June 24, 2016  |
| 5.  | CLOSING DATE:<br>Offers must be uploaded to and received on PowerAdvocate® no later than 1:00 PM Pacific Prevailing Time on July 1, 2016   | July 1, 2016   |
| 6.  | SDG&E Begins Bid Evaluation Process  | July 2, 2016   |
| 7.  | Shortlist determination  | October 24, 2016   |
| 8.  | SHORTLIST NOTIFICATION<br>SDG&E notifies Shortlisted Bidders   | October 28, 2016   |
| 9.  | SHORTLISTED BIDDERS<br>ACCEPTANCE/WITHDRAWAL<br>Letter due from Shortlisted Bidders indicating:<br>a. Withdrawal from SDG&E's solicitation; OR<br>b. Acceptance of shortlisted standing and including Shortlist Acceptance Fee | +10 Days<br>after Shortlist<br>Notification                |
| 10. | SDG&E issues appreciation notices to unsuccessful Respondents  | +3 week<br>after Shortlisted<br>Bidders<br>accept/withdraw |
| 11. | SDG&E commences with contract negotiations   | +11 Days after<br>Shortlist Notification                   |
| 12. | Target date to complete negotiations   | End of Q1, 2017  |
| 13. | SDG&E Submits agreements to CPUC for approval  | Q2 2017  |
|     | * Negotiation time will vary depending on proposal specifics including proposed contract modifications.  |  |

#### 4. Description of SDG&E's Preferred Resources LCR RFO Process

One important point to note regarding the overall timing of the milestones associated with SDG&E's Preferred Resources LCR RFO (and in summary of the process): SDG&E's

1 Preferred Resources LCR solicitation process is a single stage RFO process, whereby the offers  
2 submitted on July 1, 2016 were regarded as binding. That is, SDG&E expected that the  
3 respondents would be held to the pricing and terms included in their offer provided on July 1,  
4 2016. This contrasts with a dual or two stage process, whereby initial offers are indicative only,  
5 and then at some later date a final or binding offer is provided. SDG&E conducted a single stage  
6 process in order to reach final / executed contracts no later than March, 2017 in support of an  
7 application filing no later than mid-April, 2017.

## 8 **5. RFO Technological Neutrality**

9 The Track IV Decision requires that SDG&E demonstrate “technological neutrality, so  
10 that no resource was arbitrarily or unfairly prevented from bidding” and “[t]o the extent that the  
11 availability, viability and effectiveness of resources higher in the Loading Order are comparable  
12 to fossil-fueled resources ... SDG&E shall show that it has contracted with these preferred  
13 resources first.”<sup>41</sup> As stated above, SDG&E included five resource types in its Preferred  
14 Resources LCR RFO and SDG&E did not find any offer non-conforming due to resource type  
15 offered.<sup>42</sup> In terms of observing the loading order, Scot Rolfe’s testimony provides the details  
16 regarding SDG&E’s evaluation approach, but at a high level, SDG&E observed the loading  
17 order in its Preferred Resources LCR RFO by selecting two DR offers for shortlisting over other  
18 offers that could have been selected. Additionally, fossil-fueled or conventional resource need  
19 was fulfilled and the conventional resource type was no longer considered once the Commission  
20 issued the Carlsbad Decision (May 21, 2015), so, from that point forward, SDG&E was only  
21 considering preferred resource offers for further evaluation and possible contracting.

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<sup>41</sup> Track IV Decision, p. 146, OP 8(e).

<sup>42</sup> SDG&E did not include a conventional product type due to the Carlsbad Decision, and did not include a CHP product type as detailed above at p. PKC-13.



1                   **6. Independent Evaluator engagement and consultation with the CAM**  
2                   **PRG**

3                   The Commission requires Investor Owned Utilities (“IOUs”) retain the services of an IE  
4 for solicitations that seek products two years or greater in duration or whenever an affiliate or  
5 utility bidder participates, regardless of contract duration.<sup>43</sup> Additionally, an IE is required when  
6 an IOU conducts a solicitation in which new generation costs are to be allocated in accordance  
7 with approved Cost Allocation Mechanism (“CAM”) procedures.<sup>44</sup> The Track IV Decision  
8 authorizes recovering costs via the CAM<sup>45</sup> and products solicited via SDG&E’s Preferred  
9 Resources LCR RFO exceeding two years in duration. Accordingly, SDG&E engaged P.A.  
10 Consulting (“PA”) in January, 2016 to act as the IE for the 2016 Preferred Resources LCR RFO  
11 solicitation process. PA was (and continues to be) in SDG&E’s approved IE pool, and began  
12 work on this engagement by consulting on SDG&E’s Preferred Resources LCR RFO documents  
13 and intended evaluation approach and provided feedback and guidance throughout the Preferred  
14 Resources LCR RFO process. PA participated in SDG&E’s CAM PRG meetings and provided  
15 updates to that group throughout the solicitation process regarding the Preferred Resources RFO.  
16 PA also monitored contract negotiations related to the Preferred Resources LCR RFO and  
17 provided an Independent Evaluator Report – 2016 LCR RFO (April 5, 2017) (“IE report”) in  
18 accordance with Commission requirements (the IE report is Attachment J to my testimony).

19                   SDG&E consulted with its CAM Procurement Review Group (“CAM PRG”) throughout  
20 the Preferred Resources LCR RFO process, as detailed in the below table (Table PKC-5):  
21

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<sup>43</sup> D.08-11-008, p. 39, OP 1(e).

<sup>44</sup> D.06-07-029, p. 28.

<sup>45</sup> Track IV Decision, p. 147, OP 13.

**Table PKC-5**  
**CAM PRG Presentations Summary**

| <b>CAM PRG Meeting Date</b> | <b>Discription of Topic</b>   | <b>Information Covered</b>   |
|-----------------------------|---|--|
| 1/15/2016                   | 2016 Preferred Resources LCR RFO                                      | Background and authorization for the solicitation, target (up to 140 MW), comparison discussion related to the 2014 All Source RFO, Timeline   |
| 2/19/2016                   | 2016 Preferred Resources LCR RFO                                      | Overview, update on negotiaions related to the 2014 All Source RFO and impact on the Preferred Resources LCR RFO, Introduction of PA Consulting as the IE for the solicitation, product types to be included, brief description of the evaluation methodology, discussion of inclusion of both utility owned and 3rd party owned energy storage, energy storage 'code of conduct' overview, solicitation timeline / schedule |
| 3/18/2016                   | 2016 Preferred Resources LCR RFO                                      | Update / confirmation of release on 2/26, overview and update and to provide a link to the solicitation web page   |
| 4/15/2016                   | 2016 Preferred Resources LCR RFO                                      | Overview / update; updates to the RFO documents, timeline, information on the 4/13 bidder's conference   |
| 7/15/2016                   | 2016 Preferred Resources LCR RFO Update / Evaluation Process Overview | Timeline discussion, offers received summary, evaluation progress update, valuation and selection process discussion, quantitative evaluation discussion, qualitative evaluation discussion  |
| 8/19/2016                   | 2016 Preferred Resources LCR RFO Update                               | Timeline discussion, updated offer summary and evaluation progress update, conformance summary, procurement considerations   |
| 9/16/2016                   | 2016 Preferred Resources LCR RFO Initial Evaluation Discussion        | Timeline discussion, offer and conformance summary update, procurement considerations discussion, overview of quantitatively highest ranked offers   |

**Table PKC-5, continued**  
**CAM PRG Presentations Summary**

| CAM PRG<br>Meeting Date | Discription of Topic  | Information Covered  |
|-------------------------|---|--|
| 10/21/2016              | Preferred Resources LCR<br>RFO: Shortlist<br>Recommendation | Timeline discussion, RFO objectives, discussion of recommended shortlist, procurement considerations (and discussion of Hecate contract termination, energy storage mandate update, qualitative considerations |
| 2/17/2017               | 2016 Preferred Resources<br>LCR RFO - Negotiation<br>Update | RFO Objectives discussion, negotiation status update   |
| 3/17/2017               | 2016 Preferred Resources<br>LCR RFO Update                  | Reiteration of RFO objectives, timeline and negotiation status update  |

## 7. Discussion of Solicitation Conformance Requirements

### a. General conformance requirements

As stated above, there were four primary, general conformance requirements for the Preferred Resources LCR RFO for each of the five product types that were required by the Track IV Decision and the Track 1 Decision:

- 1) Location- Resources that interconnect to the grid must do so within the San Diego Local sub-area. For resources that do not interconnect but rather consist of groups of customers (such as DR), customers enrolled must be located within SDG&E's service territory.
- 2) Resource Adequacy- The resource must count for local RA.
- 3) Incremental- Resources must be demonstrably incremental to the Track IV study assumptions as included in Attachment A to the *Revised Scoping Ruling and Memo of the Assigned Commissioner and Administrative Law Judge* (R.12-03-014, May 21, 2013).
- 4) Delivery Term- Some portion of the delivery term must encompass all of calendar year 2022.

In addition to the above listed general conformance requirements, each resource type had a resource specific set of conformance requirements. Those requirements for the Energy Storage and DR product types are listed below:

**b. 2016 Energy Storage RFO Conformance Requirements (footnotes from the version of this list included in the RFO document have been removed for clarity)**

The following were the conformance requirements associated with the Energy Storage product type from SDG&E's Preferred Resources LCR RFO, issued February 26, 2016:

1. ESS Facilities must meet the definition in Public Utilities Code § 2835.
2. Acceptable capacity range.
  - a. ESSPPTA Respondents -minimum size of 500 kW and maximum size of 140 MW.
  - b. ESSBOT Respondents - minimum size of 10 MW and maximum size of 140 MW.
  - c. ESSEPC Respondents - minimum and maximum ESS facility sizes vary by location. ESSEPC Respondents will receive additional details upon formal expression of interest and NDA execution as described in further detail, below.
3. The ESS facility shall be located and interconnected within the San Diego local sub-area, as defined by the CAISO.
4. The resource must meet all applicable RA counting rules in order to qualify as local RA. Qualitative consideration will be given to ESS facilities that can count as Category 1 Flexible RA, but the minimum conformance standard is to meet the local RA requirement (Attachment A hereto, p. 10):

NOTE: SDG&E is aware that the RA counting rules change frequently. If the capabilities of the system, facility or program that the Respondent is describing in its offer are currently non-conforming, specifically with regard to the local RA requirement, but the Respondent believes that the RA counting rules may change prior to SDG&E short-listing, the Respondent is instructed to submit their offer and note that it is currently non-conforming due to current RA rules. If and when the RA rules change resulting in the offer conforming to the new RA rules, the

Respondent should notify SDG&E (via the RFO e-mail address -  
PrefResourcesRFO@semptrautilities.com ) and the IE  
(jon.jacobs@paconsulting.com and Barbara.Sands@PAConsulting).

5. SDG&E prefers start dates as early as 2018 but will consider later start dates. Some portion of the project's delivery term must include the entire calendar year of 2022.
6. ESS facility must be incremental to the assumptions used in the CAISO studies associated with the 2012 long term procurement plan proceeding that served as a basis for SDG&E's Track 4 authorized need.
7. ESSPPTA and ESSBOT Respondents must apply for interconnection and seek to be evaluated as a San Diego Sub-area local RA resource, which requires a CAISO deliverability study or the repowering of a comparably sized existing facility in accordance with the CAISO Business Practice Manual for Generator Management. Respondents pursuing an ESSPPTA or ESSBOT must demonstrate their expected deliverability and interconnection costs through either a completed Phase I interconnection study or a repowering of a comparably sized existing facility. Evidence of an existing interconnection agreement, study, application or explanation of interconnection status must be included in the offer, along with relevant cost estimates.
8. Respondents pursuing an ESSPPTA or ESSBOT must demonstrate how their project will meet the requirements of the current local RA counting rules.<sup>46</sup> All ESSEPC

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<sup>46</sup> See the following CPUC decisions with respect to the local RA counting rules: D.10-06-036, D.11-06-022, D.12-06-025 and D.13-06-024 among others. Additionally, see the CAISO's "Flexible Resource Adequacy Criteria and Must-Offer Obligation," Market and Infrastructure Policy Revised Draft Final Proposal of March 7, 2014. To summarize, currently the requirement for energy limited resources is availability of the resource for three consecutive days for four hours per day.

1 projects that the SDG&E Cost Development Team pursues will likewise need to  
2 demonstrate compliance with the current local RA counting rules.

3 9. ESSPPTA, ESSBOT and ESSEPC offers must include a permitting plan, schedule,  
4 and progress report for permits that are necessary for the facility to operate for the  
5 entirety of the proposed contract term.

6 10. Respondents pursuing an ESSPPTA or ESSBOT must have, at time of bidding, site  
7 control. For ESSPPTA offers, site control must be for the duration of the term  
8 proposed within the ESSPPTA. Site control may be evidenced by documentation of:

9 a. direct ownership;

10 b. a lease; or

11 c. an option to lease or purchase upon ESSPPTA approval. The option must be  
12 an exclusive option to the Bidder that will last until the completion of the RFO  
13 cycle.

14 11. All ESSEPC projects that the SDG&E Cost Development Team pursues will likewise  
15 need to demonstrate site control.

16 12. ESSPPTA Respondents will own the facilities and have responsibility for  
17 development, land acquisition, permitting, financing, construction and operation of  
18 the ESS facilities.

19 13. ESSBOT Respondents will own the facilities and have responsibility for  
20 development, land acquisition, permitting, financing and construction of the ESS  
21 facilities. For ESSBOT facilities, SDG&E will take title, control, and risk of loss of  
22 the ESS facilities only upon successful completion and documentation of factory  
23 acceptance tests prior to equipment shipments, and pursuant to successful project

commissioning. For the ESSEPC facilities, successful completion and documentation of factory acceptance tests are required prior to equipment shipments. SDG&E will take title to the equipment throughout the EPC process, but the ESSEPC shall be responsible for all sales tax. SDG&E will take control and risk of loss of the ESS facilities only upon commissioning.

14. For Respondents pursuing an ESSBOT or ESSEPC, the following high-level requirements and minimum performance specifications must be met by the ESS equipment being offered. ESSBOT and ESSEPC Respondents will receive additional, detailed requirements and performance specifications upon completing the formal expression interest outlined in Section 7, below.

- a. ESS must be commercially operational on or before December 31, 2021.
- b. Respondents will be required to guarantee/warrant capacity.
- c. Respondents shall price in Operations and Maintenance (“O&M”) services through the end of the expected useful life of the equipment.
- d. ESSBOT and ESSEPC Respondents shall state exactly what equipment is included in the offer. For example, ESS modules, control systems, inverters (as applicable), etc.
- e. High level ESS performance requirements / specifications:
  - i. SDG&E will not require a minimum amount of annual cycles. However, SDG&E will give priority to ESS capable of at least 50 cycles per year.

1                   ii. SDG&E will not specify charging duration requirements for the ESS.

2                   In terms of discharging duration, ESS must comply with the  
3                   requirements for qualification as local RA.

4           15. The Respondent must state any affiliate relationship with Sempra Energy, if one  
5           exists.

6           16. Safety. SDG&E expects that third-party owned and operated facilities will be  
7           operated and maintained in accordance with accepted electrical practices, applicable  
8           law and industry standards, including those related to safety. In the project / program  
9           description form that Respondents will provide as part of the offer package, SDG&E  
10          will ask respondents to confirm that this will be the case with their project or  
11          program. If the Respondent is unable to confirm these statements, the offer will be  
12          considered non-conforming.

13                   **c.       2016 DR RFO Conformance Requirements**

14           The following were the conformance requirements associated with the DR product type  
15   from SDG&E's Preferred Resources LCR RFO issued February 26, 2016:

- 16           1. Customers to be enrolled in the DR programs and/or who will provide proposed DR  
17           resource (s) must be located within SDG&E's service territory.
- 18           2. SDG&E prefers start dates as early as 2018, but will consider later start dates. Some  
19           portion of the program's delivery term must include the entire calendar year of 2022.
- 20           3. Respondents pursuing a Demand Response resource must demonstrate how their  
21           project will meet the requirements of the current RA counting rules.
- 22           4. Note: The CAISO created Proposed Revision Request ("PRR") 854 to the Reliability  
23           Requirements Business Practice Manual ("BPM") that resulted in a requirement that  
24           local capacity resources are subject to a 20 minute response time / 20 minute dispatch



1 requirement. In the program description form, respondents are required to state  
2 whether their program can meet a 20 minute response time and, if so, how that  
3 requirement can be met by their program. This requirement is under appeal, but if it  
4 is fully approved and implemented by the CAISO prior to SDG&E shortlisting,  
5 resources that are not able to meet the 20 minute response time requirement may be  
6 found to be non-conforming.

- 7 5. The Demand Response resource must be demonstrably incremental to the  
8 assumptions used in the California ISO studies. Sellers are required to explain and/or  
9 show how their proposed Demand Response resource is incremental. Sellers are  
10 encouraged to reference 1) SDG&E's current DR program portfolio; (2) SDG&E's  
11 proposed 2017 DR program portfolio; and / or (3) 2014 Integrated Energy Policy  
12 Report ("IEPR") Update for DR forecast. Incremental resources that are similar to  
13 existing Demand Response resources must demonstrate, to the satisfaction of both  
14 SDG&E and the IE, that the resource is "incremental," for example, by being  
15 innovative or by targeting previously hard to reach markets that have not been  
16 addressed to date.
- 17 6. The Respondent must state any affiliate relationship with Sempra Energy, if one  
18 exists.
- 19 7. The Demand Response resource must meet all applicable CAISO wholesale product  
20 tariff requirements.
- 21 8. Safety. SDG&E expects that the offered program(s) will be operated and maintained  
22 in accordance with accepted electrical practices, applicable law and industry  
23 standards, including those related to safety. In the project / program description form

1 that Respondents will provide as part of the offer package, SDG&E will ask  
2 respondents to confirm that this will be the case with their project or program. If the  
3 Respondent is unable to confirm these statements, the offer will be considered  
4 nonconforming.

5 9. Minimum resource capacity must be 500 kW in aggregate.

6 10. The DR resource must be a supply side resource.

7 11. Permanent load shifting based on technology or behavior change will not be  
8 considered.

9 12. Bids that are supported by resources that are already being subsidized under another  
10 CPUC-regulated program or rate schedule shall not be considered.

11 13. Load reduction of the resource must be consistent with the CPUC requirements  
12 regarding the use of back-up generation for DR. Fossil-fuel emergency back-up  
13 generation resources will not qualify as a Demand Response Resource in this RFO  
14 based on the Commission's policy statement that fossil-fuel emergency back-up  
15 generation resources should not be allowed as part of a demand response program for  
16 RA purposes, subject to rules adopted in future RA proceedings .

17 14. Resources must be dispatchable, either by CAISO or SDG&E.

18 **B. Discussion of the major steps of the solicitation**

19 SDG&E issued its Preferred Resources LCR RFO consisting of five product types on  
20 February 26, 2016 and between that issuance date and the date upon which offers were due,  
21 updates were issued for each of the product type RFO documents, as summarized in the below  
22 table (table PKC-6).

**Table PKC-6**  
**Preferred Resources LCR RFO – RFO Document Revisions Summary**

34

**Table PKC-6, continued**  
**Preferred Resources LCR RFO – RFO Document Revisions Summary**

| RFO (Product Type)     | Updates / Date Published                | Brief Description of Update   |
|------------------------|---|---|
| Renewables             | 1 & 2 -<br>4/8/2016                     | 1 - Safety. Operation of third party owned project or programs must be in accordance with accepted electrical practices, applicable law and industry standards including those related to safety. If not, the offer will be considered nonconforming. RFO section 7.A.1.k., p. 19 updated.<br>2 - Encouragement for offers of various delivery terms. RFO section 1., p. 7 updated.   |
| Energy Storage         | 1 & 2 -<br>4/8/2016                     | 1 - Safety. Operation of third party owned project or programs must be in accordance with accepted electrical practices, applicable law and industry standards including those related to safety. If not, the offer will be considered nonconforming. RFO section 1. 3.A.15, p. 12 updated.<br>2 - Encouragement for offers of various delivery terms. RFO section 1., p. 5 updated.  |
| Distributed Generation | 1 & 2 -<br>4/8/2016<br><br>3 - 5/3/2016 | 1 - Safety. Operation of third party owned project or programs must be in accordance with accepted electrical practices, applicable law and industry standards including those related to safety. If not, the offer will be considered nonconforming. RFO section 2.A.16., p. 18 updated.<br>2 - Encouragement for offers of various delivery terms. RFO section 1., p. 5 updated.<br>3 - The conformance requirements have been updated to include a contingency for offers that include energy storage (contingent on approval of updated TOU periods that SDG&E has requested) and to clarify that customer-sited, aggregated resources are considered conforming provided they meet the requirements listed. The following participation criteria have been updated in this version: 2, 5, 7, 8, 10, 11, 12 and 14. RFO section 2.0, pp. 17-19 updated. |

#### **1. RFO website / Power Advocate**

SDG&E utilizes its web page ([www.sdge.com](http://www.sdge.com)) as a primary means of communicating RFO and RFP information with outside stakeholders. The RFO / RFP web page can be found via a link at the bottom of the main SDG&E page titled “RFPs and RFOs.” This RFP and RFO page (<http://www.sdge.com/request-proposals>) contains information about SDG&E’s procurement efforts, including involvement of the Procurement Review Group, feed-in tariffs

1 and information on open and closed solicitations dating back to 2012. SDG&E's Preferred  
2 Resources LCR RFO is no exception, and the web page related to that RFO can be found here:  
3 <http://www.sdge.com/procurement/2016PrefResourcesLCRRFO>. As is SDG&E's standard  
4 practice, the webpage contains background and overview information related to the solicitation,  
5 including schedule, links to the RFO document, offer forms, project description forms and other  
6 required materials that must be submitted in order for an offer to be considered, as well as  
7 information related to the bidder's conference (including presentations given at the conference),  
8 questions and answers and information about how to contact SDG&E with questions about the  
9 solicitation or process.

10 The Power Advocate ® platform is a web based tool through which SDG&E formally  
11 accepts offers into its various solicitations. This platform allows tracking of when offer  
12 documents and files are uploaded / received (and provides a robust platform for receipt of large  
13 files at the same time or close to the same time), prevents late submissions (at the closing date  
14 and time, offers are no longer accepted) and provides another means of gathering offeror contact  
15 information. Additionally, this platform allows the independent evaluator to access the offer  
16 files. This tool was utilized as the primary method for accepting offers related to SDG&E's  
17 Preferred Resources LCR RFO.

## 18 **2. Preferred Resources LCR RFO outreach efforts and results**

19 The outreach effort associated with SDG&E's Preferred Resources LCR RFO began with  
20 the formal launch of the RFO on February 26, 2016 via an e-mail to more than 10,500 e-mail  
21 addresses that SDG&E's Electric & Fuel Procurement and Customer Programs groups have

1 assembled over the past few years. In addition to the e-mail promulgation of the RFO launch, in  
2 the days following various on-line trade publications ran stories summarizing the solicitation.<sup>47</sup>

3 Following the launch of the RFO on February 26, 2016, SDG&E conducted a bidder's  
4 outreach event / bidder's conference on April 13, 2016. This event was both an in-person and  
5 webinar / conference call event and covered all aspects of the RFO. Approximately 60  
6 individuals representing approximately 45 organizations attended in-person and approximately  
7 80 individuals joined the webinar. The presentation from this bidder's conference is available on  
8 SDG&E's webpage.<sup>48</sup>

9 This overall outreach effort resulted in a robust response to SDG&E's Preferred  
10 Resources LCR RFO solicitation with approximately 360 total offers received on the closing  
11 date (July 1, 2016) of which approximately three quarters were conforming.

### 12 **3. Question and Answer Process and Results**

13 Following issuance of SDG&E's Preferred Resources LCR RFO on February 26, 2016,  
14 SDG&E made available a dedicated e-mail address / account for the solicitation  
15 ([PrefResorucesRFO@SemptraUtilities.com](mailto:PrefResorucesRFO@SemptraUtilities.com)) monitored by approximately five individuals for the  
16 purpose of communicating with potential respondents as well as a means to receive and respond  
17 to questions. As these questions were received, "Question and Answer" documents were  
18 compiled and posted on the various Preferred Resources RFO web pages so that all potential

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<sup>47</sup> See, e.g., "What SDG&E Wants From 140 Megawatts of 'Preferred Resources'," GreenTech Media, <https://www.greentechmedia.com/articles/read/what-sdge-wants-from-140-megawatts-of-preferred-resources> (March 15, 2016).

<sup>48</sup> The April 13, 2016 Preferred Resources LCR RFO Bidder's Conference Presentation is available here: <https://www.sdge.com/sites/default/files/documents/404949082/SDGE%202016%20PR%20LCR%20RFO-Pre-Bid-Conference-Presentation%204-13-2016.pdf?nid=17626>

respondents would have access to the same information at the same time via the website.<sup>49</sup> Questions and answers were compiled in categories, as follows: 1) general, 2) evaluation related, 3) interconnection related, 4) credit related, and 5) a category for each of the five product types included in the solicitation (EE, DR, Renewables, Energy Storage and Distributed Generation). In total, nine (9) question and answer categories were utilized. Questions asked and answered during the bidder's outreach event were also recorded, categorized and included in these documents. Answers to questions received were generally posted on a weekly basis leading up to the closing date, and answers to all questions received were posted by June 24, 2016, well ahead of the offer due date of July 1, 2016. In total, SDG&E received and answered 156 questions via this approach.<sup>50</sup>

#### **4. Conformance Checks**

Following receipt of the offers on July 1, 2016 the initial step in the evaluation was to check the offers for conformance with the participation and resource criteria. SDG&E and the IE conducted separate conformance checks and then consulted on a series of conference calls to discuss any differences in results and eventually arrived at agreement as to which offers were conforming. As stated previously, approximately three quarters of the offers received were

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<sup>49</sup> "RFO Questions and Answers / Frequently Asked Questions", Preferred Resources LCR RFO <http://www.sdge.com/procurement/2016PrefResourcesLCRRFO> . Product type questions are on each of the product type specific web pages. See, e.g., "EE Questions and Answers", RFO Communication, SDG&E 2016 Preferred Resources Request for Offers Seeking Energy Efficiency Power Purchase Program Agreements, [https://www.sdge.com/sites/default/files/documents/965042498/2016\\_PreferedResourcesLCRRFO%20-%20FAQs%20-%20EE.pdf?nid=17436](https://www.sdge.com/sites/default/files/documents/965042498/2016_PreferedResourcesLCRRFO%20-%20FAQs%20-%20EE.pdf?nid=17436) .

<sup>50</sup> These questions comprised 32 general questions, 13 evaluation related questions, 8 interconnection related questions, 6 credit related questions, 17 EE questions, 36 DR questions, 4 renewables questions, 24 energy storage related questions and 16 distributed generation related questions.

1 deemed conforming and were passed through to the next step in the evaluation process –  
2 quantitative and qualitative evaluations.

3 Of note, during the evaluation stage of the Preferred Resources LCR RFO, a decision  
4 issued in the energy storage proceeding in response to SDG&E's energy storage procurement  
5 plan application ("A.") 16-03-003. This decision, D.16-09-007, stated (p. 24, OP 3) that  
6 SDG&E was denied the discretion related to a particular conformance requirement included in  
7 the DR product type RFO. Specifically, SDG&E stated in its DR product type RFO that it would  
8 consider behind the meter energy storage offers that otherwise passed all conformance checks to  
9 be conforming on a contingent basis pending the adoption of its proposed time-of-use ("TOU")  
10 periods in A.15-04-012.<sup>51</sup> However, as directed in D.16-09-007 (September 21, 2016), SDG&E  
11 eliminated this contingency from its conformance check process.

## 12 **5. Quantitative and Qualitative Evaluation / Shortlist Determination and** 13 **Notification**

14 Please see the testimony of Scot Rolfe for an in-depth discussion of the evaluation  
15 methodology and results for SDG&E's Preferred Resources LCR RFO. Upon completion of the  
16 shortlisting discussions held by SDG&E and after consultations with the IE, SDG&E arrived at a  
17 shortlist recommendation that was presented to the CAM PRG meeting on October 21, 2016.  
18 Once the input and discussions with the CAM PRG was taken into consideration, and  
19 management was consulted and approved of the shortlist recommendation, SDG&E considered  
20 the shortlist final. On October 28, 2016, each of the shortlisted respondents were notified via e-  
21 mail and hard copy letter. In order to accept their shortlisted position, these shortlisted  
22 respondents were asked to remit a Shortlist Acceptance Fee. All shortlisted respondents

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<sup>51</sup> See the DR RFO document, Attachment B, p. 14.



provided their Shortlist Acceptance Fee formally accepting their position and moved on to the contract negotiations phase. During the shortlisting process, and in the October 28 discussion with the CAM PRG, SDG&E emphasized several shortlisting objectives, including:

- Continued progress in meeting Track IV reliability needs
- Continued progress toward energy storage mandated targets
- Procure a diverse mix of resources from a diverse set of suppliers
- Procure a diverse mix of contract tenors
- Optimize timing to benefit from market/technology development

#### **6. Appreciation notice issuance**

Once the process was completed to determine which respondents would accept their shortlisted position (receipt of shortlist acceptance fees), SDG&E sent an appreciation notice via e-mail to respondents who provided offers in response to the Preferred Resources LCR RFO, but who were not shortlisted. The appreciation notice e-mail was sent to these respondents on November 15, 2016.

#### **7. Contract Negotiations**

Contract negotiations began after the shortlisted respondents accepted their shortlisted position (by remitting the Shortlist Acceptance Fee) and continued until agreements were reached

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### **IV. SAFETY CONSIDERATIONS**

To begin, SDG&E considered safety in the conformance check phase for the Preferred Resources LCR RFO. Each of the five product type RFOs includes a conformance requirement

1 stating that the facilities or programs must be operated and maintained in accordance with all  
2 applicable safety standards, accepted electrical practice and applicable law. In the project or  
3 program description form that respondents provided to SDG&E as part of their offer package,  
4 one of the questions included asked respondents to confirm that this would be the case, and if the  
5 respondent was unable or unwilling to provide such confirmation, the offer was considered non-  
6 conforming.<sup>52</sup>

7 The testimony of Scot Rolfe describes SDG&E's evaluation process – both from a  
8 quantitative and qualitative standpoint. Among other things, Mr. Rolfe describes SDG&E's  
9 safety considerations during the evaluation. The testimony of E Bradford Mantz describes the  
10 Demand Response agreements entered into by SDG&E as a result of the Preferred Resources  
11 LCR RFO, and Joshua Gerber's testimony describes the safety considerations of the utility  
12 owned energy storage agreements (including safety considerations). I will briefly describe the  
13 safety considerations of the third-party owned energy storage tolling agreements with Enel, AMS  
14 and Powin for which SDG&E is requesting approval.

15 In SDG&E's energy storage agreements with Enel, AMS and Powin, there are various  
16 safety-related provisions; in summary, the facility must be operated and maintained in  
17 accordance with all applicable laws, industry standards and accepted electrical practices,  
18 including those related to safety.<sup>53</sup> This means the plant must be operated in a way that is

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<sup>52</sup> See, for example, the Energy Storage RFO document, Attachment A, page 12, participation criteria 15.

<sup>53</sup> See Attachment H, section 6.2 (inspection rights); section 8.1.1, 8.1.4 and 8.1.6 (seller's operation obligations); section 13.2 (compliance with laws and indemnification); section 20.4 (inspection); section 22.6.2 (additional representation, warranties and covenants of buyer); appendix A definitions – accepted electrical practices, interconnection facilities; appendix 6.1(b) – monthly progress report and safety and health reports, for example. The other energy storage tolling agreements included in this application include these provisions as well.

generally accepted or approved by a significant portion of the electric power industry. The contract also requires that only appropriately qualified personnel are allowed to operate and maintain the plant, and that such personnel must adhere to all applicable safety standards and consistent with applicable laws and accepted electrical practices, including those related to safety.

## **V. PROPOSED ENERGY STORAGE TOLLING AGREEMENT CONTRACTS**

### **A. Overview**

SDG&E executed three energy storage tolling agreements as a result of the Preferred Resources LCR RFO: one each with Enel Green Power North America, Inc. (“Enel”), Advanced Microgrid Solutions, Inc. (“AMS”), and Powin Energy (“Powin”),<sup>54</sup> as shown below in table PKC-7. Discussion of the details related to those agreements follow.

**Table PKC-7  
Third-Party Energy Storage Tolling Agreements Summary**

| Developer                      | Project Name              | Location                | Capacity (MW) | Expected COD | Term (Years) |
|--------------------------------|---------------------------|-------------------------|---------------|--------------|--------------|
| Powin Energy                   | Don Lee BESS              | Escondido, CA           | 6.5           | 6/30/2021    | 10           |
| Enel Green Power North America | Pomerado Energy Storage   | Poway, CA               | 3             | 12/31/2021   | 15           |
| Advanced Microgrid Solutions   | Capistrano Energy Storage | San Juan Capistrano, CA | 4             | 12/1/2019    | 20           |

### **B. Enel**

#### **1. Overview**

SDG&E’s contract with Enel was executed on March 30, 2017. It is an energy storage power purchase tolling agreement whereby SDG&E will be responsible for (pay for and

<sup>54</sup> Company names listed here are for the parent development companies. SDG&E’s counterparties for each agreement are special purpose entity limited liability corporations, as follows: for Enel – Pomerado Energy Storage LLC, for AMS – Hybrid Holdings 1 LLC, and for Powin – Don Lee BESS 1 LLC.

1 schedule) charging energy and will also act as the scheduling coordinator for this 3 MW / 12  
2 MWh resource to be located in Poway, CA [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED] d

7 [REDACTED]

8 [REDACTED] This energy storage resource will be a lithium ion  
9 battery. [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 **2. The Terms and Conditions of the Enel Agreement are Reasonable and**  
18 **a Good Value**

19 [REDACTED]

20 [REDACTED]

21 [REDACTED]

---

<sup>55</sup> Round-trip efficiency means comparing the energy that comes out of the energy storage resource versus the energy that went into the resource. For example, starting at a zero state of charge, if 1,000 kWh were used for charging, and upon full discharge, 800 kWh were discharged, the round-trip efficiency would be 80%.

[REDACTED]

In order to ascertain the attractiveness of the proposed agreement, SDG&E completed a least-cost, best-fit analysis including quantitative and qualitative assessments, and this offer and the resulting agreement competed successfully, as detailed in the testimony of Scot Rolfe. The confidential version of the report of the IE also addresses the reasonableness of the terms and conditions of this agreement, as well as the attractiveness of the value proposition represented by the agreement. A full copy of the agreement is included as Confidential Attachment G.

## **C. AMS**

### **1. Overview**

SDG&E's contract with AMS was executed on March 30, 2017. It is an energy storage power purchase tolling agreement whereby SDG&E will be responsible for (to pay for and schedule) charging energy, and will also act as the scheduling coordinator for this 4 MW / 16 MWh resource to be located in San Juan Capistrano, CA [REDACTED]

[REDACTED]

[REDACTED] This energy storage resource will be a lithium ion battery. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**2. The Terms and Conditions of the AMS Agreement are Reasonable and a Good Value**

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

In order to ascertain the attractiveness of the proposed agreement, SDG&E completed a least-cost, best-fit analysis including quantitative and qualitative assessments, and this offer and the resulting agreement competed successfully, as detailed in the testimony of Scot Rolfe. The confidential version of the report of the IE also addresses the reasonableness of the terms and conditions of this agreement, as well as the attractiveness of the value proposition represented by the agreement. A full copy of the agreement is Confidential Attachment H to my testimony.

**D. Powin**

**1. Overview**

SDG&E's contract with Powin was executed on March 30, 2017. It is an energy storage power purchase tolling agreement whereby SDG&E will be responsible for (to pay for and schedule) charging energy, and will also act as the scheduling coordinator for this 6.5 MW / 26

1 MWh resource to be located in Escondido, CA [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

13 [REDACTED] . This energy storage resource will be a lithium ion battery. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

18                   **2.       The Terms and Conditions of the Powin Agreement are Reasonable**  
19                   **and a Good Value**

20                   [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1 [REDACTED]  
2 [REDACTED]  
3 [REDACTED]  
4 In order to ascertain the attractiveness of the proposed agreement, SDG&E completed a  
5 least-cost, best-fit analysis including quantitative and qualitative assessments, and this offer and  
6 the resulting agreement competed successfully, as detailed in the testimony of Scot Rolfe. The  
7 confidential version of the report of the IE also addresses the reasonableness of the terms and  
8 conditions of this agreement, as well as the attractiveness of the value proposition represented by  
9 the agreement. A full copy of the agreement is Confidential Attachment I to my testimony.

## 10 **VI. QUALIFICATIONS**

11 My name is Patrick K. Charles and I am the Origination Analytics Manager for  
12 SDG&E's Origination and Portfolio Design group in the Electric and Fuel Procurement  
13 ("E&FP") department. My business address is 8315 Century Park Court, San Diego, California  
14 92123. I have worked in the energy industry for SDG&E for approximately 17 years.

15 In my current job, I am responsible for analyzing the offers received in response to  
16 various request for offers ("RFOs") that SDG&E issues in support of such programs as  
17 Combined Heat and Power ("CHP") and the Renewable Portfolio Standard ("RPS") as well as  
18 supporting the Renewable Auction Mechanism ("RAM") and Renewable Energy Market  
19 Adjusting Tariff ("ReMAT") among other programs. My group also conducts the analysis of  
20 offers related to conventional power plants such as Resource Adequacy ("RA") and tolling  
21 agreements. Additionally, the analytics team that reports to me is responsible for various  
22 regulatory reporting functions (such as the RPS compliance report and CHP semi-annual report)  
23 and for supporting various origination efforts.



1 Prior to taking my current position at SDG&E I have worked as an analyst in technical  
2 project management, as Customer Service Support Manager in the Federal Accounts department,  
3 as Planning and Analysis Manager on our Smart Meter effort, as a contract negotiator in E&FP  
4 and as the Smart Grid Customer Solutions Manager on SDG&E's Smart Grid team.

5 I received a bachelor's degree in business (marketing) from the University of Colorado in  
6 Boulder and an MBA from the University of Missouri at Kansas City.

7 I have previously provided testimony to the Commission.

8 This concludes my prepared direct testimony.  
9

**ATTACHMENT A**  
**Preferred Resources LCR RFO:**  
**Energy Storage Product Type RFO Document**



**SAN DIEGO GAS AND ELECTRIC COMPANY**  
ELECTRIC AND FUEL PROCUREMENT DEPARTMENT  
8315 CENTURY PARK COURT, CP21D  
SAN DIEGO, CA 92123

# **SDG&E's 2016 ENERGY STORAGE SYSTEM ("ESS") RFO**

2016

LOCAL CAPACITY  
REQUIREMENT

REQUEST FOR OFFERS ("RFO")

Seeking

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ENERGY STORAGE SYSTEM  
POWER PURCHASE TOLLING AGREEMENTS

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ENERGY STORAGE SYSTEM TURN-KEY  
BUILD, OWN, TRANSFER AGREEMENTS

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ENERGY STORAGE SYSTEM TURN-KEY  
ENGINEERING, PROCUREMENT & CONSTRUCTION  
AGREEMENTS

---

VERSION 2 – ISSUED APRIL 8, 2016

**ISSUED**  
FEBRUARY 26, 2016

**OFFERS DUE**  
JULY 1, 2016

**RFO WEBSITE**  
<http://www.sdge.com/2016PrefResourcesLCRRFO>

**EMAIL QUESTIONS/COMMENTS TO**  
[PrefResourcesRFO@semprautilities.com](mailto:PrefResourcesRFO@semprautilities.com)

## RECORD OF CHANGES

| Date     | Description of Change  | Section /<br>Page of<br>Document |
|----------|--|----------------------------------|
| 4/8/2016 | 1. Safety. Operation of third party owned project or programs must be in accordance with accepted electrical practices, applicable law and industry standards including those related to safety. If not, the offer will be considered nonconforming. | 1. 3.A.15, p. 12                 |
|          | 2. Encouragement for offers of various delivery terms.   | 2. 1., p. 5                      |
|          |  |                                  |
|          |  |                                  |
|          |  |                                  |

## TABLE OF CONTENTS

|     |  |                                     |
|-----|--|-------------------------------------|
| 1.0 | BACKGROUND .....   | 4                                   |
| 2.0 | PROCUREMENT PROCESS.....   | 8                                   |
| 3.0 | ELIGIBILITY REQUIREMENTS.....  | 10                                  |
| A.  | PARTICIPATION CRITERIA .....   | 10                                  |
| B.  | Modifications to the pro-forma ESSPPTA .....                                       | 12                                  |
| C.  | CREDIT SUPPORT TERMS AND CONDITIONS .....  | 12                                  |
| 1)  | SHORTLIST ACCEPTANCE FEE .....   | 13                                  |
| D.  | ASC 810 (FIN46(R), Consolidation of Variable Interest Entities) REQUIREMENTS ..... | 13                                  |
| 4.0 | FACILITY INTERCONNECTION .....   | 15                                  |
| 5.0 | EVALUATION CRITERIA.....   | 17                                  |
|     | QUANTITATIVE EVALUATION.....   | 17                                  |
| A.  | NET CAPACITY BENEFITS.....   | 18                                  |
| B.  | NET ENERGY and Ancillary Services BENEFITS.....                                    | 18                                  |
| C.  | TRANSMISSION/DISTRIBUTION SYSTEM IMPACTS.....                                      | 18                                  |
|     | QUALITATIVE EVALUATION .....   | 18                                  |
| A.  | PROJECT VIABILITY .....  | 18                                  |
| B.  | ADHERENCE TO ESSPPTA TERMS AND CONDITIONS.....                                     | 19                                  |
| C.  | SUPPLIER DIVERSITY .....   | 19                                  |
| D.  | LOADING ORDER RANKING.....   | 19                                  |
| E.  | SAFETY .....   | <b>Error! Bookmark not defined.</b> |
| F.  | CATEGORY 1 FLEXIBLE RA CAPABILITIES.....   | 19                                  |
|     | BID CONFORMANCE EVALUATION.....  | 20                                  |
| 6.0 | RFO SCHEDULE .....   | 21                                  |
|     | PRE-BID CONFERENCE / BIDDER OUTREACH EVENTS.....                                   | 22                                  |
| 7.0 | RFO WEBSITE AND COMMUNICATION .....  | 23                                  |
| 8.0 | REJECTION OF OFFERS .....  | 276                                 |
| 9.0 | CONFIDENTIALITY.....   | 287                                 |

|      |                               |     |
|------|-------------------------------|-----|
| 10.0 | ESS PROGRAM PARAMETERS .....  | 29  |
|      | Procurement Review Group..... | 29  |
|      | Independent Evaluator.....    | 29  |
| 11.0 | SDG&E BACKGROUND .....        | 310 |

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## 1.0 BACKGROUND

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In accordance with Decision (D.) D. 14-03-004 – Decision Authorizing Long-Term Procurement for Local Capacity Requirements due to the Permanent Retirement of the San Onofre Nuclear Generation Station (the “Track 4 Decision”) approved on March 13, 2014, and associated documents<sup>1</sup>, D.13-10-040 – Decision Adopting Energy Storage Procurement Framework and Design Program (the “Energy Storage Decision”) approved on October 17, 2013 and D.14-10-045 – Decision Approving SDG&E, PG&E and SCE’s Storage Procurement Framework and Program Applications for the 2014 Biennial Procurement Period approved on October 16, 2014, San Diego Gas and Electric Company (“SDG&E”) is issuing its 2016 Preferred Resources LCR Energy Storage System Request for Offers (“2016 Energy Storage RFO” or “ES RFO”) to solicit offers from owners and operators of ES facilities, ES developers and ES developers / equipment suppliers.

SDG&E is issuing this 2016 ES RFO to achieve its megawatt (“MW”) targets established in the Energy Storage Decision and to help meet its remaining Local Capacity Requirements (“LCR”) established in the Track 4 Decision. As authorized in the Track 4 Decision, and following SDG&E’s 2014 All Source RFO, SDG&E is seeking up to 140 MW in this solicitation<sup>2</sup>. SDG&E will consider ESS offers ranging from 500 kW to 140 MW in size (more detail is provided in Section 3.0(A) of this RFO). To summarize, this RFO is intended to meet both the Track 4 Decision requirements and the Energy Storage Decision requirements.

This RFO solicits offers for both third party owned, contracted resources and two types of utility owned resources; more specifically, SDG&E is seeking:

- 1) Offers from owners and operators of Energy Storage System (“ESS”) facilities to negotiate and enter into an Energy Storage System Power Purchase Tolling Agreement (“ESSPPTA”), or
- 2) Offers from ESS developers to negotiate and enter into an Energy Storage System Turn-key Build, Own, Transfer Agreement (“ESSBOT”) under which the ESS developers would construct an ESS project on its land and SDG&E would acquire the ESS project from the ESS developer upon project completion, or
- 3) Offers from ESS developers / contractors / equipment suppliers to negotiate and enter into an Energy Storage System Turn-key Engineering, Procurement and Construction Agreement (“ESSEPC”) under which the ESS developers / contractors / equipment suppliers would construct an ESS facility on SDG&E land.

ESSBOT and ESSEPC offers will be coordinated by an internal group at SDG&E that will be assembling offers for potential utility ownership (“SDG&E’s Cost Development Team”). ESSBOT and ESSEPC Respondents must provide a formal written expression of interest as more

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<sup>1</sup> For example, SDG&E filed Application (A.) 14-02-006 – the Energy Storage Procurement Application - in response to the Energy Storage Decision. A.14-02-006 can be found on SDG&E’s website at: <http://www.sdge.com/regulatory-filing/10246/sdgc%E2%80%99s-energy-storage-procurement-application>

<sup>2</sup> The Track 4 Decision authorizes SDG&E to procure up to 800 MW, at least 200 MW of which must come from preferred resources. Of this 200 MW of preferred resources, at least 25 MW must come from energy storage leaving up to 175 MW for other preferred resource types. In this solicitation, SDG&E is targeting up to 140 MW in aggregate from all product types.

fully described below in section 7 (RFO Website and Communications, in particular the section titled ‘RFO Response Instructions’) to SDG&E’s Cost Development Team on or before March 11, 2016 to participate in this RFO. Additionally, ESSEPC Respondents are required to execute a nondisclosure agreement (“NDA”) by March 18, 2016 that will be provided upon receipt of the formal expression of interest. Following NDA execution, ESSBOT and ESSEPC Respondents will receive additional information related to providing information to SDG&E’s Cost Development Team (an “Addendum” to this RFO) that more precisely describes the process for ESSBOT and ESSEPC offers, including a detailed schedule, pre-bid process description, pre-evaluation and ranking process description, and process for submitting final offers on or before the Closing Date (July 1, 2016). Additionally, the Addendum will contain an Energy Storage Specification, pro forma contract, and for EPC respondents, site descriptions of utility owned land available for ESSEPC offers. While general instructions describing the ESSBOT and ESSEPC processes are included throughout this RFO (in particular in sections 2 (Procurement Process), 6 (RFO Schedule), 7 (RFO Website and Communication and the RFO Response Instructions portion of section 7), specific instructions including a detailed schedule are only available in the Addendum documents provided to ESSBOT and ESSEPC Respondents after formal written expression of interest and NDA execution.

This solicitation sets forth the terms and conditions of SDG&E’s 2016 ES RFO. By responding to this RFO, the bidder agrees to be bound by all the terms, conditions, and other provisions of this RFO and any changes or supplements to it that may be issued by SDG&E, prior to the bidder’s response. SDG&E encourages Respondents to provide offers of various delivery terms. For example, 3, 5 or 10 years for EE and DR related offers and 10, 15 or 20 years for other product types.

In this RFO, SDG&E will entertain offers for two of the three ES resource domains as defined in the Energy Storage Decision: transmission domain and distribution domain. Customer domain storage respondents should refer to the demand response RFO also issued by SDG&E as part of its 2016 Preferred Resources LCR RFO.

**Table 1 – ES Requirements Summary for Transmission and Distribution Domains**

|                                  |  |
|----------------------------------|--|
| <b>Contract Term</b>             | Although SDG&E is not authorized to limit bids to any specific contract length, SDG&E prefers ESSPPTA contract terms of 3-20 years for ESS   |
| <b>Contract / Agreement Type</b> | ESSPPTA, ESSBOT or ESSEPC <sup>3</sup>   |
| <b>Nameplate / Offer size</b>    | ESSPPTA: 500 kW <sup>4</sup> – 140MW<br>ESSBOT: 10 MW – 140 MW<br>ESSEPC: Varies by location. Additional information available upon formal expression of interest and NDA execution. |

<sup>3</sup> ESSBOT and ESSEPC will entail a range of agreements including equipment supply and maintenance agreements (among other agreements). The terms ESSBOT and ESSEPC are shorthand for the various agreements that will be necessary to enable these arrangements.

<sup>4</sup> Note that SDG&E will consider the administrative burden/feasibility of negotiating a high volume of agreements when selecting its shortlist.



|   |  |
|---|--|
| <b>Interconnection / Delivery Point</b> | Within the San Diego Local Subarea – as defined by the CAISO <sup>5</sup>  |
| <b>Resource Adequacy (RA)</b>           | Must be eligible to contribute to SDG&E's local RA requirements  |
| <b>Technology Type</b>                  | Any type of energy storage that meets the definition included in PU Code 2835  |
| <b>Cycles</b>                           | ESPPTA, ESSBOT or ESSEPC: Although SDG&E will not require a minimum for annual cycles, SDG&E has a preference for systems with a minimum of 50 cycles per year   |
| <b>Charging/ Discharging Durations</b>  | ESPPTA, ESSBOT or ESSEPC: No charging duration requirements<br><br>ESPPTA, ESSBOT or ESSEPC: Discharging duration requirements must be based on qualification for local RA requirements (3 consecutive days, 4 hours per day); additionally qualitative consideration will be given to resources that can meet category 1 flexible RA. See section 5 'Evaluation Criteria' for further information |
| <b>System Efficiency</b>                | ESPPTA, ESSBOT or ESSEPC: No minimum system efficiency requirements  |
| <b>Warranty/ Guarantee</b>              | ESPPTA: SDG&E does not require a capacity guarantee.<br>ESSBOT and ESSEPC: SDG&E will require a capacity guarantee.  |

The purpose of this document is to provide an overview of the process that SDG&E will use to implement this RFO. It will serve to set forth each bidder's obligations with respect to the RFO as well as describe the procedures that each bidder must adhere to.

To be considered in this RFO, an offer must be uploaded to the SDG&E RFO platform in accordance with this RFO Protocol no later than 1:00 PM Pacific Prevailing Time ("PPT"), on July 1, 2016. Note, for ESSEPC and ESSBOT offerors, cost and other information will be provided ahead of this deadline to SDG&E's Cost Development Team. The exact schedule is described in the Addendum documents available to ESSBOT and ESSEPC Respondents after formal expression of interest and NDA execution.

The RFO Schedule is subject to change at SDG&E's sole discretion at any time. All changes to the RFO Schedule will be posted to SDG&E's RFO website. The RFO Schedule may be affected by (but not limited to) issues such as: discussions with shortlisted bidders, proceedings before the CPUC, and efforts to obtain regulatory approval. SDG&E intends to notify bidders of any schedule change, but will not be liable for any change in schedule or for failing to provide notice of any change. A schedule detailing SDG&E's plans throughout the entire initial program period can be found in Section 6.

Once bidders have accepted their shortlisted position with SDG&E and remitted the Shortlist Acceptance Fee<sup>6</sup>, further ESSPPTA, ESSBOT or ESSEPC contract negotiations may

<sup>5</sup> See the CAISO "Local Capacity Technical Analysis" –for 2015 available at: [http://www.caiso.com/Documents/Final2015LocalCapacityTechnicalStudyReportApr30\\_2014.pdf](http://www.caiso.com/Documents/Final2015LocalCapacityTechnicalStudyReportApr30_2014.pdf). To summarize, San Diego Local subarea projects are those located in SDG&E's service territory connecting to SDG&E owned transmission or distribution facilities at a point that is at or electrically west of the Miguel or Suncrest substations and electrically south of the San Onofre Nuclear Generating Station 230 kV switchyard.

<sup>6</sup> See section 3.D.i. of this RFO for further details

commence and continue until mutual agreement has been achieved and a contract has been executed. Being short listed does not guarantee that an ESSPPTA, ESSBOT or ESSEPC will be negotiated or signed with the bidder.

SDG&E will seek CPUC approval of all executed agreements resulting from this RFO. SDG&E reserves the right to execute agreements with individual bidders at any time after short listing and to seek CPUC approval for individual agreements in order to expedite the approval process.

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## 2.0 PROCUREMENT PROCESS

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Respondents to this solicitation shall comply with the requirements described in this RFO document. ESSBOT and ESSEPC Respondents shall also comply with the requirements described in the Addendum documents to be provided following submission of a written expression of interest.

All offers shall meet the minimum eligibility requirements as set forth in Section 3.0. All conforming offers will be evaluated in accordance with the Evaluation Criteria described in Section 5.0 of the RFO. SDG&E will initially select a shortlist in pursuit of its ESS target for this RFO by selecting offers that are evaluated as most attractive via the quantitative and qualitative methodology described in Section 5.0. If SDG&E does not acquire the full target in this RFO or if it is not achieved through various other procurement alternatives available to it (such as a bi-lateral process), any shortfall will be carried over to the next biannual ESS RFO. SDG&E may select up to 140 MW in aggregate associated with all of the product types included in its 2016 Preferred Resources LCR RFO including Energy Storage.<sup>7</sup>

SDG&E is mindful of the impact that interconnection costs can have on successful project development. To ensure SDG&E can evaluate bids on an equitable basis -- and to ensure projects solicited through this solicitation can meet a year-end 2021 commercial operation date -- SDG&E requires that ESSPPTA, ESSBOT, and ESSEPC offers can demonstrate the expected full deliverability status of the project and the expected interconnection costs through either a completed Phase I study or a repowering of a comparably sized existing facility in accordance with the CAISO Business Practice Manual for Generator Management (note that in the ESSEPC case, the SDG&E Cost Development Team is responsible for developing and submitting those estimated network upgrade and other deliverability costs). Gentie costs, those that benefit the project alone and are not reimbursable, should be included in the contract pricing. ESSPPTA or ESSBOT offers with completed interconnection studies or repowering opportunities shall include copies of those studies, descriptions of any repowering, and estimates of such costs. For offers associated with an ESSEPC, the SDG&E Cost Development Team will manage the interconnection study process and the third party Respondents need not include interconnection study and cost information; the SDG&E Cost Development Team will include the interconnection study and cost information that it develops in its ESSEPC bids.

SDG&E intends for projects selected from this RFO to count towards SDG&E's local Resource Adequacy ("RA") obligations. Respondents pursuing an ESSPPTA or ESSBOT must follow the appropriate process for obtaining a deliverability study from the CAISO so that the project(s) can become eligible for RA, if not already eligible. ESSPPTA or ESSBOT Agreements resulting from this RFO will require Respondents to perform all activities necessary to facilitate local RA recognition for the projects. Respondents pursuing an ESSPPTA or ESSBOT shall be responsible for all costs to facilitate local RA recognition, including any deliverability study fees or upfront funding of deliverability upgrade costs and should include these costs in the offer price.

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<sup>7</sup> Resources sought by SDG&E include Demand Response, Energy Efficiency, Renewables, Energy Storage and Distributed Generation.

In this RFO, SDG&E requires that ESSPPTA, ESSBOT, and ESSEPC projects seek and receive Full Capacity Deliverability Status (“FCDS”) and that they will count towards SDG&E’s RA obligations. In order to achieve FCDS, Respondents pursuing an ESSPPTA or ESSBOT must apply for a deliverability study to be conducted by the CAISO or be eligible as a repowering of a comparably sized existing facility. ESSPPTA or ESSBOT Respondents with winning bids for FCDS projects must demonstrate that the project has been assessed for deliverability or the project is eligible as a repowering of a comparably sized existing facility. This condition must be met for winning bids that will interconnect at either the distribution or transmission level. For winning FCDS project bids that result in an executed and approved ESSPPTA or ESSBOT, during the project development process, the project is required to obtain final interconnection studies (i.e. for transmission level projects, a final Phase II interconnection study report, or for distribution level projects, a final interconnection facilities study report (or equivalent)). All ESSEPC projects that the SDG&E Cost Development Team pursues will likewise need to establish FCDS.

On July 2, 2013, the CAISO published the ‘Generator Interconnection and Deliverability Study Methodology Technical Paper’ and Section One of the paper provides background information and an overview of the deliverability study methodology. Respondents may find this paper at: <http://www.caiso.com/Documents/TechnicalPaper-GeneratorInterconnection-DeliverabilityStudyMethodology.pdf> . For projects that will interconnect at distribution level, information on the interconnection process can be found at: <http://www.sdge.com/generation-interconnections/overview-generation-interconnections>

For ESSEPC Respondents: SDG&E requires that a formal expression of interest be provided to SDG&E no later than 5pm, March 11, 2016. This expression of interest shall be in written form (an e-mail to [2016ESSEPCBOTRFO@SempraUtilities.com](mailto:2016ESSEPCBOTRFO@SempraUtilities.com) ) and should provide company and contact information. SDG&E will require additional bidding procedures for Respondents with ESSEPC offers, such as entering into a Nondisclosure Agreement (“NDA”) with the SDG&E allowing the exchange of detailed and confidential information between the parties (such as site or technology specific information). This NDA must be executed on or before March 18, 2016. Further details regarding the NDA and other ESSEPC specific instructions/information will be given to those ESSEPC Respondents who provide the necessary expression of interest.

For ESSBOT Respondents: SDG&E requires that a formal expression of interest be provided to SDG&E no later than 5pm, March 11, 2016. This expression of interest shall be in written form (an e-mail to [2016ESSEPCBOTRFO@SempraUtilities.com](mailto:2016ESSEPCBOTRFO@SempraUtilities.com) ). SDG&E will require additional bidding procedures for Respondents with ESSBOT offers. Confidentiality for ESSBOT shall be in accordance with section 10.0 of this RFO document. Other ESSBOT specific instructions/information will be given to those ESSBOT Respondents who provide the necessary expression of interest.

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### 3.0 ELIGIBILITY REQUIREMENTS

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Respondents to this solicitation shall comply with the requirements herein. SDG&E, at its sole discretion, may change the terms, requirements and schedule of the solicitation. Respondents should monitor the RFO Website for announcements regarding any change.

#### A. PARTICIPATION CRITERIA

Terms of participation are listed below. Respondents not meeting all minimum participation criteria may be deemed ineligible / nonconforming and their offers may not be considered.

1. ESS Facilities must meet the definition included in PU Code 2835.<sup>8</sup>
2. Acceptable capacity range.
  - a. ESSPPTA Respondents -minimum size of 500 kW and maximum size of 140 MW.
  - b. ESSBOT Respondents - minimum size of 10 MW and maximum size of 140 MW.
  - c. ESSEPC Respondents - minimum and maximum ESS facility sizes vary by location. ESSEPC Respondents will receive additional details upon formal expression of interest and NDA execution as described in further detail, below.
3. The ESS facility shall be located and interconnected within the San Diego local sub-area, as defined by the CAISO<sup>9</sup>.
4. The resource must meet all applicable RA counting rules in order to qualify as local RA. Qualitative consideration will be given to ESS facilities that can count as Category 1 Flexible RA, but the minimum conformance standard is to meet the local RA requirement.

NOTE: SDG&E is aware that the RA counting rules change frequently. If the capabilities of the system, facility or program that the Respondent is describing in its offer are currently non-conforming, specifically with regard to the local RA requirement, but the Respondent believes that the RA counting rules may change prior to SDG&E short-listing, the Respondent is instructed to submit their offer and note that it is currently non-conforming due to current RA rules. If and when the RA rules change resulting in the offer conforming to the new RA rules, the Respondent should notify SDG&E (via the RFO e-mail address - [PrefResourcesRFO@semprautilities.com](mailto:PrefResourcesRFO@semprautilities.com)) and the IE ([jon.jacobs@paconsulting.com](mailto:jon.jacobs@paconsulting.com) and [Barbara.Sands@PAConsulting.com](mailto:Barbara.Sands@PAConsulting.com)).

5. SDG&E prefers start dates as early as 2018 but will consider later start dates. Some portion of the project's delivery term must include the entire calendar year of 2022.

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<sup>8</sup> See: <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=puc&group=02001-03000&file=2835-2839> ; of note, the definition specifically requires, among other things, that the technology be "commercially available."

<sup>9</sup> See the CAISO "Local Capacity Technical Analysis" –for 2015 available at: [http://www.caiso.com/Documents/Final2015LocalCapacityTechnicalStudyReportApr30\\_2014.pdf](http://www.caiso.com/Documents/Final2015LocalCapacityTechnicalStudyReportApr30_2014.pdf) . To summarize, San Diego Local subarea projects are those located in SDG&E's service territory connecting to SDG&E owned transmission or distribution facilities at a point that is at or electrically west of the Miguel or Suncrest substations and electrically south of the San Onofre Nuclear Generating Station 230 kV switchyard.

6. ESS facility must be incremental to the assumptions used in the CAISO studies<sup>10</sup> associated with the 2012 long term procurement plan proceeding that served as a basis for SDG&E's Track 4 authorized need.
7. ESSPPTA and ESSBOT Respondents must apply for interconnection and seek to be evaluated as a San Diego Sub-area local RA resource, which requires a CAISO deliverability study or the repowering of a comparably sized existing facility in accordance with the CAISO Business Practice Manual for Generator Management. Respondents pursuing an ESSPPTA or ESSBOT must demonstrate their expected deliverability and interconnection costs through either a completed Phase I interconnection study or a repowering of a comparably sized existing facility. Evidence of an existing interconnection agreement, study, application or explanation of interconnection status must be included in the offer, along with relevant cost estimates.
8. Respondents pursuing an ESSPPTA or ESSBOT must demonstrate how their project will meet the requirements of the current local RA counting rules<sup>11</sup>. All ESSEPC projects that the SDG&E Cost Development Team pursues will likewise need to demonstrate compliance with the current local RA counting rules.
9. ESSPPTA, ESSBOT and ESSEPC offers must include a permitting plan, schedule, and progress report for permits that are necessary for the facility to operate for the entirety of the proposed contract term.
10. Respondents pursuing an ESSPPTA or ESSBOT must have, at time of bidding, site control. For ESSPPTA offers, site control must be for the duration of the term proposed within the ESSPPTA. Site control may be evidenced by documentation of:
  - a. direct ownership;
  - b. a lease; or
  - c. an option to lease or purchase upon ESSPPTA approval. The option must be an exclusive option to the Bidder that will last until the completion of the RFO cycle.All ESSEPC projects that the SDG&E Cost Development Team pursues will likewise need to demonstrate site control.
11. ESSPPTA Respondents will own the facilities and have responsibility for development, land acquisition, permitting, financing, construction and operation of the ESS facilities.
12. ESSBOT Respondents will own the facilities and have responsibility for development, land acquisition, permitting, financing and construction of the ESS facilities. For ESSBOT facilities, SDG&E will take title, control, and risk of loss of the ESS facilities only upon successful completion and documentation of factory acceptance tests prior to equipment shipments, and pursuant to successful project commissioning. For the ESSEPC facilities, successful completion and documentation of factory acceptance tests are required prior to equipment shipments. SDG&E will take title to the equipment throughout the EPC process,

<sup>10</sup> See ordering paragraph 6 of the Track 4 Decision.

<sup>11</sup> See the following CPUC decisions for guidance: D.10-06-036, D.11-06-022, D.12-06-025 and D.13-06-024 among others. Additionally, see the CAISO's "Flexible Resource Adequacy Criteria and Must-Offer Obligation", Market and Infrastructure Policy Revised Draft Final Proposal of March 7, 2014. To summarize, currently the requirement for energy limited resources is availability of the resource for three consecutive days for four hours per day.

- but the ESSEPC shall be responsible for all sales tax. SDG&E will take control and risk of loss of the ESS facilities only upon commissioning.
13. For Respondents pursuing an ESSBOT or ESSEPC, the following high-level requirements and minimum performance specifications must be met by the ESS equipment being offered. ESSBOT and ESSEPC Respondents will receive additional, detailed requirements and performance specifications upon completing the formal expression interest outlined in Section 7, below.
- a. ESS must be commercially operational on or before December 31, 2021.
  - b. Respondents will be required to guarantee/warrant capacity.
  - c. Respondents shall price in Operations and Maintenance (“O&M”) services through the end of the expected useful life of the equipment.
  - d. ESSBOT and ESSEPC Respondents shall state exactly what equipment is included in the offer. For example, ESS modules, control systems, inverters (as applicable), etc.
  - e. High level ESS performance requirements / specifications:
    - i. SDG&E will not require a minimum amount of annual cycles. However, SDG&E will give priority to ESS capable of at least 50 cycles per year.
    - ii. SDG&E will not specify charging duration requirements for the ESS. In terms of discharging duration, ESS must comply with the requirements for qualification as local RA.
14. The Respondent must state any affiliate relationship with Sempra Energy, if one exists.
15. Safety. SDG&E expects that third party owned and operated facilities will be operated and maintained in accordance with accepted electrical practices, applicable law and industry standards, including those related to safety. In the project / program description form that Respondents will provide as part of the offer package, SDG&E will ask respondents to confirm that this will be the case with their project or program. If the Respondent is unable to confirm these statements, the offer will be considered nonconforming.

## **B. MODIFICATIONS TO THE PRO-FORMA ESSPPTA**

ESPPTA Bidders may modify the Pro Forma ESPPTA submitted as part of their offer package to the extent such modifications add value to the offer. However, SDG&E discourages extensive modifications and will consider materiality of such changes on a qualitative basis as it evaluates the offers received. Form agreements associated with ESSBOT and ESSEPC will be provided following completion of the expression of interest process outlined in section 7, below.

## **C. CREDIT SUPPORT TERMS AND CONDITIONS**

Winning bidders will be required to comply with the credit support requirements set forth in their relevant agreement. The amount of such requirements will be determined by SDG&E at the time of shortlisting and will be based on product, deliveries, price, and term, among other variables. For clarity, bidders should **not** include credit costs within their bid price (note: respondents are required to provide information regarding the added cost of collateral per \$100,000 increment to satisfy the initial collateral requirement if SDG&E decides not to extend unsecured credit – this information will be gathered via the credit application form. This information will be included in the

credit application, available on the RFO Website and the Power Advocate ® site. These costs will be considered as discussed in the quantitative evaluation section within this document).

#### 1) **SHORTLIST ACCEPTANCE FEE**

The Shortlist Acceptance Fee is the greater of \$100,000 or \$2 per kW of project nameplate (ESSPPTA) or aggregate ESS size (ESSBOT or ESSEPC) and shall be required to be paid to SDG&E within ten (10) business days of notification by SDG&E that the offer has been shortlisted. The Shortlist Acceptance Fee shall be refunded (with interest for cash deposits) to Respondent if Respondent and SDG&E fail to reach an agreement and such failure is not due to Respondent's withdrawal of its offer or a material misrepresentation of pricing or non-pricing information provided by Respondent.

For questions regarding credit terms, please contact Ms. Judy Delgadillo at (213) 244-4343. Project-specific questions and answers will not be disclosed to other Respondents.

#### **D. ASC 810 (FIN46(R), CONSOLIDATION OF VARIABLE INTEREST ENTITIES) REQUIREMENTS**

Generally Accepted Accounting Principles and SEC rules require SDG&E to evaluate whether or not SDG&E must consolidate a Seller's financial information. SDG&E will require access to financial records and personnel to determine if consolidated financial reporting is required. If SDG&E determines at any time that consolidation is required, SDG&E shall require the following during every calendar quarter for the term of any resultant agreement:

- a) Unaudited financial statements with footnotes, within 15 calendar days of the end of each quarter;
- b) Audited financial statements with footnotes within 90 calendar days of the end of the year,
- c) Financial schedules underlying the financial statements, within 15 calendar days of the end of each quarter;
- d) Access to records and personnel, so that SDG&E's internal or independent auditor can conduct financial audits (in accordance with generally accepted auditing standards) and internal control audits (in accordance with Section 404 of the Sarbanes-Oxley Act of 2002) ) and SDG&E can meet its SEC filing requirements. The rights and obligations under the agreement shall survive the termination of this agreement for a period of two years;
- e) Certifications by duly authorized representatives as may be reasonably requested by SDG&E; and
- f) Such other information as reasonably requested by SDG&E.
- g) If consolidation is required and considered material by the buyer to buyer's financial statements or its parent company's financial statements and buyer reasonably determines seller's internal controls over financial reporting are considered to be significantly deficient or a material weakness, then seller is to remediate within 30 calendar days;
- h) Seller to provide to buyer any SEC Form 8K disclosures, two calendar days after the occurrence of the SEC Form 8K event; and



- i) Seller to notify buyer at any time during the term of the agreement of any consulting (non-independent) services proposed to be provided to seller by the buyer's independent auditor.

Any information provided to SDG&E shall be treated as confidential, except that it may be disclosed for financial statement purposes. Full details of SDG&E's requirements in connection with consolidation are set forth in the Model PPA.

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## 4.0 FACILITY INTERCONNECTION

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ESSPPTA and ESSBOT Respondents must either have:

- 1) Completed a Phase I interconnection study, or have passed the Wholesale Distribution Access Tariff (“WDAT”) or California Independent System Operator (“CAISO”) Fast Track screen and provide a copy of the most recent completed study or evidence of having passed the Fast Track screening process with their offer, or
- 2) Provide evidence that the project is a repowering of a comparably sized existing facility in accordance with the CAISO Business Practice Manual for Generator Management.

Transmission level projects are required to apply for interconnection through the CAISO Large Generator Interconnection Agreement/Small Generator Interconnection Agreement process. Distribution level projects will be required to apply through SDG&E’s WDAT process. Respondents may visit: <http://www.sdge.com/business/interconnection.shtml> or <https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Generator%20Management> for additional information. Respondents pursuing an ESSPPTA and ESSBOT are responsible for all non-reimbursable interconnection costs that are allocated to the project and these costs should be incorporated into the ESSPPTA or ESSBOT offer’s contract pricing. Reimbursable network upgrade costs borne by SDG&E customers will be included in the evaluation and ranking of offers.

SDG&E intends that ESS projects count towards SDG&E’s local RA obligations. In order to become RA eligible, Respondents pursuing an ESSPPTA or ESSBOT must apply for a deliverability study to be conducted by the CAISO or be pursuing a repowering of a comparably sized existing facility in accordance with the CAISO Business Practice Manual for Generator Management. ESSPPTA and ESSBOT Respondents must demonstrate that the project has been assessed for deliverability or the project is eligible as a repowering of a comparably sized existing facility. This condition must be met for ESSPPTA and ESSBOT offers that will interconnect at either the distribution or transmission level. For offers that result in an executed and approved ESSPPTA or ESSBOT, during the project development process, the project is required to obtain final interconnection studies (i.e. for transmission level projects, a final Phase II interconnection study report, or for distribution level projects, a final interconnection facilities study report (or equivalent)). All ESSEPC projects that the SDG&E Cost Development Team pursues will likewise need to establish FCDS.

For more information:

*SDG&E Interconnection Website:* ***<http://www.sdge.com/business/interconnection.shtml>***

- Download and review SDG&E Interconnection Handbook,
- Links to CASIO interconnection queue, tariffs and websites,
- Links to SDG&E interconnection queue, tariffs and websites,
- Link to NERC/WECC Reliability Standards,
- Links to Process Summaries,
- Link to SDG&E Self Generation Technologies site.

*CAISO Generation Interconnection Process Contact:*

- Project Manager: Judy Brown (916) 608-7062; **[JBrown@caiso.com](mailto:JBrown@caiso.com)**

*SDG&E Contact:*

- Transmission level - Gen. Interconnection Project Manager: Marlene Mishler (858) 654-8640 ; [MMishler@semprautilities.com](mailto:MMishler@semprautilities.com)
- Distribution level – Customer Generation Manager: Ken Parks (858) 636-5581; [KParks@semprautilities.com](mailto:KParks@semprautilities.com)

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## 5.0 EVALUATION CRITERIA

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All incoming offers will be assessed for conformance based on the requirements outlined in Section 3 (Eligibility Requirements). Respondents' offers shall conform with minimum participation criteria and eligibility requirements in order to be considered.

SDG&E will utilize all the information provided in the required forms and narratives to evaluate all offers. Respondents are responsible for the accuracy of all discussions, figures and calculations. Errors discovered during evaluation may impact a Respondent's potential short-list status.

As required by the Track 4 Decision, SDG&E is soliciting a broad range of resources including energy efficiency, demand response, renewables, distributed generation and energy storage. SDG&E has provided a separate RFO document outlining instructions and requirements for each resource type (and in the case of energy storage, contract type as well). SDG&E's valuation and selection approach is intended to evaluate the different resource (and contract) types on as equal a footing as possible. Initially, all offers will go through a conformance check to ensure that the project meets the requirements outlined in the RFO document for that particular resource type. Conforming offers will then go through a Least-Cost / Best-Fit (LCBF) / Net Market Value ("NMV") analysis.

### **QUANTITATIVE EVALUATION**

SDG&E evaluates and ranks offers based on Least-Cost/Best-Fit ("LCBF") principles. The LCBF analysis evaluates both quantitative and qualitative aspects of each offer to estimate its value to SDG&E's customers and its relative value in comparison to other offers. The valuation of an offer takes into account both benefits and costs. The primary quantitative metric used in SDG&E's LCBF process is a Net Market Value ("NMV") calculation. The NMV calculation is a quantification of the value of an offer when compared to a set of price benchmarks for capacity, electrical energy, ancillary services, natural gas, and Green House Gas ("GHG") compliance. Additionally, SDG&E may consider portfolio effects (costs or benefits) associated with the offer on the portfolio. These benefit and cost components are netted and discounted to yield a NMV for each offer. The NMV of an offer is compared to the NMV of other offers to determine whether that offer is one of the highest ranked. The initial evaluation will be done without regard to credit costs. Once an initial listing of the highest ranked offers is determined, a credit analysis will be conducted and credit costs will be considered. The economic evaluation normalizes the MW size differences of offers by finding the most attractive NMV per MW of capacity ("Least Cost"). In the case of ESSEPC and ESSBOT offers, SDG&E's Cost Development Team will estimate and include utility related costs alongside the costs provided by the Respondent (for ESSEPC offers, the Respondent will include equipment and installation costs, O&M costs, and other costs as appropriate – SDG&E will include site costs, permitting and interconnection costs --- see the offer form (excel file) for more detail. For ESSBOT offers, the Respondent will include all development costs through commissioning, and SDG&E will include post commissioning utility related costs).

SDG&E evaluates the quantifiable attributes of each offer individually. These individual attributes will include: capacity benefits, energy benefits, ancillary service benefits, contract payments (or anticipated SDG&E equipment ownership (ESSBOT or ESSEPC offers) and project

development costs – for siting, permitting and interconnection – (ESSEPC offers)), GHG emissions and costs, congestion costs, and transmission losses and costs.

#### **A. NET CAPACITY BENEFITS**

Capacity benefits are calculated by comparing the capacity costs in the offer to the capacity value to SDG&E.

#### **B. NET ENERGY AND ANCILLARY SERVICES BENEFITS**

The net energy benefit valuation includes an optimized energy and A/S dispatch profile multiplied by the corresponding energy forward price curves, less the variable costs associated with generating that energy.

#### **C. TRANSMISSION/DISTRIBUTION SYSTEM IMPACTS**

Upgrade costs that solely benefit the project and are paid for by the developer (Gen-tie Costs) should be reflected in the offer pricing, and reimbursable network upgrade costs that benefit the grid broadly and are ultimately borne by customers will be considered in the economic evaluation of the offer (Network Upgrade Costs). SDG&E requires that Respondants have either completed Phase 1 or Phase 2 study results or be the repowering of a comparably sized existing facility as the basis for including appropriate interconnection cost estimates in its evaluation.

#### **D. RESIDUAL CAPACITY AND ENERGY BENEFITS**

For all ESSEPC and ESSBOT offers, SDG&E will require that bidders guarantee the rated capacity of the ESS for some term (10 years or expected useful life). At the end of the capacity guarantee period, the ESS will have 100% of its rated capacity, and can be operated for some additional period; providing residual benefits without incurring additional capacity guarantee costs. SDG&E will require ESSEPC and ESSBOT Respondents to state manufacturer's degradation using an agreed-upon post-maintenance period use profile, and will use this information to quantify residual capacity and energy benefits for these offers.

#### **E. RESOURCE SPECIFIC BENEFITS AND COSTS**

Any quantifiable benefits or costs that are unique to a particular resource type, will be added to the NMV calculation. For example, renewable resources that offer Renewable Energy Credits will have the value of those credits added as a benefit to the NMV.

### **QUALITATIVE EVALUATION**

Qualitative factors and benefits will be used to determine which projects are the "Best Fit" for SDG&E's portfolio. SDG&E may use these factors to determine advancement onto the short list. Qualitative factors may include, but are not limited to:

#### **A. PROJECT VIABILITY**

SDG&E is seeking experienced companies and development teams to develop and operate facilities utilizing commercially available, known and proven technology. Another aspect of project

viability will include its ability to contribute to meeting the Local Capacity Requirement. SDG&E works with the CAISO in modeling resource and program portfolios to ensure SDG&E's LCR is met.

## **B. ADHERENCE TO ESSPPTA TERMS AND CONDITIONS**

ESSPPTA Respondents may modify the ESSPPTA as part of their submittal package to the extent that modifications add value to the offer. SDG&E will review modifications to any terms and conditions proposed in the offer and consider the materiality of these changes.

## **C. SUPPLIER DIVERSITY**

SDG&E strongly encourages Diverse Business Enterprises ("DBEs"), "Women-Owned Businesses" or "Minority-Owned Businesses" or "Disabled Veteran Business Enterprises" as defined in G.O. 156<sup>12</sup>, to participate in this RFO. Furthermore, SDG&E strongly encourages developers to utilize DBEs during various stages of project development and construction. As a part of G.O. 156, SDG&E will require developers to identify, verify and report their DBE contractors/subcontractor spending if any. Additional information on SDG&E's DBE program can be found at:

<http://www.semptra.com/about/supplier-diversity/>  
<http://www.cpuc.ca.gov/puc/supplierdiversity/>

SDG&E's DBE Program representatives will provide a presentation during the pre-bid conference. DBEs can request additional information by contacting SDG&E at [vendorrelations@semptrautilities.com](mailto:vendorrelations@semptrautilities.com).

## **D. LOADING ORDER RANKING**

SDG&E seeks resources in accordance with the loading order described in the Energy Action Plan (see footnote 2, above). SDG&E will give preference to higher loading order ranked resources.

## **E. CATEGORY 1 FLEXIBLE RA CAPABILITIES**

SDG&E will give preference to resources that are able to meet the CAISO's prevailing Flexible Resources Availability Criteria and Must Offer Obligations ("FRAC-MOO")<sup>13</sup> and obtain an Effective Flexible Capacity ("EFC") greater than zero. In addition, SDG&E will differentiate flexible attributes based on their Flexible Resource Categories, with Base Ramping (Category 1 Flex)

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<sup>12</sup> See <http://www.thesupplierclearinghouse.com/eligibility/default.asp> for the definition of a DBE.

<sup>13</sup> A must-offer obligation, or MOO, is a commitment to be available for dispatch by the CAISO. The MOO is distinct from the four hour capability requirement for continuous operation upon dispatch. System and Local RA resources, whether DR or storage, may either bid into the CAISO markets or self-schedule. The proposed MOO for Flexible RA resources (FRAC-MOO) aims to ensure that flexible resources will be available to contribute to the times of greatest system ramping. The proposed FRAC-MOO requirements can be found at <https://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleResourceAdequacyCriteria-MustOfferObligations.aspx>

providing the greatest benefit. More information on EFC and current resource category requirements can be found in section 10 of the CAISO Business Practice Manual for Reliability Requirements located here:

<https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Reliability%20Requirements>.

Respondents providing Flexible RA value will be presented with contracts reflecting those requirements and this value.

### **BID CONFORMANCE EVALUATION**

In addition to the elements described above, SDG&E may also reject an offer if:

1. SDG&E uncovers evidence of market manipulation in the bid preparation and offer process;
2. the Respondent does not provide adequate evidence that it meets minimum participation criteria;
3. the Respondent cannot fulfill the terms and conditions of the ESSPPTA; and/or,
4. the Respondent is unable to comply with RFO timing and other solicitation requirements.

SDG&E WILL NOT REIMBURSE RESPONDENTS FOR THEIR EXPENSES UNDER ANY CIRCUMSTANCES, REGARDLESS OF WHETHER THE RFO PROCESS PROCEEDS TO A SUCCESSFUL CONCLUSION OR IS ABANDONED BY SDG&E IN ITS SOLE DISCRETION.

## 6.0 RFO SCHEDULE

The following schedule and deadlines apply to this RFO. SDG&E reserves the right to revise this schedule at any time and in SDG&E's sole discretion. Respondents are responsible for monitoring the RFO Website for updated schedules and possible amendments to the RFO or the solicitation process.

| NO. | ITEM  | Date  |              |              |
|-----|---|---|--------------|--------------|
|     |   | ESSPPTA   | ESSBOT       | ESSEPC       |
| 1   | RFO Issued  | 2/26/2016   |              |              |
| 2   | Pre-Bid Conference / Bidder Outreach Event  | April 13, 2016  |              |              |
| 3   | DEADLINE for Respondents to provide a written expression of interest to SDG&E (e-mail to <a href="mailto:2016ESSEPCBOTRFO@semprautilities.com">2016ESSEPCBOTRFO@semprautilities.com</a> or other written correspondence) containing company name and contact information by 5:00PM          | N/A   | 3/11/2016    | 3/11/2016    |
| 4   | Nondisclosure Agreements (NDAs) sent out to Respondents expressing interest.  | N/A   | N/A          | 3/11/2016    |
| 5   | DEADLINE to receive Executed NDA. This information should be e-mailed to <a href="mailto:2016ESSEPCBOTRFO@semprautilities.com">2016ESSEPCBOTRFO@semprautilities.com</a> by 5:00pm to receive PowerAdvocate registration details required for Commercial Viability Details submission.       | N/A   | N/A          | 3/18/2016    |
| 6   | DEADLINE TO SUBMIT QUESTIONS. Question submittal cut-off date. Answers to all questions will be posted on the website no later than June 24, 2016.  | 6/17/2016 – date applies to ESSPPTA, ESSEPC and ESSBOT  |              |              |
| 7   | DEADLINE TO REGISTER for PowerAdvocate access / to download RFO forms and documents   | 6/24/2016   | See Addendum | See Addendum |
| 8   | CLOSING DATE:<br>For ESSPPTA offers: offers must be uploaded to and received on Power Advocate ® no later than 1:00 PM Pacific Prevailing Time on July 1, 2016 For ESSEPC and ESSBOT Offers: SDG&E's Cost Development Team will submit final offer documents on or before the CLOSING DATE. | 7/1/2016 – date applies to ESSPPTA. For ESSEPC and ESSBOT Offers, SDG&E's Cost Development Team will submit the final offer documents on or before the CLOSING DATE |              |              |
| 9   | SDG&E Begins Bid Evaluation Process   | 7/2/2016  |              |              |
| 10  | Shortlist determination   | 10/24/2016  |              |              |
| 11  | SHORTLIST NOTIFICATION<br>SDG&E notifies Shortlisted Bidders  | 10/28/2016  |              |              |
| 12  | SHORTLISTED BIDDERS ACCEPTANCE/WITHDRAWAL<br>Letter due from Shortlisted Bidders indicating:<br>a. Withdrawal from SDG&E's solicitation; OR<br>b. Acceptance of shortlisted standing and including Shortlist Acceptance Fee<br>SHORTLIST NOTIFICATION                                       | +10 Days<br>after Shortlist Notification<br>Date applies to ESSPPTA, ESSEPC and ESSBOT  |              |              |
| 13  | SDG&E issues appreciation notices to unsuccessful Respondents   | +3 Weeks<br>after Shortlisted Bidders<br>accept/withdraw<br>Date applies to ESSPPTA, ESSEPC and ESSBOT  |              |              |



|  |   |  |
|--|---|--|
| 14   | SDG&E commences with ESSPPTA, ESSBOT, and ESSEPC negotiations | +11 Days after Shortlist Notification<br>Date applies to ESSPPTA, ESSEPC<br>and ESSBOT |
| 15   | Target date to complete contract negotiations                 | End of Q1, 2017  |
| 16   | SDG&E Submits agreements to CPUC for approval <sup>14</sup>   | Q2 2017<br>Date applies to ESSPPTA, ESSEPC<br>and ESSBOT                               |
| * Negotiation time will vary depending on proposal specifics including proposed contract modifications. SDG&E Submits Advice letters with ESSPPTAs or applications with ESSBOTs and ESSEPCs to CPUC for approval |   |  |

### **PRE-BID CONFERENCE / BIDDER OUTREACH EVENTS**

SDG&E will host a bidder outreach event for all respondents on April 13, 2016. This event will be an in-person event for all resource types (with dial-in / webinar available for those that cannot attend in-person). Participation in this event is NOT mandatory in order to submit an offer.

In addition, the Cost Development Team will host one outreach event to describe the the ESSBOT and ESSEPC pre-offer and pre-evaluation processes and timelines. More information about this event, including the date, is described in the Addendum documents that will be provided to ESSBOT and ESSEPC Respondents once their formal expression of interest has been provided and, for ESSEPC Respondents, an NDA has been executed.

Please monitor the RFO Website for further details (such as conference presentation materials and final arrangements for the events (dates, times and location)). SDG&E will make efforts to notify bidders of outreach event details via e-mail as well as provide this information via the RFO Website.

Any party interested in attending these events should email the following information to [PrefResourcesRFO@semprautilities.com](mailto:PrefResourcesRFO@semprautilities.com)

- Company name, and
- Attendees' names, titles and contact information

<sup>14</sup> D.14-10-045 – Decision Approving the IOU's Storage Procurement Framework and Program Applications for the 2014 Biennial Procurement Period – section 6.5.4.3, p. 92 discusses the one year timing requirement for filing of applications requesting approval of energy storage contracts.

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## 7.0 RFO WEBSITE AND COMMUNICATION

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The RFO and all subsequent revisions and documents are available for download from the RFO Website (<http://www.sdge.com/2016PrefResourcesLCRRFO>) and the 2016 ENERGY STORAGE SYSTEM (ESSPPTA) RFO event on the PowerAdvocate® website. Potential Respondents are responsible for monitoring the RFO Website and PowerAdvocate® for subsequent updates, notices and postings.

### Logging In

You access the PowerAdvocate platform via a web browser.

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#### *To log in*

1. Open a web browser and go to [www.poweradvocate.com](http://www.poweradvocate.com).

PowerAdvocate functions in most web browsers; however, using browsers other than Internet Explorer (IE) version 6 or higher may cause certain functionality to work unexpectedly. Should you encounter problems, PowerAdvocate support may be unable to provide assistance until the issue has been replicated in a supported version of Internet Explorer.

2. Click **Login**.

The Login page appears; you may wish to bookmark it for quick access.

3. Enter your account **User Name** and **Password**.

Both are case-sensitive.

If you do not have an account, go to [poweradvocate.com](http://poweradvocate.com) and click the **Registration** link at the top of the page. If you have an account but do not remember your user information, click **Forgot User Name** or **Forgot Password** and they will be emailed to you.

4. Click **Login**.

The 2016 ENERGY STORAGE SYSTEM (ESSPPTA) RFO event on the PowerAdvocate® website contains the following: required RFO forms, documents, and schedule. Respondents intending to bid but who do not yet have an existing account with PowerAdvocate® must first register to create a username/password in order to receive access to the event. See below for instructions to log in/register: First-time users must register as a Supplier using the instructions above and the Referral information below to access the RFO event:

## **ENERGY STORAGE SYSTEM (ESSPPTA)**

### **Referral Information**

|   |  |
|---|--|
| Are you registering for a specific Event: * | <input checked="" type="radio"/> Yes<br><input type="radio"/> No, I would simply like to register. |
| Who referred you to this Event: *           | <input type="text" value="PrefResourcesRFO@semprautilities.com"/>                                  |
| Name of that individual's company: *        | <input type="text" value="San Diego Gas &amp; Electric"/>  |
| Name or description of the Event: *         | <input type="text" value="56973 : 2016 ENERGY STORAGE SYSTEM (ESSPPTA) RFO"/>                      |

\* Required Field

Users with an existing PowerAdvocate® account may request access to the event using the link below:

<https://www.poweradvocate.com/pR.do?okey=56973&pubEvent=true>

For ESSEPC and ESSBOT Respondents: Upon providing the required formal expression of interest, ESSEPC and ESSBOT Respondents will be provided with information regarding how and when Respondent's must provide cost and other offer information to SDG&E's Cost Development Team. SDG&E's Cost Development Team will then provide the final ESSBOT and ESSEPC offers via the Power Advocate ® platform on July 1, 2016. This process will be described in the Addendum documents available to ESSBOT and ESSEPC Respondents after formal expression of interest (and NDA execution in the case of ESSEPC Respondents).

The RFO website contains RFO forms and documents, the RFO Schedule, and a Question and Answer forum. All questions or other communications regarding this RFO must be submitted via email to [PrefResourcesRFO@semprautilities.com](mailto:PrefResourcesRFO@semprautilities.com) by the DEADLINE TO SUBMIT QUESTIONS as specified in Section 6.0 RFO Schedule. SDG&E will not accept questions or comments in any other form, except during scheduled bidders conferences.

## **RFO RESPONSE INSTRUCTIONS**

Respondents are required to submit the below files / forms / documents in response to this solicitation. Forms are available on the RFO Website and through the PowerAdvocate site. Failure to provide the listed information may result in the proposal being deemed non-conforming and may disqualify the proposal from further consideration.

**Formal expression of interest:** ESSBOT and ESSEPC Respondents shall contact SDG&E's Cost Development Team via e-mail (at [2016ESSEPCBOTRFO@semprautilities.com](mailto:2016ESSEPCBOTRFO@semprautilities.com)) to provide their formal expression of interest. This e-mail shall be provided to SDG&E's Cost Development Team no later than March 11, 2016. Upon receipt of this formal expression of interest, SDG&E's Cost Development Team will provide further instructions regarding documents, files and other information that must be provided in order to complete the offer.

### **Limit on Number of Bids**

A MAXIMUM OF SIX (6) OFFERS PER RESPONDENT PER PROJECT OR PROGRAM WILL BE ACCEPTED.

Defining what a separate project entails: Variation of significant project details, including the following, will constitute a separate 'project' or 'program':

- Differing commercial operation dates or delivery start dates
- Differing delivery terms
- Differing energy deliveries or dispatchable configurations
- Differing maximum capacity
- Differing points of interconnection
- Differing operational constraints
- Differing equipment suppliers

Fill out separate offer forms for each offer. Only one Project Description Form is required per Respondent (per project) to the extent that all bids can be adequately summarized in the space provided.

If the respondent has questions or concerns regarding bid limits, please contact SDG&E at:  
[PrefResourcesRFO@semprautilities.com](mailto:PrefResourcesRFO@semprautilities.com)

### **Required Participation Forms:**

**NOTE: ESSPPTA Respondents will complete all forms and submit via Power Advocate®. ESSEPC and ESSBOT Respondents will provide all required forms and information to SDG&E's Cost Development Team pursuant to the processes and timelines set forth in the Addendum documents that will be provided upon receipt of a formal expression of interest. SDG&E's Cost Development Team will submit final offer packages on or before the CLOSING DATE.** ESSEPC and ESSBOT Respondents will receive detailed process information upon completing the formal expression interest process outlined in Section 7, above.

- 1) **Energy Storage Offer Form** – Note that Bidders must include in their offer form proposed pricing and if multiple pricing or capacity or other options are contemplated, multiple offer forms should be submitted. There are additional / separate tabs within the workbook for ESSPPTA offers, and utility owned offers (ESSBOT and ESSEPC). SDG&E's Cost Development Team may gather additional information and in different forms ahead of the closing date in support of final Offer Form submission.
- 2) **Project Description Form**
- 3) **Electric Interconnection / Repowering Information** – Please provide copies of either (1) completed interconnection studies (and provide the name of the substation and interconnection voltage applicable to the facility as well as the nearest substation (if known) in the offer form (listed above), or (2) Information regarding the

- repowering of a comparably sized existing facility in accordance with the CAISO Business Practice Manual for Generator Management.
- 4) **Credit Application** – Changes to credit terms and conditions within either the ESSPPTA may render the offer non-conforming and disqualify the project from further consideration.
  - 5) **Diverse Business Enterprise Subcontracting Commitment and Reporting Requirements (DBE) Form (optional)** - Provide a copy of certification documents received from the California Public Utilities Commission. An application can be made before submission of the offer and referenced in the offer.
  - 6) **Redline forms of the ESSPPTA Pro Forma Agreement** - ESSPPTA Respondents only.

The Participation Summary, Project Description Form, Credit Application, and redlines to the Model ESSPPTA must be in Word or Word-compatible format (not in PDF). The offer form must be in Excel or Excel-compatible format (not in PDF).

**Submissions containing unsolicited materials or submissions of individual bid documents in file formats other than the formats of the original bid forms may be rejected. This RFO is an electronic only Solicitation; Respondents need not submit paper documents, or e-binders.**

ESSPPTA Respondents interested in submitting an offer must register to receive access to the 2016 ENERGY STORAGE SYSTEM (ESSPPTA) RFO event on PowerAdvocate® in order to submit an offer. To register, Respondents must follow the instructions outlined in Section 7, RFO Website and Communications. All offers must be uploaded to the PowerAdvocate® no later than 1:00 p.m., Pacific Prevailing Time, on the CLOSING DATE (see RFO Schedule). If Respondents encounter technical difficulties with the uploading process, they should provide evidence of such difficulties (e.g. a screen shot of the error message) and email the bid to:

The RFO mailbox: [PrefResourcesRFO@semprautilities.com](mailto:PrefResourcesRFO@semprautilities.com)

Carbon Copy (CC) to: [Jon.Jacobs@paconsulting.com](mailto:Jon.Jacobs@paconsulting.com) and [Barbara.Sands@PAConsulting.com](mailto:Barbara.Sands@PAConsulting.com)

Emails shall be received by 1:00 p.m., Pacific Prevailing Time, on the Closing Date.

All offer materials submitted in accordance with the above Response Instructions shall be subject to the confidentiality provisions of Section 10 Confidentiality of this RFO.

SDG&E will review and may utilize all information, if any, submitted by a Respondent that is not specifically requested as a part of any forms. During all stages of the RFO process, SDG&E reserves the right to request additional information from individual Respondents or to request any Respondent to submit supplemental materials in fulfillment of the content requirements of this RFO or to meet additional information needs. SDG&E also reserves the unilateral right to waive any technical or format requirements contained in the RFO.

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## 8.0 REJECTION OF OFFERS

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SDG&E SHALL TREAT ALL RESPONDENTS FAIRLY AND EQUALLY AND SHALL EVALUATE ALL OFFERS IN GOOD FAITH. WHILE SDG&E IS MINDFUL OF THE BENEFITS OF ENERGY FROM ESS FACILITIES AND IS VIGOROUSLY PURSUING THE GOALS OF THE ENERGY STORAGE DECISION AND TRACK 4 DECISION, IT MAKES NO GUARANTEE THAT A CONTRACT AWARD SHALL RESULT FROM THIS RFO, EVEN AFTER AN OFFER HAS BEEN SHORTLISTED. SDG&E RESERVES THE RIGHT AT ANY TIME, AT ITS SOLE DISCRETION, TO ABANDON THIS RFO PROCESS, TO CHANGE THE BASIS FOR EVALUATION OF OFFERS, TO TERMINATE FURTHER PARTICIPATION IN THIS PROCESS BY ANY PARTY, TO ACCEPT ANY OFFER OR TO ENTER INTO ANY DEFINITIVE AGREEMENT, TO EVALUATE THE QUALIFICATIONS OF ANY RESPONDENT OR THE TERMS AND CONDITIONS OF ANY OFFER, OR TO REJECT ANY OR ALL OFFERS, ALL WITHOUT NOTICE AND WITHOUT ASSIGNING ANY REASONS AND WITHOUT LIABILITY OF SEMPRA ENERGY, SDG&E, OR ANY OF THEIR SUBSIDIARIES, AFFILIATES, OR REPRESENTATIVES TO ANY RESPONDENT. SDG&E SHALL HAVE NO OBLIGATION TO CONSIDER ANY OFFER.

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## 9.0 CONFIDENTIALITY

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EXCEPT WITH THE PRIOR WRITTEN CONSENT OF SDG&E, RESPONDENTS MAY NOT DISCLOSE (OTHER THAN BY ATTENDANCE ALONE AT ANY MEETING TO WHICH MORE THAN ONE RESPONDENT IS INVITED BY SDG&E) TO ANY OTHER RESPONDENT OR POTENTIAL RESPONDENT THEIR PARTICIPATION IN THIS RFO, AND RESPONDENTS MAY NOT DISCLOSE, COLLABORATE ON, OR DISCUSS WITH ANY OTHER RESPONDENT, OFFER STRATEGIES OR THE SUBSTANCE OF OFFERS, INCLUDING WITHOUT LIMITATION THE PRICE OR ANY OTHER TERMS OR CONDITIONS OF ANY INDICATIVE OR FINAL OFFER.

SDG&E WILL USE THE HIGHER OF THE SAME STANDARD OF CARE IT USES WITH RESPECT TO ITS OWN PROPRIETARY OR CONFIDENTIAL INFORMATION OR A REASONABLE STANDARD OF CARE TO PREVENT DISCLOSURE OR UNAUTHORIZED USE OF RESPONDENT'S CONFIDENTIAL AND PROPRIETARY INFORMATION THAT IS LABELED AS "PROPRIETARY AND CONFIDENTIAL" ON THE OFFER PAGE ON WHICH THE PROPRIETARY INFORMATION APPEARS ("CONFIDENTIAL INFORMATION"). RESPONDENT SHALL SUMMARIZE ELEMENTS OF THE OFFER(S) IT DEEMS CONFIDENTIAL. THE SUMMARY MUST CLEARLY IDENTIFY WHETHER OR NOT PRICE, PROJECT NAME, LOCATION, SIZE, TERM OF DELIVERY AND TECHNOLOGY TYPE (EITHER COLLECTIVELY OR INDIVIDUALLY) ARE TO BE CONSIDERED CONFIDENTIAL INFORMATION. CONFIDENTIAL INFORMATION MAY BE MADE AVAILABLE ON A "NEED TO KNOW" BASIS TO SDG&E'S DIRECTORS, OFFICERS, EMPLOYEES, CONTRACTORS, CONSULTANTS, THE INDEPENDENT EVALUATOR, AGENTS AND ADVISORS ("REPRESENTATIVES"), BUT SUCH REPRESENTATIVES SHALL BE REQUIRED TO OBSERVE THE SAME CARE WITH RESPECT TO DISCLOSURE AS SDG&E.

NOTWITHSTANDING THE FOREGOING, SDG&E MAY DISCLOSE ANY OF THE CONFIDENTIAL INFORMATION TO COMPLY WITH ANY LAW, RULE, OR REGULATION OR ANY ORDER, DECREE, SUBPOENA OR RULING OR OTHER SIMILAR PROCESS OF ANY COURT, SECURITIES EXCHANGE, CONTROL AREA OPERATOR, GOVERNMENTAL AGENCY OR GOVERNMENTAL OR REGULATORY AUTHORITY AT ANY TIME EVEN IN THE ABSENCE OF A PROTECTIVE ORDER, CONFIDENTIALITY AGREEMENT OR NON-DISCLOSURE AGREEMENT, AS THE CASE MAY BE, WITHOUT NOTIFICATION TO THE RESPONDENT AND WITHOUT LIABILITY OR ANY RESPONSIBILITY OF SDG&E TO THE RESPONDENT.

IT IS EXPRESSLY CONTEMPLATED THAT MATERIALS SUBMITTED BY A RESPONDENT IN CONNECTION WITH THIS RFO WILL BE PROVIDED TO THE CPUC, ITS STAFF, THE CEC, ITS STAFF, SDG&E'S INDEPENDENT EVALUATOR, SDG&E'S PRG, AND THE COST ALLOCATION METHODOLOGY ("CAM") GROUP. ADDITIONALLY, SDG&E MAY PROVIDE LIMITED INFORMATION SUCH AS (BUT NOT LIMITED TO) ON-LINE DATE, INTERCONNECTION POINT, TECHNOLOGY AND OTHER OPERATIONAL CHARACTERISTICS TO THE CAISO FOR MODELING PURPOSES. SDG&E WILL SEEK CONFIDENTIAL TREATMENT PURSUANT TO

PUBLIC UTILITIES CODE SECTION 583 AND GENERAL ORDER 66-C OF THE CPUC, WITH RESPECT TO ANY RESPONDENT CONFIDENTIAL INFORMATION SUBMITTED BY SDG&E TO THE CPUC. SDG&E WILL ALSO SEEK CONFIDENTIALITY PROTECTION FROM THE CALIFORNIA ENERGY COMMISSION (“CEC”) FOR RESPONDENT’S CONFIDENTIAL INFORMATION AND WILL SEEK CONFIDENTIALITY AND/OR NON-DISCLOSURE AGREEMENTS WITH THE PROCUREMENT REVIEW GROUP (“PRG”). SDG&E CANNOT, HOWEVER, ENSURE THAT THE CPUC OR CEC WILL AFFORD CONFIDENTIAL TREATMENT TO A RESPONDENT’S CONFIDENTIAL INFORMATION OR THAT CONFIDENTIALITY AGREEMENTS OR ORDERS WILL BE OBTAINED FROM AND/OR HONORED BY THE PRG, CEC, OR CPUC.

SDG&E, ITS REPRESENTATIVES, SEMPRA ENERGY, AND ANY OF THEIR SUBSIDIARIES DISCLAIM ANY AND ALL LIABILITY TO A RESPONDENT FOR DAMAGES OF ANY KIND RESULTING FROM DISCLOSURE OF ANY OF RESPONDENT’S INFORMATION.



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## 10.0 ESS PROGRAM PARAMETERS

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### THIS RFO'S ROLE IN THE STATE OF CALIFORNIA'S ENERGY STORAGE PROGRAM

In early 2010, AB 2514 (titled “Energy Storage Systems”) was introduced in the state legislature and subsequently signed into law by the Governor. This resulted in the addition of Public Utilities Code sections 2835, 2836 and associated sections and the passage of the Energy Storage Decision. The Energy Storage Decision sets a goal for SDG&E to procure 165 MW of energy storage to be installed no later than year-end, 2024. This RFO is the first of four ESS RFOs that SDG&E will issue in pursuit of this goal. Additionally, the Track 4 Decision requires that SDG&E procure at least 25 MW of energy storage as part of its LCR requirement. The ESS resources that SDG&E is seeking via this RFO are intended to meet both the requirements of the Energy Storage Decision and the Track 4 Decision.

### PROCUREMENT REVIEW GROUP

The Procurement Review Group (PRG) and Cost Allocation Mechanism (CAM) PRG are CPUC-endorsed entities and are composed of non-market participants such as ratepayers’ advocacy groups, state energy and water commissions, power authorities, utility-related labor unions and other non-commercial, energy-related special interest groups. Each IOU has its own PRG and CAM PRG. The PRG and CAM PRG are charged with overseeing the IOU’s procurement process, reviewing procedural fairness, examining overall procurement prudence and providing feedback during all stages. From RFO language development to offer evaluation to contract negotiation, IOU’s brief the PRG and/ or the CAM PRG on a periodic basis during the entire process.

Respondents are hereby notified that revealing confidential offer information to the PRG and/or CAM PRG is required during briefings in accordance with Section 11 (“Confidentiality”). Each Respondent must clearly identify, as part of its offer, what type of information it considers to be confidential.

### INDEPENDENT EVALUATOR

The CPUC requires each IOU to use an Independent Evaluator (“IE”) to evaluate and report on the IOU’s entire solicitation, evaluation, and selection process. The IE will review SDG&E’s implementation of the RFO process and final selections. The IE also makes periodic presentations regarding its findings to the IOU and the IOU’s PRG, including the CPUC Energy Division staff. The intent of these IE presentations is to preserve the independence of the IE by ensuring free and unfettered communication between the IE and the CPUC, as well as an open, fair, and transparent process that the IE can affirm.

SDG&E is committed to ensuring an open and transparent solicitation, and to providing a fair, reasonable and competitive process.

The Independent Evaluator (“IE”) for this solicitation is PA Consulting.

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## 11.0 SDG&E BACKGROUND

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SDG&E provides electric service to approximately 1.3 million customers in San Diego County and the southern portion of Orange County. SDG&E also provides natural gas service to approximately 775,000 gas customers. The electric customer base comprises 89% residential and 11% commercial and industrial customers.

SDG&E's electric transmission network is comprised of 130 substations with 884 miles of 69-kV, 265 miles of 138-kV, 349 miles of 230-kV, and 215 miles of 500-kV transmission lines. Local ("on system") generating resources include the Encina plant (connected into SDG&E's grid at 138 kV and 230 kV), the Palomar Energy Center (connected at 230kV) and a number of combustion turbine facilities located around the service area (connected at 69 kV). Imported resources are received via the Miguel Substation as the delivery point for power flow on the Southwest Power Link, which is SDG&E's 500-kV transmission line that runs from Arizona to San Diego along the U.S./Mexico border as well as the Sunrise Power Link – a second 500kV transmission line that runs from the Imperial Valley substation and ending in San Diego's north county.

The figure below shows a simplified diagram of existing SDG&E's service area, which encompasses an area of 4,100 square-miles and spans 2 counties and 25 communities.



For a map California IOU service territories please visit:  
[http://www.energy.ca.gov/maps/serviceareas/electric\\_service\\_areas.html](http://www.energy.ca.gov/maps/serviceareas/electric_service_areas.html)

**ATTACHMENT A1**  
**2016 LCR Preferred Resources RFO**  
**Energy Storage Code of Conduct**

## ***2016 LCR PREFERRED RESOURCES RFO ENERGY STORAGE CODE OF CONDUCT***

In response to Decision (D.) 14-03-004, which authorizes SDG&E to procure from 500 to 800 MW of new capacity to meet local capacity requirement (LCR) need, SDG&E will issue a 2016 LCR Preferred Resources request for offers (RFO). In the Preferred Resources RFO, SDG&E will include five product types, including Energy Storage (ES). SDG&E will solicit offers for utility ownership of the ES product type only.<sup>1</sup>

SDG&E will consider offers for two types of utility ownership for ES products: (1) Energy Storage System Turn-Key Build Own Transfer Agreements (ESSBOT), whereby a third party provides cost estimates for all aspects of the bid; and (2) Energy Storage System Turn-Key Engineering Procurement and Construction Agreements (ESSEPC), whereby a third party provides cost estimates for all aspects of the project with the exception of land, permitting and interconnection. ESSEPC projects will be located on SDG&E property and SDG&E will develop cost estimates for land, permitting and interconnection.

D.07-12-052 requires that as a precondition for conducting an RFO seeking utility ownership options, an Investor-Owned Utility (IOU), in conjunction with its Independent Evaluator (IE), Procurement Review Group (PRG), and staff of the Energy Division (ED) of the California Public Utilities Commission (Commission), shall develop a strict code of conduct – to be signed by any and all IOU personnel involved in the RFO process – to prevent sharing of sensitive non-public information between utility personnel involved in developing cost estimates associated with utility ownership bids and utility personnel who create the bid evaluation criteria and select winning bids.

The Code of Conduct requires utility personnel performing the bid evaluation (the “Bid Evaluation Team”) to be functionally separated from the utility personnel preparing the bids or the cost estimates for projects that would ultimately be utility-owned (the “Cost Development Team”). Under this restriction, utility personnel developing the utility-owned project or preparing the cost estimates for projects that would ultimately be utility-owned are barred from access to any non-public evaluation protocols, input assumptions, or bid information not made generally available to outside bidders.

In accordance with this requirement, each SDG&E employee involved in the 2016 LCR Preferred Resources RFO – Energy Storage product type must certify through execution of the compliance certificate attached hereto as Appendix A that he/she will be assigned to the following tasks and comply with the following requirements:

1. Tasks to be completed by the Bid Evaluation Team include:
  - a. Conduct overall RFO process;
  - b. Receive bid materials from third parties for all product types except ESSEPC and ESSBOT (ESSEPC and ESSBOT third party bid materials will be

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<sup>1</sup> The Commission’s energy storage decision, D.13-10-040, requires that utilities evaluate all ownership structures, including utility ownership. See D.13-10-040, Appendix A, p. 6.

- included with the offers provided by the Cost Development Team on the closing date (date that all offers are due) of the RFO);
  - c. Receive revenue requirements and other information required for offer conformance from the Cost Development Team for utility ownership projects;
  - d. Evaluate bids according to the process outlined in solicitation protocols; and
  - e. Prepare a ranking of all offers.
- 2. Tasks to be completed by the Cost Development Team include:
  - a. In order to ensure that ESSBOT and ESSEPC equipment suppliers are presented with basic information required to prepare their offers, the Cost Development Team may assist in the preparation of the portions of the Energy Storage product type RFO document that are related to schedules, logistics and process description regarding the utility owned RFO bids (which are based on the ESSBOT and ESSEPC offers);
  - b. Conduct pre-evaluation and ranking process for ESSEPC offers;
  - c. Develop cost estimates for land / siting, permitting and interconnection for ESSEPC offers;
  - d. Develop revenue requirements for both ESSEPC and ESSBOT offers;
  - e. Provide revenue requirements to the Bid Evaluation Team for all utility ownership offers; and
  - f. Provide offers to the Bid Evaluation Team for ESSEPC and ESSBOT on the closing date (date that all offers are due) of the RFO.
- 3. The Bid Evaluation Team will not discuss with the Cost Development Team or communicate via email or otherwise any non-public information regarding the evaluation process or pricing.
- 4. Any discussions or e-mails related to the 2016 Preferred Resources LCR solicitation between the Bid Evaluation Team and the Cost Development Team will be monitored by the Independent Evaluator.
- 5. The Cost Development Team will not discuss with the Bid Evaluation Team or communicate via email or otherwise any non-public information regarding the development of cost estimates for a bid prior to providing the revenue requirement for such bid to the Bid Evaluation Team. Once the Cost Development Team has provided the revenue requirement for a particular bid to the Bid Evaluation Team, the Cost Development Team may respond to clarifying questions posed by the Bid Evaluation Team, provided that the Independent Evaluator monitors such discussions.
- 6. Materials provided by third parties will be submitted to the Bid Evaluation Team and not shared with the Cost Development Team, except for materials associated with utility ownership offers made to the Cost Development Team for estimates for permitting, land and interconnection and/or add revenue requirements.
- 7. The Bid Evaluation Team will store relevant non-public materials in a location that is not accessible to the Cost Development Team.

8. The Cost Development Team will store relevant non-public materials in a location that is not accessible to the Bid Evaluation Team.
9. The Independent Evaluator will oversee activities performed by both teams.
10. Any SDG&E employee or consultant who provides advisory services, manages, supervises or oversees the Bid Evaluation Team and/or the Cost Development Team will not act as a conduit for sharing information about each team's processes or activities.

**APPENDIX A**

**2016 PREFERRED RESOURCES RFO  
CODE OF CONDUCT**

**COMPLIANCE CERTIFICATE**

I, \_\_\_\_\_, am an employee of or consultant to San Diego Gas & Electric Company (SDG&E) and will be involved in SDG&E's 2016 Preferred Resources RFO process.

1. I hereby certify that I (*check the box that applies*)
- ☐ am a member of the Bid Evaluation Team
  - ☐ am a member of the Cost Development Team
  - ☐ provide advisory services to the Bid Evaluation Team and/or Cost Development Team
  - ☐ manage/supervise the Bid Evaluation Team and/or Cost Development Team
  - ☐ oversee the work of the Bid Evaluation Team and/or Cost Development Team

2. I hereby agree to abide by the terms of this 2016 Preferred Resources RFO Code of Conduct.

**SIGNED:** \_\_\_\_\_  
**Name:**

**Title:**

**DATED:** \_\_\_\_\_



**ATTACHMENT B**  
**Preferred Resources LCR RFO:**  
**Demand Response Product Type RFO Document**



**SAN DIEGO GAS AND ELECTRIC COMPANY**  
ELECTRIC AND FUEL PROCUREMENT DEPARTMENT  
8315 CENTURY PARK COURT, CP21D  
SAN DIEGO, CA 92123

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## **SDG&E's 2016 DEMAND RESPONSE RFO**

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2016  
PREFERRED RESOURCES  
LOCAL CAPACITY  
REQUIREMENT  
REQUEST FOR OFFERS  
("RFO")  
seeking  
DEMAND RESPONSE RESOURCES

VERSION 2 – UPDATED APRIL 8, 2016

**ISSUED**  
FEBRUARY 26, 2016

**OFFERS DUE**  
JULY 1, 2016

**RFO WEBSITE**  
<http://www.sdge.com/2016PrefResourcesLCRRFO>

**EMAIL QUESTIONS/COMMENTS TO**  
[PrefResourcesRFO@semprautilities.com](mailto:PrefResourcesRFO@semprautilities.com)

**Record of Changes**

| Date     | Explanation of Change  | Section / Page<br>of Document |
|----------|--|-------------------------------|
| 4/8/2016 | 1. Safety. Operation of the program must be in accordance with accepted electrical practices, applicable law and industry standards including those related to safety. If not, the offer will be considered nonconforming. | 1. 3.A.7., p. 8               |
|          | 2. Encouragement for offers of various delivery terms.   | 2. 1., p. 5                   |
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## TABLE OF CONTENTS

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### Contents

|   |                                     |
|---|-------------------------------------|
| TABLE OF CONTENTS .....   | 2                                   |
| 1.0 BACKGROUND .....  | 4                                   |
| 2.0 PROCUREMENT PROCESS .....   | 6                                   |
| 3.0 ELIGIBILITY REQUIREMENTS .....  | 7                                   |
| A. PARTICIPATION CRITERIA .....   | 7                                   |
| B. RESOURCE CRITERIA .....  | 8                                   |
| C. Demand Response PRO FORMA Agreement .....  | 9                                   |
| D. CREDIT TERMS AND CONDITIONS .....  | 9                                   |
| 1) SHORTLIST Acceptance Fee .....   | 9                                   |
| E. ASC 810 (FIN46(R), Consolidation of Variable Interest Entities) REQUIREMENTS ..... | 10                                  |
| 4.0 EVALUATION CRITERIA .....   | 11                                  |
| QUANTITATIVE EVALUATION .....   | 11                                  |
| A. NET CAPACITY BENEFITS .....  | 12                                  |
| QUALITATIVE EVALUATION .....  | 12                                  |
| A. PROJECT / RESOURCE / PROGRAM VIABILITY .....                                       | 12                                  |
| B. SUPPLIER DIVERSITY .....   | 12                                  |
| C. LOADING ORDER RANKING .....  | 13                                  |
| D. SAFETY .....   | <b>Error! Bookmark not defined.</b> |
| E. CATEGORY 1 FLEXIBLE RA CAPABILITIES .....  | 13                                  |
| BID CONFORMANCE EVALUATION .....  | 13                                  |
| A. TIME OF USE PERIOD CONTINGENCY .....   | 14                                  |
| 5.0 RFO SCHEDULE .....  | 15                                  |
| 6.0 RFO WEBSITE AND COMMUNICATION .....   | 17                                  |
| 7.0 RFO RESPONSE INSTRUCTIONS .....   | 19                                  |
| 8.0 REJECTION OF OFFERS .....   | 21                                  |
| 9.0 CONFIDENTIALITY .....   | 22                                  |
| 10.0 Role of the PRG and role of the Independent Evaluator .....                      | 24                                  |

|                               |    |
|-------------------------------|----|
| Procurement Review Group..... | 24 |
| Independent Evaluator.....    | 24 |
| 11.0 SDG&E BACKGROUND .....   | 25 |

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## 1.0 BACKGROUND

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In accordance with Decision (“D.”) 14-03-004 – Decision Authorizing Long-Term Procurement for Local Capacity Requirements (“LCR”) due to the Permanent Retirement of the San Onofre Nuclear Generation Station (the “Track 4 Decision”) approved on March 13, 2014, San Diego Gas & Electric Company (“SDG&E”) is issuing its 2016 Preferred Resources LCR – Demand Response (“DR”) Request for Offers (“RFO”) to solicit Demand Response resources.

As authorized in the Track 4 Decision, and following SDG&E’s 2014 All Source RFO, SDG&E is seeking up to 140 MW in this solicitation<sup>1</sup>. In this RFO, SDG&E will entertain offers for a minimum resource capacity of 500 kW in aggregate.

This solicitation sets forth the terms and conditions of SDG&E’s 2016 DR RFO. By responding to this RFO, the bidder agrees to be bound by all the terms, conditions, and other provisions of this RFO and any changes or supplements to it that may be issued by SDG&E, prior to the bidder’s response.

The purpose of this document is to provide an overview of the process that SDG&E will use to implement this RFO. It will serve to set forth each bidder’s obligations with respect to the RFO as well as describe the procedures that each bidder must adhere to. If there is a conflict or inconsistency between the terms and conditions contained here and the terms and conditions contained within the Pro Forma Agreement attached to these instructions, the terms and conditions in the Pro Forma Agreement will prevail.

To be considered in this RFO, an offer must be uploaded to the PowerAdvocate® website in accordance with this RFO Protocol no later than 1:00 PM Pacific Prevailing Time (“PPT”), on July 1, 2016 (details can be found in section 5, below).

The RFO Schedule is subject to change at SDG&E’s sole discretion at any time. All changes to the RFO Schedule will be posted to SDG&E’s RFO website. The RFO Schedule may be affected by (but not limited to) issues such as: discussions with shortlisted bidders, proceedings before the CPUC, and efforts to obtain regulatory approval. SDG&E intends to notify bidders of any schedule change, but will not be liable for any change in schedule or for failing to provide notice of any change.

Once bidders have accepted their shortlisted position with SDG&E and remitted the Shortlist Acceptance Fee<sup>2</sup>, further contract negotiations may commence and continue until mutual agreement has been achieved and a contract has been executed. Being short listed does not guarantee that an Agreement will be negotiated or signed with the bidder.

SDG&E will seek CPUC approval of all executed agreements resulting from this RFO. SDG&E reserves the right to execute agreements with individual bidders at any time after short

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<sup>1</sup> The Track 4 Decision authorizes SDG&E to procure up to 800 MW, at least 200 MW of which must come from preferred resources. Of this 200 MW of preferred resources, at least 25 MW must come from energy storage leaving up to 175 MW for other preferred resource types. In this solicitation, SDG&E is targeting up to 140 MW in aggregate from all product types.

<sup>2</sup> See section 3.D.i. of this RFO for further details

listing and to seek CPUC approval for individual agreements in order to expedite the approval process. SDG&E encourages Respondents to provide offers of various delivery terms. For example, 3, 5 or 10 years for EE and DR related offers and 10, 15 or 20 years for other product types.

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## 2.0 PROCUREMENT PROCESS

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Respondents to this solicitation shall comply with the requirements described in this RFO document.

All offers shall meet the minimum eligibility requirements as set forth in Section 3.0 Eligibility Requirements. All conforming offers will be evaluated in accordance with the Evaluation Criteria described in Section 4.0 of the RFO. SDG&E will initially select a shortlist in pursuit of cost effective DR resources for this RFO by selecting offers that are evaluated as most attractive via the quantitative and qualitative methodology described in Section 4.0. While the Track 4 Decision does not specify a target for a certain quantity or amount of DR resources, SDG&E is seeking up to 140 MW of demand response resources via this RFO if evaluated as more attractive than the other resources that SDG&E is soliciting in this RFO<sup>3</sup>.

SDG&E intends for resources / programs selected from this RFO to count towards SDG&E's local Resource Adequacy ("RA") obligations. Respondents pursuing an Agreement must follow the appropriate process so that the resource can become eligible for RA, if not already eligible. Agreements resulting from this RFO will require Respondents to perform all activities necessary to facilitate local RA recognition for the resources. The Respondents pursuing an Agreement shall be responsible for all costs to facilitate local RA recognition.

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<sup>3</sup> Five product types are included in SDG&E's 2016 Preferred Resources LCR RFO: 1) Energy Efficiency, 2) Demand Response, 3) Renewables, 4) Energy Storage, and 5) Distributed Generation. SDG&E is seeking up to 140 MW in aggregate from these product types.



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### 3.0 ELIGIBILITY REQUIREMENTS

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Respondents to this solicitation shall comply with the requirements herein. SDG&E, at its sole discretion, may change the terms, requirements and schedule of the solicitation. Respondents should monitor the RFO Website for announcements regarding any change.

#### A. PARTICIPATION CRITERIA

Terms of participation are listed below. Respondents not meeting all minimum participation criteria may be deemed ineligible / nonconforming and their offers may not be considered.

1. Customers to be enrolled in the DR programs and/or who will provide proposed DR resource (s) must be located within SDG&E's service territory.
2. SDG&E prefers start dates as early as 2018, but will consider later start dates. Some portion of the program's delivery term must include the entire calendar year of 2022.
3. Respondents pursuing a Demand Response resource must demonstrate how their project will meet the requirements of the current RA counting rules<sup>4</sup>.

Note: The CAISO created Proposed Revision Request (PRR) 854 to the Reliability Requirements Business Practice Manual (BPM) that resulted in a requirement that local capacity resources are subject to a 20 minute response time / 20 minute dispatch requirement. In the program description form, respondents are required to state whether their program can meet a 20 minute response time and, if so, how that requirement can be met by their program. This requirement is under appeal, but if it is fully approved and implemented by the CAISO prior to SDG&E shortlisting, resources that are not able to meet the 20 minute response time requirement may be found to be nonconforming.

4. The Demand Response resource must be demonstrably incremental to the assumptions used in the California ISO studies<sup>5</sup>. Sellers are required to explain and/or show how their proposed Demand Response resource is incremental. Sellers are encouraged to reference 1) SDG&E's current DR program portfolio<sup>6</sup>; (2) SDG&E's proposed 2017 DR program portfolio<sup>7</sup>; and / or (3) 2014 Integrated Energy Policy

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<sup>4</sup> See the following CPUC decisions for guidance: D.10-06-036, D.11-06-022, D.12-06-025 and D.13-06-024 among others. Additionally, see the CAISO's "Flexible Resource Adequacy Criteria and Must-Offer Obligation", Market and Infrastructure Policy Revised Draft Final Proposal of March 7, 2014. To summarize, currently the requirement for energy limited resources is availability of the resource for three consecutive days for four hours per day.

<sup>5</sup> See D.14-03-004, ordering paragraph 6. This refers to D.13-02-015, ordering paragraph 4. Subparagraph b states "the resource must be demonstrably incremental to the assumptions used in the California ISO studies, to ensure that a given resource is not double counted."

<sup>6</sup> See <http://www.sdge.com/business/demand-response-overview> for information about SDG&E's current DR program portfolio for businesses, and <http://www.sdge.com/save-money/summer-saver-program> and <http://www.sdge.com/residential/reduce-your-use/reduce-your-use-rewards> for information about current residential programs.

<sup>7</sup> See <http://www.sdge.com/regulatory-filing/10486/oir-enhance-role-dr-meeting-state-resource-planning-ops-reqmt> for information about SDG&E's proposed 2017 DR program portfolio.

- Report (“IEPR”) Update for DR forecast<sup>8</sup>. Incremental resources that are similar to existing Demand Response resources must demonstrate, to the satisfaction of both SDG&E and the IE, that the resource is “incremental”, for example, by being innovative or by targeting previously hard to reach markets that have not been addressed to date.
5. The Respondent must state any affiliate relationship with Sempra Energy, if one exists.
  6. The Demand Response resource must meet all applicable CAISO wholesale product tariff requirements.
  7. Safety. SDG&E expects that the offered program(s) will be operated and maintained in accordance with accepted electrical practices, applicable law and industry standards, including those related to safety. In the project / program description form that Respondents will provide as part of the offer package, SDG&E will ask respondents to confirm that this will be the case with their project or program. If the Respondent is unable to confirm these statements, the offer will be considered nonconforming.

## **B. RESOURCE CRITERIA**

Pursuant to the newly adopted Cost Effectiveness Protocols<sup>9</sup> which determined that the event-based Load Modifying Resource DR has no capacity value, only supply resources, as defined by the Commission<sup>10</sup>, will be considered. There are no technology restrictions on the demand response resource.

1. Minimum resource capacity must be 500 kW<sup>11</sup> in aggregate.
2. The DR resource must be a supply side resource<sup>12</sup>.
3. Permanent load shifting based on technology or behavior change will not be considered.<sup>13</sup>
4. Bids that are supported by resources that are already being subsidized under another CPUC-regulated program or rate schedule shall not be considered.
5. Load reduction of the resource must be consistent with the CPUC requirements regarding the use of back-up generation for DR. Fossil-fuel emergency back-up generation resources will not

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<sup>8</sup> See : [http://www.energy.ca.gov/2014\\_energypolicy/](http://www.energy.ca.gov/2014_energypolicy/)

<sup>9</sup> See D. 14-06-050

<sup>10</sup> See D.14-03-026

<sup>11</sup> Note that SDG&E will consider the administrative burden/feasibility of negotiating a high volume of agreements when selecting its shortlist.

<sup>12</sup> See D.14-03-026

<sup>13</sup> SDG&E currently has a Permanent Load Shifting (PLS) demand response program (see: <http://www.sdge.com/business/demand-response/permanent-load-shifting>) but to the degree a respondent can show that their behind-the-meter thermal energy program is different than the existing program, is dispatchable and is incremental perhaps by capturing a different customer segment and the program meets the other conformance requirements, then SDG&E will consider such a program.

qualify as a Demand Response Resource in this RFO based on the Commission's policy statement that fossil-fuel emergency back-up generation resources should not be allowed as part of a demand response program for RA purposes, subject to rules adopted in future RA proceedings.<sup>14</sup>

6. Resources must be dispatchable, either by CAISO or SDG&E.

SDG&E is aware that the RA counting rules change frequently. If the capabilities of the system, facility or program that the Respondent is describing in its offer are currently non-conforming specifically with regard to the RA requirement, but the Respondent believes that the RA counting rules may change prior to SDG&E short-listing, the Respondent is instructed to submit their offer and note that it is currently non-conforming due to current RA rules. If and when the RA rules change resulting in the offer conforming to the new RA rules, the Respondent should notify SDG&E (via the RFO e-mail address - [PrefResourcesRFO@semprautilities.com](mailto:PrefResourcesRFO@semprautilities.com)) and the IE ([jon.jacobs@paconsulting.com](mailto:jon.jacobs@paconsulting.com) and [Barbara.Sands@PAConsulting.com](mailto:Barbara.Sands@PAConsulting.com))

### **C. DEMAND RESPONSE PRO FORMA AGREEMENT**

Bidders may modify the Pro Forma Agreement submitted as part of their offer package to the extent such modifications add value to the offer. However, SDG&E discourages extensive modification to the general terms and conditions of the Agreement and will consider materiality of such changes on a qualitative basis as it evaluates the offers received.

### **D. CREDIT TERMS AND CONDITIONS**

SDG&E has the right to evaluate and determine the credit-worthiness of the respondent relative to this RFO. The respondent is required to complete, execute and submit the RFO credit application as part of its offer. The application requests financial and other relevant information needed to demonstrate creditworthiness. Respondents may download the application from the RFO Website. Winning bidders will be required to comply with the credit and collateral requirements set forth in the Demand Response resources Pro Forma Agreement. The amount of such requirements will be determined by SDG&E at the time of shortlisting and will be based on product, deliveries, price, and term, among other variables. For clarity, bidders should **not** include credit costs within their bid price (note: respondents are required to provide information regarding the added cost of collateral per \$100,000 increment to satisfy the initial collateral requirement if SDG&E decides not to extend unsecured credit - this information will be provided in the credit application. These costs will be considered as discussed in the quantitative evaluation section within this document).

#### **1) SHORTLIST ACCEPTANCE FEE.**

The Shortlist Acceptance Fee is the greater of \$100,000 or \$2 per kW of project nameplate / aggregate program capacity and shall be required to be paid to SDG&E within ten (10) business days of notification by SDG&E that the offer has been shortlisted. The Shortlist Acceptance Fee shall be refunded (with interest for cash deposits) to Respondent if Respondent and SDG&E fail to reach an agreement and such failure is not due to Respondent's withdrawal of its offer or a material

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<sup>14</sup> See D.11-10-003.

misrepresentation of pricing or non-pricing information provided by Respondent. For questions regarding credit terms, please contact Ms. Judy Delgadillo at (213) 244-4343. Project-specific questions and answers will not be disclosed to other Respondents.

#### **E. ASC 810 (FIN46(R), CONSOLIDATION OF VARIABLE INTEREST ENTITIES) REQUIREMENTS**

Generally Accepted Accounting Principles and SEC rules require SDG&E to evaluate whether or not SDG&E must consolidate a Seller's financial information. SDG&E will require access to financial records and personnel to determine if consolidated financial reporting is required. If SDG&E determines at any time that consolidation is required, SDG&E shall require the following during every calendar quarter for the term of any resultant agreement:

- a) Unaudited financial statements with footnotes, within 15 calendar days of the end of each quarter;
- b) Audited financial statements with footnotes within 90 calendar days of the end of the year,
- c) Financial schedules underlying the financial statements, within 15 calendar days of the end of each quarter;
- d) Access to records and personnel, so that SDG&E's internal or independent auditor can conduct financial audits (in accordance with generally accepted auditing standards) and internal control audits (in accordance with Section 404 of the Sarbanes-Oxley Act of 2002) ) and SDG&E can meet its SEC filing requirements. The rights and obligations under the agreement shall survive the termination of this agreement for a period of two years;
- e) Certifications by duly authorized representatives as may be reasonably requested by SDG&E; and
- f) Such other information as reasonably requested by SDG&E.
- g) If consolidation is required and considered material by the buyer to buyer's financial statements or its parent company's financial statements and buyer reasonably determines seller's internal controls over financial reporting are considered to be significantly deficient or a material weakness, then seller is to remediate within 30 calendar days;
- h) Seller to provide to buyer any SEC Form 8K disclosures, two calendar days after the occurrence of the SEC Form 8K event; and
- i) Seller to notify buyer at any time during the term of the agreement of any consulting (non-independent) services proposed to be provided to seller by the buyer's independent auditor.

Any information provided to SDG&E shall be treated as confidential, except that it may be disclosed for financial statement purposes. Full details of SDG&E's requirements in connection with consolidation are set forth in the Model PPA.

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## 4.0 EVALUATION CRITERIA

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All offers will be assessed for conformance. Respondents should conform to minimum participation and resource criteria in order to be considered.

SDG&E will utilize all the information provided in the required forms and narratives to evaluate all offers. Respondents are responsible for the accuracy of all discussions, figures and calculations. Errors discovered during evaluation may impact a respondent's potential short-list status.

As required by the Track 4 Decision, SDG&E is soliciting a broad range of resources including energy efficiency, demand response, renewables and energy storage. SDG&E has provided a separate RFO document outlining instructions and requirements for each resource type. SDG&E's valuation and selection approach is intended to evaluate the different resource (and contract) types on as equal a footing as possible. Initially, all offers will go through a conformance check to ensure that the project meets the requirements outlined in the RFO document for that particular resource type. Conforming offers will then go through the Least Cost Benefit Fit "LCBF" / Net Market Value "NMV" analysis described below to rank the offers.

### **QUANTITATIVE EVALUATION**

SDG&E evaluates and ranks offers based on Least-Cost/Best-Fit ("LCBF") principles. The LCBF analysis evaluates both quantitative and qualitative aspects of each offer to estimate its value to SDG&E's customers and its relative value in comparison to other offers. The valuation of an offer takes into account both benefits and costs. The primary quantitative metric used in SDG&E's LCBF process is a NMV calculation. The NMV calculation is a quantification of the value of an offer when compared to a set of price benchmarks for capacity, electrical energy, ancillary services, natural gas, and Green House Gas ("GHG") compliance. The price benchmarks are derived from current broker quotes, recent RFO offers, historical prices, recently executed transactions, and price curves extrapolated from that data to extend into future years where market data is unavailable. The NMV shows the value of an offer relative to purchasing the same product(s) from wholesale markets at current market prices. A higher NMV would result in a higher bid ranking.

SDG&E intends for projects selected from this RFO Program to count towards SDG&E's Resource Adequacy ("RA") obligations. Respondents must meet the appropriate requirements to count for RA<sup>15</sup>. Agreements resulting from this RFO will require Respondents to perform all activities necessary to facilitate RA recognition for the projects. The Respondent shall be responsible for all costs to facilitate RA recognition.

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<sup>15</sup> See the following CPUC decisions for guidance: D.10-06-036, D.11-06-022, D.12-06-025 and D.13-06-024 among others. Additionally, see the CAISO's "Flexible Resource Adequacy Criteria and Must-Offer Obligation", Market and Infrastructure Policy Revised Draft Final Proposal of March 7, 2014. To summarize, currently the least binding requirement is availability of the resource for three consecutive days for four hours per day.

## **A. NET CAPACITY BENEFITS**

Capacity benefits are calculated by comparing the capacity costs in the offer to the capacity value to SDG&E. Each offer is assigned capacity benefits, if applicable based on SDG&E's forecast of capacity value and RA (defined in the CAISO Tariff). Each bidder's RA capacity value is based on monthly forecasts determined by SDG&E, which are then aggregated into annual capacity benefits. Projects in the SDG&E service area will receive added local capacity benefit (note that in this RFO, customers associated with demand response resources bid must be located within San Diego County).

## **B. RESOURCE SPECIFIC BENEFITS AND COSTS**

Any quantifiable benefits or costs that are unique to a particular resource type, will be added to the NMV calculation. For example, renewable resources that offer Renewable Energy Credits will have the value of those credits added as a benefit to the NMV.

## **QUALITATIVE EVALUATION**

Qualitative factors and benefits will be used to determine projects that are the "Best Fit" for SDG&E's portfolio. SDG&E may use these factors to determine advancement onto the short list or evaluate tie-breakers, if any. Qualitative factors may include, but are not limited to:

### **A. PROJECT / RESOURCE / PROGRAM VIABILITY**

SDG&E is seeking experienced companies and development teams to develop and operate DR resources that are innovative, effective and reliable. Another aspect of project viability will include the program's ability to contribute to meeting the Local Capacity Requirement. SDG&E works with the CAISO in modeling resource and program portfolios to ensure SDG&E's LCR is met.

### **B. SUPPLIER DIVERSITY**

SDG&E strongly encourages Diverse Business Enterprises ("DBEs"), "Women-Owned Businesses" or "Minority-Owned Businesses" or "Disabled Veteran Business Enterprises" as defined in G.O. 156<sup>16</sup>, to participate in this RFO. Furthermore, SDG&E strongly encourages developers to utilize DBEs during various stages of project development and construction. As a part of G.O. 156, SDG&E will require developers to identify, verify and report their DBE contractors/subcontractor spending if any. Additional information on SDG&E's DBE program can be found at:

<http://www.sempira.com/about/supplier-diversity/>  
<http://www.cpuc.ca.gov/puc/supplierdiversity/>

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<sup>16</sup> See <http://www.thesupplierclearinghouse.com/eligibility/default.asp> for the definition of a DBE.

SDG&E's DBE Program representatives will provide a presentation during the pre-bid conference. DBEs can request additional information by contacting SDG&E at [vendorrelations@semprautilities.com](mailto:vendorrelations@semprautilities.com).

### **C. LOADING ORDER RANKING**

SDG&E seeks resources in accordance with the loading order described in the Energy Action Plan (see footnote # 1, above). SDG&E will give preference to higher loading order ranked resources.

### **D. CATEGORY 1 FLEXIBLE RA CAPABILITIES**

SDG&E will give preference to resources that are able to meet the CAISO's prevailing Flexible Resources Availability Criteria and Must Offer Obligations ("FRAC-MOO")<sup>17</sup> and obtain an Effective Flexible Capacity ("EFC") greater than zero. In addition, SDG&E will differentiate flexible attributes based on their Flexible Resource Categories, with Base Ramping (Category 1 Flex) providing the greatest benefit. More information on EFC and current resource category requirements can be found in section 10 of the CAISO Business Practice Manual for Reliability Requirements located here:

<https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Reliability%20Requirements>.

Respondents providing Flexible RA value will be presented with contracts reflecting those requirements and this value.

### **BID CONFORMANCE EVALUATION**

In addition to the elements described above, SDG&E may also reject an offer if:

1. SDG&E uncovers evidence of market manipulation in the bid preparation and offer process;
2. the respondent does not provide adequate evidence that it meets minimum participation criteria;
3. there is a question as to whether or not the projects meet minimum resource criteria;
4. the respondent is unable to comply with RFO timing or other solicitation requirements.

SDG&E WILL NOT REIMBURSE RESPONDENTS FOR THEIR EXPENSES UNDER ANY CIRCUMSTANCES, REGARDLESS OF WHETHER THE RFO PROCESS PROCEEDS TO A SUCCESSFUL CONCLUSION OR IS ABANDONED BY SDG&E IN ITS SOLE DISCRETION.

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<sup>17</sup> A must-offer obligation, or MOO, is a commitment to be available for dispatch by the CAISO. The MOO is distinct from the four hour capability requirement for continuous operation upon dispatch. System and Local RA resources, whether DR or storage, may either bid into the CAISO markets or self-schedule. The proposed MOO for Flexible RA resources (FRAC-MOO) aims to ensure that flexible resources will be available to contribute to the times of greatest system ramping. The proposed FRAC-MOO requirements can be found at <https://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleResourceAdequacyCriteria-MustOfferObligations.aspx>

#### **A. TIME OF USE PERIOD CONTINGENCY FOR ENERGY STORAGE BASED DR**

SDG&E will consider any Demand Response offers that are based on energy storage technology that may be shortlisted to be contingent upon the adoption by the CPUC of SDG&E's proposed new Time of Use ("TOU") periods as set forth in SDG&E's application number A.15-04-012 filed on February 9, 2016<sup>18</sup>. If the CPUC does not adopt SDG&E's proposed changes to the TOU periods included in this application, then any energy storage based Demand Response offers that may be shortlisted from this solicitation may be considered non-conforming in accordance with the eligibility requirement included above in section 3.B.4. (subsidization).

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<sup>18</sup> A. 15-04-012, second amended application, available here: <http://www.sdge.com/sdge-2016-GRC-Phase-2> .For a summary of the TOU period change request, see Chapter 1 - Testimony of Cynthia Fang, Table 2, pages CF-20 & CF-21.



## 5.0 RFO SCHEDULE

The following schedule and deadlines apply to this RFO. SDG&E reserves the right to revise this schedule at any time and in SDG&E's sole discretion. Respondents are responsible for monitoring the RFO Website for updated schedules and possible amendments to the RFO or the solicitation process.

| NO. | ITEM  | DATE  |
|-----|---|---|
| 1.  | RFO Issued  | February 26, 2016                                       |
| 2.  | Pre-Bid Conference / Bidder Outreach Event  | April 13, 2016  |
| 3.  | DEADLINE TO SUBMIT QUESTIONS<br>Question submittal cut-off date.<br>Answers to all questions will be posted on the website no later than June 24, 2016  | June 17, 2016   |
| 4.  | DEADLINE TO REGISTER for PowerAdvocate® access / to download RFO forms and documents  | June 24, 2016   |
| 5.  | CLOSING DATE:<br>Offers must be uploaded to and received on PowerAdvocate® no later than 1:00 PM Pacific Prevailing Time on July 1, 2016  | July 1, 2016  |
| 6.  | SDG&E Begins Bid Evaluation Process   | July 2, 2016  |
| 7.  | Shortlist determination   | October 24, 2016  |
| 8.  | SHORTLIST NOTIFICATION<br>SDG&E notifies Shortlisted Bidders  | October 28, 2016  |
| 9.  | SHORTLISTED BIDDERS ACCEPTANCE/WITHDRAWAL<br>Letter due from Shortlisted Bidders indicating:<br>a. Withdrawal from SDG&E's solicitation; OR<br>b. Acceptance of shortlisted standing and including Shortlist Acceptance Fee | +10 Days<br>after Shortlist Notification                |
| 10. | SDG&E issues appreciation notices to unsuccessful Respondents   | +3 week<br>after Shortlisted Bidders<br>accept/withdraw |
| 11. | SDG&E commences with contract negotiations  | +11 Days after Shortlist<br>Notification                |
| 12. | Target date to complete negotiations  | End of Q1, 2017   |
| 13. | SDG&E Submits agreements to CPUC for approval   | Q2 2017   |
|     | * Negotiation time will vary depending on proposal specifics including proposed contract modifications.   |   |

### PRE-BID CONFERENCE/ BIDDER OUTREACH EVENT

SDG&E will host one bidder outreach event. The event is scheduled for April 13, 2016 and will be an in-person event for all resource types (with dial-in / webinar available for those that cannot attend in-person). Participation in this event is NOT mandatory in order to submit an offer.

Please monitor the RFO Website for further details (such as conference presentation materials and final arrangements for the event (time and location)). SDG&E will make efforts to notify bidders of outreach event details via e-mail as well as provide this information via the RFO Website.

Any party interested in attending these events should email the following information to [PrefResourcesRFO@semprautilities.com](mailto:PrefResourcesRFO@semprautilities.com)

- Company name, and
- Attendees' names, titles and contact information

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## 6.0 RFO WEBSITE AND COMMUNICATION

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The RFO and all subsequent revisions and documents are available for download from the RFO Website (<http://www.sdge.com/2016PrefResourcesLCRRFO>) and the 2016 DEMAND RESPONSE (DR) RFO event on the PowerAdvocate® website. Potential Respondents are responsible for monitoring the RFO Website and PowerAdvocate® for subsequent updates, notices and postings.

The 2016 DEMAND RESPONSE (DR) RFO event on the PowerAdvocate® website contains the following: required RFO forms, documents, and schedule. Respondents intending to bid but who do not yet have an existing account with PowerAdvocate® must first register to create a username/password in order to receive access to the event. See below log in instructions:

### Logging In

You access the PowerAdvocate platform via a web browser.

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#### *To log in*

1. Open a web browser and go to [www.poweradvocate.com](http://www.poweradvocate.com).

PowerAdvocate functions in most web browsers; however, using browsers other than Internet Explorer (IE) version 6 or higher may cause certain functionality to work unexpectedly. Should you encounter problems, PowerAdvocate support may be unable to provide assistance until the issue has been replicated in a supported version of Internet Explorer.

2. Click **Login**.

The Login page appears; you may wish to bookmark it for quick access.

3. Enter your account **User Name** and **Password**.

Both are case-sensitive.

If you do not have an account, go to [poweradvocate.com](http://poweradvocate.com) and click the **Registration** link at the top of the page.

If you have an account but do not remember your user information, click **Forgot User Name** or **Forgot Password** and they will be emailed to you.

4. Click **Login**.

First-time users must register as a Supplier using the instructions above and the Referral information below to access the RFO event:

| Referral Information                        |  |
|---|--|
| Are you registering for a specific Event: * | <input checked="" type="radio"/> Yes<br><input type="radio"/> No, I would simply like to register. |
| Who referred you to this Event: *           | <input type="text" value="PrefResourcesRFO@semprautilities.com"/>                                  |
| Name of that individual's company: *        | <input type="text" value="San Diego Gas &amp; Electric"/>  |
| Name or description of the Event: *         | <input type="text" value="56972 : 2016 DEMAND RESPONSE (DR) RFO"/>                                 |
| * Required Field                            |  |

Users with an existing PowerAdvocate® account may request access to the event using the link below:

<https://www.poweradvocate.com/pR.do?okey=56972&pubEvent=true>

The RFO website contains RFO forms and documents, the RFO Schedule, and a Question and Answer forum. All questions or other communications regarding this RFO must be submitted via email to [PrefResourcesRFO@semprautilities.com](mailto:PrefResourcesRFO@semprautilities.com) by the DEADLINE TO SUBMIT QUESTIONS as specified in Section 5.0 RFO Schedule. SDG&E will not accept questions or comments in any other form, except during scheduled bidders conference.

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## 7.0 RFO RESPONSE INSTRUCTIONS

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Respondents are required to submit the below files / forms / documents in response to this solicitation. Forms are available on the RFO Website / through the PowerAdvocate® site. The failure to provide the listed information, including failure to provide it in the required format, may result in the proposal being deemed non-conforming and may disqualify the proposal from further consideration.

### **Limit on Number of Bids**

A MAXIMUM OF SIX (6) OFFERS PER RESPONDENT PER PROJECT OR PROGRAM WILL BE ACCEPTED.

Defining what a separate project entails: Variation of significant project details, including the following, will constitute a separate 'project' or 'program':

- Differing commercial operation dates or delivery start dates
- Differing delivery terms
- Differing energy deliveries or dispatchable configurations
- Differing maximum capacity
- Differing points of interconnection
- Differing operational constraints
- Differing equipment suppliers

Fill out separate offer forms for each offer. Only one Project Description Form is required per Respondent (per project) to the extent that all bids can be adequately summarized in the space provided.

If the respondent has questions or concerns regarding bid limits, please contact SDG&E at: [PrefResourcesRFO@semprautilities.com](mailto:PrefResourcesRFO@semprautilities.com)

### **Required Participation Forms:**

- 1) **Demand Response Offer Form** – Bidders must include in their offer form proposed pricing.
- 2) **Project Description Form**
- 3) **Redline Pro Forma Agreement** - Respondents may provide a mark-up of SDG&E's DR pro forma agreement as part of the offer package.

NOTE: SDG&E has not posted its Demand Response pro forma agreement to the RFO website as of the date of issuance (2/26/2016), but will make it available to respondents as soon as possible. Please monitor the RFO website for updates.

- 4) **Diverse Business Enterprise Subcontracting Commitment and Reporting Requirements (DBE) Form** - Provide a copy of certification documents received from the California Public Utilities Commission. An application can be made before submission of the offer and referenced in the offer.

- 5) **Credit Application** –A credit application will be required under all PRO FORMAs. Changes to terms and conditions will render the offer non-conforming and disqualify the project from further consideration.

The Project Description Form, Redlines to the Pro-Forma Agreement or load reduction only and Credit Application for All Source RFO must be in Word or Word-compatible format (not in PDF). The Demand Response offer form must be in Excel or Excel-compatible format (not in PDF). The Diverse Business Enterprise Subcontracting Commitment and Reporting Requirements (DBE) Form must be in PDF format.

**Submissions containing unsolicited materials or submissions of individual bid documents in file formats other than the formats of the original bid forms may be rejected. This RFO is an electronic only Solicitation; Respondents need not submit paper documents, nor e-binders.**

Any party interested in submitting an offer must register to receive access to the 2016 DEMAND RESPONSE (DR) RFOevent on PowerAdvocate® in order to submit an offer. To register, Respondents must follow the instructions outlined in Section 6, RFO Website and Communications. All offers must be uploaded to the PowerAdvocate® no later than 1:00 p.m., Pacific Prevailing Time, on the CLOSING DATE (see RFO Schedule). If Respondents encounter technical difficulties with the uploading process, they should provide evidence of such difficulties (e.g. a screen shot of the error message) and email the bid to:

The RFO mailbox: [PrefResourcesRFO@semprautilities.com](mailto:PrefResourcesRFO@semprautilities.com)  
Carbon Copy (CC) to: [Jon.Jacobs@PAConsulting.com](mailto:Jon.Jacobs@PAConsulting.com) and  
[Barbara.Sands@PAConsulting.com](mailto:Barbara.Sands@PAConsulting.com)

Emails shall be received by 1 p.m., Pacific Prevailing Time, on the Closing Date.

All offer materials submitted in accordance with the above Response Instructions shall be subject to the confidentiality provisions of Section 9 Confidentiality of this RFO.

SDG&E will review and may utilize all information, if any, submitted by a Respondent that is not specifically requested as a part of any forms. During all stages of the RFO process, SDG&E reserves the right to request additional information from individual Respondents or to request any Respondent to submit supplemental materials in fulfillment of the content requirements of this RFO or to meet additional information needs. SDG&E also reserves the unilateral right to waive any technical or format requirements contained in the RFO.

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## 8.0 REJECTION OF OFFERS

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SDG&E SHALL TREAT ALL RESPONDENTS FAIRLY AND EQUALLY AND SHALL EVALUATE ALL OFFERS IN GOOD FAITH. WHILE SDG&E IS MINDFUL OF THE BENEFITS OF DEMAND RESPONSE AND IS VIGOROUSLY PURSUING THE GOALS OF THE TRACK 4 DECISION, IT MAKES NO GUARANTEE THAT A CONTRACT AWARD SHALL RESULT FROM THIS RFO, EVEN AFTER AN OFFER HAS BEEN SHORTLISTED. SDG&E RESERVES THE RIGHT AT ANY TIME, AT ITS SOLE DISCRETION, TO ABANDON THIS RFO PROCESS, TO CHANGE THE BASIS FOR EVALUATION OF OFFERS, TO TERMINATE FURTHER PARTICIPATION IN THIS PROCESS BY ANY PARTY, TO ACCEPT ANY OFFER OR TO ENTER INTO ANY DEFINITIVE AGREEMENT, TO EVALUATE THE QUALIFICATIONS OF ANY RESPONDENT OR THE TERMS AND CONDITIONS OF ANY OFFER, OR TO REJECT ANY OR ALL OFFERS, ALL WITHOUT NOTICE AND WITHOUT ASSIGNING ANY REASONS AND WITHOUT LIABILITY OF SEMPRA ENERGY, SDG&E, OR ANY OF THEIR SUBSIDIARIES, AFFILIATES, OR REPRESENTATIVES TO ANY RESPONDENT. SDG&E SHALL HAVE NO OBLIGATION TO CONSIDER ANY OFFER.

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## 9.0 CONFIDENTIALITY

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EXCEPT WITH THE PRIOR WRITTEN CONSENT OF SDG&E, RESPONDENTS MAY NOT DISCLOSE (OTHER THAN BY ATTENDANCE ALONE AT ANY MEETING TO WHICH MORE THAN ONE RESPONDENT IS INVITED BY SDG&E) TO ANY OTHER RESPONDENT OR POTENTIAL RESPONDENT THEIR PARTICIPATION IN THIS RFO, AND RESPONDENTS MAY NOT DISCLOSE, COLLABORATE ON, OR DISCUSS WITH ANY OTHER RESPONDENT, OFFER STRATEGIES OR THE SUBSTANCE OF OFFERS, INCLUDING WITHOUT LIMITATION THE PRICE OR ANY OTHER TERMS OR CONDITIONS OF ANY INDICATIVE OR FINAL OFFER.

SDG&E WILL USE THE HIGHER OF THE SAME STANDARD OF CARE IT USES WITH RESPECT TO ITS OWN PROPRIETARY OR CONFIDENTIAL INFORMATION OR A REASONABLE STANDARD OF CARE TO PREVENT DISCLOSURE OR UNAUTHORIZED USE OF RESPONDENT'S CONFIDENTIAL AND PROPRIETARY INFORMATION THAT IS LABELED AS "PROPRIETARY AND CONFIDENTIAL" ON THE OFFER PAGE ON WHICH THE PROPRIETARY INFORMATION APPEARS ("CONFIDENTIAL INFORMATION"). RESPONDENT SHALL SUMMARIZE ELEMENTS OF THE OFFER(S) IT DEEMS CONFIDENTIAL. THE SUMMARY MUST CLEARLY IDENTIFY WHETHER OR NOT PRICE, PROJECT NAME, LOCATION, SIZE, TERM OF DELIVERY AND TECHNOLOGY TYPE (EITHER COLLECTIVELY OR INDIVIDUALLY) ARE TO BE CONSIDERED CONFIDENTIAL INFORMATION. CONFIDENTIAL INFORMATION MAY BE MADE AVAILABLE ON A "NEED TO KNOW" BASIS TO SDG&E'S DIRECTORS, OFFICERS, EMPLOYEES, CONTRACTORS, CONSULTANTS, THE INDEPENDENT EVALUATOR, AGENTS AND ADVISORS ("REPRESENTATIVES") FOR THE PURPOSE OF EVALUATING RESPONDENT'S OFFER, BUT SUCH REPRESENTATIVES SHALL BE REQUIRED TO OBSERVE THE SAME CARE WITH RESPECT TO DISCLOSURE AS SDG&E.

NOTWITHSTANDING THE FOREGOING, SDG&E MAY DISCLOSE ANY OF THE CONFIDENTIAL INFORMATION TO COMPLY WITH ANY LAW, RULE, OR REGULATION OR ANY ORDER, DECREE, SUBPOENA OR RULING OR OTHER SIMILAR PROCESS OF ANY COURT, SECURITIES EXCHANGE, CONTROL AREA OPERATOR, GOVERNMENTAL AGENCY OR GOVERNMENTAL OR REGULATORY AUTHORITY AT ANY TIME EVEN IN THE ABSENCE OF A PROTECTIVE ORDER, CONFIDENTIALITY AGREEMENT OR NON-DISCLOSURE AGREEMENT, AS THE CASE MAY BE, WITHOUT NOTIFICATION TO THE RESPONDENT AND WITHOUT LIABILITY OR ANY RESPONSIBILITY OF SDG&E TO THE RESPONDENT.

IT IS EXPRESSLY CONTEMPLATED THAT MATERIALS SUBMITTED BY A RESPONDENT IN CONNECTION WITH THIS RFO WILL BE PROVIDED TO THE CPUC, ITS STAFF, THE CEC, ITS STAFF, SDG&E'S INDEPENDENT EVALUATOR, SDG&E'S PRG, AND THE COST ALLOCATION METHODOLOGY ("CAM") GROUP. ADDITIONALLY, SDG&E MAY PROVIDE LIMITED INFORMATION SUCH AS (BUT NOT LIMITED TO) ON-LINE DATE, INTERCONNECTION POINT, TECHNOLOGY AND OTHER OPERATIONAL CHARACTERISTICS TO THE CAISO FOR MODELING



PURPOSES. SDG&E WILL SEEK CONFIDENTIAL TREATMENT PURSUANT TO PUBLIC UTILITIES CODE SECTION 583 AND GENERAL ORDER 66-C OF THE CPUC, WITH RESPECT TO ANY RESPONDENT CONFIDENTIAL INFORMATION SUBMITTED BY SDG&E TO THE CPUC FOR THE PURPOSES OF OBTAINING REGULATORY APPROVAL. SDG&E WILL ALSO SEEK CONFIDENTIALITY PROTECTION FROM THE CALIFORNIA ENERGY COMMISSION (“CEC”) FOR RESPONDENT’S CONFIDENTIAL INFORMATION AND WILL SEEK CONFIDENTIALITY AND/OR NON-DISCLOSURE AGREEMENTS WITH THE PROCUREMENT REVIEW GROUP (“PRG”). SDG&E CANNOT, HOWEVER, ENSURE THAT THE CPUC OR CEC WILL AFFORD CONFIDENTIAL TREATMENT TO A RESPONDENT’S CONFIDENTIAL INFORMATION OR THAT CONFIDENTIALITY AGREEMENTS OR ORDERS WILL BE OBTAINED FROM AND/OR HONORED BY THE PRG, CEC, OR CPUC.

SDG&E, ITS REPRESENTATIVES, SEMPRA ENERGY, AND ANY OF THEIR SUBSIDIARIES DISCLAIM ANY AND ALL LIABILITY TO A RESPONDENT FOR DAMAGES OF ANY KIND RESULTING FROM DISCLOSURE OF ANY OF RESPONDENT’S INFORMATION.

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## **10.0 ROLE OF THE PRG AND ROLE OF THE INDEPENDENT EVALUATOR**

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### **PROCUREMENT REVIEW GROUP**

The Procurement Review Group (PRG) and Cost Allocation Mechanism (CAM) PRG are CPUC-endorsed entities and are composed of non-market participants such as ratepayers' advocacy groups, state energy and water commissions, power authorities, utility-related labor unions and other non-commercial, energy-related special interest groups. Each IOU has its own PRG and CAM PRG. The PRG and CAM PRG are charged with overseeing the IOU's procurement process, reviewing procedural fairness, examining overall procurement prudence and providing feedback during all stages. From RFO language development to offer evaluation to contract negotiation, IOU's brief the PRG and/ or the CAM PRG on a periodic basis during the entire process.

Respondents are hereby notified that revealing confidential offer information to the PRG and/or CAM PRG is required during briefings in accordance with Section 11 ("Confidentiality"). Each Respondent must clearly identify, as part of its offer, what type of information it considers to be confidential.

### **INDEPENDENT EVALUATOR**

The CPUC requires each IOU to use an Independent Evaluator ("IE") to evaluate and report on the IOU's entire solicitation, evaluation, and selection process. The IE will review SDG&E's implementation of the RFO process and final selections. The IE also makes periodic presentations regarding its findings to the IOU and the IOU's PRG, including the CPUC Energy Division staff. The intent of these IE presentations is to preserve the independence of the IE by ensuring free and unfettered communication between the IE and the CPUC, as well as an open, fair, and transparent process that the IE can affirm.

SDG&E is committed to ensuring an open and transparent solicitation, and to providing a fair, reasonable and competitive process.

The IE for this solicitation is PA Consulting.

For a map California IOU service territories please visit:  
[http://www.energy.ca.gov/maps/serviceareas/electric\\_service\\_areas.html](http://www.energy.ca.gov/maps/serviceareas/electric_service_areas.html)

**ATTACHMENT C**  
**Conventional Procurement Plan**



**SAN DIEGO GAS & ELECTRIC COMPANY  
LTPP/TRACK 4 PROCUREMENT PLAN  
(CONVENTIONAL PROCUREMENT)**

**JULY 16, 2014**

**SAN DIEGO GAS & ELECTRIC COMPANY**  
**TRACK 4 PROCUREMENT PLAN (CONVENTIONAL PROCUREMENT)**

**I. Overview of Identified Need and Procurement Plan Requirement**

In Decision (“D.”) 14-03-004 (the “Track 4 Decision”), the California Public Utilities Commission (the “Commission”) determined that new resources are required to meet local capacity requirement (“LCR”) need resulting from the retirement of the San Onofre Nuclear Generating Station (“SONGS”). Accordingly, the Track 4 Decision authorizes San Diego Gas & Electric Company (“SDG&E”) to procure through an all-source request for offers (“RFO”) or through bilateral negotiations between 500 and 800 Megawatts (“MW”) of electrical capacity in its territory to meet long term local capacity requirements by the end of 2021.<sup>1</sup> Such procurement must include at least 25 MW of energy storage resources as part of 200 MW of preferred resources consistent with the Loading Order of the Energy Action Plan.<sup>2</sup> The Commission makes clear in the Track 4 Decision that “[p]rocurement authorized by this decision should begin *as soon as possible*.”<sup>3</sup> The Commission noted further that “[p]rocurement needs may become critical as early as 2018 . . .”<sup>4</sup> It directed that “[t]o the extent authorized . . . SDG&E must expeditiously pursue procurement of any gas-fired generation expected to take several years to develop.”<sup>5</sup>

The Track 4 Decision directs SDG&E to submit for review and approval by the Commission’s Energy Division a procurement plan (the “Track 4 Procurement Plan”) explaining how it will procure the resources authorized by the Track 4 Decision.<sup>6</sup> The decision permits SDG&E to submit the conventional gas-fired resources portion of its Track 4 Procurement Plan for review in advance of submission of its full Track 4 Procurement Plan.<sup>7</sup> This document sets forth the conventional resources portion of SDG&E’s Track 4 Procurement Plan. SDG&E will separately submit its preferred resources procurement plan, which will include SDG&E’s strategy for procuring at least 200 MW of preferred resources through an all-source RFO. SDG&E addresses below the plan requirements set forth in the Track 4 Decision that are relevant

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<sup>1</sup> D.14-03-004, mimeo, Ordering Paragraphs (“OPs”) 2 and 3.

<sup>2</sup> *Id.*

<sup>3</sup> *Id.* at p. 113 (emphasis added).

<sup>4</sup> *Id.*

<sup>5</sup> *Id.*

<sup>6</sup> *Id.* at OP 7.

<sup>7</sup> OP 7 of D.14-03-004 states that SDG&E’s procurement plan “shall be subject to the same procurement plan requirements of OP 6, 7 and 8 of D.13-02-015 (Southern California Edison’s (“SCE”) Local Capacity Requirement decision). OP 8 of D.13-02-015 states that “[SCE] may provide the conventional gas-fired resources portion of the procurement plan for review ahead of its full procurement plan. If Energy Division approves this portion of the plan, [SCE] may go forward with that procurement.”

to bilateral procurement of conventional gas-fired resources (see Appendix A – “Roadmap of Procurement Plan Requirements Pursuant to D.14-03-004 and D.13-02-015”).

## **II. Summary of the Conventional Resource Procurement Strategy**

As discussed in the Track 4 proceeding, SDG&E’s technical modeling of LCR need assumed that SDG&E would aggressively pursue procurement of preferred resources such as Energy Efficiency (“EE”), Combined Heat and Power (“CHP”) and rooftop solar.<sup>8</sup> Indeed, taking into account assumptions regarding future procurement of preferred resources and the procurement authorized in Track 4, its proposed procurement strategy will achieve an approximately 50/50 split between preferred and conventional resources. The Track 4 Decision assumes that an additional 338 MW of future energy efficiency (“EE”) from existing programs will meet a portion of the identified need.<sup>9</sup> Add to that the 200 MW of new preferred resources that the Track 4 Decision directs SDG&E to procure, and the result is a total of 538 MW of preferred resources. With the additional reduction of need related to the addition of rooftop solar not yet developed but assumed in the Track 4 Decision’s calculation of existing local resources, the proposed 600 MW of gas-fired generation amounts to approximately 50% of all the new resources that will be added to provide reliable electric service to all customers.

While SDG&E is strongly committed to the goals of the Energy Action Plan and procurement of preferred resources in accordance with the Loading Order, it agrees with the Commission’s observation that “[i]t is necessary that a significant amount of this procurement level be met through conventional gas-fired resources in order to ensure that LCR needs will be met.”<sup>10</sup> It shares the Commission’s view that a balanced approach is necessary, and that while it is necessary to “pursu[e] preferred resources to the greatest extent possible, we must always ensure that grid operations are not potentially compromised by excessive reliance on intermittent resources and resources with uncertain ability to meet LCR needs.”<sup>11</sup>

As described in its preferred resource procurement plan submitted in accordance with the Track 4 Decision, SDG&E intends to issue an all-source solicitation to procure a minimum of 200 MWs of preferred resources to meet LCR need. This all-source RFO will solicit all resources, including preferred resources such as EE, demand response (“DR”), distributed generation, renewable generation and energy storage. Pursuant to the Track 4 Decision, EE and DR bids must demonstrate that they are incremental to the assumptions used in the CAISO study. This will likely require EE and DR RFO participants to bid creative and innovative products in order to demonstrate the product is indeed incremental to existing programs or resources

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<sup>8</sup> R.12-03-014/Track 4, SDG&E/Anderson, Exh. SDG&E-1, p. 9; *see also*, p. 7, Table 1, p. 9, Table 2.

<sup>9</sup> D.14-03-004, *mimeo*, p. 62.

<sup>10</sup> *Id.* at p. 90 (citing D.13-02-015, *mimeo*, Finding of Fact 30).

<sup>11</sup> *Id.* at p. 90.

assumed in the CAISO's Track 4 technical studies. With innovation comes uncertainty regarding the ability or eligibility of these new products to meet the identified LCR need. Moreover, heavy reliance on renewables poses its own challenges to the grid. While SDG&E strongly supports inclusion of preferred resources in its portfolio to serve bundled load, it is also obligated to provide safe and reliable service at reasonable cost to its customers. Consequently, SDG&E is pursuing a diverse mix of resources, both conventional and preferred, to ensure that customers are reliably served with resources that provide local capacity. SDG&E believes the approximately 50/50 split between preferred resources and conventional generation achieved through its procurement strategy strikes the right balance in that it encourages preferred resources to meet LCR need while ensuring reliability.

The Commission has made clear that it is necessary to take proactive steps to prevent development of a reliability crisis in which there exists insufficient time to engage in additional procurement.<sup>12</sup> With a reliability need starting as early as 2018, SDG&E has been working diligently to negotiate a bilateral<sup>13</sup> agreement with Carlsbad Energy Center, LLC ("Carlsbad Energy Center") to purchase output from a proposed natural gas-fired, simple cycle peaking facility with a 600 MW nominal contract capacity located in Carlsbad, California ("CECP" or "Project").<sup>14</sup> SDG&E intends to file an application for approval of the Carlsbad Energy Center agreement as soon as possible following the approval of this conventional portion of its Track 4 Procurement Plan.<sup>15</sup>

### **III. Procurement Considerations**

Attachment B to the Track 4 Decision and Ordering Paragraphs 6, 7 and 8 in D.13-02-015 set forth specific procurement plan requirements. To the extent these requirements relate to a bilaterally-negotiated contract for conventional generation, they are addressed below. Requirements relevant to the all-source RFO will be addressed in SDG&E's preferred resources Track 4 Procurement Plan.

SDG&E's procurement strategy for the conventional portion of its Track 4 procurement authorization involves bilateral negotiation of a Purchase Power Tolling Agreement ("PPTA") authorization with Carlsbad Energy Center. SDG&E will seek Commission approval of the PPTA through a separate application. As required by the Track 4 Decision, SDG&E explains below its general procurement strategy for procuring new conventional resources under its Track

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<sup>12</sup> See, e.g., D.09-01-008, *mimeo*, p. 18

<sup>13</sup> See D.14-03-004, *mimeo*, OP 3.

<sup>14</sup> The proposed resource has a nominal capacity of 600 MW. Since the amount of available capacity from a combustion turbine varies according to ambient conditions at the plant site, capacity payments are capped at 633 MW.

<sup>15</sup> OP 7 of D.14-03-004 states that "SDG&E may propose in its procurement plan a separate, earlier application for gas-fired generation."



4 procurement authorization, and describes generally how the Project fits within this strategy. A more detailed public interest showing will be provided in the application seeking approval of the PPTA:

- ***Overall Description of Procurement Process (Attachment B, #1):*** Pursuant to its authorization under D.14-03-004 and D.04-07-028, SDG&E intends to seek approval for a bilaterally negotiated long-term contract for conventional generation. It does not intend to seek contingent contracts.<sup>16</sup>
- ***Timeline (Attachment B, #2):*** As discussed above, the retirement of SONGS has created a need for new resources to meet SDG&E's LCR need. The timing of this new procurement must take into account the mandated retirement of once-through cooling ("OTC") resources located in Southern California.<sup>17</sup> Specifically, the 2017 OTC deadline for Encina is a critical driver for SDG&E's selection of new resources to fill a portion of its LCR need. Given the long lead-time required to construct new conventional resources, it is critical that the process move forward as soon as possible in order to maintain reliability.

SDG&E supports competitive solicitation processes when feasible and in its customers' interests. While it is theoretically possible that SDG&E could solicit additional proposals through an RFO process, the Carlsbad Energy Center project is likely the only conventional resource with adequate capacity to allow compliance with State OTC mandates. The Carlsbad Energy Center project has an expected online date of November 1, 2017. The Carlsbad Energy Center project (i) has obtained critical permits;<sup>18</sup> (ii) enjoys local support by the City of Carlsbad;<sup>19</sup> (iii) has existing CAISO queue positions and Large Generator Interconnection Agreements ("LGIAs"), which may allow it to benefit from a shorter time-frame for its request to amend its LGIAs; and (iv) is in advanced stages of negotiation with SDG&E.

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<sup>16</sup> See discussion of "contingent" contracts set forth at D.14-03-004, *mimeo*, pp. 102-106.

<sup>17</sup> In May, 2010, the State Water Resources Control Board ("SWRCB") adopted its statewide *Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* (Resolution No. 2010-0020), which applies to power plants located along the California coast that rely on OTC technology (the "OTC Policy"). The OTC Policy implements § 316(b) of the federal Clean Water Act, which seeks to minimize the adverse environmental impacts of cooling water intake structures, and requires OTC facilities to meet certain requirements or retire by a specified compliance date.

<sup>18</sup> Carlsbad Energy Center filed a request to amend its existing permit with the California Energy Commission in May, 2014 to address a change in technology from baseload units to peaking units. According to Carlsbad Energy Center, a final revised permit is anticipated to take 12-16 months.

<sup>19</sup> See Settlement Agreement Dated as of January 14, 2014 Between and Among the City of Carlsbad, Carlsbad Municipal Water District, Cabrillo Power I LLC, Carlsbad Energy Center LLC, and San Diego Gas & Electric Company.

Resources procured through an RFO process, on the other hand, would be required to complete multiple procedural steps before being able to start construction, including Commission review of RFO documents and procurement plan approval, bid submittal and evaluation, contract negotiation and preparation of an application, and Commission review and approval of contracts. The Commission has itself acknowledged that it could take *seven or more* years to complete such procurement.<sup>20</sup>

As a practical matter, a 2017 online date for a resource procured through an RFO would require an extremely aggressive timeline for each step, no unexpected delays and a developer willing to spend significant dollar amounts *prior to* Commission approval. In addition, if such a project had not yet begun the California Independent System Operator (“CAISO”) interconnection study process at the time of the RFO, an additional two years must be added to the timeline. Given the near-term need for new resources, bilateral negotiation with a counterparty capable of meeting a 2018 need is a prudent procurement strategy.

SDG&E expects to file an application for Commission approval of the Carlsbad Energy Center agreement promptly upon Energy Division approval of this conventional portion of its Track 4 Procurement Plan. SDG&E will request a decision approving the agreement by year-end, 2014 or as soon as possible thereafter in order to achieve an online date of November 1, 2017, consistent with the need for new resources to replace SONGS established by the Commission in Track 4 and the timing dictated by State OTC mandates.

- ***Locational Details (Attachment B, #3):*** Because D.14-03-004 identifies a need for local resources, any proposed resource must meet CAISO requirements for full deliverability and local resource adequacy.

The Carlsbad Energy Center will interconnect at SDG&E’s existing Encina and Cannon substations, which are located in the San Diego LCR area, and will meet local resource adequacy requirements. SDG&E’s proposed agreement with Carlsbad Energy Center will require that the project obtain full deliverability status. Therefore the LCR attributes of the Carlsbad Energy Center meet the requirements of D.14-03-004.

- ***LCR and Flexible Attributes (Attachment B, #5):*** SDG&E’s testimony in Track 4 of the Long Term Procurement Plan proceeding discusses the need for resources with

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<sup>20</sup> D.13-02-015, *mimeo*, p. 63 (“we take seriously the ISO’s concern [seconded by SCE and other] that there are some procurement opportunities associated with gas-fired plants which may be lost if there is a delay in moving forward, due to a likely seven to nine year lead time.”) (emphasis added).

the flexibility to meet loads during the evolving dual peak – one peak in the late afternoon (generally, between 4:00 PM and 5:00 PM) and a second peak between 8:00 PM and 10:00 PM.<sup>21</sup> This dual-peaking demand must be met or backstopped by gas-fired resources that can ramp up and down, follow load and be started multiple times within a single day. Besides this dual peak, as more renewable generation resources are added to the grid, additional flexible resources are needed to smooth the variability associated with intermittent renewable generation and to act as a backstop when those resources are not available. The Carlsbad Energy Center project will help to meet this challenge and will enable further growth in the proportion of renewables on the system.

The Carlsbad Energy Center project will be capable of multiple starts and stops each day with minimal required “down time” in between dispatches. The ability to quickly start and ramp up to full output, and the relatively low heat rate translates to reduced gas consumption, which will result in lower emissions, especially of greenhouse gases (“GHG”). Flexible units such as these represent a paradigm shift away from baseload type units such as combined cycle plants that, although highly efficient when operated at full load, are not as flexible as units designed to be operated at lower capacity factors.

- ***Evaluation Details (Attachment B, #7):*** SDG&E will use a Least Cost Best Fit (“LCBF”) evaluation methodology that is consistent with its Long Term Procurement Plan<sup>22</sup> (“LTPP”), Section II.A.5.b.i (“Application of Least-Cost Best Fit Analysis in Procurement Transactions”). The LCBF analysis determines what options best match SDG&E’s portfolio requirements (for example, an LCBF analysis is suitable in evaluating Resource Adequacy [“RA”], energy, and ancillary services needs). In general, the LCBF process will:
  - Analyze the candidate options to ensure that the transaction is lower cost than other alternatives known to be available when added to SDG&E’s portfolio.
  - Apply constraints such as meeting target goals/set asides in various programs and honoring recognition of physical constraints.
  - Normalize a multitude of non-standard attributes from differing types of resources and the impacts on the entire portfolio.

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<sup>21</sup> R.12-03-014/Track 4, SDG&E/Anderson, Exh. SDG&E-1, pp. 14-16.

<sup>22</sup> SDG&E’s LTPP was filed on July 25, 2012 as advice letter 2362-E-A. Available at: <http://regarchive.sdge.com/tm2/pdf/2362-E-A.pdf>

The results of this analysis will be set forth in the Application for approval of the proposed Carlsbad Energy Center PPTA. The description herein is intended to provide the general methodology that will be proposed to evaluate the contract.

- ***CAM Details (Attachment B, #8):*** The Commission approved Cost Allocation Methodology (“CAM”) allows the net capacity costs of new generation resources required for system or local reliability to be shared by all benefiting customers in an Investor Owned Utility’s (“IOU’s”) service territory. SDG&E intends to seek CAM treatment for the capacity costs associated with meeting the LCR need identified in Track 4, including but not limited to costs associated with a Commission-approved PPTA with Carlsbad Energy Center.<sup>23</sup>
- ***Project Details (Attachment B, #9):***
  - **Desired start dates for delivery:** As discussed above, SDG&E seeks a resource with a COD no later than January 1, 2018.
  - **Acceptable contract duration:** SDG&E seeks a long-term contract of 20 years, which is the industry standard for conventional power plants.
  - **Minimum size in terms of capacity:** SDG&E seeks a resource that will provide the full 600 MW authorized in D.14-03-004.

In general, in evaluating project viability, SDG&E considers such factors as intended technology, status of site control, developer team experience, permitting status and progress toward interconnection (study completion, interconnection agreement execution, etc.), among others. The project viability analysis also takes into account how far along in the development process the project has progressed, issues yet to be resolved and the developer team’s ability to overcome issues encountered in order to bring the project on-line.

In the case of the Carlsbad Energy Center project, a key viability consideration is the Settlement Agreement with the City of Carlsbad. Support for the project by the City of Carlsbad greatly improves the Project’s viability. Additional details regarding specific project viability will be provided in the application seeking Commission approval of the proposed PPTA.

- ***Other Details (Attachment B, #10):***

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<sup>23</sup> D.14-03-004, *mimeo*, OP 13.

- **Participation of Disadvantaged Business Enterprises:** SDG&E believes in the value of diversity and therefore has integrated the increase of Disadvantaged Business Enterprise (“DBE”) suppliers into its corporate vision. In 2013, SDG&E purchased 44.9% or more than \$453 million of goods and services from diverse businesses, which greatly exceeds the Commission’s goal of 21.5%.<sup>24</sup> Looking ahead, SDG&E is committed to continuing to build strong business relationships with its diverse supplier community and pursuing opportunities for diverse suppliers to provide even greater value to our customers.<sup>25</sup>

The proposed Carlsbad Energy Center agreement will likely include the following provision addressing DBE procurement:

In accordance with CPUC General Order 156, Seller, on behalf of itself and all of its contractor(s) and subcontractor(s), if utilizing a Women, Minority and Disabled Veteran Business Enterprise (as such term is used in General Order 156 adopted May 30, 1988, herein after called “DBE” contractor or subcontractor in the development, construction, operation and maintenance of the Project, shall use reasonable efforts to submit all documentation required by Buyer to report such verified DBE expenditures in support of or subcontracted under this Agreement.

- **Independent Evaluator (IE) details and IE role:** The role of the IE in SDG&E’s procurement process is to ensure that the process is reasonable, transparent and free from real or perceived conflicts of interest.

SDG&E has consulted with Merrimack Energy Group acting in an IE role during negotiation of the Carlsbad Energy Center PPTA. SDG&E will submit an IE report with the Application for approval of the proposed PPTA.

***Statutes/Commission Decisions Affecting Procurement (Attachment B, #11):*** SDG&E’s procurement is undertaken pursuant to California Public Utilities Code § 454.5, in accordance with its approved Long-Term Procurement Plan. Pursuant to D.14-03-004, SDG&E is authorized to procure between 500 and 800 MW of electrical capacity in its territory to meet long term local capacity requirements by the end of 2021. A minimum of 200 MW must come from preferred resources and must be procured through an all-source solicitation. The remaining balance may be procured from any resource, including gas fired generation. As stated above, given the time constraints to satisfy the local reliability needs identified by the Commission,

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<sup>24</sup> 2013 SDG&E DBE Annual Report, pp. 2, 24. Available at: [http://www.sempa.com/pdf/about/dbe\\_sdge\\_2013\\_2014\\_final.pdf](http://www.sempa.com/pdf/about/dbe_sdge_2013_2014_final.pdf).

<sup>25</sup> *Id.* at p. 4.

SDG&E is electing to procure a bilateral contract to meet the authorized need for the remaining 600 MW.<sup>26</sup> Moreover, in D.04-07-028, the Commission expressly recognized the utilities' authority to engage in bilateral negotiated contracts for capacity and energy from power plants where the purpose is to enhance local area reliability. SDG&E will further address any relevant procurement rules when it submits its application requesting Commission approval of the proposed Carlsbad Energy Center PPTA.

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<sup>26</sup> D.14-03-004, *mimeo*, OP 3.

**APPENDIX A**  
**Roadmap of Procurement Plan Requirements**  
**Pursuant to D.14-03-004 and D.13-02-015**

| Specific Requirements from Track 4 Decision  | Applicable to this Conventional Procurement Plan?<br>If yes, where located? |
|--|---|
| <p>Overall description of procurement process:</p> <ul style="list-style-type: none"> <li>• Major procurement steps (i.e. soliciting bids, bid evaluation, selection of bids/signing contracts, filing application for Commission approval, expected decision, on-line date.)</li> <li>• Include details on contingent contract process including triggers that would necessitate the execution of contingent contracts, option cost, contract terms, and a detailed break up of costs.</li> <li>• Describe which elements of the solicitation will be made public</li> </ul>  | <p>pp. 3-5</p> <p>n/a</p> <p>n/a</p>  |
| <p>Timeline:</p> <ul style="list-style-type: none"> <li>• Detailed timeline that includes an estimate for when resources with specific MW quantities are expected to come online up to the year of authorization</li> <li>• Also include: <ul style="list-style-type: none"> <li>○ Major procurement steps (i.e. soliciting bids, bid evaluation, selection of bids/signing contracts, filing application for Commission approval, expected decision, and on-line date</li> <li>○ Sub-timeline for any contingent contracts</li> <li>○ Major decision points for backup procurement when resources do not materialize</li> </ul> </li> </ul> | <p>pp. 4-5</p> <p>pp. 3-5</p> <p>n/a</p> <p>n/a</p>                         |
| <p>Location Details:</p> <ul style="list-style-type: none"> <li>• Indicate the substations and the locational effectiveness of the sites where the utility plans to procure resources</li> </ul>   | <p>p. 5</p>   |





| Specific Requirements from Track 4 Decision   | Applicable to this Conventional Procurement Plan? If yes, where located? |
|---|--|
| <p>LCR and flexible attributes:</p> <ul style="list-style-type: none"> <li>Detail the LCR and flexible attributes of the various technology-specific resources considered for procurement.</li> <li>Apply RA counting rules and the CAISO “non transmission alternatives” study in most cases.</li> <li>In cases where these are no defined attributes for a resources, propose attributes with a detailed rationale.</li> </ul>                  | <p>pp. 5 – 6</p> <p>n/a</p> <p>n/a</p>                                   |
| <p>Procurement Process:</p> <ul style="list-style-type: none"> <li>Include detailed description of the procurement process resources, specifying the structure of any RFO, bilateral contract, existing procurement programs or alternative procurement process and related timelines.</li> <li>Include information on structures of offers, selection, short listing and cost competitiveness threshold</li> </ul>                               | <p>pp. 3-5</p> <p>p. 6</p>   |
| <p>Evaluation Details:</p> <ul style="list-style-type: none"> <li>Process to evaluate different resources in a non-discriminatory fashion</li> <li>Method to quantify costs and benefits related to capacity, energy, flexibility, GHG, ancillary services, etc for all resources</li> <li>Standardized assumptions for costs and benefits across resource type</li> <li>Method to capture non-energy and other quantitative benefits.</li> </ul> | <p>p. 6</p> <p>p. 6</p> <p>p. 6</p> <p>p. 6</p>                          |
| <p>CAM Details:</p> <ul style="list-style-type: none"> <li>Indicate which resources should be subject to CAM treatment</li> <li>Indicate which procured resources will count towards IOU program goals</li> </ul>   | <p>p. 7</p> <p>p. 7</p>  |
| <p>Project Details:</p> <ul style="list-style-type: none"> <li>Detail how utility plans to evaluate the viability of preferred resource projects.</li> <li>Include the following details for each technology type: <ul style="list-style-type: none"> <li>Desired start dates for delivery</li> <li>Acceptable contract durations</li> <li>Minimum size in terms of capacity</li> <li>Interconnection requirements</li> </ul> </li> </ul>         | <p>pp. 7-8</p> <p>p. 7</p> <p>p. 7</p> <p>p. 7</p> <p>p. 5</p>           |
| <p>Other Details:</p> <ul style="list-style-type: none"> <li>Bidder outreach before and after the solicitation including details like bidder conferences, advertisements and webinars</li> <li>Participation of disadvantaged business enterprises</li> <li>Independent Evaluator details and role</li> </ul>   | <p>n/a</p> <p>pp. 7-8</p> <p>p. 8</p>                                    |

| <b>Specific Requirements from Track 4 Decision</b>   | <b>Applicable to this Conventional Procurement Plan? If yes, where located?</b> |
|--|---|
| Other statutes affecting procurement: <ul style="list-style-type: none"> <li>Cite relevant state laws and Commission decisions influencing this procurement</li> </ul> | pp. 8-9   |
| Documents: <ul style="list-style-type: none"> <li>Include non-binding pro formas and draft solicitation documents</li> </ul>   | n/a   |

| <b>Specific Requirements from D.13-02-015, Ordering Paragraphs 6, 7 and 8 of (SCE's LCR Decision)</b>  | <b>Applicable to this Conventional Procurement Plan? If yes, where located?</b> |
|--|---|
| A list of all applicable rules and statutes impacting the plan   | pp. 8-9   |
| A detailed description of how it intends to procure resources, specifying the structure of any RFO or alternative procurement process and related timelines  | pp. 3-5   |
| A statement as to whether or not SDG&E intends to seek Commission reconsideration of the solicitation and bilateral contracting determinations in its 2012 RPS procurement plan  | n/a   |
| A detailed list of the RPS procurement authorizations and processes that support SDG&E's plans to acquire RPS-eligible resources to meet LCR needs   | n/a   |
| A methodology for determining least cost/ best fit that includes evaluating and quantifying performance characteristics that vary among resource type (e.g. time to start, output at various times, variable cost, effectiveness in meeting contingencies, etc.) | p. 6  |
| What type of price benchmark will be used in determining cost-effectiveness for resources  | p. 6  |
| An explanation for each resource type indicating whether modifications will be made to existing programs or if a new approach will be utilized   | n/a   |
| A methodology for determining peak capacity for resources for which there is not a currently approved methodology for determining Net Qualifying Capacity  | n/a   |
| A methodology for determining other reliability capabilities (e.g.   | n/a   |

|   |  |
|---|--|
| voltage support) for resources for which there is not a currently approved methodology for determining these capabilities |  |
|---|--|

**ATTACHMENT D**  
**Preferred Resources Procurement Plan**



**SAN DIEGO GAS & ELECTRIC COMPANY  
LTPP/TRACK 4 PROCUREMENT PLAN  
(PREFERRED RESOURCES)**

**July 18, 2014**

**SAN DIEGO GAS & ELECTRIC COMPANY  
TRACK 4 PROCUREMENT PLAN (PREFERRED RESOURCES)**

**I. OVERVIEW OF IDENTIFIED NEED AND PROCUREMENT PLAN REQUIREMENT**

In Decision (“D.”) 14-03-004 (the “Track 4 Decision”), the California Public Utilities Commission (the “Commission”) determined that new resources are required to meet the local capacity requirement (“LCR”) need resulting from the retirement of the San Onofre Nuclear Generating Station (“SONGS”), as well as load growth and the mandatory retirement of once-through cooling (“OTC”) resources located in Southern California in accordance with State Water Resources Control Board (“SWRCB”) regulations.<sup>1</sup> Accordingly, the Track 4 Decision authorizes San Diego Gas & Electric Company (“SDG&E”) to procure through an all-source request for offers (“RFO”) or through bilateral negotiations between 500 and 800 Megawatts (“MW”) of electrical capacity in its territory to meet long term local capacity requirements by the end of 2021.<sup>2</sup> Such procurement must include at least 25 MW of energy storage resources as part of 200 MW of preferred resources consistent with the Loading Order of the Energy Action Plan.<sup>3</sup>

The Track 4 Decision directs SDG&E to submit for review and approval by the Commission’s Energy Division a procurement plan (the “Track 4 Procurement Plan”) explaining how it will procure the resources authorized by the Track 4 Decision.<sup>4</sup> The decision permits SDG&E to submit the conventional gas-fired resources portion of its Track 4 Procurement Plan for review separately from the preferred resources portion.<sup>5</sup> This document sets forth the preferred resources portion of SDG&E’s Track 4 Procurement Plan. SDG&E addresses below the plan requirements set forth in the Track 4 Decision that are relevant to preferred resource procurement (see Appendix A – “Roadmap of Procurement Plan Requirements Pursuant to D.14-03-004 and D.13-02-015”).

**II. SUMMARY OF THE PREFERRED RESOURCE PROCUREMENT STRATEGY**

SDG&E will issue an all-source Request for Offers (“RFO”) in the third quarter of 2014 to solicit a minimum of 500 MW and up to 800 MW of local capacity (the “All Source RFO”).

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<sup>1</sup> In May, 2010, the SWRCB adopted its statewide *Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* (Resolution No. 2010-0020), which applies to power plants located along the California coast that rely on OTC technology (the “OTC Policy”). The OTC Policy implements § 316(b) of the federal Clean Water Act, which seeks to minimize the adverse environmental impacts of cooling water intake structures, and requires OTC facilities to meet certain requirements or retire by a specified compliance date.

<sup>2</sup> D.14-03-004, *mimeo*, Ordering Paragraphs (“OPs”) 2 and 3.

<sup>3</sup> *Id.*

<sup>4</sup> *Id.* at OP 7.

<sup>5</sup> OP 7 of D.14-03-004 states that SDG&E’s procurement plan “shall be subject to the same procurement plan requirements of OP 6, 7 and 8 of D.13-02-015 (SCE’s Local Capacity Requirement decision). OP 8 of D.13-02-015 states that “[SCE] may provide the conventional gas-fired resources portion of the procurement plan for review ahead of its full procurement plan. If Energy Division approves this portion of the plan, [SCE] may go forward with that procurement.”

SDG&E will target at least 175 MW of preferred resources and 25 MW of energy storage as specified in D.14-03-004. Bilateral contracting may reduce the total procured through the All Source RFO. SDG&E's proposed All Source RFO characteristics are described below:

***A. Quantity and Products to be Solicited***

Consistent with Ordering Paragraphs 2 and 5 of D.14-03-004, SDG&E will solicit bids for a minimum target of 200 MW of preferred resources delivering in 2021 from new Energy Efficiency ("EE"), Demand Response ("DR"), Energy Storage ("ES"), Renewables, Combined Heat and Power ("CHP"), and Distributed Generation ("DG") products. SDG&E will target a minimum of 25 MWs of ES, as required by the Track 4 Decision.<sup>6</sup> Specific minimum procurement targets will not be established for any other resource type. SDG&E will also consider bids for conventional resources.

***B. Location / Point of Interconnection***

Products must provide capacity that will reduce load or add capacity that will count towards SDG&E's local Resource Adequacy ("RA") requirements. This means that projects must be located in SDG&E's local sub-area – *i.e.*, physically located in SDG&E's service territory and connected to SDG&E-owned transmission or distribution facilities at a point that is (i) at or electrically west of the Miguel or Suncrest substations and (ii) electrically south of the SONGS 230 kV switchyard (projects connecting at the Miguel or Suncrest substations are considered to be local area projects for these purposes). For DR and EE resource types, customers included must be located in SDG&E's service territory.

***C. Term***

Some portion of project deliverability must include the entire calendar year 2021 (from 1/1/2021 to 12/31/2021). SDG&E will consider proposals for any contract duration as long as the product will be available in 2021, but suggested contract terms for each product will be described in the solicitation documents in Attachment C.

***D. Evaluation Process***

SDG&E will select bids based on a least cost/best fit ("LCBF") / net market value ("NMV") analysis to determine the project or group of projects that best meets LCR need. SDG&E will not give preference to one product over another, but may apply qualitative factors to select a portfolio of bids that presents the best value for customers.

***E. Consultation with the California Independent System Operator ("CAISO")***

The CAISO has provided a set of locational effectiveness factors that will be used in

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<sup>6</sup> D.14-03-004, *mimeo*, Ordering Paragraph 9.

evaluating each project's ability to contribute toward meeting LCR need. The CAISO report<sup>7</sup> that includes these factors is included as Attachment D.

#### ***F. Bilaterals***

SDG&E may also consider bilateral negotiations when timing considerations, product complexity and/or other factors make RFO participation inappropriate. SDG&E will evaluate such projects using the same LCBF / NMV methodology used for RFO bids and compare them to relevant market data and/or solicitation results if they are available.

#### ***G. Timing***

SDG&E intends to issue the solicitation in the third quarter of 2014 and to submit a shortlist for approval in the second quarter of 2015. This schedule will provide developers with sufficient time to bring projects to fruition by the December 31, 2020 deadline established in the Track 4 Decision. SDG&E expects to file an application seeking approval of winning bids by year-end, 2015; however, this date could change due to the Commission requirement that that all resources procured through this RFO be filed in a single application.<sup>8</sup>

### **III. PROCUREMENT CONSIDERATIONS**

#### ***A. Emerging Markets and Processes***

The emerging energy storage market may not produce a large number of sufficiently developed bids; the Commission itself has acknowledged the experimental nature of this market.<sup>9</sup> SDG&E intends to use the "shadow cost curve" concept to benchmark the cost-effectiveness of such bids. The shadow cost curve concept is described in more detail in Section VI.A below.

SDG&E recognizes that procurement of many of the preferred resources through an RFO process has not been the standard method of procuring these resources in California. Thus SDG&E expects that throughout the process SDG&E will need to communicate with bidders to obtain additional information to fully evaluate the offer. SDG&E also expects to receive bids for projects that do not fit squarely into a single product type (*e.g.*, renewable/storage hybrids, aggregated roof-top solar/storage or other creative unforeseen combinations of preferred resources). SDG&E encourages market creativity and will not exclude such proposals from consideration as long as the basic conformance requirements are met (see the 'Preferred Resources Conformance Requirements Summary Table' below in Section VI.B.). SDG&E encourages bidders to use the bid form that allows them to best described their offer and submit questions through SDG&E's Q&A process to get further guidance on which product type is most appropriate for their project. If SDG&E selects such bids, it may modify one of the existing form contracts or develop new contract forms that do not match the pro formas in Attachment B.

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<sup>7</sup> *Locational Effectiveness Factor Calculations in the San Diego Area*, April 23, 2014. Available on the CAISO website at: [http://www.caiso.com/Documents/LocationalEffectivenessFactors-SanDiego\\_2013-2014.pdf](http://www.caiso.com/Documents/LocationalEffectivenessFactors-SanDiego_2013-2014.pdf)

<sup>8</sup> D. 14-03-004, *mimeo*, p. 113 and Ordering Paragraph 8.

<sup>9</sup> D.14-03-004, *mimeo*, p. 60.



## ***B. Incremental Procurement***

The Track 4 Decision requires that the procurement authorized in the decision be incremental to the preferred resource assumptions included in the CAISO's Track 4 technical studies that the Commission relied upon when establishing the LCR (the "CAISO Track 4 Studies").<sup>10</sup> Since the CAISO's assumptions include forecasts of future preferred resource capacity that has not yet materialized, and thus is not precisely defined, it may be difficult to demonstrate satisfaction of this "incremental" requirement in some cases. SDG&E currently offers many procurement programs that solicit preferred resources located anywhere within its service territory. Unlike Pacific Gas & Electric Company ("PG&E") and Southern California Edison Company ("SCE"), however, SDG&E's service territory occupies essentially the same footprint as its LCR area, making it even more difficult for SDG&E to differentiate LCR procurement from existing program procurement. To the extent that these other procurement activities occur at the same time as this All Source RFO, SDG&E will review the results of those processes prior to making any formal offers in this RFO. SDG&E discusses this concept further in Section VI below.

In an effort to identify preferred resources that are incremental to those assumed in the CAISO Track 4 Studies, especially for EE and DR products, SDG&E encourages the market to bid products into the All Source RFO that are innovative and that the CAISO may not have considered in the CAISO Track 4 Studies. SDG&E discourages bids that are solely an extension or expansion of existing or planned programs. The specific method used to procure preferred resources (All Source RFO v. existing programs) and the difficult question of whether the resource is incremental should not impede progress towards the overarching goal of procuring sufficient cost-effective preferred resource capacity by the end of 2021. SDG&E's procurement strategy is intended to be flexible enough to take advantage of any cost-effective preferred resources that can help it meet its LCR need. SDG&E describes in more detail below how it intends to help the market make this distinction for EE and DR products.

To ensure that the solicitation results in the most effective procurement of incremental preferred resources, the Commission should also consider the inclusion of DR and EE efforts related to rate design and programs. For the majority of customers, specifically residential, the current rate structure is broken and provides perverse price signals that have no direct relationship to the utility's cost of service. The re-examination of residential rate design is being assessed in the Residential Rates Order Instituting a Rulemaking ("RROIR")<sup>11</sup>. In the RROIR proceeding, the Commission is examining current residential electric rate design, including the tier structure in effect for residential customers, the state of time variant and dynamic pricing, potential pathways from tiers to time variant and dynamic pricing, and preferable residential rate design to be implemented when statutory restrictions are lifted. The RROIR provides guidance for residential rate design, including: (1) rates should encourage conservation and energy

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<sup>10</sup> D.14-03-004, *mimeo*, OP 6 (directing SDG&E to issue an RFO that includes the elements specified by OP 4 of D.13-02-015, which required a demonstration that the resource is "incremental to the assumptions used in the California ISO studies, to ensure that a given resource is not double counted."); *id.* at Exhibit B.

<sup>11</sup> Rulemaking 12-06-013.

efficiency (Principle 4); and (2) rates should encourage reduction of both coincident and non-coincident peak demand (Principle 5). Further, in the Energy Division Staff proposal on Residential Rate Reform indicated that one of the major issues to be addressed in the RROIR is the lack of progress in realizing the Commission's policy of transitioning customers to time-variant pricing as part of a comprehensive demand response policy articulated in its 2003 Vision Statement<sup>12</sup>.

### *1. Incremental EE*

To demonstrate that the EE products bid into the All Source RFO are incremental, SDG&E will provide descriptions and references to the EE assumptions used in the CAISO Track 4 Studies in its solicitation materials and advise bidders that they must explain how their EE products are incremental to these assumptions. SDG&E will encourage RFO participants to provide creative products that are not part of existing or planned programs that made up the assumptions used by the CAISO Track 4 Studies.

Bidders may refer to the following sources, which describe SDG&E's EE baseline, in order to determine whether their projects is incremental: (1) SDG&E's current 2013-2014 EE program portfolio; (2) SDG&E's proposed 2015 EE program portfolio; (3) the market potential, which is currently the basis of the Commission's 2015 EE goals;<sup>13</sup> or (4) 2013 Integrated Energy Policy Report ("IEPR") DR forecast<sup>14</sup>. In addition to these sources, a bidder may also propose programs that target hard-to-reach markets that have not been traditionally addressed by programs; EE technologies that are not currently in Emerging Technologies or in the market potential or existing programs. SDG&E will work with the IE, Energy Division staff and others as appropriate to ensure that offers are, in fact, incremental. SDG&E is mindful that EE offer requirements are challenging. SDG&E will solicit input from bidders prior to offers coming due regarding the offer requirements and will adjust the EE RFO if needed.

SDG&E will encourage bids providing incremental EE resources via SDG&E's Home Area Network (HAN), and maximize the potential from residential plug-in load and customers' access to real time energy usage information to the extent possible.

### *2. Incremental DR*

SDG&E will follow the same process outlined for EE to direct DR bidders to explain how their product is incremental to the DR assumptions used in the CAISO Track 4 Studies. For example, a program that would utilize new rate structures that abide by the RROIR principles described in Section III.B above could result in incremental DR. These types of rate structures were not in place at the time the CAISO Track 4 Studies were completed, thus products that

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<sup>12</sup> California Demand Response: A Vision for the Future (2002-2007)

<sup>13</sup> See Navigant Consulting, Inc., *2013 California Energy Efficiency Potential and Goals Study*, reflected as Attachments 1, 2, 3 and 4 to the March 3, 2014 *Assigned Commissioner's Ruling Amending Scoping Memorandum, and Providing Guidance on Energy Savings Goals for Program Year 2015*.

<sup>14</sup> See the SDG&E Mid.xls file at: [http://www.energy.ca.gov/2013\\_energypolicy/documents/demand-forecast\\_CMF/mid\\_case/](http://www.energy.ca.gov/2013_energypolicy/documents/demand-forecast_CMF/mid_case/)

utilize such structures would be incremental to volumes assumed in the study. Proposals for new products that target a specific customer segment that current programs do not address, such as agricultural pumping load, may also be considered incremental. Such products should include rationale for why these customers have not been able to participate in an existing offering and how the proposal will address these concerns.

In D.14-03-026, the Commission bifurcated demand response programs into load modifying and supply resources<sup>15</sup> in order to improve the efficiency of demand response and increase the use of demand response programs. Supply resources are integrated into the CAISO wholesale electricity market. Each bidder will be asked to explain how their DR program would fit into either the load modifying or the supply category. Offers for supply resources should also address how the product can be bid into the CAISO markets.

Bidders may refer to the following sources, which describe SDG&E's DR baseline, in order to determine whether their projects are incremental: (1) SDG&E's current 2012-2014 DR program portfolio<sup>16</sup>; (2) SDG&E's proposed 2015-2016 DR program portfolio<sup>17</sup>; and / or (3) 2013 Integrated Energy Policy Report ("IEPR") DR forecast<sup>18</sup>. SDG&E will work with the IE, Energy Division staff and others as appropriate to ensure that offers are, in fact, incremental.

SDG&E will encourage bids providing incremental DR resources via SDG&E's Home Area Network (HAN), and maximize the potential from residential plug-in load and customers' access to real time energy usage information to the extent possible.

### ***C. Alternative Methods of Procuring Preferred Resources***

Evaluating multiple resources through one solicitation will lead to better understanding of how preferred resources can meet LCR needs in a cost-effective way. However, many of the preferred resource product types that SDG&E will solicit involve emerging technologies or hybrids that are new to the market. Also, SDG&E's smaller service territory may impact the volume, and correspondingly, the competitiveness of bids for preferred resources. SDG&E will closely monitor how these issues impact the cost and effectiveness of these bids. If SDG&E is unable to procure the targeted 200 MW of preferred resources through this solicitation, it will consider one or more of the following opportunities: (1) utilize existing preferred resource programs in an effort to fulfill any remaining LCR need; (2) hold additional solicitations for preferred resources to meet LCR needs; or (3) continue working towards bilateral arrangements. SDG&E will also strive to learn more about which resources best meet local reliability needs so that LCR procurement can be more targeted. SDG&E discusses this effort in more detail in

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<sup>15</sup> D.14-03-026, ordering paragraph 1.

<sup>16</sup> See <http://www.sdge.com/business/demand-response-overview> for information about SDG&E's current 2012-2014 DR program portfolio.

<sup>17</sup> See [https://www.pge.com/regulation/DemandResponseOIR-2013/Pleadings/SDGE/2014/DemandResponseOIR-2013\\_Plea\\_SDGE\\_20140303\\_297882.pdf](https://www.pge.com/regulation/DemandResponseOIR-2013/Pleadings/SDGE/2014/DemandResponseOIR-2013_Plea_SDGE_20140303_297882.pdf) for information about SDG&E's proposed 2015-2016 DR program portfolio.

<sup>18</sup> See the SDG&E Mid.xls file at: [http://www.energy.ca.gov/2013\\_energypolicy/documents/demand-forecast\\_CMF/mid\\_case/](http://www.energy.ca.gov/2013_energypolicy/documents/demand-forecast_CMF/mid_case/)

Section VIII below. Due to the timing of these alternative opportunities, SDG&E may have to file these products separately from RFO products procured in this RFO.

SDG&E may also be able to meet some of its LCR need with preferred resource capacity obtained through efforts outside of solicitations, existing programs, or bilateral agreements. For example, SDG&E is in the process of revamping its rate structure to better incentivize customers to decrease loads at peak hours. Any resulting DR is the result of rate reforms that were not in place when the CAISO Track 4 Studies were performed and therefore is incremental to volumes assumed in Track 4. SDG&E intends to evaluate the contribution of additional DR associated with the evolution of its electric rate structure, or any other non-procurement mechanisms that result in incremental preferred resource capacity, towards the 200 MW minimum required by the Track 4 Decision. With regard to these potential additional DR resources, only qualifying LCR resources will be considered such as “fast” DR (within 30 minutes or less of response time) or DR categorized as supply resources. Additionally, SDG&E will consider DR procured through the Demand Response Auction Mechanism (DRAM) that is pending in the DR rulemaking (R.13-09-011) to the degree these potential resources meet the LCR requirements. SDG&E may also explore potential transmission options that reduce the LCR need.

#### **IV. OVERLAP BETWEEN THE ALL SOURCE RFO AND EXISTING PREFERRED RESOURCES PROGRAMS**

SDG&E will continue to comply with all Commission orders in other dockets regarding the procurement of preferred resources. Rules applicable to the procurement of preferred resources in existing programs may impact Track 4 Procurement. SDG&E discusses some examples of this interaction below.

##### ***A. Bid Evaluation Conflicts***

Many of SDG&E’s existing programs for preferred resource procurement will occur within the same timeframe as this All Source RFO. It is inevitable that SDG&E will evaluate similar products in two separate domains. SDG&E’s goal is to maximize value for its customers by using all available market data to evaluate bids in all of its procurement processes. For example, if a project bid into the All Source RFO provides the same benefits as a project bid into a Renewable Auction Mechanism (“RAM”) solicitation, SDG&E will evaluate the pricing provided in each venue in order to ensure that ratepayers secure the best deal. Additionally, SDG&E will include existing cost-effectiveness standards used in EE and DR programs in its evaluation of EE and DR products bid into the All Source RFO. SDG&E will compare EE and DR bids to other preferred resources bid into the RFO, but it will also consider whether such bids are cost-effective based on the existing cost-effectiveness standards used in EE and DR programs. SDG&E will use these types of evaluation tools from existing programs whenever possible to ensure that preferred resources are the most cost-effective choice for meeting LCR need, while also maintaining a sense of whether the price for each specific product is within the range of market prices for that resource type.

## ***B. Identifying LCR Eligible Procurement Through Existing Programs***

Many of SDG&E's existing preferred resource procurement programs already encourage participation from local projects. For example, the RAM program prioritizes local projects through its evaluation process and the Renewable Market Adjusting Tariff ("ReMAT") is restricted to local projects. SDG&E may identify resources through its existing programs that could contribute to meeting its LCR need. SDG&E will count these resources towards its LCR if it can demonstrate that these cost-effective programs are incremental to assumptions used in the CAISO Track 4 Studies. Furthermore, if SDG&E identifies a project that is ineligible for the existing program to which it was submitted, it will consider whether it can contribute to LCR need. Depending on when SDG&E identifies such projects, it will either request that they bid into the All Source RFO or negotiate bilaterally. Timing may also demand that SDG&E file such projects for approval separately from projects identified through this All Source RFO. Examples of how SDG&E might identify LCR products through existing programs include the following:

### *1. Energy Efficiency*

SDG&E will continue to file applications to seek the Commission's approval to continue existing programs and to implement new programs, among other requests. Additionally, SDG&E will continue to expand its offering by increasing penetration of existing measures into hard-to-reach areas. Additionally, with SDG&E's 2015 pilot programs, Energy Marketplace and CVR, SDG&E is investigating alternative ways to achieve more energy savings.

### *2. Demand Response*

SDG&E will continue to file applications to seek the Commission's approval to continue existing programs and to implement new programs, among other requests. Additionally, SDG&E will continue to expand its offering and use of dynamic rates to help manage the system load.

### *3. Energy Storage*

Pursuant to the D.13-10-040 (the "Energy Storage Decision") and its Energy Storage Procurement Application (A.14-02-006 filed February 28, 2014), SDG&E will solicit a total of 165 MW of qualifying ES through four biennial solicitations, the first of which will be conducted as part of the All Source RFO. SDG&E will seek to procure ES products through the All Source RFO that will count towards both the Track 4 Decision requirement and the Energy Storage Decision requirement.<sup>19</sup> If SDG&E fails to procure the minimum capacity of 25 MW of ES through this solicitation, it will continue to seek these volumes through subsequent biennial ES solicitations.

### *4. Renewables*

#### *a. Large-Scale RPS Solicitation*

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<sup>19</sup> See D.13-10-040, *mimeo*, p. 34; and D.14-03-004, *mimeo*, pp. 61 and OP 2.

Although SDG&E does not anticipate soliciting large scale RPS solicitation in 2014, it may choose to do so in future years. If an LCR need exists at the time that SDG&E issues a large scale RPS solicitation, it will encourage participation from local resources.

#### *b. Small-Scale Renewable Procurement Programs*

SDG&E will continue to procure renewables through its RAM and ReMAT programs. The next scheduled RAM solicitation will occur in June of 2014. Additional RAM solicitations may occur if the remaining program requirement is not met in June. The ReMAT program will continue to offer PPAs to qualified developers every other month until its program ends pursuant to the provisions in SDG&E's Re-MAT Tariff. SDG&E may also identify LCR resources through its Connected to the Sun program and the bioenergy feed-in tariff currently under review by the Commission.

#### *5. Combined Heat and Power*

SDG&E will continue to procure CHP through at least two additional dedicated CHP RFOs (in addition to the two CHP RFOs already conducted by SDG&E to date). The first of these two additional CHP RFOs is tentatively scheduled to be issued in the spring of 2015 and the last CHP RFO will be associated with the second program period as described in the CHP settlement agreement.<sup>20</sup>

#### *6. Distributed Generation*

SDG&E anticipates continuing to interconnect DG, such as rooftop solar, in large numbers in the coming years. To the degree that such roof-top solar installations exceed the projections adopted by the CAISO / CEC in their load forecasts, SDG&E would consider those installations to be incremental as required by the Track 4 Decision<sup>21</sup>. Other types of distributed generation are also routinely interconnected with SDG&E's system and more information on this process can be found on SDG&E's website at: <http://www.sdge.com/generation-interconnections/overview-generation-interconnections>.

SDG&E is also aware of certain preferred resource procurement programs that were not included in the CAISO Track 4 Studies. For example, SDG&E expects to begin procuring additional renewable capacity for its Connected to the Sun program as early as the spring of 2015.<sup>22</sup> SDG&E is also currently working with the Commission on the implementation of the

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<sup>20</sup> The "Qualifying Facility and Combined Heat and Power Program Settlement Agreement" (the "Settlement Agreement") was filed on October 8, 2010 and approved in D.10-12-035. The Settlement Agreement became effective on November 23, 2011 with the satisfaction of the necessary conditions precedent contained in the agreement. The initial and second program periods are described on page 8 of the Settlement Agreement.

<sup>21</sup> See *supra*, note 10.

<sup>22</sup> The program, initially proposed in an SDG&E application, will permit all bundled customers to access solar energy regardless of whether they own their home or their premises can support on-site solar. Recently adopted Senate Bill ("SB") 43 provides a statutory basis for the program. The Commission is currently working to implement this legislation through A.12-01-008, *et al.* If the

proposed Demand Response Auction Mechanism. In order to maximize value to ratepayers, SDG&E intends to evaluate how these programs fit within the identified LCR needs.

### ***C. Conflicting Program Rules***

SDG&E notes that products procured through the All Source RFO should not be precluded from counting towards their respective existing program goals, even if the evaluation methodology used differs from that used in the applicable existing program. For example, all greenhouse gas (“GHG”) reductions captured through the procurement of any CHP resources will count towards the MW and GHG targets required by the CHP Settlement.

SDG&E will not count EE and DR resources procured through the All-Source RFO towards their respective CPUC approved-program goals because of the difficulty in determining whether these projects are “incremental”<sup>23</sup> as required by the Track 4 Decision. However for the purposes of forecasting, e.g. in the LTPP and IEPR, the demand reductions resulting from the All Source RFO will be included.

It is also unclear how the RPS Procurement Expenditure Limitation (“PEL”) currently under development at the Commission might impact the procurement of renewables under the Track 4 Procurement Plan. SDG&E will monitor this proceeding and consider its impact, if any, to renewable procurement through the LCR process.

### ***D. The Role that Preferred Resources Can Play in Addressing LCR Need***

Preferred resources have played a role in addressing SDG&E’s LCR need in the past and will continue to play a role in the future. For example, SDG&E’s past energy efficiency efforts have lowered loads in SDG&E’s local capacity area, thus lowering the need for local generation.<sup>24</sup> SDG&E has also historically assessed the incremental value/prioritized the procurement of local resources when evaluating RPS and RAM bids. However, in the future, SDG&E believes the procurement of preferred resources will need to be more focused with targeted objectives to obtain the maximum benefits. This customization will evolve over time as the nature of the need evolves. SDG&E will work with the Commission to adjust its procurement strategy in all preferred resource procurement proceedings as needed in order to allow these changing needs to play out. This concept is discussed more in Section VIII below.

## **V. SOLICITATION PROCESS**

### ***A. Solicitation Timeline***

SDG&E proposes to issue the All Source RFO three to four weeks following Energy Division approval of the preferred resources portion of its Track 4 Procurement Plan. Based on

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Commission issues a decision in this proceeding in the fall of 2014, SDG&E could begin procurement early in 2015.

<sup>23</sup> D.14-03-004, Attachment B, p. 1.

<sup>24</sup> The local capacity area where the resources need was identified is basically equal to the SDG&E service area.

current estimates, SDG&E anticipates that this will likely occur in the third quarter of 2014. SDG&E proposes to close the RFO (*i.e.*, establish the bid due date) in the fourth quarter of 2014 (currently targeting the week before Thanksgiving). This proposed timeline is consistent with securing resources in time to meet an end-of-year 2021 LCR need and will allow time to involve stakeholders.

SDG&E proposes the following timeline for this procurement effort (roughly 18 months beginning with the date Energy Division approves this preferred resources portion of its Track 4 Procurement Plan):

**SDG&E's Proposed Preferred Resources procurement timeline**

| <b>Target Date /<br/>Days relative to<br/>approval</b> | <b>Event / Procurement Step</b>  |
|--|--|
| May 1, 2014  | SDG&E submits the preferred resources portion of its Track 4 Procurement Plan to Energy Division |
| T+0  | Energy Division approves the preferred resources portion of the Track 4 Procurement Plan         |
| T+28   | All Source RFO issued  |
| TBD / ~T+60-<br>T+90                                   | Bidders conference(s) / stakeholder outreach event(s)  |
| T+160  | Offers due   |
| T+300  | Shortlist determination  |
| Next avail<br>meeting                                  | SDG&E briefs its PRG on its proposed shortlist   |
| T+320  | SDG&E notifies shortlisted bidders   |
| T+330  | Shortlisted bidders accept / withdraw from shortlisted position                                  |
| T+331  | Commence negotiations  |
| T+530  | Negotiations complete / contracts for all product types executed                                 |
| T+570  | Application filed requesting approval of Preferred Resources contracts                           |

***B. Solicitation Structure***

SDG&E proposes a solicitation structure consistent with previous procurement efforts associated with programs such as the Renewable Portfolio Standard ("RPS"). SDG&E's proposed solicitation structure includes outreach events over a one-month period followed by a single date upon which offers are due.

SDG&E intends to utilize an All Source RFO Internet webpage with a narrative that describes the process, along with the RFO document for each product type, question and answers, outreach event / bidder's conference materials, the various forms and files that are associated with each product type (such as pricing forms, credit application, pro forma



agreements and project descriptions forms for example), the solicitation schedule, instructions for submitting offers and guidance for offers that do not fit squarely into one of the product types included.

SDG&E intends to leverage its PowerAdvocate platform for receiving offers. SDG&E has successfully used this web-based platform numerous times in the past and believes that it will effectively handle the numerous offers anticipated. In short, bidders register on the site to receive a user name and password and are provided instructions for logging in and providing all the required forms and files necessary to evaluate their offer.

### ***C. Contract Documents***

SDG&E will provide pro forma agreements for most of the product types. These documents will serve as a starting point for negotiations. Since the procurement of preferred resources specifically for LCR purposes is a relatively new endeavor, SDG&E expects these forms to change based on input from counterparties and lessons learned throughout the procurement process. For example, SDG&E anticipates that it may wish to structure contract provisions that encourage phased-in project development. This would allow SDG&E to develop a sense for which projects have real potential to produce the needed preferred resource capacity within the required timeframe and to avoid the false sense of security associated with procuring large volumes of resources several years before their output is required. SDG&E's pro forma agreements for each product type are discussed briefly below. SDG&E is not seeking approval of these forms through this Track 4 Procurement Plan and will continue working with Energy Division as the documents evolve.

#### **i. Energy Efficiency and Demand Response**

SDG&E has not included a pro forma for EE and DR resources due to the wide range of programmatic designs that might be possible. SDG&E will outline conformance requirements in the respective RFO documents for each product and then provide an appropriate form contract for shortlisted offers.

#### **ii. Energy Storage**

SDG&E intends to utilize the Energy Storage Power Purchase Tolling Agreement ("ESPPTA") that was filed as part of A.14-02-006 on February 28, 2014 requiring that resources are required to be located / interconnect within the San Diego Local subarea and meet RA counting rules.

#### **iii. Renewables**

SDG&E will provide a pro forma Power Purchase Agreement ("Renewable PPA") that represents its preferred terms and conditions for renewables. The Renewable PPA will be based upon SDG&E's 2013 RFO Model PPA, which SDG&E filed as part of its 2013 RPS Procurement Plan (approved in D.13-11-024 on November 20, 2013), with updates to reflect changing market conditions. SDG&E intends to use this contract for the All Source RFO even

though there will be minor modifications to address the requirement to procure resources in order to meet local capacity need. SDG&E has been consistently improving its RFO Model PPA and believes that it has the optionality necessary to accommodate the various products sought.

iv. Combined Heat and Power

SDG&E intends to utilize the CHP pro forma agreement from its most recent CHP solicitation that closed in September of 2013 with few modifications (such as for locational / interconnection requirements and any other necessary changes to meet the LCR need).

v. Distributed Generation

SDG&E has not included a form contract for DG resources. Since DG can vary widely between rooftop solar to 20 MW systems, it is not practical to develop one form for all DF products. Instead, SDG&E will evaluate bids and determine which of the forms for other products may serve as the best starting point for contract negotiations with DG counterparties.

vi. Conventional Generation

SDG&E will provide a pro forma Power Purchase Tolling Agreement (“PPTA”) that reflects preferred terms and conditions for convention resources.

***D. Other Solicitation Documents***

Draft forms of the bidder’s instructions for each of the preferred resource products are also attached. As discussed in Section V above, SDG&E has provided separate RFO protocols for each preferred resource product type, but will evaluate all projects together. The RFO protocols for each preferred resource product types are attached at Appendix C. Note that SDG&E will continue working with the ED, PRG and IE to improve these forms as the solicitation approaches, including conforming the EE RFO documents to more closely match the format of the other products and providing bidder instructions and conformance requirements for conventional resources.

***E. Role of the Independent Evaluator, Cost Allocation Mechanism Procurement Review Group and Procurement Review Group***

1. Independent Evaluator (IE)

The purpose of an IE in the RFO solicitations is to ensure a fair, competitive procurement process free of real or perceived conflicts of interest.<sup>25</sup> SDG&E worked with the Energy Division to select PA Consulting to serve as the IE for the Preferred Resources Solicitation. PA consulting has the breadth of experience and sufficient resources to provide advice on such a wide range of products. The IE will be involved in the preparation of bid forms and protocols, and will work with SDG&E to ensure that bids are evaluated fairly and accurately.

2. Cost Allocation Mechanism Procurement Review Group (CAM PRG)

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<sup>25</sup> D.07-12-052, *mimeo*, p. 140.

Public Utilities Code § 365.1(c)(2)(A)-(B) requires that upon a Commission determination that new generation is required to meet local or system area reliability needs for the benefit of all customers in an IOU's service area, the net capacity costs for the new capacity must be allocated in a fair and equitable manner to all benefitting customers, including direct access ("DA"), community choice aggregation ("CCA") and bundled load customers.<sup>26</sup> In other words, if new generation resources provide reliability benefits to all customers, the net capacity costs of such resources must likewise be allocated to all customers. As the Commission made clear in D.11-05-005, application of the CAM is mandatory where the statutory conditions are met.<sup>27</sup>

SDG&E intends to recover the costs of all resources procured for purposes of meeting its LCR need through the CAM, as appropriate. If a utility intends to recover costs through CAM, it must convene a CAM PRG. SDG&E will work with its CAM PRG on a regular basis throughout the RFO process. SDG&E will review the draft bid forms attached to this plan with the CAM PRG to solicit feedback, and SDG&E will update the CAM PRG on its progress in selecting bids once the RFO has been issued. SDG&E will also present its selected projects to the CAM PRG to solicit feedback before submitting them for Commission approval. If SDG&E determines for any reason that it will not seek CAM treatment for any of the LCR resources that it intends to procure, it will work with its regular PRG.

#### ***F. Applicable Rules and Statutes***

SDG&E's procurement is undertaken pursuant to Public Utilities Code § 454.5, in accordance with its approved Long-Term Procurement Plan. Pursuant to D.14-03-044, SDG&E is authorized to procure between 500 and 800 MW of electrical capacity in its territory to meet long-term local capacity requirements by the end of 2021. At least 200 MW must come from preferred resources. D.14-03-044 directs SDG&E to hold a RFO to solicit LCR resources. Ordering Paragraph 6 requires that RFOs issued in accordance with the D.14-03-004 meet all previous CPUC requirements including D.07-12-052. SDG&E's procurement plan is subject to the same procurement plan requirements of Ordering Paragraph 6, 7 and 8 in Decision 13-02-015. The requirements of Ordering Paragraph 11 of Decision 13-02-015 also apply. Per D.02-10-062 notification of the solicitation will be widely distributed. SDG&E also intends to seek CAM treatment for new LCR RFO-executed contracts pursuant to D.06-07-029 and D.14-03-004.

SDG&E's solicitation will comply with the confidentiality rules determined in accordance with D.06-06-066, as modified by D.07-05-032 and D.08-04-023. SDG&E will also rely upon and simultaneously claim the protection of Public Utilities Code §§ 454.4(g) and 583, Govt. Code § 6254(k) and General Order 66-C

As authorized in D.14-03-004, SDG&E may also consider bilateral negotiations when timing considerations, product complexity or other factors make RFO participation inappropriate. This approach is consistent with D.04-07-028, in which the Commission expressly recognized the utilities' authority to engage in bilateral negotiated contracts for capacity and energy from

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<sup>26/</sup> See D.13-02-015; D.11-05-005; D.08-09-012; D.07-09-044; and 06-07-029.

<sup>27/</sup> D.11-05-005, *mimeo*, p. 6.

power plants where the purpose is to enhance local area reliability.

SDG&E will further address any relevant procurement rules when it submits its application requesting Commission approval of new LCR executed contracts.

## **VI. VALUATION AND SELECTION PROCESS**

### ***A. Valuation and Selection Process Overview***

In evaluating the offers that are submitted in response to the All-Source RFO, SDG&E's valuation and selection approach is intended to evaluate the different resource types on as equal a footing as possible. Initially, all offers will go through a conformance check to ensure that RFO requirements are met; as part of this conformance check, the EE and DR offers will be evaluated via the Total Resource Cost ("TRC") process with a minimum threshold established for passing this test. Conforming offers will then go through the LCBF / NMV analysis described below to rank the offers. Potentially, SDG&E may be faced with a situation once this ranking process is complete (from highest NMV to lowest NMV) where there may not be enough capacity from positive NMV offers to reach the 25 MW threshold for energy storage offers and the 175 MW threshold for other preferred resource offers. In this case, SDG&E will carefully consider whether offers with a negative NMV (that is, offers whose associated costs are greater than the associated benefits) will be shortlisted and pursued or whether it is preferable to rely on alternative procurement tools to meet the 200 MW LCR preferred resource goal.

SDG&E utilizes an LCBF approach for its evaluation process. This includes both quantitative and qualitative assessments, evaluated separately, and then applied to an overall ranking of offers. The primary quantitative metric used in SDG&E's LCBF process is an NMV calculation. The NMV calculation is a quantification of the value of an offer when compared to a set of price benchmarks for capacity, electrical energy, ancillary services, natural gas, and GHG compliance. The price benchmarks are derived from current broker quotes, recent RFO offers, historical prices, recently executed transactions, and price curves extrapolated from that data to extend into future years where market data is unavailable. The NMV shows the value of an offer relative to purchasing the same product(s) from wholesale markets at current market prices. A higher NMV would result in a higher bid ranking.

SDG&E may also develop "shadow cost curves" for products that cannot be benchmarked using its market-based price curves. The shadow cost curves will be forecasts of estimated costs, based on SDG&E's experience with developing new customer programs. The shadow cost curves will allow the use of an NMV calculation to evaluate offers that do not fit into typical wholesale market categories, such as DR and EE programs.

The shadow cost curves will allow SDG&E to determine if offers are priced reasonably relative to current and future expected costs, and then evaluate whether to defer (delay) procurement or select alternative resources. Due to the short development time of certain resources, such as DR and EE programs, as well as the expectation that advances in technology will lead to a significant number of program alternatives prior to the identified LCR need (by

2022<sup>28</sup>), SDG&E may reserve procurement for future periods. This may allow for procurement of higher loading order preferred resources than are currently available.

## ***B. LCBF / NMV Evaluation Methodology***

### *1. Overview*

SDG&E's LCBF approach includes both quantitative and qualitative assessments, applied to create an overall ranking of offers when conducted in conjunction with an RFO. When evaluating bilateral offers, the evaluation process is identical; however, comparisons are made to other bilateral offers or recent solicitations to determine the relative value of the offer.

The NMV calculation consists of calculating a discounted sum of all quantifiable benefits less the discounted sum of all quantifiable costs.

In addition to the quantitative valuation, an offer may have other qualitative benefits that would be evaluated separately.

### *2. Contract Benefits*

#### *a. Energy and Ancillary Service (A/S) Benefits*

For non-dispatchable resources, the energy benefit valuation includes only an intrinsic value, based on the offer's expected generation profile multiplied by the energy forward price curve.

For dispatchable resources, the energy benefit valuation is a co-optimized energy and A/S dispatch profile multiplied by the corresponding energy and A/S forward price curves. A simulation process is used to create a distribution of outcomes based on price forecasts, historical volatility and correlation. These processes result in both an intrinsic and extrinsic (option) value for the resource, reflecting its ability to adjust its operation to changing market conditions and extract additional value. The benefits provided by resources with greater flexibility will be reflected here as they are able to be dispatched to capture the most beneficial price increments, or in the case of energy storage, the optimal price spread between charging hours and discharging hours as market conditions fluctuate.

Inputs to the valuation model include unit or program characteristics such as capacity, heat rate, minimum and maximum operating levels, ramp rates, variable operating and maintenance costs, GHG compliance costs, startup fuel and costs, run-time limits (or number and length of event limits), and any other operational constraints. Price inputs include forward curves for energy, A/S, natural gas, GHG allowances and historical price volatilities and correlations.

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<sup>28</sup> D.14-03-004, *mimeo*, p. 2 (authorizing SDG&E "to procure between 500 and 700 MW and SDG&E to procure between 500 and 800 MW by 2022 to meet local capacity needs stemming from the retired SONGS.") (emphasis added).

SDG&E uses a blended market-based/fundamental approach to forecast its power, natural gas, and GHG allowance forward price curves. Near-term prices are based on forward market prices, and extrapolated towards longer-term fundamental prices. Any regulatory influences, such as the GHG allowance auction price floor, are used as constraints in the extrapolation process. Historical prices are used to calculate price volatilities and correlations used in the simulation. They are also used to validate power/natural gas/GHG allowance relationships in the extrapolation process.

#### b. Resource Adequacy (RA) / Capacity Benefits

Value of RA Qualifying Capacity (as determined by CAISO RA counting rules and adjusted by Locational Effectiveness Factors (“LEFs”)) multiplied by the corresponding capacity forward curves (local or flexible). Capacity forward curves are derived from prices observed in recent RFOs, recently executed bilateral contracts and backstop penalties assessed by the CAISO.

To ensure that capacity procurement addresses CAISO-identified needs, SDG&E worked with the CAISO to develop SDG&E specific LEFs.<sup>29</sup> In short, the CAISO divided SDG&E’s service territory into three subareas – North & Northwest, South and Southwest, and Eastern (defined by groupings of transmission substations) and two scenarios defined by whether or not certain transmission upgrade projects move forward. In particular, the CAISO references the Imperial Valley flow controller as a critical upgrade, the success of which is uncertain. In the scenario where the Imperial Valley flow controller is implemented, the CAISO assigned a 100% effectiveness factor to each subarea, which would result in no impact to SDG&E’s evaluation process. Even in the scenario where the Imperial Valley flow controller is not implemented, the CAISO assigned an effectiveness factor of 91.7% to only one of the subareas with the result being that the effectiveness factors should not have a material impact to SDG&E’s evaluation process. See Appendix D for the CAISO’s LEF report for SDG&E.

In order to determine a peak capacity for resources for which there is not a currently approved methodology for determining a Net Qualifying Capacity (“NQC”), SDG&E intends to work with the CAISO to determine a reasonable approach.

### 3 Contract Costs

#### a Dispatch and Energy Costs

For non-dispatchable resources, this may include fuel costs, GHG compliance, variable operations and maintenance (“O&M”), and energy price.

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<sup>29</sup> See Appendix D: *Locational Effectiveness Factor Calculations in the San Diego Area*, April 23, 2014. Available at <http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=69EF19AF-353C-4110-80A0-40DC9ECF4E6A>

For dispatchable resources, this may also include start costs, and additional variable O&M.

Fuel costs may include the cost of natural gas or power (for energy storage). Start costs may have a fixed cost component and a fuel cost component associated with its current state (hot, warm, or cold start). GHG compliance costs are associated with the cost of acquiring GHG allowances as required by the California Cap & Trade program for facilities that emit GHG.

#### b. Capacity Payments

Capacity payments represent the fixed payments from SDG&E to the seller for delivery of energy, capacity, and any other benefit contractually provided by the resource.

#### c. Debt Equivalence

As SDG&E executes an increasing number of PPAs to meet its procurement targets, the cumulative debt equivalence of all procurement activities may affect SDG&E's credit profile, and consequently, its financial standing. Rating agencies include long-term fixed financial obligations, such as power purchase agreements, in their credit risk analysis. These obligations are treated as additional debt during their financial ratio assessment and resulting credit profile. Debt equivalence negatively impacts some of these financial ratios, and unless mitigated, may negatively impact SDG&E's credit profile. SDG&E may consider the potential debt equivalence costs and the associated impact in its valuation process.

#### d. Transmission Cost

For offers of new projects or projects proposing to increase the size of existing facilities, SDG&E will include in its analysis the anticipated costs for transmission network upgrades or additions that are to be directly reimbursed to the bidder/developer using the relevant transmission network upgrade cost studies or estimates submitted with the bids. For some product types (such as renewables and CHP) that have been solicited numerous times in the past the expectation is that transmission upgrade cost studies such as Phase 1 Interconnection Study or equivalent will be required in order for the offer to be considered conforming. For more nascent technology types (such as energy storage) that have not been through the study and bidding process in the past, more flexibility is intended. In both cases, however, an estimate of interconnection costs to be borne by ratepayers will be considered in the evaluation.<sup>30</sup>

#### e. Congestion Cost

SDG&E will consider, to the extent possible, the impact on congestion costs associated with each offer. Generally, a marginal analysis is conducted to determine the difference in locational pricing between the project's point of delivery and SDG&E's default

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<sup>30</sup> Details can be found in the RFO documents for each product type.

load aggregation point (“DLAP”) to establish this cost.

f. GHG Cost

GHG compliance costs are typically embedded in the dispatch and energy costs of a resource. For any additional GHG costs that are incurred by the seller and passed directly to SDG&E, the costs will be evaluated in the same way as indirect GHG costs, that is, benchmarked relative to our GHG forward price curve.

**C. Other Quantitative Considerations**

If SDG&E can reasonably calculate additional benefits or costs related to a specific offer, these will be included in the offer’s NMV calculation. For example, if an offer not only meets an LCR need, but also meets a distribution reliability need which would defer the need for a reliability upgrade, this avoided cost would be an additional benefit to the offer. Additionally, SDG&E will consider any portfolio wide GHG impacts as appropriate.

*4. Demand Side Management (DSM)*

Third party demand side management (DSM) providers may be unwilling to submit binding offers more than several years in advance of their proposed program start date. To limit the potential procurement of less attractive DR and EE in advance of potential cost declines for these resource types, SDG&E may use shadow cost curves to measure their potential effectiveness and compare EE and DR to other available solicitation options (other resource types). If SDG&E’s shadow cost curves indicate that deferring the procurement of DSM programs is the most economic option for addressing LCR requirements, SDG&E will likely seek to defer procurement to a later solicitation or through existing programs.

DSM valuations will be via a NMV approach similar to wholesale market valuations. Discounted program costs will be subtracted from discounted program benefits to determine NMV.

*5. Qualitative Assessment*

In addition to the quantitative valuation, SDG&E will consider qualitative aspects of each offer to further differentiate them based on their non-quantifiable attributes. SDG&E may consider:

- Project development status:
  - Electrical interconnection status
  - Permitting status
  - Fuel and water interconnections
  - Site control
- Developer attributes
  - Project financing
  - Development experience



- Project viability
- Diverse Business Enterprise (“DBE”) status
- Other attributes
  - Contribution to other procurement targets (CHP, RPS, Energy Storage)
  - Non-quantifiable flexibility and curtailment options
  - Portfolio fit (Capacity, energy, term, etc.)
  - Technology risk

For resources for which there is not a currently approved methodology for determining other reliability capabilities (e.g. voltage support), SDG&E intends to discuss such capabilities with the developers, its distribution and/or transmission engineering groups and the CAISO, as appropriate.

## *6. Constraints And The Selection*

As stated in the Track 4 Decision, SDG&E is authorized to procure a minimum of 200 MW of preferred resources, of which 25 MW must come from energy storage. Besides the energy storage specific target of 25 MW, SDG&E does not have any pre-defined mix of preferred resources it is targeting, but rather will select the offers or group of offers that present the best value for SDG&E’s ratepayers as shown by having the highest NMV and when considering the qualitative factors listed above.

## **VII. DESCRIPTION OF EXISTING PREFERRED RESOURCES PROGRAMS THAT COULD PRODUCE LCR PRODUCTS IN THE EVENT OF RFO FAILURE**

As discussed in Section III.C above, if SDG&E is not successful in reaching its 200 MW minimum of preferred resources through the solicitation process described herein, it may use existing programs to continue searching for qualified products. In general, SDG&E would continue soliciting preferred resources according to their respective program procurement schedules, and would encourage LCR qualifying projects to participate. In the event SDG&E identified such a project, it would determine whether it is demonstrably incremental to the assumptions made CAISO Track 4 Studies. If the product does not meet this standard, SDG&E would not consider it for LCR procurement. If SDG&E can demonstrate that it is incremental and cost-effective, it will submit the product for Commission approval. Examples of how SDG&E might identify LCR products through existing programs include the following:

### ***A. Energy Efficiency***

SDG&E will continue to file applications to seek the Commission’s approval to continue existing programs and to implement new programs, among other requests. Additionally, SDG&E will continue to expand its offering by increasing penetration of existing measures into hard-to-reach areas. Additionally, with SDG&E’s 2015 pilot programs, Energy Marketplace and CVR, SDG&E is investigating alternative ways to achieve more energy savings.

## ***B. Demand Response***

SDG&E will continue to file applications to seek the Commission's approval to continue existing programs and to implement new programs, among other requests. Additionally, SDG&E will continue to expand its offering and use of dynamic rates to help manage the system load.

## ***C. Energy Storage***

Pursuant to the Energy Storage Decision and its Energy Storage Procurement Application (A.14-02-006 filed February 28, 2014), SDG&E seeks to acquire a total of 165 MW of qualifying Energy Storage through four bi-annual solicitations, the first of which is being conducted as part of the All Source RFO. If SDG&E fails to procure the targeted 25 MW of ES through this solicitation, it will continue to seek these volumes through subsequent bi-annual ES solicitations.

## ***D. Renewables***

### ***1. Large-Scale RPS Solicitation***

Although SDG&E does not anticipate soliciting large scale RPS solicitation in 2014, it may choose to do so in future years. If an LCR need exists at the time that SDG&E issues a large scale RPS solicitation, it will encourage participation from local resources.

### ***2. Small-Scale Renewable Procurement Programs***

SDG&E will continue to procure renewables through its RAM and ReMAT programs. The next scheduled RAM solicitation will occur in June of 2014. Additional RAM solicitations may occur if the remaining program requirement is not met in June. The ReMAT program will continue to offer PPAs to qualified developers every other month until its program ends pursuant to the provisions in SDG&E's Re-MAT Tariff. SDG&E may also identify LCR resources through its Connected to the Sun program and the bioenergy feed-in tariff currently under review by the Commission.

## ***E. Combined Heat and Power***

SDG&E will continue to procure CHP through at least two additional dedicated CHP RFOs (in addition to the two CHP RFOs already conducted by SDG&E to date). The first of these two additional CHP RFOs is tentatively scheduled to be issued in the spring of 2015 and the last CHP RFO will be associated with the second program period as described in the CHP settlement agreement.<sup>31</sup>

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<sup>31</sup> The "Qualifying Facility and Combined Heat and Power Program Settlement Agreement" (the "Settlement Agreement") was filed on October 8, 2010 and approved in D.10-12-035. The Settlement Agreement became effective on November 23, 2011 with the satisfaction of the necessary conditions precedent contained in the agreement. The initial and second program periods are described on page 8 of the Settlement Agreement.

## ***F. Distributed Generation***

SDG&E anticipates continuing to interconnect DG, such as rooftop solar, in large numbers in the coming years. To the degree that such roof-top solar installations exceeds the projections adopted by the CAISO / CEC in their load forecasts, SDG&E would consider those installations to be incremental as required by the Track 4 Decision<sup>32</sup>. Other types of distributed generation are also routinely interconnected with SDG&E's system and more information on this process can be found on SDG&E's website at: <http://www.sdge.com/generation-interconnections/overview-generation-interconnections>.

## **VIII. TARGETED PREFERRED RESOURCE AND ES PROGRAM**

In the Track 4 Decision, the Commission found SCE's concept of a "Preferred Resource Living Pilot Program" ("Living Pilot") to be "promising both as a way to meet LCR needs and as a laboratory for innovation regarding preferred resources."<sup>33</sup> It "strongly encourage[d] SDG&E to pursue its own Living Pilot, or a tailored version of it."<sup>34</sup>

In SCE's filings discussing its plans to meet local capacity requirements due to the shutdown of SONGS and once-through-cooling units, SCE describes its plan for an aggressive pursuit of preferred resources through a Living Pilot in the vicinity of the Johanna and Santiago substations in the LA Basin (these substations are in Orange County, in the west LA portion of the LA Basin). The purpose of the Living Pilot is to aggressively pursue energy efficiency, demand response and distributed generation resources in this high impact area. SCE intends to use the Pilot to demonstrate the value that preferred resources can contribute to meeting LCR needs. SCE anticipates that development of the Pilot will be a collaborative process undertaken with substantial input from the CAISO and other stakeholders. SCE did not seek approval of the Living Pilot in its filing and may file a future application on this topic.

SDG&E's unique position, relative to the other IOUs, of having its entire service area in a single local capacity area, has been procuring preferred resources that have help address local capacity issue through lower total loads or by adding new local capacity. However, SDG&E sees the need to procure them through a much more targeted process than has historically been used. Thus SDG&E is also looking into to maximize the value of preferred resources.

There are several reasons why SDG&E's efforts can and should be similar to SCE's, these include:

- Existence of a statewide objective to increase reliance on preferred resources for overall system energy needs. These resources tend to have a relatively fixed generation patterns and the lack of dispatch ability that will put new strains on the grid.
- Growth in cost-effective distributed resources will lead to new demands on the system as customers have more options in meeting their own energy needs.

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<sup>32</sup> See *supra*, note 10.

<sup>33</sup> D.14-03-004, *mimeo*, p. 66.

<sup>34</sup> *Id.*

- The increased usage of preferred resources will help the state meet its GHG reduction goals.

However, there are several reasons why SDG&E's efforts could be different from SCE's, these include:

- SDG&E's transmission and distribution systems are different in design and capability. Given SDG&E's transmission system is a looped system, SDG&E studies have shown that load reductions or generation additions almost anywhere in its service area are equally effective in addressing its grid reliability concerns. However, this may change as new transmission or resources additions are made.
- Customer make-up is substantially different and thus uses of power and opportunities to deploy solutions will be different.
- The local area peak load is occurring late in the afternoon and can continue into the evening hours.<sup>35</sup> Overall system needs are likely to be in the evening as the system loses generation from solar resources.<sup>36</sup>
- The amounts of preferred resources that have already been or are expected to be deployed under existing programs may limit the effectiveness of adding more of the same.
- The State's overall understanding of how preferred resources can meet local needs will be advanced through a program unique to SDG&E as compared to a program that simply replicates SCE's actions.

SDG&E has significant experience in EE and DR procurement, as well as in procurement of renewable resources. Past programs have relied on generic assumptions regarding program benefit, however, and have promoted statewide standardization. In order to rely on preferred resources and energy storage to meet local capacity need, it will be necessary to grant the IOUs the flexibility to tailor programs to address their specific needs and circumstances.

SDG&E's planning efforts are focused on how best to integrate a number of ongoing efforts. In compliance with AB327, SDG&E is currently reviewing its distribution planning process. As part of this review, SDG&E will consider integrating distributed renewable energy resources, energy efficient programs, energy storage devices, and demand response technologies. It is critical to understand that integrating these resources will require that they be located where needed, sized at the appropriate generating capacity, available when needed, and able to provide physical assurance or a performance guarantee in order to maintain the safe and reliable operating of its electrical system.

SDG&E also is looking to integrate its smart grid activities. As an example, this year SDG&E will be deploying its Distributed Energy Resource Management System ("DERMS") in Borrego Springs. DERMS is meant to be a distributed control system performing real-time monitoring and control of distributed energy resources ("DER"). DERMS coordinates the operation of conventional grid assets (*i.e.* capacitors, LTCs, etc.) as well as DER to optimize operations based on current network topology. SDG&E will look to leverage its learnings from

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<sup>35</sup> [Data regarding 2013 peak to be provided].

<sup>36</sup> [CAISO/CEC data to be provided].

the Borrego Springs experience to make wider use of both existing and new preferred resources to meet grid reliability needs.

Thus SDG&E's efforts will start with a review of locations where targeted deployment of preferred resources and energy storage will provide additional benefits to customers. Once the location or locations have been identified, a separate study will be needed to determine the characteristics of the resources required to address this specific area. SDG&E will then include these specific needs within its existing procurement process.

SDG&E looks forward to working through this process with the Commission, the CAISO, and other parties. SDG&E agrees with the Commission that the Living Pilot will serve as a "laboratory for innovation," and that, as with any innovation, development must occur in a deliberate, but measured, manner.<sup>37</sup>

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<sup>37</sup> See D.14-03-004, *mimeo*, p. 66.

## APPENDIX A

### Roadmap of Procurement Plan Requirements Pursuant to D.14-03-004 and D.13-02-015

| Specific Requirements from Track 4 Decision  | Page #  |
|--|---|
| <p>Overall description of procurement process:</p> <ul style="list-style-type: none"> <li>Major procurement steps (i.e. soliciting bids, bid evaluation, selection of bids/signing contracts, filing application for Commission approval, expected decision, on-line date.)</li> <li>Include details on contingent contract process including triggers that would necessitate the execution of contingent contracts, option cost, contract terms, and a detailed break up of costs.</li> <li>Describe which elements of the solicitation will be made public</li> </ul>  | <p>pp. 1-3</p> <p>n/a</p> <p>p. 14</p>                          |
| <p>Timeline:</p> <ul style="list-style-type: none"> <li>Detailed timeline that includes an estimate for when resources with specific MW quantities are expected to come online up to the year of authorization</li> <li>Also include: <ul style="list-style-type: none"> <li>Major procurement steps (i.e. soliciting bids, bid evaluation, selection of bids/signing contracts, filing application for Commission approval, expected decision, and on-line date</li> <li>Sub-timeline for any contingent contracts</li> <li>Major decision points for backup procurement when resources do not materialize</li> </ul> </li> </ul> | <p>pp. 10-13</p> <p>pp. 10-20</p> <p>n/a</p> <p>pp. 20 - 22</p> |
| <p>Location Details:</p> <ul style="list-style-type: none"> <li>Indicate the substations and the locational effectiveness of the sites where the utility plans to procure resources</li> </ul>   | <p>p. 2</p>   |

| Specific Requirements from Track 4 Decision   | Page #  |
|---|---|
| <p>Description and quantification of how authorized demand-side resources are incremental:</p> <ul style="list-style-type: none"> <li>• Detail plans to distinguish resources procured for the purpose of meeting LCR capacity/energy from resources procured within existing IOU-DSM programs like energy efficiency and demand response. <ul style="list-style-type: none"> <li>○ For energy efficiency: establish baseline planning assumptions that reflect LTPP planning assumptions. <ul style="list-style-type: none"> <li>▪ Detail how the utility will direct bidders to propose resources whose procurement would exceed the baseline.</li> <li>▪ State the methodology and assumptions by which the utility will conduct an assessment to quantify the energy efficiency program baseline and the capacity and energy saving values of the incremental resources.</li> <li>▪ Document how the assessment uses methods and assumptions consistent with current Commission adopted policy concerning the estimation of savings for energy efficiency projects and measures.</li> </ul> </li> <li>○ For demand response: similar to energy efficiency, demand response load impact from the selected bids should be incremental to the CEC load forecast and the supply assumptions used for this decision <ul style="list-style-type: none"> <li>▪ Establish RFO criteria that are consistent with all approved Commission decisions in the demand response rulemaking (R.13-09-011), Commission resolutions addressing demand response, Electric Rule 24 and any approved CAISO determinations of operational characteristics required of demand response to meet local reliability needs.</li> <li>▪ RFO criteria should provide flexibilities for meeting future adopted demand response policy if the Commission decisions in the demand response rulemaking (R.13-09-011) are pending.</li> <li>▪ Detail how the utility will direct bidder to propose resources capable of meeting these criteria.</li> <li>▪ State the methodology by which the utility will quantify and verify the operation of demand response resources to meet local reliability needs.</li> </ul> </li> </ul> </li> </ul> | <p>p. 5</p> <p>p. 5</p> <p>p. 7</p> <p>pp. 5-6</p> <p>pp. 5-6</p> <p>pp. 5-6</p> <p>pp. 5-6</p> |

| Specific Requirements from Track 4 Decision   | Page #  |
|---|---|
| <p>LCR and flexible attributes:</p> <ul style="list-style-type: none"> <li>• Detail the LCR and flexible attributes of the various technology-specific resources considered for procurement.</li> <li>• Apply RA counting rules and the CAISO “non transmission alternatives” study in most cases.</li> <li>• In cases where these are no defined attributes for a resources, propose attributes with a detailed rationale.</li> </ul>                    | <p>pp. 7-9; pp. 15-18<br/>pp. 15-18<br/>p. 17</p>       |
| <p>Procurement Process:</p> <ul style="list-style-type: none"> <li>• Include detailed description of the procurement process resources, specifying the structure of any RFO, bilateral contract, existing procurement programs or alternative procurement process and related timelines.</li> <li>• Include information on structures of offers, selection, short listing and cost competitiveness threshold</li> </ul>                                   | <p>pp. 11-13<br/>pp. 15-20; p. 7</p>                    |
| <p>Evaluation Details:</p> <ul style="list-style-type: none"> <li>• Process to evaluate different resources in a non-discriminatory fashion</li> <li>• Method to quantify costs and benefits related to capacity, energy, flexibility, GHG, ancillary services, etc for all resources</li> <li>• Standardized assumptions for costs and benefits across resource type</li> <li>• Method to capture non-energy and other quantitative benefits.</li> </ul> | <p>p. 7<br/>pp. 15-20<br/>p. 7; pp. 15-20<br/>p. 20</p> |
| <p>CAM Details:</p> <ul style="list-style-type: none"> <li>• Indicate which resources should be subject to CAM treatment</li> <li>• Indicate which procured resources will count towards IOU program goals</li> </ul>   | <p>pp. 13-14<br/>p. 8-9</p>                             |
| <p>Project Details:</p> <ul style="list-style-type: none"> <li>• Detail how utility plans to evaluate the viability of preferred resource projects.</li> <li>• Include the following details for each technology type: <ul style="list-style-type: none"> <li>○ Desired start dates for delivery</li> <li>○ Acceptable contract durations</li> <li>○ Minimum size in terms of capacity</li> <li>○ Interconnection requirements</li> </ul> </li> </ul>     | <p>pp. 2-3</p>  |
| <p>Other Details:</p> <ul style="list-style-type: none"> <li>• Bidder outreach before and after the solicitation including details like bidder conferences, advertisements and webinars</li> <li>• Participation of disadvantaged business enterprises</li> <li>• Independent Evaluator details and role</li> </ul>   | <p>pp. 11-12<br/>p. 20<br/>p. 13</p>                    |
| <p>Other statutes affecting procurement:</p> <ul style="list-style-type: none"> <li>• Cite relevant state laws and Commission decisions influencing this procurement</li> </ul>   | <p>p. 14</p>  |



| <b>Specific Requirements from Track 4 Decision</b>   | <b>Page #</b> |
|--|---------------|
| Documents: <ul style="list-style-type: none"> <li>• Include non-binding pro formas and draft solicitation documents</li> </ul> | Appendix B    |

| <b>Specific Requirements from D.13-02-015, Ordering Paragraphs 6, 7 and 8 of (SCE's LCR Decision)</b>  | <b>Page #</b>   |
|--|-----------------|
| A list of all applicable rules and statutes impacting the plan   | p. 14           |
| A detailed description of how it intends to procure resources, specifying the structure of any RFO or alternative procurement process and related timelines  | pp. 11-13       |
| A statement as to whether or not SDG&E intends to seek Commission reconsideration of the solicitation and bilateral contracting determinations in its 2012 RPS procurement plan  | n/a             |
| A detailed list of the RPS procurement authorizations and processes that support SDG&E's plans to acquire RPS-eligible resources to meet LCR needs   | p. 8-9; p. 11   |
| A methodology for determining least cost/ best fit that includes evaluating and quantifying performance characteristics that vary among resource type (e.g. time to start, output at various times, variable cost, effectiveness in meeting contingencies, etc.) | pp. 16-20       |
| What type of price benchmark will be used in determining cost-effectiveness for resources  | p. 7; pp. 16-20 |
| An explanation for each resource type indicating whether modifications will be made to existing programs or if a new approach will be utilized   | pp. 7-10        |
| A methodology for determining peak capacity for resources for which there is not a currently approved methodology for determining Net Qualifying Capacity  | p. 17           |
| A methodology for determining other reliability capabilities (e.g. voltage support) for resources for which there is not a currently approved methodology for determining these capabilities   | p. 19           |

**APPENDIX B**  
**Pro Forma Contracts**

**APPENDIX C**  
**Draft Solicitation Protocols**

**APPENDIX D**  
**Locational Effectiveness Factors**

**ATTACHMENT E**  
**Director, CPUC Energy Division Letter**  
**Approving SDG&E's Conventional Procurement Plan**

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298



July 17, 2014

Mr. Dan Baerman  
Director of Origination and Portfolio Design  
San Diego Gas and Electric  
8330 Century Park Court, CP21D  
San Diego, CA 92123

Re: Approval of SDG&E's Track 4 Conventional Portion of the Procurement Plan

Dear Mr. Baerman:

Energy Division received SDG&E's Conventional and Preferred Resources Procurement Plan on May 1, 2014. In accordance with Decision 14-03-004, Energy Division reviewed the plan and requested SDG&E to submit a modified plan on June 27, 2014. We received SDG&E's modified conventional portion of the Procurement Plan on July 16, 2014.

Energy Division approves SDG&E's conventional portion of the Procurement Plan submitted on July 16, 2014.

Sincerely,

A handwritten signature in dark ink, appearing to read 'ER', with a stylized flourish extending from the end.

Edward Randolph  
Director, Energy Division

**ATTACHMENT F**  
**Director, CPUC Energy Division Letter**  
**Approving SDG&E's Preferred Resources Procurement Plan**

**PUBLIC UTILITIES COMMISSION**

505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298



July 22, 2014

Mr. Dan Baerman  
Director of Origination and Portfolio Design  
San Diego Gas and Electric  
8330 Century Park Court  
CP21D  
San Diego, CA 92123


Re: Approval of SDG&E's Track 4 Preferred Resources Portion of the Procurement Plan

Dear Mr. Baerman:

Energy Division received SDG&E's Conventional and Preferred Resources Procurement Plan on May 1, 2014. In accordance with Decision 14-03-004, Energy Division reviewed the plan and requested SDG&E to submit a modified plan on June 27, 2014. We received SDG&E's modified preferred resources portion of the Procurement Plan on July 18, 2014.

Energy Division approves SDG&E's preferred resources portion of the Procurement Plan submitted on July 18, 2014.

Sincerely,

  
Edward F. Randolph  
Director, Energy Division



**ATTACHMENT G**  
**Energy Storage Power Purchase Tolling Agreement**  
**with Enel Green Power North America, Inc.**

This Document is Confidential in Its Entirety

**ATTACHMENT H**  
**Energy Storage Power Purchase Tolling Agreement**  
**with Advanced Microgrid Solutions, Inc.**

This Document is Confidential in Its Entirety

**ATTACHMENT I**  
**Energy Storage Power Purchase Tolling Agreement**  
**with Powin Energy**

This Document is Confidential in Its Entirety

**ATTACHMENT J**  
**Independent Evaluator Report – 2016 LCR RFO**  
**April 5, 2017**

Portions of this Document Are Confidential



# **SAN DIEGO GAS & ELECTRIC**

## **Independent Evaluator Report - 2016 LCR RFO**

April 10, 2017

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**Version no:** 1.0

**Document reference:** SDGE LCR16 170410

# EXECUTIVE SUMMARY

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PA Consulting Group, Inc. (PA) served as the Independent Evaluator (IE) for the San Diego Gas & Electric (SDG&E) 2016 Preferred Resources Request for Offers (2016 LCR RFO or the RFO) solicitation. This report provides PA's evaluation of the process from the drafting of the 2016 LCR RFO documents through to the recommendation of selected bids and negotiations of contracts submitted to the California Public Utilities Commission (CPUC or Commission).

## Overview of solicitation

SDG&E issued its 2016 LCR RFO on February 26, 2016 in accordance with Decision (D.) 14-03-004 – Decision Authorizing Long-Term Procurement for Local Capacity Requirements due to Permanent Retirement of the San Onofre Nuclear Generation Station (the Track 4 Decision).<sup>1</sup>

Through this solicitation, SDG&E requested offers for the following types of preferred resources:

- Energy Efficiency (EE)
- Demand Response (DR)
- Renewable Generation
- Distributed Generation (DG)
- Energy Storage System (ESS)

For all of the resource types listed above with the exception of energy storage systems, SDG&E solicited only third-party owned, contracted resources. For the energy storage systems resource type, SDG&E solicited both third-party owned contracted resources and energy storage systems to be owned by SDG&E (i.e., utility-owned generation or UOG) as summarized below:

- Offers from owners and operators of energy storage systems to enter into an ESS Power Purchase Tolling Agreement (ESSPPTA); or
- Offers from ESS developers to enter into an Energy Storage System Turnkey Build, Own, Transfer Agreement (ESSBOT), under which the ESS developer would site and construct an ESS project and SDG&E would acquire the ESS project from the ESS developer upon project completion; or

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<sup>1</sup> California Public Utilities Commission Decision (D.) 14-03-004, March 14, 2014, p. 114.

- Offers from ESS developers/contractors/equipment suppliers to negotiate and enter into an Energy Storage System Turnkey Engineering, Procurement and Construction Agreement (ESSEPC), under which the bidder would construct an ESS facility on SDG&E land.

The ESSBOT and ESSEPC bids are collectively referred to as UOG bids.

In total, this solicitation sought up to 140 MW of preferred resources.

## PA's IE Report

PA's IE report generally follows the CPUC's 2014 RPS Solicitation Shortlist Report Template dated February 9, 2015. The main sections include:

- Section 1: Summary of PA's role as IE for this RFO
- Section 2: SDG&E's outreach efforts
- Section 3: SDG&E's methodology design
- Section 4: Fairness of the application of SDG&E's LCBF Evaluation
- Section 5: Merit of RFO shortlist
- Section 6: Fairness of negotiations
- Section 7: PA support for contract approval

## Main activities of solicitation

PA's role in SDG&E's 2016 LCR RFO spanned approximately 15 months from January 2016 to April 2017. The following provides a summary of PA's main activities during this solicitation:

- PA participated in meetings SDG&E held prior to the issuance of the 2016 LCR RFO to develop all aspects of protocol and methodologies for the RFO bid conformance, evaluation and selection process.
- PA reviewed and commented on the additional protocols that SDG&E put in place to provide for the utility-owned offers for ESS. These protocols required SDG&E to create separate teams to ensure that individuals working on the development of the UOG bids were separated from the evaluation team that was responsible for evaluating all offers.
- PA reviewed and commented on several drafts of the 2016 LCR RFO bid documents prior to SDG&E issuing the RFO.
- PA participated in the pre-bid conference for all respondents and the separate outreach event for ESSBOT and ESSEPC bidders. After the events, PA reviewed all of SDG&E's responses to bidders' questions prior to SDG&E's posting the responses on their website.
- PA received all communications between SDG&E and bidders through the PowerAdvocate system. When bids were posted, PA was able to directly download the bids for review. PA directly received all of the emails that were sent to and received from bidders through this system. PA also participated in calls that SDG&E had with individual bidders.



- PA reviewed all bids, prepared conformance checks, and analyzed conforming bids. PA compared our findings with SDG&E's results and discussed to resolve any differences in data interpretation, evaluation methodologies, and results.
- PA reviewed SDG&E's shortlisted bids and provided comments to SDG&E.
- PA was included in most of SDG&E's contract negotiation meetings (via phone or in person) with selected bidders to ensure that the negotiation process was fair. PA paid particular attention to the shortlisted utility-owned options (both an ESSBOT and an ESSEPC) to ensure that the discussions were fair and appropriate as well as consistent with non-UOG negotiations.
- PA participated in both Procurement Review Group (PRG) and Cost Allocation Mechanism (CAM) PRG meetings from February 2016 through March 2017.

## High level summary of findings

Overall, PA confirms that SDG&E conducted a fair and equitable 2016 LCR RFO including the treatment of the utility-owned offers.

Some specific findings are noted below:

- SDG&E in no way prevented PA from observing its process and analyzing its methods, and did not interfere with PA's conducting the LCBF evaluation.
- SDG&E should provide bidders with draft PPA's that reflect SDG&E's acceptable terms as early in the process as possible. Draft PPAs had not been provided with the RFOs for two of the resource types selected for this solicitation (DR and ESSBOT). Certain provisions may have caused bidders to have bid differently; however, this will likely not be a problem in the future because SDG&E should now have draft PPAs for all resource types.
- SDG&E should clarify some items in the offer forms to make it easier for bidders to provide the correct information (e.g., interconnection costs, treatment of taxes, etc.).
- SDG&E should work to eliminate classifications that restrict the use of distributed resources in future solicitations. The 2016 LCR RFO did not sufficiently accommodate bids that did not fit the criteria established for the five basic resource types; in particular it did not accommodate recent creative approaches to placing resources in the distribution grid.
- SDG&E should clarify certain minimum conformance requirements for EE bids (e.g., technology needs to appear on the California Statewide Qualified LED Product List).
- SDG&E should try to provide more clarity regarding the incrementality definition especially at it relates to EE and DR bids. The lack of definition of what it means to be "incremental to CAISO assumptions", as per the Track 4 Decision creates confusion and makes it difficult for bidders to develop appropriate bids and contracts.
- SDG&E's use of the PowerAdvocate system provided a good mechanism for SDG&E to communicate with bidders and allow access for the IE to monitor the communications.

- SDG&E used bidder-provided data to estimate evaluation parameters for UOG bids in the period after expiration of O&M contracts, rather than using the more conservative values SDG&E had used for the 2014 All Source Request for Offers (2014 LCR RFO). Several UOG options appear very attractive in this RFO, to the extent that more UOG storage was shortlisted than were envisioned under D. 13-10-040.
- SDG&E was able to leverage many of the bid documents and other information from the 2014 LCR RFO as well as the tools developed to prepare the conformance checks and evaluate the bids. Similarly future RFOs should benefit from the documents developed and experience gained from this RFO process.
- SDG&E could improve the communication and coordination across the various teams particularly after shortlisting.

# CONTENTS

|  |           |
|--|-----------|
| <b>EXECUTIVE SUMMARY</b>   | <b>1</b>  |
| Overview of solicitation   | 1         |
| PA's IE Report   | 2         |
| Main activities of solicitation  | 2         |
| High level summary of findings   | 3         |
| <b>1 DESCRIBE THE IE'S ROLE</b>  | <b>7</b>  |
| 1.1 IE's key roles and responsibilities  | 7         |
| 1.2 PA's role as IE  | 7         |
| <b>2 ADEQUACY OF SDG&amp;E'S OUTREACH</b>  | <b>10</b> |
| 2.1 Notifications and announcements  | 10        |
| 2.2 Solicitation material  | 10        |
| 2.3 Bidder's conference  | 10        |
| 2.4 Feedback after solicitation  | 11        |
| 2.5 Other comments regarding outreach and robustness of solicitation   | 11        |
| <b>3 SDG&amp;E'S LCBF METHODOLOGY DESIGN</b>   | <b>12</b> |
| 3.1 Principles used to evaluate methodology  | 12        |
| 3.2 Amount and type of resources sought  | 12        |
| 3.3 ESSBOT and ESSEPC process  | 13        |
| 3.4 Description of SDG&E's LCBF evaluation methodology   | 14        |
| 3.5 Evaluation of SDG&E's methodology  | 17        |
| <b>4 FAIRNESS OF SDG&amp;E LCBF EVALUATION</b>   | <b>18</b> |
| 4.1 Principles IE used to evaluate evaluation methodology  | 18        |
| 4.2 Administration of LCBF process   | 18        |
| 4.3 IE's review of SDG&E's conformance checks  | 18        |
| 4.4 Review of SDG&E's application of the LCBF methodology  | 21        |
| 4.5 Fairness of SDG&E's evaluation   | 23        |
| 4.6 Fairness of any third party evaluation   | 23        |
| 4.7 Appropriateness of transmission and integration cost adders  | 23        |
| 4.8 Recommendations  | 23        |
| <b>5 MERIT OF RFO SHORTLIST</b>  | <b>24</b> |
| 5.1 Did SDG&E conduct the solicitation consistent with Commission decisions and its approved LCBF methodology? | 24        |
| 5.2 Do selected shortlisted projects provide the best overall value to ratepayers?                             | 24        |
| 5.3 Did the shortlist conform to the needs of the SDG&E's portfolio and RFO plan?                              | 26        |

|          |  |           |
|----------|--|-----------|
| 5.4      | Reasonableness of the shortlist  | 26        |
| <b>6</b> | <b>FAIRNESS OF PROJECT-SPECIFIC NEGOTIATIONS</b>   | <b>27</b> |
| 6.1      | Principles PA used to evaluate fairness of negotiations                                    | 27        |
| 6.2      | Describe fairness of negotiations  | 27        |
| 6.3      | What terms and conditions underwent significant changes during the course of negotiations? | 27        |
| 6.4      | Was similar information/options made available to other participants?                      | 31        |
| 6.5      | Any other relevant information   | 31        |
| <b>7</b> | <b>MERIT OF CONTRACT APPROVAL</b>  | <b>32</b> |

# 1 DESCRIBE THE IE'S ROLE

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This section provides a description of the role of the IE throughout the solicitation and bid selection process, including PA's specific activities for the 2016 LCR RFO.

## 1.1 IE's key roles and responsibilities

The CPUC requires an IE for investor-owned utilities (IOU) long-term resource procurement RFOs.<sup>2</sup> The role of the IE is to provide advice to the utility on the design, administration, and evaluation aspects of the RFO. The CPUC clarified that the role of the IE is not to conduct or administer the solicitation, but to "separately evaluate and report on the IOU's entire solicitation, evaluation, and selection process."<sup>3</sup>

Additionally, the IE is to ensure that SDG&E treats all bidders fairly and equitably and that no technology or counterparty is favored. The IE is also expected to ensure that affiliate bids are not favored. Specifically, the 2016 LCR RFO included utility ownership options for energy storage systems. This required additional attention to the treatment of these bids as well as the participation of SDG&E staff assigned to these bids. This was an important role for PA as both an ESSEPC and ESSBOT offers were short-listed for this RFO.

The IE also ensures that the bid selection process is transparent and is aligned with the procurement requirements. SDG&E can also call on the IE's advice as to various evaluation issues that may arise during the RFO process.

## 1.2 PA's role as IE

PA performed the role of IE for the 2016 LCR RFO and was involved from SDG&E's development of the solicitation materials through the selection of the bids and the negotiation of contracts. PA ensured that the procedure that SDG&E followed aligned with the process SDG&E established in its RFO and provided fair and equitable treatment of all bids. PA was in regular contact with SDG&E staff throughout the process, addressing SDG&E's questions, identifying and resolving potential issues, and providing recommendations throughout the process.

### 1.2.1 Solicitation planning meetings

SDG&E conducted several planning meetings in preparation of the 2016 LCR RFO. Through these meetings and other communications, PA was involved in several discussions as part of the development of the solicitation methodology, evaluation protocol, documents and materials.

### 1.2.2 Solicitation materials

SDG&E based the solicitation material on the 2014 LCR RFO and adjusted these materials appropriately to reflect the specifics of the 2016 LCR RFO. SDG&E shared copies of the draft materials with PA through PA's SharePoint site.<sup>4</sup> Through this process, PA was able to review drafts and provide comments in a timely manner.

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<sup>2</sup> California Public Utilities Commission, Decision (D.) 04-12-048, Dec. 16, 2004, and Decision (D.) 06-05-039, May 26, 2006.

<sup>3</sup> D. 06-05-039, p. 46.

<sup>4</sup> PA set up a secure site on PA's system with limited access for SDG&E to post materials (e.g., draft procurement documents, large models, etc.).

PA concentrated in particular on language describing the bid evaluation and the detailed information to be provided by bidders as well as the consistency across all resource types.

### **1.2.3 Pre-bid Conferences**

SDG&E hosted one pre-bid conference on April 13, 2016 for all respondents. PA participated in the conference and discussed the IE role for the RFO. PA also participated in the separate outreach event SDG&E held for ESSBOT and ESSEPC bidders to describe the pre-offer and pre-evaluation processes and timelines.

### **1.2.4 Bid submittal process**

SDG&E used a platform designed and maintained by PowerAdvocate to launch the RFO and manage offers received. PA was provided access to the PowerAdvocate site and could review the bids as they were received by SDG&E.

### **1.2.5 Communication with bidders**

SDG&E communicated with bidders primarily through the PowerAdvocate site, as well as the pre-bid conferences. SDG&E provided RFO documents, update notices, to bidders through PowerAdvocate. It also provided a platform for SDG&E to request additional data from bidders as required. PA received a copy of all of these communications.

Bidders could submit questions to SDG&E through PowerAdvocate. PA received a copy of these questions directly through PowerAdvocate. SDG&E provided PA an opportunity to review and comment on all of their responses prior to posting the answers on the website or sending via email.

### **1.2.6 Initial bid review and conformance check**

Once the bids were received, SDG&E prepared their conformance check. PA independently reviewed the bids and prepared an independent conformance check. SDG&E and PA compared the results of the separate conformance checks and resolved any inconsistencies through clarification of methodology, exchange of files and other communications as required.

PA also reviewed, participated in calls and provided comments to SDG&E, as appropriate, related to the utility-owned energy storage system process that took place prior to the submittal of the offers on July 1, 2016. This process is described further in Section 3.3.

### **1.2.7 Evaluation process**

SDG&E prepared the evaluation of all of the bids with the models developed for this RFO. Many of these models were based on models developed for the 2014 LCR RFO. PA also prepared a separate evaluation of the bids that essentially replicated SDG&E analysis for all the resource types except the energy storage bids. As discussed further in Section 4, this resource type required a specialized model and a more complex analysis that PA could not directly replicate. PA was able to test, verify, and prepare representative analyses to confirm SDG&E results.

### **1.2.8 Shortlist determination**

SDG&E provided PA a copy of the proposed shortlist with the corresponding Net Market Value (NMV) results and other details of the evaluated bids. PA reviewed this information and identified any questions or comments. SDG&E and PA resolved any inconsistencies through clarification of methodology, exchange files, and other communications as required.

### **1.2.9 Contract negotiation**

SDG&E sent shortlist notifications on October 28, 2016 and started most negotiations with the selected bidders in November and December of 2016. PA participated in most of the negotiation meetings either in person or via phone. More details of any negotiation observations and issues are discussed further in Section 6.

#### **1.2.10 SDG&E's CAM Procurement Review Group meetings**

PA participated in all of the monthly and special CAM Procurement Review Group meetings from February 2016 through March 2017. PA answered questions and provided additional feedback during these meetings as appropriate.

#### **1.2.11 SDG&E's Procurement Review Group meetings**

PA participated in all of the monthly Procurement Review Group meetings from February 2016 through March 2017. Discussion of this RFO usually occurred during CAM PRG meetings rather than the regular PRG meetings; however, PA wanted to monitor the PRG meetings to determine whether and how the RFO was brought up, and PA was available to answer questions and provide additional feedback during these meetings as appropriate.

## 2 ADEQUACY OF SDG&E'S OUTREACH

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This section addresses the adequacy of SDG&E's outreach as well as the solicitation materials.

### 2.1 Notifications and announcements

SDG&E's outreach included trade groups as well as entities that have responded to SDG&E's previous solicitations. The distribution list was assembled from SDG&E's distribution lists from conventional and CHP, renewable, EE, DR contacts as well as other general contacts, together comprising over 10,000 distinct email addresses across almost 5,000 domains. Additionally, SDG&E publicized the solicitation in trade publications (e.g., Platt's MW Daily, California Energy Markets, and SNL).

PA believes that SDG&E extended adequate outreach for the 2016 LCR RFO.

### 2.2 Solicitation material

SDG&E created a set of solicitation materials for each of the five resource types included in the 2016 LCR RFO: Demand Response (DR), Distributed Generation (DG), Energy Efficiency (EE), Energy Storage Systems (ESS) and Renewables. The ESS materials described third-party Power Purchase Tolling Agreement (ESSPTA) bids and two categories of bids to build UOG via Engineer/Procure/Construct contracts (ESSEPC) or Build/Own/Transfer turnkey projects (ESSBOT).

The solicitation materials were posted to SDG&E's 2016 LCR RFO website that allowed the bidders to easily access the material for each resource type, pre-bid conference materials and responses to questions, as well as view the overall RFO schedule. The specific resource documents included the resource specific RFO, offer form, product description form, credit form, draft PPA (for some resource types) and other materials as appropriate.

SDG&E used the 2014 LCR RFO documents as a starting point to develop many of the documents for this RFO. Some of the main issues addressed through the revision process included ensuring consistency across all resource types, identification of compliance requirements, and clarification of evaluation methodology.

In addition to the specific solicitation materials, SDG&E also created informational material for the bidders in the form of frequently asked questions (FAQs) documents. These FAQs addressed evaluation, interconnection, credit, and general topics. SDG&E updated these documents with the answers to questions received from bidders up to the question deadline date, and PA reviewed the responses before they were posted to PowerAdvocate and the website.

In PA's opinion, SDG&E provided appropriate RFO solicitation materials (except for the lack of draft PPA's for some resource types) and provided prompt response to any questions received by potential bidders.

### 2.3 Bidder's conference

SDG&E hosted one pre-bid conference on April 13, 2016 for all respondents. PA participated in the conference and discussed the IE role for the RFO. PA also participated in the separate outreach event SDG&E held for ESSBOT and ESSEPC bidders to describe the pre-offer and pre-evaluation processes and timelines.



## 2.4 Feedback after solicitation

PA is not aware of any feedback that SDG&E has requested from bidders at this time. PA suggested that SDG&E hold a bidder forum after the shortlist was determined and non-selected bidders had been notified; SDG&E declined this suggestion. Some of the bidders requested the opportunity for a debriefing or feedback meeting. PA believes that a debriefing session would be beneficial and potentially reduce bidder errors in future solicitations. The feedback could also help bidders develop better structured bids that comply with all of SDG&E's requirements and potentially reduce future difficulties in contract negotiation.

## 2.5 Other comments regarding outreach and robustness of solicitation

While we believe that SDG&E's outreach for this RFO was adequate there may be opportunities to improve for future RFOs. PA recommends that SDG&E consider doing more outreach to aggregators, EE and DR bidders. The "incrementality" issue is especially difficult for EE and DR bidders to understand and ensure that their bids are compliant.

# 3 SDG&E'S LCBF METHODOLOGY DESIGN

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This section explores SDG&E's LCBF methodology for fair offer evaluation.

## 3.1 Principles used to evaluate methodology

PA has used the following principles to guide its evaluation, based on principles originally codified by PA in its report on SDG&E's 2006 RPS RFO<sup>5</sup>:

- The procurement targets and objectives should be clearly defined in SDG&E's solicitation materials;
- The evaluation should only be based on those criteria requested in the response form. There should be no consideration of any information that might indicate whether the bidder is an affiliate;
- The methodology should identify how quantitative measures will be considered and be consistent with an overall metric;
- The approach should not be biased for or against specific technologies, solely based on the choice of technology (as opposed to, e.g., quantifiable differences between the value of peaking and baseload technologies; and
- The methodology does not have to be the one that the IE would independently have selected but it needs to be "reasonable".

These principles do not specifically address "consistent" evaluation of bids of different sizes and timing because PA considers that issue to fall within the area of reasonableness; i.e., a consistent evaluation may not be the most reasonable.

## 3.2 Amount and type of resources sought

SDG&E issued the 2016 LCR RFO to procure up to 140 MW of preferred resources. Per the Track 4 Decision, resources had to be "demonstrably incremental to the assumptions used in the California ISO studies" that determined the resource need due to the closure of SONGS. Those assumptions included as-yet-unidentified (uncommitted) energy efficiency and behind-the-meter solar resources.<sup>6</sup>

SDG&E issued a separate solicitation document for each of the five resource types (DR, DG, EE, ESS and Renewables). SDG&E did not set separate targets or "buckets" for any of the resource types for this RFO. Each of the resource types (except DG) had its own RFO. DG bidders for distributed renewables or storage resources were instructed to put the offers into the same RFO as non-distributed resources and other DG bidders were instructed to "contact SDG&E ...in order for SDG&E to understand the nature of the offer." There was a single evaluation and a combined ranking of all bids, so we continue to refer to the entire solicitation (all five resource types) as a single LCR RFO.

The authorized and required procurement amounts in D. 14-03-004 were stated in MW, but the way in which MW values were to be computed – the specific definition of capacity to be used – was not stated. SDG&E and PA applied the same interpretation that was used in the 2014 LCR RFO, which is generally a resource's qualifying capacity (at the time of the system peak) as determined by CAISO. CAISO does not determine qualifying capacity for load modifying resources; the appropriate value

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<sup>5</sup> Jacobs, Jonathan M., *Preliminary Report of the Independent Evaluator on the 2006 Request for Offers from Eligible Renewable Resources (Renewable RFO)*, PA Consulting Group, Los Angeles CA, January 16, 2007, p. 2-1.

<sup>6</sup> Sparks, Robert, Track 4 Testimony in CPUC Rulemaking (R.) 12-03-14, undated, pp. 5-8.

would then be impact of the load reduction on the Local RA requirement. For supply-side demand response resources, the RA value must be adjusted for avoided losses.

Because the procurement target was based on Local RA capacity, SDG&E sought to fulfil that target as efficiently as possibly by procuring local RA of the greatest value. In other words, bids would be ranked not based on NMV, which might have favored the largest projects, but on NMV divided by Local RA capacity. On review of SDG&E's computations we believe that for DR bids, SDG&E divided NMV by peak savings, which is slightly less than Local RA capacity (the difference being the loss adjustment) but we verified that it did not impact the shortlist.

### 3.3 ESSBOT and ESSEPC process

To evaluate bids for utility-owned storage systems (ESSBOT and ESSEPC), SDG&E set up a separate set of protocols. ESSBOT and ESSEPC bidders were required to submit technical specifications for their projects six weeks prior to the submission deadline for non-utility-owned bids, as well as commercial experience and financial information, for a "pre-evaluation." This additional conformance check was conducted by the Cost Development Team, which was also responsible for submitting revenue requirements as the cost of the bids for the ESSBOT and ESSEPC submission. These bids were submitted to the Bid Evaluation Team via Power Advocate on July 1, 2016.

#### 3.3.1 Establishment of the Cost Development Team

The Cost Development Team was established to maintain a segregation of functions and ensure the employees performing the bid evaluation were functionally separated from the individuals preparing the cost estimates for the utility-owned projects.<sup>7</sup> Through this structure the employees developing the utility-owned project costs were not allowed access to any evaluation protocols, input assumptions, or bid information not generally made available to third-party bidders.

SDG&E created the Bid Evaluation Team to conduct the overall RFO process, receive all bid materials from third parties (and revenue requirements for the ESS utility ownership projects developed from bidders' cost estimates, in the same format as other bids), evaluate bids according to the process outlined in solicitation protocols, and prepare the ranking of all offers. The SDG&E Cost Development Team developed the cost estimates including revenue requirements for the utility-owned ESS projects and provided these estimates to the Bid Evaluation Team.

The Bid Evaluation Team did not discuss or communicate any details regarding the evaluation process with the Cost Development Team, other than any details which were made public. Similarly, the Cost Development Team did not discuss any aspect of the cost development process with the Bid Evaluation Team. Materials for both teams were separately located with restricted access to only the appropriate team members. SDG&E clearly identified the team members for both teams and had all team members and the IE sign a code of conduct to abide by the functional separation.

In addition to the Cost Development Team and the Bid Evaluation Team, SDG&E formed an internal team of advisors to provide technical support for both the Cost Development Team and the Bid Evaluation Team. While this team of advisors was permitted to interact with both teams, they were not permitted to act as a channel of communication between the two teams. SDG&E also established a team to manage the RFO process and an additional team to oversee the process (which included the IE), and just as with the advisory team, these two groups were not permitted to act as a communication conduit between the Bid Evaluation Team and Cost Development Team. SDG&E set up a separate location on PowerAdvocate for the Cost Development Team to communicate with ESSEPC bidders and ESSBOT bidders. The IE would oversee activities performed by both teams and monitor any communications between the teams or with bidders.

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<sup>7</sup> California Public Utilities Commission Decision (D.) 07-12-052, December 20, 2007, Ordering Paragraph 51.

### 3.3.2 ESSEPC and ESSBOT additional conformance check

Utility-owned storage offers bring a different risk to SDG&E than third-party offers, as the equipment would be owned by SDG&E and SDG&E would have liability for any activities at the site after commercial operation. Therefore, one of the roles of the Cost Development Team was to conduct a “pre-evaluation” by requesting and evaluating additional information beyond that which was required by third-party bids. The pre-evaluation of utility-owned offers was based off the following criteria:

**Technical merit:** SDG&E required ESSEPC and ESSBOT bidders to identify the specific major equipment they proposed so that SDG&E could ensure that the selected technology was a proven technology with at least a minimum amount of installations and required performance measures.

**Bidder experience and financial viability:** SDG&E required the ESSEPC bidder (or appropriate member of the ESSBOT team) to have experience with both deployment and post-commercial operation trouble shooting and warranty performance for all components of 1MW+ scale grid-connected energy storage systems. Also, SDG&E verified that the ESSEPC bidder did not just pick an approved manufacturer but actually had experience with installing their equipment. In addition, SDG&E evaluated the financial health and stability of the bidding firm.

**Overall system cost:** Projects were screened based on their proposed CapEx and Operational and Maintenance Expense (both fixed and variable). Bids that were clearly higher than the costs proposed by other bidders could be omitted from further cost development activities.

To collect the commercial and technical specifications of each bid, SDG&E entered into a non-disclosure agreement (NDA) with each bidder to be able to exchange detailed information. The NDA and the provisions of the additional information was used to screen and determine eligible ESSEPC and ESSBOT bidders.

Following the pre-evaluation screening, remaining bidders were asked to complete a more detailed supplemental bid form and bidders were invited to revise their bids to make them more competitive.

### 3.3.3 ESSEPC and ESSBOT bid cost estimation and submission

SDG&E requested additional information from the ESSBOT and ESSEPC bidders including pricing for a capacity guarantee, variable and fixed O&M pricing, warranty information, degradation curves, and other required information.

SDG&E provided two different site options for ESSEPC bidders located at SDG&E substations. SDG&E would provide site-related services (interconnection, permitting) for ESSEPC offers, as well as the sites themselves. The Cost Development Team would estimate the cost of site-related services; site cost was included at the value carried on SDG&E's books. The bidder would be responsible for all other costs, and include them in the bid price.

The Cost Development Team assembled the costs for each bid, including those supplied by the bidder and the cost of the site and site related services supplied by SDG&E. These costs were converted into streams of annual revenue requirements for each bid. The revenue requirements were put into the same format as third-party bids and used in the Least Cost Best Fit (LCBF) quantitative evaluation. The evaluation was thus based on ratepayer costs rather than costs to the utility, accounting for the difference in rate treatment between contract costs, which are passed through directly, and the costs of utility-owned projects, which include both operating costs and the costs of ratebased capital.

The qualitative evaluation of utility ownership bids was similar to that of third-party ownership bids. The Cost Development Team was responsible for submitting the ESSEPC and ESSBOT bid information to the Bid Evaluation Team via PowerAdvocate on July 1, 2016.

## 3.4 Description of SDG&E's LCBF evaluation methodology

SDG&E's valuation and selection approach was intended to evaluate the five different product types on as equal a footing as possible. The initial step included a conformance check of each offer. The conforming offers then went through the Least Cost Best Fit/ Net Market Value analysis to rank the

offers based on their value to SDG&E customers as well as their relative value in comparison to other offers. The methodology considered both quantitative as well as qualitative factors as described below.

### 3.4.1 Conformance check

The initial analysis included an assessment of conformance. All offers needed to conform to the minimum participation criteria and eligibility. Some of the specific conformance requirements included the following:

- Bidder provided all bid documents including project description form, pricing form, credit application, model PPA, interconnection documents and other specific forms for EE and DR bids as described in their respective bid documents;
- Resource complied with resource criteria identified in resource type specific RFO;
- Resource eligible to provide SDG&E Local RA including the CAISO 4-hour requirement (except EE, which is analyzed based on anticipated reduction of the RA requirement);
- Resource confirmed to be incremental; and
- Bidder demonstrated site control for bids other than DR and EE.

### 3.4.2 LCBF quantitative evaluation

The LCBF quantitative evaluation of an offer took into account both the benefits and costs. The primary quantitative metric was a NMV calculation. The NMV calculation was a quantification of the value of an offer when compared to a set of price benchmarks for capacity, electrical energy, ancillary services, renewable attributes, natural gas, and Green House Gas (GHG) compliance<sup>8</sup>. The costs and benefits components were then netted on an annual basis and then discounted to yield a NMV for each offer. The NMV was then divided by the Local RA Capacity for the resource. The offers were then sorted based on their NMV per MW to determine the highest ranked offers.

The initial ranking of compliant offers was prepared without consideration of credit costs. Once the initial list of the highest ranked offers was determined, a credit analysis was conducted to determine the required credit support for each of those offers and its associated cost. The NMV was then re-evaluated with consideration of the cost of credit and the offers re-ranked to determine the highest ranked offers.

### Development of price curves and general assumptions

The underlying assumptions were consistent across all bids and resource types. The following provides a summary of how SDG&E developed the key assumptions:

- **Local capacity forward curve:** Based on the levelized price of the most recent greenfield capacity development in SDG&E's service territory<sup>9</sup>. A loss of load probability (LOLP) analysis was used to develop the projected hourly shape
- **Energy forward curve:** Based on market data from sources such as ICE and the CME shaped to hourly pricing based on two-years of historical hourly energy prices
- **REC pricing:** Based on observed market prices from broker pricing of Category 1 (bundled) RECs<sup>10</sup>

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<sup>8</sup> No fossil fuelled resources were considered in this RFO so prices for natural gas and GHG compliance were not considered.

<sup>9</sup> SDG&E's power purchase tolling agreement with the Pio Pico Energy Center, LLC was filed for approval with the CPUC via application (A.)13-06-015 filed June 13, 2013 and represents the most recent and appropriate measure of green field developed capacity in SDG&E's service territory.

<sup>10</sup> [REDACTED]

- **Ancillary services pricing:** Monthly regulation up, regulation down, spin and non-spin commitments calculated as a percentage of forward energy prices. The amount of each that CAISO would purchase from a given resource was forecasted based on one year of historical data

## Development of Net Market Value

SDG&E developed models based on the models used in the 2014 LCR RFO, updated as appropriate, for each resource type to develop the NMV. These models applied a consistent approach subject to the specific characteristics of the resource type.

The capacity benefits were based on the available capacity in each hour (or expected hourly profile of savings for the EE bids) multiplied by the hourly local RA capacity value. SDG&E did not value Flexible RA for this RFO because the rules to quantify Flexible RA were still under development by CAISO, but considered the ability to provide Flexible RA as a qualitative factor. Similarly, the energy benefits for non-dispatchable resources (and EE bids) were based on the available hourly energy multiplied by the hourly energy price.

The energy benefits for dispatchable resources were based on models that capture the extrinsic value from price volatility. SDG&E contracted with FEA to develop a model to evaluate the energy benefits of energy storage bids for the 2014 LCR RFO. The model calculates the intrinsic and extrinsic value of battery energy storage resources. The model considers the characteristic of the storage device including the hours of storage, cycle limits (both deep and shallow), efficiency, capacity, variable O&M, and other factors. The model optimizes the storage across the year subject to constraints.

Like capacity benefits, the energy benefits for non-dispatchable resources (and EE bids) were based on the available hourly energy multiplied by the hourly energy price.

Additionally, resource benefits for behind-the-meter DR and EE were adjusted appropriately for losses.

Ancillary services were estimated for resources that could provide monthly regulation up, regulation down, spin and non-spin, based on SDG&E's historical ancillary service awards and an analysis of the historical relationship between ancillary service and energy prices. Energy benefits were adjusted appropriately for ancillary services provided.

Annual costs were developed for each bid based on the resource operating characteristics, fixed costs and variable costs provided by the bidder.

SDG&E considered all locations equally effective based on the CAISO's more recent Local Capacity study findings.

## ESSBOT and ESSEPC residual benefit

ESSPPTA, ESSBOT and ESSEPC bids were expected to be designed to sustain the contracted capacity through the length of the contract (even after an ESSEPC or ESSBOT bidder "turned over the keys", it would have an obligation to guarantee the rated capacity and performance through the term of the O&M contract). At the end of the contract period (initial "useful life") the ESSPPTA bidder would have the benefit of a depreciated asset with its full capacity that could be contracted for an additional period, sold, or repowered. At the end of the useful life of an ESSEPC or ESSBOT storage resource, ratepayers would also have a depreciated asset that could still be operated at its full contract capacity, and that value had to be recognized.

SDG&E would have two options for calculating the value of the facility past its estimated useful life of the asset: determine a salvage value or estimate the value of continuing to running the asset, accounting for any maintenance costs (or assuming a "run to failure" strategy with no additional expenditure). SDG&E chose to represent the residual value with a "run to failure" model.

## Credit support

Bidders provided the cost of credit support per \$100,000 of requested security. For the initial shortlisted bids, SDG&E's credit group developed the appropriate level of level of credit support required for each bid and SDG&E would include these costs in the NMV analysis.

### **3.4.3 LCBF qualitative evaluation**

Qualitative factors and benefits were used to determine the projects that are the “best fit” for SDG&E’s portfolio. SDG&E reserved the right to use these factors to determine the short-list or to evaluate tie-breakers, if any. Qualitative factors included:

- project viability;
- adherence to PPA terms and conditions;
- supplier diversity; and
- loading order ranking.

## **3.5 Evaluation of SDG&E’s methodology**

PA reviewed the models used by SDG&E. The objective of this review was to determine that resource types were fairly compared: that there were similar levels of approximation of price uncertainty, operational constraints, etc., and therefore similar levels of over- or under-optimization of benefits by type.

Overall PA believes that SDG&E’s methodology is reasonable. This judgment is within the context of the principle set forth in Section 3.1. This section addresses the application of SDG&E methodology and the review of SDG&E’s results is provided in Section 4.

PA did have concerns over some parameters, in particular the parameters of the “run to failure” model, but had no reasonable alternatives to offer. PA’s concerns, and its conclusions regarding the use of those parameters in the 2016 LCRFO, were discussed with the CAM PRG when the shortlist was presented, and appear in Section 4.4.3.

### **3.5.1 Consistency with RFO procurement plan**

The 2016 LCR RFO included preferred resources including energy storage resource options. SDG&E’s evaluation and selection process were structured to treat all resource types and bidders fairly and was not structured to favor or disadvantage any offer, technology or bidder.

### **3.5.2 Recommendations**

Overall the SDG&E evaluation methodology was appropriate to evaluate the bids. The separation of the Cost Development Team and the Bid Evaluation Team worked well to ensure that information was not shared between the teams and all offers were treated fairly.

## 4 FAIRNESS OF SDG&E LCBF EVALUATION

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This section addresses the application or administration of the methodology described in Section 3.

### 4.1 Principles IE used to evaluate evaluation methodology

As in the previous section, PA used principles to guide its evaluation that were originally codified by PA in its report on SDG&E's 2006 RPS RFO and in this case phrased as questions (one question did not really apply and has been excluded):

- Were affiliate bids treated the same as non-affiliate?<sup>11</sup>
- Were bidder questions answered fairly and consistently and the answers made available to all?
- Did the utility ask for "clarifications" that provided the bidder an advantage over others?
- Were bids given equal credibility in the economic evaluation?
- Was there a reasonable justification for any fixed parameters that enter into the methodology?
- Were qualitative factors used only to distinguish among substantially equal bids?

### 4.2 Administration of LCBF process

A description of PA's activities in its role as IE is provided in Section 1. Based on PA's participation and observations we believe that:

- Bidder questions were answered fairly and consistently
  - SDG&E's use of PowerAdvocate provided for an easy method to send updates or other information to all bidders as appropriate
  - PA had an opportunity to review and comment on SDG&E's responses to bidders questions
  - SDG&E posted FAQs on the RFO's website
- SDG&E's clarification questions were reasonable and did not advantage any bidder
- SDG&E applied conformance requirements fairly to all bids and consistent with bid documents
- All conforming bids were given equal credibility in the quantitative evaluation
- Bids were modelled and evaluated as consistently as possible given the different characteristics of the various resource types
- SDG&E's evaluation of bids and selection of short listed bids conformed to the RFO documents

### 4.3 IE's review of SDG&E's conformance checks

Once the bids were submitted and the RFO closed, SDG&E began an initial conformance check. PA also received a complete copy of all of the bids through PowerAdvocate and prepared an independent assessment to determine if the bids conformed to the RA counting rules as well as the other RFO requirements.

SDG&E and PA had several discussions and exchanged emails to compare conformance results and some bidders provided multiple offer forms for one bid.

PA reviewed each bid submittal with SDG&E, discussed any differences, and agreed upon follow-up questions for bidders as appropriate. These questions included clarification of units (i.e., kW or MW),

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<sup>11</sup> [REDACTED]



as well as other clarifying questions. PA discussed initial findings with SDG&E on a regular basis. SDG&E and PA had several meetings to review the categorization of bids and the conformance of each bid.

The primary reasons for non-conformance included the following:

- Entire forms not provided;
- Interconnection progress not met;
- Not incremental;
- Not in the San Diego local sub-area;
- Lack of required site control; and
- Not qualified for RA.

#### 4.3.1 Resource types with no conforming bids

Some of the conformance criteria were interpreted quite strictly. For example, bids that were not in the SDG&E Local Area would not be considered as providing any help in replacing the SONGS capacity. Due to the enforcement of that and other similar participation criteria, two resource categories wound up with no conforming bids:

- **Renewable:** [REDACTED] bidders submitted bids for renewable energy projects. [REDACTED] were deemed non-conforming. [REDACTED] was non-conforming because it was outside of the local area. [REDACTED] was an existing facility with an expiring contract that was determined to be non-incremental.
- **Distributed Generation:** SDG&E received [REDACTED] [REDACTED] was determined to be non-conforming because it wasn't a 100% preferred resource.

#### 4.3.2 Conformance of hybrid bids and restrictive “bucketing” of bids

[REDACTED] bidders in the 2016 LCR RFO proposed “hybrid” structures with bids comprised of more than one resource type. Examples included [REDACTED]

[REDACTED] Reasons for non-conformance included missing interconnection documents and lack of year-round capacity [REDACTED]

The restrictive bucketing is a particular concern for distributed generation. The LCR RFO did not really accommodate recent creative approaches to placing resources in the distribution grid. In the interest of fairness, SDG&E developed a set of evaluation models before receiving bids, based on the bids it expected to see, and tried to assign all bids into one of the technology categories for which it had developed evaluation models. This would discourage new and creative approaches, approaches that PA continues to believe the CPUC wants to encourage. SDG&E should work to eliminate classification methods that restrict the use of distributed resources in future solicitations.

#### 4.3.3 Conformance check for “incremental” requirement

One of the more difficult conformance requirements to verify was the requirement that the bids be incremental. SDG&E proposed to require that the bidder demonstrate why their resource is incremental and then ultimately planned to rely upon the Commission in its final approval process for selected bids.

The “incrementality” requirement from the Track 4 decision is that resources must be incremental to a set of assumptions used for a CAISO study in 2013. The determination is relatively straightforward for new utility-scale or “front of the meter” generators and energy storage plants, since the CAISO assumed a particular supply-side resource mix. It is more difficult for plants with expiring contracts, some of which would be incremental because CAISO assumed they would retire – the list of assumed retirements is not explicit. It is much more difficult for resource types in which growth is anticipated but

the specific characteristics of new capacity cannot be known – for example, “uncommitted” energy efficiency and demand response, or behind-the-meter capacity. In those cases bidders effectively bore the burden of arguing that the resources that they bid would not have been available but for their particular efforts (would not have appeared in the absence of a contract through a new procurement program).

SDG&E reviewed the EE bids based on the specific measures, target customers, and other factors to determine if they were incremental. SDG&E’s EE program team concluded [REDACTED] EE bids were not incremental because the bids offered programs that were redundant with existing EE programs, both in terms of technology utilized and target participants. [REDACTED] was found to be both unique from existing SDG&E programs and have a positive NMV, however [REDACTED] utilized by the program was not included on the California Statewide Qualified LED Product List; SDG&E was reticent to shortlist a program that utilizes a technology not on the list. In fairness to bidders, future RFO processes that include EE resources should explicitly indicate that lighting programs must utilize technology on the approved LED product list to be considered.

On the other hand, SDG&E’s conformance review of demand response bids was much lighter. It is our impression that SDG&E did not examine bidders’ methodologies for demand response in as much detail as for energy efficiency but considered primarily bidders’ statements of customer types to be targeted and how bidders would reach previously unreached customers.

But SDG&E did raise the incrementality issue [REDACTED] This is discussed in 6.3.1 below but we are also addressing it here to complete the review of incrementality. [REDACTED]

[REDACTED] It is hard to see the direct connection between a specific customer being in a DR program [REDACTED] and the CAISO forecast made in 2013. This is particularly the case for customers on Critical Peak Pricing (CPP), which SDG&E considered a DR rate. In our opinion it is difficult to maintain the position that CPP load is not a potential source of incremental demand response.

SDG&E several times expressed concern that it would be called upon to prove incrementality, and wanted to place that responsibility on bidders. SDG&E did not state its position on what was and was not incremental during the pendency of the RFO, but pointed bidders to lists of EE and DR rates and programs. We believe that SCE in its solicitations took a more relaxed attitude toward incrementality. If that belief is correct, then the CPUC’s acceptance of SCE’s actions and filed contracts suggests that the relaxed approach was not incorrect. We hope that future solicitations will not be conducted under such an ill-defined standard, and that the CPUC will provide clearer guidance in the future as to contract qualification.

#### **4.3.4 ESSBOT and ESSEPC cost development**

Bidders for utility-owned storage were required to submit their bids by May 16, 2016 for the energy storage cost development process—six weeks prior to the bid submission deadline for other resources. During the cost development process, SDG&E requested additional information from bidders in the form of an offer addendum and prepared a detailed screening of ESSBOT and ESSEPC bidders based on those submissions. This additional screening assessed bids based on technical merit, financial viability (including respondent’s experience), and overall system cost. SDG&E recognized that battery energy storage systems are a relatively new technology and put this additional screening in place to limit their exposure to potential developer, manufacturer, and technology risks. The cost development process included a pre-evaluation, a bid refresh, and finally the collection and submission of bids costs to the Bid Evaluation Team.

##### **Pre-evaluation**

Bidders were screened during the pre-evaluation phase of the cost development process based on technical merit, commercial experience and financial viability, and overall system cost. In the case of [REDACTED] that was proposing a technology with which SDG&E was less familiar, representatives from [REDACTED] were allowed to deliver a presentation about the technology in person to

members of the SDG&E Cost Development Team. PA also attended this presentation. The content of this presentation was limited to technical characteristics of the technology being proposed, and did not include any commercial-related discussions.

SDG&E received bids from [REDACTED] for ESSEPC projects, and bids from [REDACTED] for BOT projects. As a result of the pre-evaluation screening, the Cost Development Team eliminated [REDACTED] bidders. [REDACTED] was eliminated for having an incomplete bid package, [REDACTED] was eliminated based on project economics (bids were substantially higher than the average bids), [REDACTED] was eliminated due to a lack of project experience, and [REDACTED] was eliminated due to perceived counterparty credit risk based on company financials.

### **Bid refresh**

After the pre-evaluation screening, the remaining bidders participated in a bid “refresh,” wherein bidders clarified project details and revised their offers.

The bid refresh included a meeting conducted by webinar between the Cost Development Team and the remaining bidders, as well as follow-up phone calls and emails to clarify the information requests included in the supplemental bid form. PA Consulting was included on all communications, however not all emails were relayed through PowerAdvocate.

### **Bid Submittal**

SDG&E developed the revenue requirements for the ESSEPC and ESSBOT bids based on the data provided in the bid forms, as well as tax depreciation and other SDG&E financial treatment of costs. In addition to the costs that bidders provided (installed capital costs, interconnection costs, fixed and variable O&M, and capacity augmentation costs), SDG&E also included [REDACTED] contingency [REDACTED] when it evaluated the ESSEPC bids. When SDG&E subsequently considered contract changes, as described further in Section 6.3.3, it evaluated a [REDACTED] for the selected ESSBOT offer to account for both the agreed upon contract revisions and any further changes SDG&E might direct the bidder to make during construction.

SDG&E also added the book value of the site (as a proportion of the book value of the particular substation’s land) to each ESSEPC bid. The book value is probably quite a bit less than the market value of unencumbered land in those areas, but the ability to use utility land is restricted and would tend to depress its market value.

PA reviewed and discussed the methodology with the Cost Development Team. PA had some clarifying questions that SDG&E addressed and streamlined the information they provided to the Bid Evaluation Team. The Cost Development team submitted all bid forms to the Bid Evaluation Team on behalf of the utility-owned storage bidders on July 1, 2016.

## **4.4 Review of SDG&E’s application of the LCBF methodology**

SDG&E developed separate models for each resource type because of the unique characteristics and the overall valuation approach was applied as consistently as possible. SDG&E developed most of the valuation models internally except for the energy storage system valuation model which they contracted with Financial Energy Associates (FEA) to develop as part of the 2014 LCR RFO.

Because there were [REDACTED] SDG&E did not develop models to evaluate these bids. [REDACTED]

### **4.4.1 Review of price curves and general assumptions**

PA reviewed the price curves that SDG&E developed to evaluate the bids. [REDACTED]

Additionally, PA verified with SDG&E that the developer of the curves did not have access to the bid information prior to providing the curves to be used in the valuation.

#### **4.4.2 Review of evaluation of offers**

PA reviewed SDG&E's quantitative evaluation through the direct review of SDG&E's models, comparison with PA's own models, and meetings and discussions to resolve questions or discrepancies. Through this process, PA was able to review and confirm SDG&E's interpretation of the data as well as the application of the quantitative analysis.

The storage model was the most complex and while PA did evaluate the storage bids, PA did not fully replicate the energy storage model methodology and results. PA reviewed SDG&E's storage model as part of the 2014 LCR RFO including several discussions with the FEA. Through this review process, PA was able to get comfortable that the model was appropriately modelling the storage offers.

#### **4.4.3 ESSEPC and ESSBOT residual benefit**

Because the ESSEPC and ESSBOT bids included capacity guarantees, there would be some value at the end of the contract period. SDG&E estimated a residual value for the utility-owned bids to account for this. Since they did not request additional post-contract detail information from the bidders, SDG&E estimated the residual value for limited number of years of declining benefits. While this did not provide a rigorous analysis of post-contract benefits, PA agreed it was a reasonable approach.

As noted in Section 3.4.2, SDG&E assumed that the assets would be run [REDACTED] past the end of the O&M contract (useful life) with minimal ongoing expenditure. The annual capacity degradation provided by the bidders was low as compared to the [REDACTED] annual degradation SDG&E had assumed in the 2014 LCR RFO "run to failure" model (which had [REDACTED] additional operation).

#### **4.4.4 Ancillary services**

SDG&E developed a simplified approach to determine the ancillary service benefits of bids. SDG&E considered regulation up, regulation down, spin and non-spin. The values of these services were forecasted in proportion to energy prices and the volumes that would be realized were based on SDG&E's historical experience with ancillary services.

While SDG&E could develop a more sophisticated model to represent ancillary services, PA felt that the results were reasonable.

#### **4.4.5 Credit support**

Once SDG&E developed an initial short list of offers, SDG&E developed credit support requirements based on the cost of credit provided by the bidders and the level of credit required developed by SDG&E's credit group. This information was used in the shortlist analysis. PA did discuss the overall methodology and credit support costs with SDG&E, but did not independently verify the calculation of credit requirements. As described further under Section 6, PA did explore the credit requirement determination for the storage UOG bids as compared to storage third-party PPA bids to confirm the bids were treated similarly.

#### **4.4.6 Selection of shortlist**

SDG&E created a summary table of all of the NMV for each of the conforming bids evaluated and sorted to determine the highest value bids. Once SDG&E developed an initial short list of offers, SDG&E developed credit support requirements. SDG&E included the calculated credit costs and re-ranked the bids.

PA reviewed SDG&E's development of the shortlist analysis and discussed with SDG&E any questions or discrepancies.

## 4.5 Fairness of SDG&E's evaluation

Based on PA's review of SDG&E's analysis, participation in calls and meetings and other IE activities, PA believes that SDG&E conducted the 2016 LCR RFO evaluation analysis fairly. We recognize that it is very difficult to run a fair and objective all-source bidding process over diverse resource types. Comparisons of resources that have different attributes brings in questions of public policy whose resolution is beyond the scope of an Independent Evaluator.

## 4.6 Fairness of any third party evaluation

There was no third party evaluation used to evaluate the bids for this RFO.

## 4.7 Appropriateness of transmission and integration cost adders

SDG&E required bidders for all grid connected resource types to have at least a Phase I interconnection study (or appropriate comparable study) which is an improvement from the 2014 LCR RFO where storage bids did not require a Phase I study although renewables still have a higher requirement to provide completed a Phase II study. SDG&E should determine what type of study would be needed for DG.

## 4.8 Recommendations

There are a few minor items that SDG&E could refine with the models (streamlining the inputs and market assumptions), but overall these models were appropriate to evaluate the bids in the RFO. SDG&E should also further develop the appropriate parameters and evaluation methodology for the post-contract period of the UOG bids.

## 5 MERIT OF RFO SHORTLIST

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Through the bid evaluation and selection process, PA believes that SDG&E selected the best offers submitted for the 2016 LCR RFO. The final selected bids provide a total of [REDACTED] MW of local RA capacity comprised of five energy storage bids for a total of [REDACTED] MW and [REDACTED] demand response bids totaling [REDACTED] MW.

### 5.1 Did SDG&E conduct the solicitation consistent with Commission decisions and its approved LCBF methodology?

It is PA's opinion that SDG&E conducted a fair solicitation consistent with Commission decisions and approved LCBF methodology.

### 5.2 Do selected shortlisted projects provide the best overall value to ratepayers?

PA believes SDG&E fairly selected its shortlist of bids for the 2016 LCR RFO. As noted below, PA believes there are some important issues that deserve further discussion.

#### 5.2.1 Evaluation criteria and resulting shortlist

SDG&E used a combination of quantitative and qualitative criteria for selecting which bids to shortlist. Some of the decision-making criteria used to evaluate whether conforming bids should be added to the shortlist included:

- Net Market Value;
- diversity of suppliers;
- diversity of technology types;
- diversity of control/ownership schemes for energy storage bids (third-party owned, utility-owned on an SDGE&E site, and Build-own-Transfer arrangements at a third party location);
- diversity of contract durations (tenor); and
- preference for project sizes under 40 MW to control technology and bidder viability risk.

Applying the quantitative and qualitative criteria to the population of conforming bids yielded a shortlist of [REDACTED] bids of varying size, tenor, technology, and suppliers. [REDACTED] shortlisted bids were energy storage projects, and of those projects there was one BOT (40 MW), one EPC (30 MW), and three PPTA bids [REDACTED]<sup>12</sup> The remaining two shortlisted bids were DR bids (totaling 12 MW).

Due to the qualitative criteria outlined above, the bids that SDG&E ultimately shortlisted were not the bids with the highest NMV, although every bid that was shortlisted did have a positive NMV. In addition, the DR bids that were selected had a lower NMV than several other storage bids, however the desire to diversify resource types led to the shortlisting of the DR bids. PA believes the qualitative conditions that were applied represent a reasonable set of considerations for SDG&E to use to screen and select bids.

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<sup>12</sup> During the contract negotiation process, [REDACTED]

SDG&E opted not to shortlist [REDACTED] The stated reason for not selecting these bids was the [REDACTED] SDG&E did not want [REDACTED]

### 5.2.2 Diversity of shortlist

Despite the desire to select a variety of resource types, only two (energy storage and DR) were shortlisted. As previously noted, [REDACTED]

[REDACTED], however [REDACTED] had a negative NMV and was therefore not shortlisted.

### 5.2.3 Utility-owned versus ESSPPTA bids

The ESSEPC and ESSBOT bids that were shortlisted had larger capacities and longer terms than the PPTA bids that were shortlisted.

#### Project size

SDG&E shortlisted a combined total of 70 MW of utility-owned projects, compared to [REDACTED] MW of PPTA bids. The CPUC's Storage Procurement Decision<sup>13</sup> Docket D.13-10-040 mandates SDG&E to procure at least 165 MW of storage capacity. The docket indicates that at least 82.5 MW of the storage mandate be third party owned. The addition of the 70 MW of utility-owned storage that was shortlisted for the 2016 LCR RFO, if ultimately built, would bring SDG&E's owned storage capacity to 114.5 MW, meaning greater than 165 MW of storage would have to be procured for SDG&E to comply with the 82.5 MW third party owned minimum.

SDG&E indicated that one motivation for shortlisting more utility-owned storage than necessary was that one of the shortlisted bids may not make it through the contract negotiation process. In the event, contracts were negotiated will all shortlisted bidders except for one demand response offer.

#### Term length

The ESSPPTA bids that were shortlisted had tenors of 10, 15 and 20 years, while the UOG bids that were selected each had tenors of 20 years. The term length for utility-owned bids is a concern as it relates to the steeply declining storage technology cost curve. The capital outlay for an ESSPEC or ESSBOT resource is almost entirely recovered in the first ten years; the remaining expenditures are for O&M and SDG&E [REDACTED] [REDACTED] Therefore there is not much more financial exposure in a 20-year UOG bid than a 10 year bid, thus mitigating some of the technology obsolescence risk that was a concern with longer term PPTA bids.

#### Value from residual benefit

SDG&E's method for calculating residual value of utility-owned projects was to assume the projects would continue to operate with minimal maintenance, allowing the storage capacity to degrade ("run to failure"). The residual value for utility-owned bids was significant: PA identified one set of ESSPPTA bids that appeared equivalent to a group of UOG bids, and noted that the NMVs of the utility-owned bids were markedly higher. Approximately [REDACTED] of the present value of the benefits of a utility-owned project, assuming a 30-year life, accrues during the 20-year "useful life". But because no maintenance costs are assumed during the last 10 "run to failure" years, [REDACTED] of the contract costs are accrued during the useful life (on a present value basis). The result is that only [REDACTED] of the NMV is attributed to the useful life.

This does not mean that it is wrong to attribute residual value to utility-owned storage but it does draw attention to the parameters of the valuation model. PA did a sensitivity analysis of the key parameters noted in 3.4.2 and 4.4.3, namely the degradation assumption and the revenue requirement in the

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<sup>13</sup> California Public Utilities Commission Decision (D.) 13-10-040, December 16, 2010.

residual value calculation. PA ran one sensitivity assuming a [REDACTED] annual degradation rather than the [REDACTED] figure used by SDG&E, and a second sensitivity assuming that even with no maintenance, revenue requirements after year 20 followed the trend of the previous ten years. PA then ran a third sensitivity combining the assumptions of the first two and found that the shortlist for this RFO would probably have been unchanged. Assuming SDG&E does intend to operate these units in this manner, that is, truly letting the units run to failure and not augmenting capacity following the contract term, then PA believes this treatment of the bids for utility-owned storage is fair.

#### **5.2.4 Termination of the Hecate contract**

In September of 2016, SDG&E notified Hecate Energy Bancroft LLC (Hecate) that it was exercising its early termination option for the 20 MW energy storage contract that it signed following the 2014 LCR RFO process. The Hecate contract included a clause allowing SDG&E to terminate the contract at will prior to the option expiration date. [REDACTED]

### **5.3 Did the shortlist conform to the needs of the SDG&E's portfolio and RFO plan?**

The shortlist prepared by SD&E did conform to the portfolio and RFO plan. SDG&E selected storage bids and DR bids.

The shortlist of bids resulting from the 2016 LCR RFO process did not represent a diverse group of resource types; of the five resource types considered only energy storage and demand response offers were selected. SDG&E should consider revising the RFO structure or expanding its communication effort to improve bid diversity in future procurement efforts.

### **5.4 Reasonableness of the shortlist**

In PA's opinion, SDG&E's shortlist was reasonable. The amount of utility-owned storage, if the two shortlisted bids proceed to commercial operation, would exceed the allowed fraction of SDG&E's target under the Storage Procurement Decision, but that is a question of public policy (for example, whether the total storage procurement target should be increased).



## 6 FAIRNESS OF PROJECT-SPECIFIC NEGOTIATIONS

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PA closely monitored the contract negotiations and SDG&E generally gave PA the opportunity to join face-to-face meetings and teleconferences, provided PA copies of contract drafts, included PA on e-mails, and instructed counterparties to include PA on all communications. Because SDG&E selected both UOG and third-party energy storage bids, PA paid particular attention to the negotiations for both the UOG and third-party options to ensure the process did not favor UOG bidders.

### 6.1 Principles PA used to evaluate fairness of negotiations

PA applies the following three principles to evaluate the fairness of negotiations:

- SDG&E should not show favoritism toward any bidder (especially if that bidder is an SDG&E affiliate or if the project will be additive to SDG&E's rate base) by allowing contract conditions not offered to other bidders unless those conditions are balanced by comparable concessions by the bidder;
- SDG&E should not negotiate harder or less hard with a bidder than with any other bidder; and
- SDG&E should not attempt to impose contract conditions in the negotiation that significantly change the balance of the bargain, relative to what the bidder could have reasonably expected based on the RFO materials.

### 6.2 Describe fairness of negotiations

PA participated in most of the negotiation meetings and received copies of red-lined draft contract documents to review. PA also followed up with questions to SDG&E as appropriate. SDG&E had one team negotiate the three ESSPPTA contracts and a separate team negotiate the ESSEPC and ESSBOT contracts. Similarly, SDG&E had a separate team negotiate the DR bids. As described below there are few items that SDG&E should improve in future RFOs.

PA believes that SDG&E treated bidders consistently and fairly relative to each other (the first two principles above). PA paid particular attention to the negotiations for the utility-owned and third-party ESS shortlisted bids. As described below, there were a few items that PA looked into further to ensure fair treatment of the bidders and ultimately found the negotiations to be fair.

### 6.3 What terms and conditions underwent significant changes during the course of negotiations?

SDG&E provided bidders a draft contract for ESSPPTA and ESSEPC offers as part of the RFO documents, but SDG&E did not have draft ESSBOT or DR contracts available at that time. Providing draft contracts prior to bid submittal is beneficial for both the bidders and SDG&E. Draft contract documents provide bidders more clarity on the product, pricing structure, risk sharing, technical and other factors so that they are able to design and price their offers appropriately. It also can improve SDG&E's ability to evaluate the bids when the requirements and parameters are clearly identified as part of the bidding process. This is particularly important for battery energy storage system bidders because of the general immaturity of the technology industry standards (e.g., technical requirements and testing procedures) are still evolving and typical contract terms are not generally available.

Drafting model contracts is time-consuming, and past experience shows that the first time a model contract is included with an RFO it can wind up significantly changing before being presented to shortlisted bidders; however, without a model, negotiations can be delayed while SDG&E creates its contract form. In a case like this, where SDG&E had allowed only a few months for negotiations, time pressure on negotiators can lead either party to agree to terms that their management eventually rejects [REDACTED]

Prior to the next RFO, SDG&E should review the negotiated ESSPPTA, ESSBOT, ESSEPC, and DR contracts from this RFO and develop or update its template contracts for these types of resources. This will also provide bidders more clarity as well as provide SDG&E an opportunity to ensure that the underlying principles are consistent across technologies and ownership options.

### 6.3.1 DR negotiation process

SDG&E shortlisted [REDACTED] Demand Response bids and began negotiations [REDACTED] the week of January 9. We will refer to them here (where necessary) as [REDACTED]. The following terms and conditions were subjects of extensive concern and discussion during the negotiations:

- **Dispatch rights:** SDG&E's draft contract provided separate dispatch (call) rights to both SDG&E and CAISO, while each bidder wanted to limit the total number of DR calls. As CAISO would not be a party to the contract, that was not possible. The solution adopted with [REDACTED] was to [REDACTED]  
[REDACTED]  
[REDACTED] In the case of [REDACTED] the resolution was to [REDACTED]  
[REDACTED]  
[REDACTED]
- **Impact of delay in becoming operational:** Each bidder intended to provide demand response for five years [REDACTED]. Capacity prices were defined by month and Contract Year. SDG&E insisted that [REDACTED]  
[REDACTED] SDG&E further wanted and received clarification that if, for example, delivery began in March 2018 then the pricing for January and February 2019 would be that for January and February of calendar year 1.
- **Incrementality:** SDG&E wanted to add language specifying that the demand response customers comprising this project could not have been part of any SDG&E DR program (except DRAM) or rate. [REDACTED] in another [REDACTED]  
[REDACTED] This would include Critical Peak Pricing (CPP). [REDACTED] was basically amenable and agreed to include such language [REDACTED] protested that, since CPP is the default rate option for C&I customers, it would be very difficult for them to recruit participants. SDG&E would not identify which customers were on CPP rates but did provide estimates of the CPP percentages for Agricultural, Commercial and Industrial, Industrial, Lighting, and Small Commercial customer types. [REDACTED]  
[REDACTED]

Although the negotiators for SDG&E and [REDACTED] reached agreement on contract terms, on March 30 SDG&E told PA [REDACTED]  
[REDACTED]

### 6.3.2 ESS negotiation process

There were several items that arose during the negotiation process for the ESS UOG and third-party bids. PA believes that the negotiations were fair, but felt it was important to include a description of these issues.

## Potential changes to project size and online dates

Early in the negotiation process, SDG&E was interested in [REDACTED]  
[REDACTED]  
[REDACTED] indicated that in developing their original bids they had included an assumed cost decline in battery system costs so in order to have [REDACTED]  
[REDACTED] the bidder requested also [REDACTED]

PA reached out to SDG&E to ensure that to the extent they were allowing a single bidder or a set of bidders to provide [REDACTED] and potential [REDACTED] that they offer that opportunity to all of the shortlisted bidders. Also, if SDG&E did agree to [REDACTED]  
[REDACTED] for a bid, the magnitude of the change would need to be considered not material with respect to the overall RFO process and also not affect the economics of the original shortlist analysis.

Later in the process, [REDACTED] reached out to SDG&E to see if [REDACTED]  
[REDACTED]  
[REDACTED]

SDG&E received information from both UOG bidders and evaluated the economics of the changes.  
[REDACTED]  
[REDACTED]

SDG&E did ultimately reach out to all shortlisted ESSPPTA bidders [REDACTED]  
[REDACTED]  
[REDACTED]

size [REDACTED] 6.5 MW [REDACTED]

## Credit requirements

As described earlier in Section 3.4.2, SDG&E requested that bidders not include an estimated cost of credit in their bid price and instead provide the cost per \$100,000 of credit requirement. SDG&E would then develop the credit requirements based on an analysis prepared by SDG&E's Credit Group. The costs associated with the credit requirements would then be incorporated into the NMV analysis to determine the shortlist.

There are several factors that SDG&E considers in developing the credit support requirements including counterparty rating, manufacturer rating, risk of counterparty default, risk of equipment failure, estimated loss, etc. The risk of loss for each of the bid types ESSPPTA, ESSBOT, and ESSEPC differ for a variety of reasons. Additionally, the ESSBOT and ESSEPC bids included a Parent Guaranty which affects the overall level of credit support required.

The level of the credit requirements determined by SDG&E was an area of concern for all bidders in all of the negotiations. [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

PA reviewed the level of credit required for each bidder and noted that the credit cost on a \$/kW basis [REDACTED] PA recognizes that the determination of the negotiated level of credit for each bidder is a business decision for SDG&E and the types of resource, ownership structure, counterparty and other factors will result in different level of credits.

In the interest of making sure all bidders are treated fairly, PA did raise the issue of [REDACTED]  
[REDACTED] PA  
also discussed with SDG&E the implications of [REDACTED]  
[REDACTED]  
[REDACTED]

PA does not believe there were any unfair practices in the determination of credit; however, PA does think that prior to the next LCR RFO it would be beneficial for SDG&E's UOG team, PPTA team, and Credit Group to discuss the criteria and development of credit requirements to ensure that the underlying principles are similar across SDG&E as appropriate.

### **Additional requirements for ESSBOT and ESSEPC bids**

In June 2016, the Commission requested that SDG&E leverage the 2016 LCR RFO and attempt to procure fast-track battery energy storage projects to help alleviate potential power supply issues due to the Aliso Canyon shutdown.<sup>14</sup> SDG&E selected two offers from one developer and received Commission approval to enter into two UOG offers for a total of 37.5 MW. These contracts were approved in August 2016 and the projects came online in February 2017. The developer of these projects was also the successful ESSBOT bidder in this RFO.

Through the process to contract and bring these facilities online, SDG&E found that some of the technical requirements and services that they had requested as part of the 2016 LCR RFO were not sufficient for safety, design quality and other reasons and wanted to incorporate these changes into this RFO. SDG&E presented these changes to the shortlisted ESSBOT and ESSEPC bidders. [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] SDG&E also identified services that the ESSBOT bidder provided as part of the fast-track bids including [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

PA discussed these additions with SDG&E. PA recognizes that battery ESS is an emerging technology and it may be appropriate to incorporate the additional requirements SDG&E learned as part of the fast-track process.

### **Other items regarding clarity of bid documents**

As mentioned at various locations in this report, the experience from this RFO will result in clearer documentation for the next LCR RFO. The treatment of taxes for the O&M portion of the ESSBOT bid was not clear in the bid documents [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED] Some additional language in the RFO documents may need to be added to ensure that bidders include all costs for services to be provided and indicate that they would be found non-conforming if they do not provide the information.

Although SDG&E's bid documents were clear in terms of where SDG&E would take ownership of the power for ESSPPTA bids and that the Point of Interconnection is not the same as the Point of Delivery, there was still confusion with this issue for bidders. Providing additional emphasis on this and providing clear examples for bids where the Point of Interconnection is the SDG&E distribution system may help bidders develop their bids appropriately.

### **Cost added during negotiations**

Several items noted above increased the costs [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

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<sup>14</sup> California Public Utilities Commission Resolution (R.) E-4791, May 26, 2016.

We recommended to SDG&E that they review the revenue requirement impact and confirm that the addition of these items would not significantly affect the bid ranking. While these are likely adders to all of the ESSBOT and ESSEPC bids received, the ranking of these types of bids relative to all the other offers needs to be considered. SDG&E had included a [REDACTED] to the ESSEPC revenue requirements in the NMV analysis and after the additional contract costs there would still be [REDACTED] of contingency remaining. [REDACTED] SDG&E reran the NMV analysis with [REDACTED] and found that it would not change the shortlist results and that [REDACTED] would remain after accounting for the additional contract costs. PA also reran the sensitivity analysis we prepared regarding the value from the residual benefit for UOG bids (Section 5.2.3) and found that including the additional costs would not have changed the bid selection.

## 6.4 Was similar information/options made available to other participants?

Overall PA believes that similar information/options were made available to each participant

## 6.5 Any other relevant information

While the organization of SDG&E's negotiation teams into three teams (ESSPPTA, ESSBOT/ESSEPC and DR) provided consistency of negotiations across the shortlisted bids within each resource type, initially there was insufficient coordination across all of the negotiation teams. Overall, SDG&E could improve the communication and coordination across the various teams as appropriate and allowable subject to any separation required as described in Section 3.3.1 (that separation is much more important during the evaluation stage for RFO).

## 7 MERIT OF CONTRACT APPROVAL

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SDG&E negotiated and signed a total six contracts through this RFO process. These contracts will provide 4.5 MW of demand response and 83.5 MW of energy storage with 13.5 MW of PPAs and 70 MW of utility-owned storage.

Through the bid evaluation and selection process, PA believes that SDG&E selected appropriate offers. PA is not opining on the appropriate level of UOG ownership which is a public policy issue. The determination of revenue requirements is also a public policy issue, and one in which CPUC staff have expertise; for our part we accept that SDG&E's contract-specific revenue requirements model correctly represents the revenue requirement impact of the UOG bids.

Based on the analysis and assumptions described throughout this report PA recommends approval of these contracts.



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