Application of San Diego Gas & Electric Company(U 902 E) for Approval of Energy Storage and Energy Efficiency Contracts Arising from the Track IV Local Capacity Requirement All Source Request for Offers

Application 16-03-xxx
Exhibit No.: (SDG&E- ____)

PREPARED DIRECT TESTIMONY OF

PATRICK K. CHARLES

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

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

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

March 30, 2016

Doc 304374

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PREPARED DIRECT TESTIMONY OF
PATRICK K. CHARLES
ON BEHALF OF SDG&E

I. PURPOSE

The purpose of my testimony is to describe SDG&E's 2014 Track IV All Source Request for Offers ("Track IV All Source RFO") process and the energy storage contract that was signed as a result of the Track IV All Source RFO. The other contract that resulted from the Track IV All Source RFO, an energy efficiency related contract, is described in the Direct Testimony of Mr. George Katsufrakis.

II. 2014 TRACK IV LOCAL CAPACITY REQUIREMENT ("LCR") ALL SOURCE RFO - INTRODUCTION / BACKGROUND

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

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 ("Track IV Decision")[1] in the 2012 Long Term Procurement Plan ("LTPP") proceeding.[2] In the Track IV Decision, the Commission authorized San Diego Gas & Electric Company ("SDG&E") to procure between 500 megawatts ("MW") and 800 MW of local capacity resources, including at least 175 MW of preferred resources (in accordance with the state of California's Loading Order as defined in the Energy Action Plan[3]) and at least 25 MW of energy storage[4] in the San Diego local area[5] by 2022. SDG&E acknowledges that the capacity associated with the group of contracts included in this application are less than the 175 MW preferred resources and 25 MW minimum energy

[1] Decision ("D.")14-03-004 (Track IV Decision)
[2] Rulemaking ("R.")12-03-014.
[3] *See*, http://www.energy.ca.gov/energy_action_plan/2005-09-21_EAP2_FINAL.PDF, p. 2. The Energy Action Plan II was issued on 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.
[4] Track IV Decision, p. 143, Ordering Paragraph ("OP") 2.
[5] *See*, https://www.caiso.com/Documents/Final2015LocalCapacityTechnicalStudyReportApr30_2014.pdf, p. 93 for the California Independent System Operator ("CAISO") definition of the San Diego Local sub-area.

storage requirements. Please see the Direct Testimony of Ms. Shults for an explanation of SDG&E's procurement strategy.

The Track IV Decision included a number of requirements for SDG&E's procurement of resources, key among them being timing (resources on-line by 2022), prior procurement plan approval, CAISO involvement and a number of requirements through reference to D.13-02-015 ("Decision Authorizing Long-Term Procurement for Local Capacity Requirements" or the "Track 1 Decision"). In accordance with the direction included in the Track IV Decision, SDG&E issued an All Source RFO on September 5, 2014 seeking LCR resources within the following product types: 1) energy efficiency, 2) demand response, 3) renewable resources, 4) combined heat and power, 5) distributed generation, 6) energy storage, and 7) conventional resources. As noted within the RFO documents[6], SDG&E had already separately filed an Application for Commission approval of a 600 MW bilateral contract with a conventional resource, the Carlsbad Energy Center (see A.14-07-009[7]). If approved, the Carlsbad Energy Center would count toward a portion of the need authorized by the Track IV Decision. Ultimately, the Commission did provide conditional approval of the Carlsbad Energy Center via its Decision Conditionally Approving San Diego Gas & Electric Company's Application for Authority to Enter into Purchase Power Tolling Agreement with Carlsbad Energy Center, LLC ("Carlsbad Conditional Approval Decision")[8] on May 21, 2015 (further details regarding this decision and its impact on SDG&E's procurement process are included below).

i. Authorization amounts and timing

OP 2 of the Track IV Decision states that the timing associated with the LCR need is "by the end of 2021."[9] Additionally, OP 6 of the Track IV decision states that SDG&E's All Source RFO "shall include the elements specified by OP four (4) of D.13-02-015 [the "Track 1 Decision"]."[10] One of the elements included in OP 4 of the Track 1 Decision states that the RFO

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[6] *See, e.g.* https://www.sdge.com/sites/default/files/documents/1336710507/Conventional%20Resources%20RFO%20-%20ver%203%20-%2010-21-14.pdf?nid=11966, at p. 3. The other RFO instruction documents issued by SDG&E on 9/5/2014 contain similar language. The Energy Storage and Energy Efficiency RFO documents are included with this testimony as Attachment A and Attachment B.

[7] A.14-07-009 was filed on July 21, 2014.

[8] D.15-05-051.

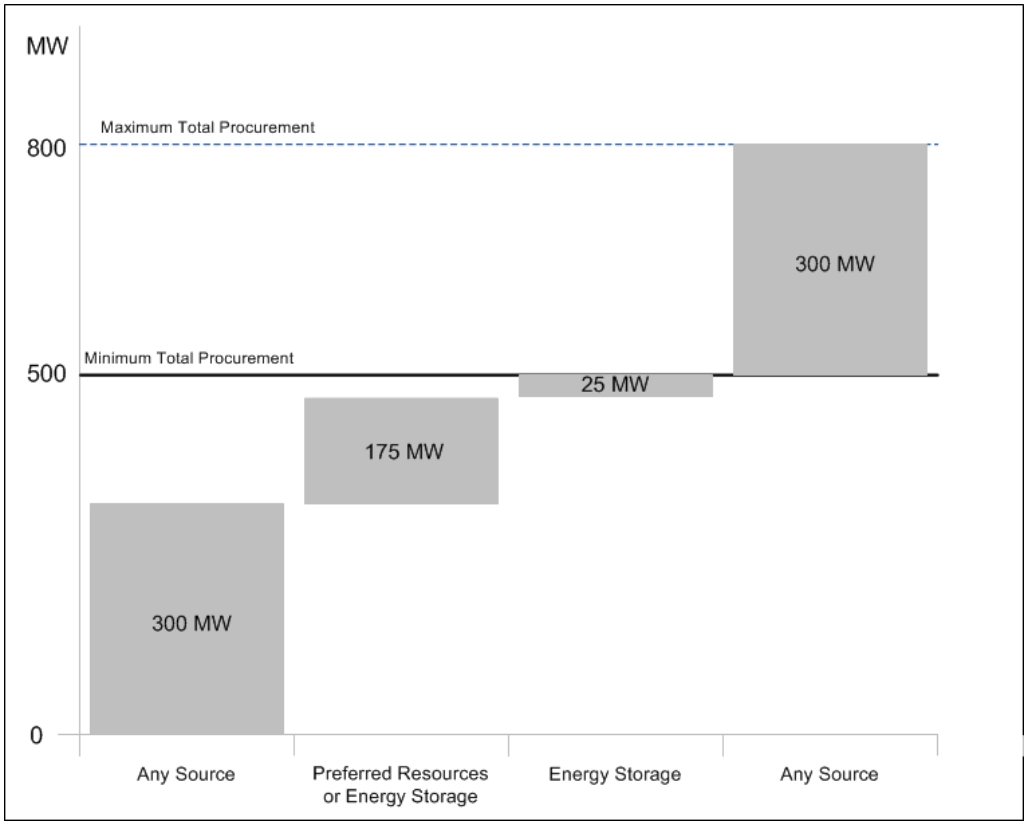
[9] Track IV Decision, p.143, OP 2.

[10] Track IV Decision, p. 144 OP 6 (referencing D.13-02-015 ("Track 1 Decision"), OP 4).

shall include "no provision limiting bids to any specific contract length."[11] SDG&E incorporated these requirements into its RFO instruction documents by including participation criteria that specified that some portion of the program or project delivery term must include all of calendar year 2022,[12] but that any contract delivery term could be offered and found conforming.

OP 2 of the Track IV decision specifies that SDG&E is "authorized to procure between 500 MW and 800 MW of electrical capacity."[13] To summarize the resource type requirements and overall authorization, please see diagram PKC-1, below (from Chart 3 in the Track IV Decision, page 98):

Diagram PKC-1



[11] Track 1 Decision, p. 132, OP 4(f).

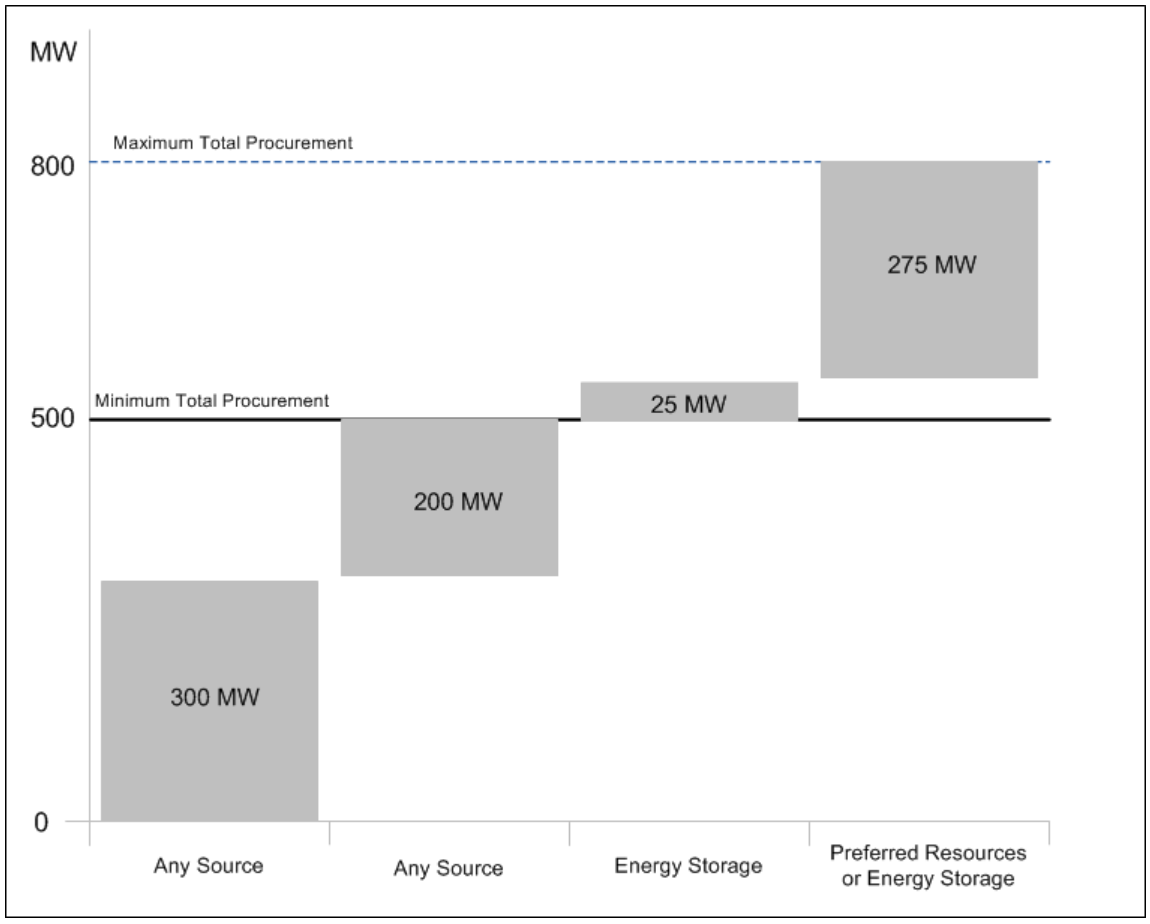
[12] For example, see page 9 of SDG&E's Energy Storage RFO – Attachment A - (participation criteria 4) and page 16 of SDG&E's Energy Efficiency RFO – Attachment B - (participation criteria 2). Similar requirements are included in the other 5 RFO instruction documents issued by SDG&E on September 5, 2014. *See, e.g.*, "Questions & Answers / FAQs", Question 2, SDG&E 2014 All Source RFO, https://www.sdge.com/sites/default/files/documents/1115917296/All%20Source%20RFO%20-%20FAQs%20-%20General.pdf?nid=12051.

[13] Track IV Decision, p. 143, OP 2.

ii. Impact of Carlsbad Conditional Approval Decision (D.15-05-051) on the preferred resource amounts

In the Carlsbad Conditional Approval Decision, the Commission approved SDG&E's proposed tolling agreement with the Carlsbad Energy Center, but reduced the authorized capacity of the plant from 600 MW to 500 MW and stated that "all of the 100 megawatts in residual procurement authority resulting from the reduction of the purchase power tolling agreement must consist of preferred resources and energy storage."[14] Based on this guidance, SDG&E's adjusted Track IV procurement authorization (post Carlsbad Conditional Approval 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 Conditional Approval

[14] D.15-05-051, p. 37, OP 2.

Decision, and therefore SDG&E's remaining authorization is for up to 300 MW of preferred resources, of which at least 25 MW must come from energy storage.

iii. Submission / approval of the conventional and preferred resources procurement plans

Ordering Paragraph 7 of the Track IV Decision required that SDG&E submit, within 90 days of the effective date of that decision, "a procurement plan to be reviewed and approved in writing by the Director of the Energy Division."[15] On May 1, 2014, SDG&E submitted its Conventional Procurement Plan ("CPP") and its Preferred Resources Procurement Plan ("PRPP") to the Director of the Commission's Energy Division as required. Energy Division reviewed these plans and requested modifications and SDG&E resubmitted a modified version of the CPP on July 16, 2014 and a modified version of the PRPP on July 18, 2014, in accordance with Energy Division direction. The CPP was then approved on July 17, 2014 and the PRPP was approved on July 22, 2014 by the Director of the Energy Division.[16] As stated in its CPP, with a reliability need starting as early as 2018, SDG&E diligently pursued a bi-lateral agreement for the Carlsbad Energy Center which is consistent with OP 3 of the Track IV Decision that authorizes bi-lateral contracts to meet local capacity requirements.[17] SDG&E did not engage in further procurement activities related to the local capacity requirement until after receiving Energy Division approval of its CPP and PRPP. These activities included issuance of the All Source RFO, which ultimately occurred on September 5, 2014.

iv. Discussions with the CAISO / CAISO involvement in the 2014 All Source LCR RFO process

OP 6 of the Track IV Decision directs that SDG&E's All Source RFO shall include the elements specified by OP 4 of the Track 1 Decision. Among the elements listed in OP 4 of the Track 1 Decision are that the "resources must meet the identified reliability constraint identified by the [CAISO]"[18] and that "the consideration of costs and benefits must be adjusted by their

[15] Track IV Decision, p. 144, OP 7.
[16] 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.
[17] 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."
[18] Track 1 Decision, OP 4(a).

relative effectiveness factor at meeting the [CAISO] identified constraint".[19] 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."[20]

SDG&E works with the CAISO routinely, and in this case, communications regarding the All Source RFO began at the end of Q1 2014 and continued through Q1 of 2015. On April 23, 2014 the CAISO issued Locational Effectiveness Factors ("LEFs") for the San Diego Area ("April 2014 LEF Report").[21] 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."[22] In this study, the CAISO provides two study scenarios given as 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-shifting transformer at the Imperial Valley substation is not completed, and in scenario B, the assumption is for full implementation of all transmission upgrades approved by the ISO 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%

[19] *Id*. at OP 4(c).
[20] Track IV Decision, p. 144, OP 4.
[21] Clarification to the ISO 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 (April 23, 2014).
[22] April 2014 LEF Report, p. 1.

On March 27, 2015 the CAISO updated the LEFs for the San Diego area[23] ("March 2015 Update"). The March 2015 Update states (at page 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.*

Then, at page 158 of the March 2015 Update, the report states:

> *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. 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 associated with the San Diego Area is shown below, labeled as table PKC-2:

Table PKC-2

Areas		Calculated LEFs (in %)
San Diego Area	South & Southwest	100
	North & 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

[23] 2014-2015 Transmission Plan, Section 3.3, p. 152, http://www.caiso.com/Documents/Board-Approved2014-2015TransmissionPlan.pdf (March 27, 2015).

Sub-area, the report clearly states, "all units within this area have the same effectiveness factor."[24]

Given the timing of the issuance of the April 2014 LEF Report and the March 2015 Update in relation to SDG&E's overall All Source RFO timeline, the information contained in the 2016 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 offers received in response to the 2014 All Source RFO. This approach is consistent with scenario A of the April 2014 LEF Report, the LEFs associated with post-transient voltage instability concerns from the March 2015 Update, and the CAISO's 2016 LCT. The Direct Testimony of Mr. Rolfe further explains the least-cost, best-fit net market analysis used as part of the quantitative analysis of the offers received in response to SDG&E's 2014 All Source RFO.

v. Summary of Track 1 Decision RFO Requirements

SDG&E's 2014 All Source RFO included seven product types and for each product type a request for offer overview / instruction document was issued on September 5, 2014. Within each of these documents, the resource type specific conformance requirements were included and are consistent with those required by the Track IV Decision (and the Track 1 Decision). Additionally, the evaluation approach for the All Source RFO was described in each RFO document (and the evaluation approach is also consistent with various requirements of the Track IV Decision and Track 1 Decision; for more information on the evaluation approach, please see the Direct Testimony of Mr. Rolfe). OP 4 of the Track 1 Decision outlines the requirements for the All Source RFO and the resources procured via the All Source RFO. Specifically, OP 4 includes twelve specific requirements, all of which SDG&E included and/or considered as part of its All Source RFO process. I address each of the twelve requirements below:

1. Meet the identified reliability constraint. SDG&E required that resources procured be located in the San Diego local sub-area (as defined by the CAISO[25]) and either be eligible to count for local RA (in the case of all resources except for Energy Efficiency or EE), or provide RA value (in the case of EE).

[24] 2016 Local Capacity Technical Analysis – Final Report and Study Results, p. 100, http://www.caiso.com/Documents/Final2016LocalCapacityTechnicalReportApr302015.pdf.

[25] See footnote 6, p. 5 in the Energy Storage RFO – Attachment A. For the Energy Efficiency 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. 16.

2. Demonstrably incremental. As a condition of conformance, SDG&E evaluated the offers received in response to its All Source RFO to determine if they were demonstrably incremental to the Track IV study assumptions, as included in Attachment A to the May 21, 2013 Revised Scoping Ruling and Memo of the Assigned Commissioner and Administrative Law Judge, issued in R.12-03-014. This requirement is further described in each of the seven RFO documents issued by SDG&E that make up its All Source RFO. For energy storage resources, this is a straight forward requirement, since energy storage is a relatively new resource type. For EE, please see the Direct Testimony of Mr. Katsufrakis – for a further explanation of how the EE offers / programs being proposed for approval via this application meet this requirement.
3. Costs and benefits adjusted by the CAISO LEFs. Please see the above discussion regarding LEFs as well as the Direct Testimony of Mr. Rolfe for a further explanation of this issue.
4. Count for local Resource Adequacy ("RA"). As a condition of conformance, SDG&E evaluated the offers received in response to its All Source RFO to determine if they would meet the RA counting rules. In the case of the energy storage offers, please see the participation criteria description (section 3.A. of the Energy Storage RFO document, Attachment A, at page 9). In particular, participation criterion number seven on page 10 states that respondents must demonstrate "…how their project will meet the current RA counting rules." Footnote number 12 is then listed and 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 requirement for energy limited resources is availability of the resource for three consecutive days for four hours per day."

In short, the energy storage resource being proposed for approval via this Application will meet the three consecutive day, four hour per day requirement.

In the case of EE, please see the EE RFO document, Attachment B, section 7.A. (number 4) at page 16, where it states, "The EE resource must meet the requirements of the current RA counting rules." Footnote eleven is then 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. EE programs that provide RA value by reducing forecasted demand will also likely count toward SDG&E's RA obligations and therefore be conforming in this regard.

5. Inclusion of all resource types. SDG&E's All Source RFO included seven product types: EE, demand response, renewables, distributed generation, combined heat & power, energy storage and conventional. No offers received in response to the All Source RFO were found to be non-conforming due to the resource type offered.
6. All contracts lengths considered. In its All Source RFO, SDG&E did not exclude any offer due to the contract duration, but did require that at least some portion of the offered delivery term include all of calendar year 2022 (the year of need targeted in the Track IV Decision[26]).
7. Consistency with the loading order and requirement to pursue all cost effective preferred resources consistent with least-cost, best-fit (LCBF) analysis. As stated in its All Source RFO, SDG&E pursued resources in accordance with the loading order.[27] Mr. Rolfe provides the details regarding SDG&E's evaluation approach, but at a high level, SDG&E observed the loading order in its All Source RFO by selecting two EE offers and a DR offer for shortlisting over other offers from lower loading order resource types that were available and that were more highly ranked from a strict net market value perspective.
8. Minimize costs to ratepayers by observing LCBF principles. Please see the Direct Testimony of Mr. Rolfe for a discussion of this topic.
9. Total capacity procured within the levels authorized. In this application, SDG&E is seeking approval for a total of 38[28] MW of resources – well within the 200 – 300 MW of

[26] 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 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.").

[27] See section 5.D. at page 16 of the Energy Storage RFO, Attachment A, and section 8.D. p. 21 of the EE RFO, Attachment B.

[28] The 38 MW is the sum of the one energy storage related agreements (20 MW) and one energy efficiency agreement (18 MW).

remaining authorization from the Track IV Decision, once the 500 MW of capacity associated with the Carlsbad Energy Center (conditionally approved in D.15-05-051) is taken into account.

10. Assessment of projected Greenhouse Gas (GHG) as part of the cost / benefit analysis. Please see the Direct Testimony of Mr. Rolfe for a discussion of this topic.
11. Appropriate consideration of flexibility of resources. Please see the Direct Testimony of Mr. Rolfe for a discussion of this topic.
12. Use of the most up-to-date LEFs. Please see the above discussion regarding LEFs as well as the Direct Testimony of Mr. Rolfe for a discussion of this topic.

III. LCR / TRACK IV SOLICITATION PROCESS OVERVIEW

A. RFO Structure and Schedule

As stated above, SDG&E's All Source RFO consisted of RFO documents for each of seven different product types. No resource type was excluded. Additionally, a discussion was included in the conventional product type RFO document regarding the Carlsbad Energy Center application, stating that, if approved, 600 MW of need / authorization associated with the Track IV Decision would be fulfilled. In the Carlsbad Conditional Approval Decision, the Commission approved a 500 MW configuration associated with the Carlsbad Energy Center, so, in fact, only 500 MW of need was filled by that approval. In effect, the Carlsbad Conditional Approval Decision fulfilled the conventional product type need associated with the Track IV authorization (or capacity from 'any source' as listed in table PKC-2, above).

i. Overlap with the storage proceeding in the case of Energy Storage

SDG&E's All Source RFO includes an energy storage product type, and the discussion of the energy storage contract entered into and for which SDG&E is seeking approval by the submission of this Application is included below. The All Source RFO (and the energy storage product type) comprise one component of SDG&E's overall energy storage procurement effort for the 2014 bi-annual energy storage cycle, with the second component being an energy storage RFP for 4 MW of energy storage for installation at the distribution level for capital deferment purposes. Additional information regarding this 4 MW distribution level energy storage RFP is available in the report SDG&E served on the Energy Storage OIR service list on December 1, 2015, titled "SDG&E's 2014 Energy Storage Distribution Reliability / Power Quality Request

for Proposal Seeking a 4 MW Energy Storage System – Post Solicitation Report."[29] Additionally on that same date, the confidential version of this report was provided to the assigned Administrative Law Judge ("ALJ") in that proceeding, certain Office of Ratepayer Advocates ("ORA") personnel, and the Energy Division personnel assigned to the energy storage effort.

ii. Solicitation milestones and schedule

SDG&E's All Source RFO had numerous milestones, but major milestones included: 1) the issuance of the documents on September 5, 2014, 2) the closing date (or date upon which the offers were due) on January 5, 2015, 3) shortlist notification on June 5, 2015, and 4) the contract execution dates.

The schedule from the Energy Storage solicitation is included below as table PKC-3, and the Energy Efficiency solicitation schedule is included as table PKC-4.

Table PKC-3
2014 Energy Storage RFO Schedule
(footnotes from the version of these schedules included in the RFO documents have been omitted for clarity)

		Date		
NO.	**ITEM**	**ESSPPTA**	**ESSBOT**	**ESSEPC**
1	RFO Issued	9/5/2014		
2	Bid Conference / Bidder Outreach Events	1) September 26, 2014 (All resource types) 2) October 24, 2014 (All resource types - conference call / webinar only) 3) November 10, 2014 (EE, DR and Energy Storage only)		
3	DEADLINE for Respondents to provide a written expression of interest to SDG&E (e-mail to AllSourceRFO@semprautilities.com or other written correspondence) containing company name and contact information by 5:00PM	N/A	10/17/2014	10/1/2014
4	Nondisclosure Agreements (NDAs) sent out to Respondents expressing interest.	N/A	N/A	10/1/2014
5	SDG&E provides Independent Evaluator (IE) with commercial viability metrics	N/A	10/2/2014	10/2/2014
6	SDG&E sends out request for commercial viability details	N/A	10/20/2014	10/10/2014

[29] The post solicitation report is included as attachment G.

7	DEADLINE to receive Executed NDA. This information should be e-mailed to AllSourceRFO@semprautilities.com by 5:00pm to receive PowerAdvocate registration details required for Commercial Viability Details submission.	N/A	N/A	10/17/2014
	DEADLINE for Respondents to submit Commercial Viability Details including: 1) Proposed technology, 2) Summary of existing installation capacity, location, and in-service during and other information requested to support commercial viability, and 3) 10MW, 4 hour energy density information (footprint, weight, height, clearances, efficiency rating). This information should be submitted to PowerAdvocate by 5:00pm	N/A	N/A	10/20/2014
9	DEADLINE for Respondents to submit proposed technology and other information requested to support commercial viability. This information should be submitted to PowerAdvocate by 5:00pm	N/A	10/31/2014	N/A
10	SDG&E sends out information on utility owned land including buildable area, environmental limitations (if any), interconnection capacity limitations (if known), expected permitting complexity.	N/A	N/A	10/31/2014
11	SDG&E notifies Respondents of technology acceptance and sends out technical specifications, minimum credit requirements, and Power Advocate registration details	N/A	11/7/2014	10/28/2014
12	DEADLINE TO SUBMIT QUESTIONSQuestion submittal cut-off date. Answers to all questions will be posted on the website no later than December 1, 2014.	11/14/2014 – date applies to ESSPPTA, ESSEPC and ESSBOT		
13	DEADLINE TO REGISTER for PowerAdvocate access / to download RFO forms and documents	12/1/2014	11/14/2014	11/4/2014
14	DEADLINE for Respondents to identify proposed projects by location / property to allow SDG&E to estimate interconnection and permitting cost. This information should be submitted to PowerAdvocate by 5:00pm	N/A	N/A	11/14/2014
15	Respondents provide conceptual design information to SDG&E. This information should be submitted to PowerAdvocate by 5:00pm	N/A	N/A	12/1/2014
16	Respondents NOT seeking O&M contract to extend throughout the expected useful life of the storage system should submit O&M costs using RFO forms to PowerAdvocate by 5:00pm	N/A	12/10/2014	12/10/2014
17	CLOSING DATE: Offers must be uploaded to and received by the RFO Website no later than 1:00 PM Pacific Prevailing Time on January 5, 2015.	1/5/2015 – date applies to ESSPPTA, ESSEPC and ESSBOT		
18	SDG&E Begins Bid Evaluation Process	1/6/2015 – date applies to ESSPPTA, ESSEPC and ESSBOT		
19	SHORTLIST NOTIFICATION SDG&E notifies Shortlisted Bidders	6/5/2015 – date applies to ESSPPTA, ESSEPC and ESSBOT		
20	SHORTLISTED BIDDERS ACCEPTANCE/WITHDRAWAL Letter due from Shortlisted Bidders indicating: a. Withdrawal from SDG&E's solicitation; OR b. Acceptance of shortlisted standing and including Shortlist Acceptance Fee SHORTLIST NOTIFICATION	+10 Days after Shortlist Notification Date applies to ESSPPTA, ESSEPC and ESSBOT		

21	SDG&E issues appreciation notices to unsuccessful Respondents	+3 Weeks after Shortlisted Bidders accept/withdraw Date applies to ESSPPTA, ESSEPC and ESSBOT
22	SDG&E commences with ESSPPTA, ESSBOT, and ESSEPC negotiations	+11 Days after Shortlist Notification Date applies to ESSPPTA, ESSEPC and ESSBOT
	SDG&E Submits Advice letters with ESSPPTAs or applications with ESSBOTs and ESSEPCs to CPUC for approval	Q1 2016 Date applies to ESSPPTA, ESSEPC 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
2014 Energy Efficiency RFO Schedule

NO.	ITEM	DATE
1.	RFO Issued	September 5, 2014
2.	Pre-Bid Conference / Respondent Outreach Events (Including E3 Training)	1) September 26, 2014 (all resources, in person or webinar) 2) October 24, 2014 (all resources, webinar only) 3) November 10, 2014 (EE, DR and Energy Storage, in person or webinar)
3.	DEADLINE TO REGISTER for RFO Website access / to download RFO forms and documents	December 1, 2014
4.	DEADLINE TO SUBMIT QUESTIONS Question submittal cut-off date. Answers to all questions will be posted on the website no later than December 1, 2014.	November 14, 2014
5.	CLOSING DATE: Offers must be uploaded to and received by the RFO Website no later than 1:00 PM Pacific Prevailing Time on January 5, 2015.	January 5, 2015
6.	SDG&E Begins Bid Evaluation Process	January 6, 2015
7.	Shortlist determination	May 18, 2015
8.	SHORTLIST NOTIFICATION SDG&E notifies Shortlisted Respondents	June 5, 2015
9.	SHORTLISTED RESPONDENTS ACCEPTANCE/WITHDRAWAL Letter due from Shortlisted Respondents indicating: a. Withdrawal from SDG&E's solicitation; OR b. Acceptance of shortlisted standing and including Shortlist Acceptance Fee	+10 Days after Shortlist Notification
10.	SDG&E issues appreciation notices to unsuccessful Respondents	+3 week after Shortlisted Respondents accept/withdraw
11.	SDG&E commences with Agreement negotiations*	+11 Days after Shortlist Notification
12.	SDG&E Submits Advice letters with Agreements to CPUC for approval	Q1 2016
13.	CPUC Approval	Late 2016 / 2017
14.	Program Implementation Start (pending CPUC Approval)	2017 / 2018

NO.	ITEM	DATE
	* Negotiation time will vary depending on proposal specifics including proposed contract modifications.	

iii. Description of SDG&E's 2014 All Source LCR RFO Process

One important point to note regarding the overall timing of the milestones associated with SDG&E's All Source RFO and in the summary of SDG&E's 2014 All Source solicitation process, is that SDG&E conducted a single stage RFO process, whereby the offers provided on January 5, 2015 were regarded as binding. That is, SDG&E's expectation was that the respondents would be held to the pricing and terms included in their offer provided on January 5, 2015. This is in contrast to a dual or two stage process, whereby initial offers are indicative only, and then at some later date a final or binding offer is provided. SDG&E conducted a single stage process due primarily to timing concerns (that is, a desire to reach final / executed contracts by roughly year-end 2015 in support of an application filing no later than the end of Q1, 2016). One consideration with regard to timing when the RFO was being planned was the December 1, 2015 deadline for energy storage applications imposed in the energy storage proceeding.[30]

iv. RFO Technological Neutrality

The Track IV Decision requires that SDG&E demonstrate "technological neutrality, so that no resource was arbitrarily or unfairly prevented from bidding" and "[t]o the extent that the availability, viability and effectiveness of resources higher in the Loading Order are comparable to fossil-fueled resources, SDG&E shall show that it has contracted with these preferred resources first."[31] As stated above, SDG&E included seven resource types in its All Source RFO and did not preclude any resource type from bidding nor did SDG&E find any offer nonconforming due to resource type offered. In terms of observing the loading order, Mr. Scot Rolfe's Direct Testimony provides the details regarding SDG&E's evaluation approach, but at a high level, SDG&E observed the loading order in its All Source RFO by selecting two EE offers and a DR offer for shortlisting over other offers from lower loading order resource types that were available and that were more highly ranked from a strict net market value perspective. Additionally, fossil-fueled or conventional resource need was fulfilled and the conventional resource type was no longer considered once the Commission issued the Carlsbad Conditional

[30] D.14-10-045, COLs 24 and 40, includes a deadline of December 1, 2015 for the filing of applications requesting approval of energy storage contracts entered into as a result of the 2014 energy storage solicitation. On November 2, 2015, SDG&E requested an extension to this deadline of 120 days (until March 30, 2016) via letter to the Executive Director of the CPUC, and on November 25, 2015 that extension was granted.

[31] Track IV Decision, p. 146, OP 8(e).

Approval Decision on May 21, 2015, so, from that point forward, SDG&E was only considering preferred resource offers for further evaluation and possible contracting.

v. Independent Evaluator ("IE") engagement and consultation with the CAM PRG

The CPUC requires Investor Owned Utilities ("IOUs") retain the services of an IE for solicitations that seek products two years or greater in duration or whenever an affiliate or utility bidder participates, regardless of contract duration.[32] Additionally, an IE is required when an IOU conducts a solicitation in which new generation costs are to be allocated in accordance with approved Cost Allocation Mechanism ("CAM") procedures.[33] The Track IV Decision authorizes recovering costs via the CAM[34] and products solicited via SDG&E's All Source RFO exceed two years in duration. Accordingly, SDG&E engaged P.A. Consulting ("PA") in May of 2014 to act as the IE for the All Source solicitation process. PA was (and continues to be) in SDG&E's approved IE pool, and began work on this engagement by consulting on SDG&E's All Source RFO documents and intended evaluation approach and provided feedback and guidance throughout the All Source RFO process. PA participated in SDG&E's CAM PRG meetings and provided updates to that group throughout the solicitation process regarding the All Source RFO. PA also monitored contract negotiations related to the All Source RFO and provided an IE report in accordance with Commission requirements (the IE report is being served in conjunction with the filing of this Application, as a separate exhibit along with the supporting Direct Testimony of SDG&E's witnesses).

SDG&E consulted with its CAM Procurement Review Group ("CAM PRG") throughout the All Source RFO process, as detailed in the below table (Table PKC-5):

Table PKC-5
CAM PRG Presentations Summary

CAM PRG Meeting Date	Description of Topic	Information Covered
8/15/2014	Track 4 Resource type discussion, All Source RFO Update	Resource types and potential quantities, track 4 procurement authorization summary, All Source RFO schedule
8/29/2014	Energy Storage Update	Energy Storage, Track 4 and Carlsbad proceeding discussion

[32] D.08-11-008, p. 39, OP 1(e).
[33] D.06-07-029, p. 28.
[34] Track IV Decision, p. 147, OP 13.

Table PKC-5, continued
CAM PRG Presentations Summary

CAM PRG Meeting Date	Description of Topic	Information Covered
11/21/2014	All Source RFO Update	All source RFO & Carlsbad Energy Center application, CAM treatment of all source resources discussion, track 4 procurement authorization, RFO outreach update (bidder's conferences summary), energy storage product type discussion
12/19/2014	All Source RFO Update	Timeline / schedule, conformance requirements, evaluation overview
1/16/2015	All Source RFO Update	Summary of offers received, timeline summary
2/20/2015	All Source RFO Update / Distribution Level Storage RFP	Timeline summary, offers received, conforming offers by product type / summary of conforming offers, summary of primary reasons for non-conformance, Egy Storage distribution level RFP background, energy storage targets
3/20/2015	All Source RFO Update	Timeline summary, summary of offers, overview of modeling and shortlisting approach
4/17/2015	All Source RFO Update	Timeline summary, summary of offers, evaluation process overview, evaluation progress update and early indications of results
5/15/2015	All Source RFO Update	Discussion of impact of Carlsbad Energy Center Application, Evaluation discussion, timeline summary, summary of offers, analysis overview, NMV curve, offer summary
5/27/2015	All Source RFO Update Shortlist Recommendation	Timeline summary, summary of offers, shortlist recommendation
6/19/2015	All Source RFO Update	Timeline summary, shortlist recap, negotiation status update, overview of on-going - additional preferred resource procurement opportunities
7/17/2015	All Source RFO Update	Timeline summary, shortlist recap, negotiation status update
8/21/2015	All Source RFO Update	Negotiation status update
9/18/2015	All Source RFO Update	Negotiation status update
10/16/2015	All Source RFO Update	Negotiation status update
11/20/2015	All Source RFO Update	Negotiation status update
12/18/2015	All Source RFO Update	Negotiation status update
1/15/2016	All Source RFO Update	Negotiation status update
2/19/2016	All Source RFO Update	Negotiation status update
3/18/2016	All Source RFO Update	Negotiation status update
3/25/2016	All Source RFO Update	Negotiation status update

vi. Discussion of Key Aspects of the Track IV All Source Solicitation

a. Conformance requirements

As stated above, there were four primary, overlapping conformance requirements for the All Source RFO for each of the seven 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 EE), customers enrolled must be located within SDG&E's service territory.
2) Resource Adequacy- The resource must count for local RA. In the case of Energy Efficiency, the resource must provide RA value (by lowing the load curve, less RA must be procured, and therefore EE resources provide RA value).
3) Incremental- Resources must be demonstrably incremental to the Track IV study assumptions as included in Attachment A to the May 21, 2013 'Revised Scoping Ruling and Memo of the Assigned Commissioner and Administrative Law Judge' issued in rulemaking 12-03-014.
4) Delivery Term- Some portion of the delivery term must encompass all of calendar year 2022.

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

b. 2014 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 2014 All Source RFO, issued on September 5, 2014:

1. Any ESS Facility that meets the definition included in CPUC Code 2835, with a minimum size of 500 kW (ESSPPTA minimum nameplate) or 10 MW (ESSBOT and ESSEPC minimum aggregate size) and 800 MW (ESSPPTA maximum) or 787.5 MW (ESSBOT and ESSEPC maximum) may bid into this ESS RFO.
2. ESS facility shall be located and interconnected within the San Diego local sub-area, as defined by the CAISO.
3. The resource must meet all applicable RA counting rules.
4. SDG&E prefers start dates as early as 2017 but will consider later start dates. Some portion of the project's term must include the entire calendar year of 2022.
5. ESS facility must be incremental to the assumptions used in the CAISO studies associated with the 2012 LTPP proceeding that served as a basis for SDG&E's 500 MW – 800 MW authorized need.

6. 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. For Respondents pursuing an ESSPPTA or ESSBOT, evidence of an existing interconnection agreement, study, application or explanation of interconnection status must be included in the offer, along with relevant cost estimates.
7. Respondents pursuing an ESSPPTA or ESSBOT must demonstrate how their project will meet the requirements of the current RA counting rules.
8. Respondents pursuing an ESSPPTA or ESSBOT must assume all costs associated with energy deliveries to SDG&E.
9. ESSPPTA or ESSBOT offers must include evidence that necessary permits have either been received or are in progress and that the facility can operate under those permits and conditions for the entirety of the proposed contract term.
10. Respondents pursuing an ESSPPTA or ESSBOT must have, at time of bidding, site control 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.
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, 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 requirements and minimum performance specifications must be met by the ESS equipment being offered:
    a. In aggregate, the energy storage facilities must total between 10 MW and 787.5 MW. This total may be delivered over time, but SDG&E will give preference to offers with deliveries beginning prior to July 1, 2017 and the entire capacity shall be delivered and in commission no later than December 31, 2024.
    b. Respondents shall state their preferred warranty period and nature of the warranty. Additionally, a warranty period of ten (10) years or useful life period, whatever is shorter, shall be included in at least one offer. If the expected useful life of the equipment exceeds ten years, additional warranty periods priced out to the end of the expected useful life shall be included.
    c. ESSEPC Respondents shall price in installation and associated services necessary to bring the ESS through commissioning. ESSEPC Respondents should include installation and any associated services, but NOT including site costs, permitting costs or interconnection costs. ESSEPC Respondents shall be responsible for and price in all building permit costs including stormwater permitting. SDG&E shall only be responsible for environmental permitting associated with environmental impact analysis. ESSEPC will be responsible for design and construction to the high side of the step up transformer and requisite CAISO communications and should price this information into their offer.
    d. Respondents shall price in Operations and Maintenance ("O&M") services that include O&M services through the end of the expected useful life of the equipment.
    e. The Respondent shall state exactly what equipment is included in the offer. For example, ESS modules, control systems, inverters (as applicable), etc.
    f. 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 have charging duration requirements for the ESS. In terms of discharging duration, ESS should comply with the requirements for qualification as local RA.
14. The Respondent must state any affiliate relationship with Sempra Energy, if one exists.

c. 2014 Energy Efficiency RFO Conformance Requirements

The following were the conformance requirements associated with the Energy Efficiency product type from SDG&E's 2014 All Source RFO issued on September 5, 2014:

1. Customers to be enrolled in the EE programs and/or who will provide proposed EE resource(s) must be located within SDG&E's service territory.
2. Some portion of the program's term must include the entire calendar year of 2022.
3. Minimum resource capacity of 0.5 MW delivered by the program for the Delivery Period.
4. The EE resource must meet the requirements of the current RA counting rules
5. The EE resource must be demonstrably incremental to the assumptions used in the California ISO studies. Sellers are required to explain and/or show how their proposed EE resource is incremental. Sellers are encouraged to reference 1) SDG&E's current 2012-2014 EE program portfolio (2) SDG&E's proposed 2015-2016 EE program portfolio[35]; and / or (3) 2013 Integrated Energy Policy Report ("IEPR") EE forecast. Incremental resources that are similar to existing EE resources must demonstrate, to SDG&E's satisfaction that the resource is "incremental" and provide creative products that are not part of existing or planned programs.
6. The Respondent must state any affiliate relationship with Sempra Energy, if one exists.

vii. Discussion of the major steps of the solicitation

a. RFO Issuance / RFO Updates

SDG&E issued its 2014 All Source RFO consisting of seven product types on September 5, 2014 and between that issuance date and the date upon which offers were due, several updates were issued for each of the product type RFO documents, as summarized in the below table (table PKC-6).

[35] *See, SDG&E 2015 Energy Efficiency Program Portfolio Changes Pursuant to the Assigned Commissioner's Ruling and Scoping Memorandum Regarding 2015 Portfolios (Phase 1 of Rulemaking 13-11-005),* http://www.sdge.com/regulatory-filing/10501/2015-energy-efficiency-program-portfolio-changes-phase1-rulemaking-13-11-005.

Table PKC-6
2014 All Source RFO – RFO Document Revisions Summary

RFO (Product Type)	Updates / Date Published	Brief Description of Update
Energy Efficiency	1 - 9/17/2014 2 - 10/7/2014 3 - 10/21/2014 4 - 12/18/2014	1 - Correction to footnotes to reference EE related materials 2 - Update language related to the limit on the number of bids 3 - Added language related to credit, quantitative evaluation and offer forms 4 - Deleted participation criteria related to a minimum TRC
Demand Response	1 - 10/7/2014 2 - 10/21/2014 3 - 11/21/2014 4 - 12/4/2014 5 - 12/18/2014 6 - 12/22/2014	1 - Update language related to the limit on the number of bids 2 - Added language related to credit, quantitative evaluation and offer forms 3 - Updated resource criteria to deem ineligible programs that result in cost shifting, clarified that certain thermal energy storage would be considered 4 - Updated 'proposed' to 'approved', added a resource criterian that dispatchability be required, updated 2 footnotes 5 - Deleted participation criteria related to a minimum TRC, deleted resource criterion related to cost shift 6 - Deleted language requiring a red line of the pro forma be provided (pro forma was not provided)
Renewables	1 - 10/7/2014 2 - 10/21/2014 3 - 11/7/2014	1 - Update language related to the limit on the number of bids 2 - Added language related to credit, quantitative evaluation and offer forms 3 - Added 'application deemed complete' associated with CEQA / NEPA
CHP	1 - 10/7/2014 2 - 10/21/2014	1 - Update language related to the limit on the number of bids 2 - Added language related to credit, quantitative evaluation and offer forms
Energy Storage	1 - 10/1/2014 2 - 10/2/2014 3 - 10/7/2014 4 - 10/14/2014 5 - 10/21/2014 6 - 11/7/2014	1 - Update language related to the limit on the number of bids 2 - Updated Schedule 3 - Updated procurement process info for ESSBOT and ESSEPC, clarified ESSEPC responsibilities 4 - Updated schedule and Power Advocate ® information for ESSBOT and ESSEPC 5 - Added language related to credit, quantitative evaluation and offer forms 6 - Clarified participation criteria language for ESSBOT and ESSEPC, inserted footnote
Distributed Generation	1 - 10/7/2014 2 - 10/21/2014	1 - Update language related to the limit on the number of bids / Power Advocate ® registration link 2 - Added language related to credit, quantitative evaluation and offer forms
Conventional	1 - 10/7/2014 2 - 10/21/2014	2 - Update language related to the limit on the number of bids 2 - Added language related to credit, quantitative evaluation and offer forms

b. RFO website / Power Advocate

SDG&E utilizes its web page (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 and information on open and closed solicitations dating back to 2012. SDG&E's 2014 All Source RFO is no exception, and the web page related to that RFO can be found here:

http://www.sdge.com/all-source-2014-rfo. As is SDG&E's standard practice, the webpage contains background and overview information related to the solicitation, including schedule, links to the RFO document, offer forms, project description forms and other required materials that must be submitted in order for an offer to be considered, as well as information related to the bidder's conference (including presentations given at the conference), questions and answers and information about how to contact SDG&E with questions about the solicitation or process.

The Power Advocate ® platform is a web based tool through which SDG&E formally accepts offers into its various solicitations. This platform allows tracking of when offer documents and files are uploaded / received (and provides a robust platform for receipt of large files at the same time or close to the same time), prevents late submissions (at the closing date and time, offers are no longer accepted) and provides another means of gathering offeror contact information. Additionally, this platform allows the independent evaluator to access the offer files. This tool was utilized as the primary method for accepting offers related to SDG&E's 2014 All Source RFO.

c. 2014 All Source RFO Outreach Efforts and Results

The outreach effort associated with SDG&E's 2014 All Source RFO began with the formal launch of the RFO on September 5, 2014 via an e-mail to more than 7,500 e-mail addresses that SDG&E's Electric & Fuel Procurement and Customer Programs groups have assembled over the past few years. In the following days various on-line trade publications ran stories summarizing the solicitation.[36]

Following the launch of the RFO on September 5, 2014, SDG&E conducted three bidder's outreach events on September 26, October 24 and November 10, 2014. The first event on September 26 was both an in-person and webinar event and covered all aspects of the RFO, as well as a specific break-out session on the E3 calculator file utilized in the EE and DR product types. Approximately 75 individuals representing approximately 60 organizations attended in-person and approximately 85 phone lines joined the webinar. The presentation from this bidder's conference is available on SDG&E's webpage.[37] The second bidder's conference was conducted on October 24, 2015 and was a conference call / webinar only and utilized the same

[36] *See, e.g.*, "SDG&E to Procure More Local Energy Resources for Long-Term Regional Reliability", Energy Storage News, http://www.energystoragenews.org/articles/2847653/sdg-e-to-procure-more-local-energy-resources-for-l/ (September 8, 2014).

[37] September 26, 2014 All-Source Pre-Bid Conference Presentation, http://www.sdge.com/sites/default/files/documents/1049430630/All-Source-Pre-Bid-Conference-Presentation-9-29.pptx?nid=12356.

presentation as the September 26 event.[38] Approximately 100 phone lines joined the webinar. The third bidder's conference was conducted on November 10, 2014 and was both an in-person and webinar event and focused on the EE, DR and Energy Storage product types. Approximately 50 individuals representing approximately 40 organizations attended in-person and approximately 45 phone lines joined the webinar. A focused presentation on EE, DR and Energy Storage was utilized at this event.[39]

This overall outreach event resulted in a robust response to SDG&E's 2014 All Source solicitation with approximately 300 total offers received on the closing date (January 5, 2015) of which approximately two thirds were conforming.

d. Question and Answer Process and Results

Following issuance of SDG&E's 2014 All Source RFO on September 5, 2014, SDG&E made available a dedicated e-mail address / account for the solicitation (AllSourceRFO@SempraUtilities.com) monitored by approximately five individuals for the purpose of communicating with potential respondents as well as a means to receive and respond to questions. As these questions were received, "Question and Answer" documents were compiled and posted on the various All Source RFO web pages so that all potential respondents would have access to the same information at the same time via the website.[40] 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 seven product types included in the solicitation (EE, DR, Renewables, CHP, Energy Storage, Distributed Generation and Conventional. In total, eleven (11) question and answer categories were utilized. Questions asked and answered during the bidder's outreach events were also recorded, categorized, answered 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

[38] October 24, 2014 All Source Pre-Bid Conference Presentation, http://www.sdge.com/sites/default/files/documents/1743565615/All%20-Source%20Pre-Bid%20Conference%20Presentation-10-24-2014.pdf?nid=12591.

[39] November 10, 2014 All Source Bidder's Conference Presentation , http://www.sdge.com/sites/default/files/documents/817616969/All-Source-RFO-EE-DR-ONLY-Bidders-Conference-Presentation-11-10-2014.pdf?nid=12841.

[40] "RFO Questions and Answers / Frequently Asked Questions", 2014 All Source RFO, http://www.sdge.com/all-source-2014-rfo. Product type questions are on each of the product type specific web pages. *See, e.g.*, "EE Questions and Answers", RFO Communication, SDG&E 2014 All-Source Request for Offers Seeking Energy Efficiency (EE) Power Purchase Program Agreements, http://www.sdge.com/sdge-2014-request-offers-seeking-ee-power-purchase-agreements.

were posted by December 1, 2014, well ahead of the offer due date of January 5, 2015. In total, SDG&E received and answered 391 questions via this approach.[41]

e. Conformance Checks

Following receipt of the offers on January 5, 2015 the initial step in the evaluation was to check the offers for conformance with the participation and resource criteria. SDG&E and the Independent Evaluator 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 two thirds of the offers received were deemed conforming and were passed through to the next step in the evaluation process – quantitative and qualitative evaluations.

f. Quantitative and Qualitative Evaluation / Shortlist Determination and Notification

Please see the Direct Testimony of Mr. Rolfe for an in-depth discussion of the evaluation methodology and results for SDG&E's 2014 All Source RFO. Upon completion of the shortlisting discussions held by SDG&E and after consultations with the IE, SDG&E arrived at a shortlist recommendation that was made at a specially convened CAM PRG meeting on May 27, 2015. Once the input and discussions with the CAM PRG was taken into consideration and management was consulted and approved of the shortlist recommendation, SDG&E considered the shortlist final. On June 5, 2015, each of the shortlisted respondents were notified via e-mail and hard copy letter. These shortlisted respondents were then given ten days to remit a Shortlist Acceptance Fee, with the exception of one shortlisted respondent in the DR product type. This exception case was due to the fact that a DR pro forma agreement had not been provided to the respondent and SDG&E decided that the shortlisted DR respondent would be allowed ten days from the date upon which they received the pro forma to remit a Shortlist Acceptance Fee. All shortlisted respondents from whom SDG&E requested a Shortlist Acceptance Fee provided it within the ten day window.

g. 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

[41] These questions comprised 66 general questions, 21 evaluation related questions, 22 interconnection related questions, 16 credit related questions, 47 EE questions, 71 DR questions, 5 renewables questions, 12 CHP questions, 119 energy storage related questions, 7 conventional questions and 5 distributed generation related questions.

e-mail to respondents who provided offers in response to the All Source RFO, but who were not shortlisted. The appreciation notice e-mail was sent to these respondents on July 6, 2015.

h. Contract Negotiations

Contract negotiations began after the shortlisted Respondents acceptance their shortlisted position (by remitting the Shortlist Acceptance Fee) and continued until agreements were reached. In the case of the Energy Storage, EE and DR offer that was shortlisted but for which contracts were not signed, negotiations ended after the parties were unable to reach terms (in the case of the Energy Storage and EE offer) or it became clear that the respondent was not willing to adhere to the pricing included in their shortlisted offer (in the case of the DR offer).

IV. SAFETY CONSIDERATIONS

The Direct Testimony of Mr. Rolfe describes SDG&E's evaluation process – both from a quantitative and qualitative standpoint. Among other things, Mr. Rolfe describes SDG&E's safety considerations during the evaluation. The Direct Testimony of Mr. Katsufrakis describes the energy efficiency agreement entered into by SDG&E as a result of the 2014 All Source RFO, and in his testimony also discussed the safety considerations of that contract. I will briefly describe the safety considerations of the energy storage contract for which SDG&E is requesting approval.

In the energy storage agreement SDG&E entered into with Hecate Energy Bancroft LLC there are various safety-related provisions, but in summary, the facility must be operated and maintained in accordance with all applicable laws, industry standards and accepted electrical practices, including those related to safety. This means the plant must be operated in a way that is 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 CONTRACT

A. Overview

SDG&E experienced challenges in developing a robust energy storage contract vehicle. Primary challenges included reaching agreement with the counterparties regarding inclusion of an effective project description (due to the pace of technological advancement of these

resources), development of effective performance guarantees, and development of testing protocols. Meeting these challenges through the development of mutually acceptable language was a lengthy process, but reached its conclusion with execution on March 23.

SDG&E executed one energy storage agreement as a result of the 2014 All Source RFO with Hecate Energy Bancroft LLC.

B. Hecate Energy Storage, LLC

SDG&E's contract with Hecate Energy Bancroft LLC was executed on March 23, 2016. It is an energy storage power purchase tolling agreement whereby SDG&E will be responsible for (pay for and schedule) charging energy and will also act as the scheduling coordinator for this 20 MW / 80 MWh resource that will be located in Spring Valley, CA and interconnect to the transmission grid at SDG&E's Spring Valley substation. [redacted] This agreement includes a 20 year delivery term that will commence upon full commissioning of this green field developed resource, and the start date is no later than January 1, 2019, as may be extended in accordance with the terms of the agreement. This energy storage resource will be a lithium ion battery [redacted]

C. The Terms and Conditions of this Agreement are Reasonable and a Good Value

[redacted] The resource will provide local, system, and

flexible RA and ancillary services, such as spin, non-spin, regulation up and regulation down. [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 these resources competed successfully, as detailed in the Direct Testimony of Mr. Rolfe. The confidential version of the report of the IE also addresses the reasonableness of the terms and conditions of the 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 H.

VI. STATEMENT OF QUALIFICATIONS

My name is Patrick K. Charles and I am the Origination Analytics Manager for SDG&E's Origination and Portfolio Design group in the Electric and Fuel Procurement ("E&FP") department. My business address is 8315 Century Park Court, San Diego, California 92123. I have worked in the energy industry for SDG&E for approximately 16 years.

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

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

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

I have previously provided testimony to the Commission.

This concludes my prepared direct testimony.

Attachment A

2014 All Source RFO:

Energy Storage Product Type RFO Document

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

SDG&E'S ENERGY STORAGE SYSTEM ("ESS")

2014

LOCAL CAPACITY REQUIREMENT

REQUEST FOR OFFERS ("RFO")

Seeking

ENERGY STORAGE SYSTEM

POWER PURCHASE TOLLING AGREEMENTS

ENERGY STORAGE SYSTEM TURN-KEY

BUILD, OWN, TRANSFER AGREEMENTS

ENERGY STORAGE SYSTEM TURN-KEY

ENGINEERING, PROCUREMENT & CONSTRUCTION

AGREEEMNTS

VERSION 6 – UPDATED 11/7/2014

ISSUED
SEPTEMBER 5, 2014

OFFERS DUE
JANUARY 5, 2015

RFO WEBSITE
http://www.sdge.com/AllSourceRFO2014

EMAIL QUESTIONS/COMMENTS TO
AllSourceRFO@semprautilities.com

RECORD OF CHANGES

Date	Description of Change	Section / Page of Document
10/1/14	Updated language regarding the limit on the number of bids that may be submitted.	8.0, p. 22
10/2/14	Updated schedule.	6.0, p. 17 – 18.
10/7/14	Updated procurement process information for ESSEPC and ESSBOT respondents.	2.0, p. 8
10/7/14	Clarified ESSEPC respondents responsibilities	3.A.13.c., p. 10 – 11
10/14/14	Updated schedule and PowerAdvocate registration information for ESSEPC and ESSBOT	6.0, p. 17 – 18. 7.0, p. 21
10/21/2014	- Added language to the 'Credit Terms and Conditions' section to clarify that credit costs should not be included in the offer price. - Added language to the 'Quantitative Evaluation' section to explain how credit costs will be evaluated. - Added a sentence within the 'Offer Form' section to highlight that a separate credit cost offer form is required	3.C., p. 11 5.0, p. 14 8.0, p. 22
11/7/2014	- Clarified the language within the Participation Criteria section regarding ESSBOT and ESSEPC facilities and SDG&E taking ownership. - Inserted a footnote to recognize the application filing timing requirements included D.14-10-045	3.A.12, p. 10 6.0, p. 18

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1.0 BACKGROUND

In accordance with Decision (D.) 13-10-040 – Decision Adopting Energy Storage Procurement Framework and Design Program (the "Energy Storage Decision") approved on October 17, 2013 and D. 14-03-004 – 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[1], San Diego Gas and Electric ("SDG&E") is issuing its 2014 Energy Storage System "ESS") Request for Offers ("RFO") to solicit offers from owners and operators of ES facilities, ES developers and ES developers / equipment suppliers.

SDG&E is issuing this 2014 ES RFO to achieve its megawatt ("MW") targets established in the Energy Storage Decision and to help meet its Local Capacity Requirements ("LCR") established in the Track 4 Decision (specifically, the Track 4 Decision calls for a minimum of 25 MW of energy storage and allows for a maximum of up to 800 MW of ESS to be procured). 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 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.

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 at least 165 MW of qualifying Energy Storage through four bi-annual solicitations, of which, this is the first. At the same time, as authorized in the Track 4 Decision, SDG&E is seeking up to 800 MW of preferred resources[2], at least 25 MW of which will come from Energy Storage[3]. Through this solicitation, the first of four bi-annual RFOs to be held seeking Energy Storage Systems, SDG&E seeks offers to meet an ESS MW target of at least 25 MW, and up to 800 MW, in order to make progress toward its overall Energy Storage System goal of 165 MW and to meet its LCR preferred resources goal of

[1] 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/sdge%E2%80%99s-energy-storage-procurement-application

[2] Preferred Resources are defined in the Energy Action Plan – as updated in the Energy Action Plan II and 2008 update to the Energy Action Plan II in the loading order as follows: "The loading order identifies energy efficiency and demand response as the State's preferred means of meeting growing energy needs. After cost-effective efficiency and demand response, we rely on renewable sources of power and distributed generation, such as combined heat and power applications. To the extent efficiency, demand response, renewable resources, and distributed generation are unable to satisfy increasing energy and capacity needs, we support clean and efficient fossil-fired generation." – See the Energy Action Plan II, p.2 at: http://www.energy.ca.gov/energy_action_plan/2005-09-21_EAP2_FINAL.PDF

[3] See Ordering Paragraph (OP) 2 of the Track 4 Decision (at p. 143). The Track 4 Decision is available at: http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M089/K008/89008104.PDF

between 200 MW and 800 MW, of which at least 25 MW will come from Energy Storage Systems. SDG&E will consider ESS offers ranging from 500 kW to 800 MW[4]. To summarize, this RFO is intended to meet both the Track 4 Decision requirement and the Energy Storage Decision requirement.

SDG&E has separately filed an application for Commission approval of a 600 MW bilateral contract with a Conventional resource, the Carlsbad Energy Center (A.14-07-009). If approved, 600 MW of SDG&E's need will be filled by this contract and SDG&E will be authorized to procure only 200 MW of preferred resources, including at least 25 MW of energy storage. In this event, bidders shall be notified that 600 MW of the need eligible under this RFO has been filled. SDG&E encourages respondents to take this possibility into account and submit offers with both levels of need in mind (maximum of 800 MW if this application is not approved or 200 MW if approved).

This solicitation sets forth the terms and conditions of SDG&E's first 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.

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

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 should refer to the demand response RFO also issued by SDG&E in response to the Track 4 Decision.

Table 1 – ES Requirements Summary for Transmission and Distribution Domains

Contract Term	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
Contract / Agreement Type	ESSPPTA, ESSBOT or ESSEPC
Nameplate / Offer size	ESSPPTA: 500 kW[5] – 800 MW ESSBOT or ESSEPC: 10 MW – 787.5 MW
Interconnection / Delivery Point	Within the San Diego Local Subarea – as defined by the CAISO[6]
Resource Adequacy (RA)	Must be eligible to contribute to SDG&E's local RA requirements
Technology	Any type of energy storage that meets the definition

[4] For the utility owned offers (ESSBOT and ESSEPC SDG&E will accept offers between 10 MW and 787.5 MW.
[5] Note that SDG&E will consider the administrative burden/feasibility of negotiating a high volume of agreements when selecting its shortlist.

[6] See the CAISO "Local Capacity Technical Analysis" –for 2015 available at: 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.

Type	included in PU Code 2835
Cycles	ESPPTA, ESSBOT or ESSEPC: Although SDG&E will not require a minimun for annual cycles, SDG&E will give priority to systems with a minimum of 50 cycles per year
Charging/ Discharging Durations	ESPPTA, ESSBOT or ESSEPC: No charging duration requirements ESPPTA, ESSBOT or ESSEPC: Discharging duration requirements should be based on qualification for local RA requirements
System Efficiency	ESPPTA, ESSBOT or ESSEPC: No minimum system efficiency requirements
Warranty/ Guarantee	ESPPTA: SDG&E does not require a capacity guarantee. ESSBOT or ESSEPC: SDG&E requires a warranty/guarantee of minimun 10 years or useful life of the asset

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 January 5, 2015.

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[7], further ESSPPTA, ESSBOT or ESSEPC 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 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.

[7] See section 3.D.i. of this RFO for further details

2.0 PROCUREMENT PROCESS

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. 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 800 MW associated with third party owned ESSPPTA offers, 787.5 MW for utility owned ESSBOT or ESSEPC offers of ESS via this RFO if evaluated as more attractive than other resources that SDG&E is soliciting[8].

SDG&E is mindful of the impact that interconnection costs can have on successful project development and is also aware that, given the state of the ESS market in California, few projects will have been able to move through the interconnection study process. Therefore, for ESSPPTA or ESSBOT offers SDG&E will consider projects that do not have a completed Phase I study, but it will require that developers indicate the status of where their project stands in the interconnection study process and to include an estimate of reimbursable system upgrade costs in their bid. Gentie costs, those that benefit the project alone and are not reimbursable, should be included in the contract pricing. Any ESSPPTA or ESSBOT offer with completed interconnection studies shall include copies of those studies and estimates of such costs and will be given preference. Interconnection cost estimates provided will be reviewed for reasonableness and utilized in SDG&E's least-cost/best-fit evaluation of offers submitted in response to this RFO. For offers associated with an ESSEPC, SDG&E will manage the interconnection study process and Respondents need not include interconnection study information.

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 (i.e. the project must have been assessed for deliverability, or the Respondent will request a deliverability assessment through the next available CAISO cluster window). 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.

[8] Resources sought by SDG&E in accordance with the Track 4 Decision and its Preferred Resources Procurement Plan include Demand Response, Energy Efficiency, Renewables, Combined Heat & Power, Distributed Generation and conventional resources.

In this RFO, SDG&E requires that ESSPPTA and ESSBOT 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. ESSPPTA or ESSBOT Respondents with winning bids for FCDS projects must demonstrate that: (1) the project has been assessed for deliverability; or (2) the Respondent will request a deliverability assessment through the next available CAISO cluster window. 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)).

For ESSEPC Respondents: SDG&E requires that a formal expression of interest be provided to SDG&E no later than 5pm, on October 1, 2014. This expression of interest shall be in written form (an e-mail to AllSourceRFO@semprautilities.com or other written correspondence) 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). 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, October 17, 2014. This expression of interest shall be in written form (an e-mail to AllSourceRFO@semprautilities.com or other written correspondence). 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.

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

3.0 ELIGIBILITY REQUIREMENTS

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. Any ESS Facility that meets the definition included in CPUC Code 2835.[9] with a minimum size of 500 kW (ESSPPTA minimum nameplate) or 10 MW (ESSBOT and ESSEPC minium aggregate size) and 800 MW (ESSPPTA maximum) or 787.5 MW (ESSBOT and ESSEPC maximum) may bid into this ESS RFO.
2. ESS facility shall be located and interconnected within the San Diego local sub-area, as defined by the CAISO[10].
3. The resource must meet all applicable RA counting rules.

   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 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 - AllSourceRFO@semprautilities.com) and the IE (jon.jacobs@paconsulting.com and Barbara.Sands@PAConsulting).

4. SDG&E prefers start dates as early as 2017 but will consider later start dates. Some portion of the project's term must include the entire calendar year of 2022.
5. ESS facility must be incremental to the assumptions used in the CAISO studies[11] associated with the 2012 long term procurement plan proceeding that served as a basis for SDG&E's 500 MW – 800 MW authorized need.
6. 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. For Respondents pursuing an ESSPPTA or ESSBOT, evidence of an existing interconnection agreement, study, application or explanation of

[9] 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."

[10] See the CAISO "Local Capacity Technical Analysis" –for 2015 available at: 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.

[11] See ordering paragraph 6 of the Track 4 Decision.

interconnection status must be included in the offer, along with relevant cost estimates.

7. Respondents pursuing an ESSPPTA or ESSBOT must demonstrate how their project it will meet the requirements of the current RA counting rules[12].
8. Respondents pursuing an ESSPPTA or ESSBOT must assume all costs associated with energy deliveries to SDG&E.
9. ESSPPTA or ESSBOT offers must include evidence that necessary permits have either been received or are in progress and that the facility can operate under those permits and conditions for the entirety of the proposed contract term.
10. Respondents pursuing an ESSPPTA or ESSBOT must have, at time of bidding, site control 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.
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, 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 requirements and minimum performance specifications must be met by the ESS equipment being offered:
    a. In aggregate, the energy storage facilities must total between 10 MW and 787.5 MW. This total may be delivered over time, but SDG&E will give preference to offers with deliveries beginning prior to July 1, 2017 and the entire capacity shall be delivered and in commission no later than December 31, 2024.
    b. Respondents shall state their preferred warranty period and nature of the warranty. Additionally, a warranty period of ten (10) years or useful life period, whatever is shorter, shall be included in at least one offer. If the

[12] 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.

expected useful life of the equipment exceeds ten years, additional warranty periods priced out to the end of the expected useful life shall be included.

c. ESSEPC Respondents shall price in installation and associated services necessary to bring the ESS through commissioning. ESSEPC Respondents should include installation and any associated services, but NOT including site costs, permitting costs or interconnection costs. ESSEPC shall be responsible for and price in all building permit costs including stormwater permitting. SDG&E shall only be responsible for environmental permitting associated with environmental impact analysis. ESSEPC will be responsible for design and construction to the high side of the step up transformer and requisite CAISO communications and should price this information into their offer.
d. Respondents shall price in Operations and Maintenance ("O&M") services that include O&M services through the end of the expected useful life of the equipment.
e. The Respondent shall state exactly what equipment is included in the offer. For example, ESS modules, control systems, inverters (as applicable), etc.
f. High level ESS performance requirements / specifications:
    i. SDG&E will not require a minimun 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 have charging duration requirements for the ESS. In terms of discharging duration, ESS should comply with the requirements for qualification as local RA.

14. The Respondent must state any affiliate relationship with Sempra Energy, if one exists.

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.

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 via a separate offer form. These costs will be considered as discussed in the quantitative evaluation section within this document).

I. 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) 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 as the primary beneficiary of a variable interest entity. If SDG&E determines at any time during the term of the agreement that consolidation is required, SDG&E shall require the following during every calendar quarter for the term of any resultant agreement:

a) Complete unaudited financial statements and notes to financial statements, within 15 days of the end of each quarter;
b) Financial schedules underlying the financial statements, within 15 days of the end of each quarter;
c) 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 so that SDG&E can meet its SEC filing requirements;
d) Certifications by duly authorized representatives as may be reasonably requested by SDG&E; and
e) Such other information as reasonably requested by SDG&E.
f) 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 days;
g) Seller to provide to buyer any SEC Form 8K disclosures, two days after the occurrence of the SEC Form 8K event; and
h) Seller to notify buyer at any time during the term of the agreement of any consulting (non-independent) services provided or 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.

4.0 FACILITY INTERCONNECTION – ESSPPTA AND ESSBOT OFFERS ONLY

SDG&E will give preference to ESSPPTA Respondents with projects that have completed a System Impact Study, a Phase I interconnection study, or have passed the Wholesale Distribution Access Tariff ("WDAT") or California Independent System Operator ("CAISO") Fast Track screen and who provide a copy of the most recent completed study or evidence of having passed the Fast Track screening process with their offer. SDG&E will consider ESSPPTA projects that have not completed these studies less viable. 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 for additional information. Respondents pursuing an ESSPPTA are responsible for all non-reimbursable interconnection costs that are allocated to the project and these costs should be incorporated into the ESSPPTA 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 must apply for a deliverability study to be conducted by the CAISO. ESSPPTA Respondents must demonstrate that: (1) the project has been assessed for deliverability, (2) an assessment is underway, or (3) the Respondent will request a deliverability assessment through the next available CAISO cluster window. This condition must be met for ESSPPTA offers that will interconnect at either the distribution or transmission level. For offers that result in an executed and approved ESPPTA, 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)).

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**

SDG&E Contact:

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

5.0 EVALUATION CRITERIA

All incoming offers will be assessed for conformance. Respondents should 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, energy storage, CHP, and conventional. 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 offers, SDG&E 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).

This ranking process may not produce enough capacity from positive NMV offers to reach the 25 MW threshold for storage offers and minimum 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 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 prefers Phase 1 or Phase 2 (or distribution upgrade) study results as the basis for including appropriate interconnection cost estimates in its evaluation. To the degree such study results are not available, SDG&E will accept bidder / developer estimates of such costs. If bidder / developer cost estimates are provided for Network Upgrade Costs (in the absence of a Phase 1 or Phase 2 or distribution upgrade study), such costs will be included in the Agreement as a cost cap, with either a walk away provision for SDG&E if exceeded or a provision that costs exceeding the cap will be borne by the developer (if allowed).

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 or evaluate tie-breakers, if any. 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 encourages Diverse Business Enterprises ("DBEs"), "Women-Owned Businesses" or "Minority-Owned Businesses" or "Disabled Veteran Business Enterprises" as defined in G.O. 156[13], to participate in this RFO. Furthermore, SDG&E 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.sempra.com/about/supplier-diversity/
http://www.cpuc.ca.gov/puc/supplierdiversity/

Like other qualitative factors, in the event of a tie between two offers, SDG&E will consider a Respondents status as a DBE and or a Respondent's plan to utilize the services of DBEs during project development. 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.

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.

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.

[13] See http://www.thesupplierclearinghouse.com/eligibility/default.asp for the definition of a DBE.

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.

		Date		
NO.	**ITEM**	**ESSPPTA**	**ESSBOT**	**ESSEPC**
1	RFO Issued	9/5/2014		
2	Pre-Bid Conference / Bidder Outreach Events	1) September 26, 2014 (All resource types) 2) October 24, 2014 (All resource types - conference call / webinar only) 3) November 10, 2014 (EE, DR and Energy Storage only)		
3	DEADLINE for Respondents to provide a written expression of interest to SDG&E (e-mail to AllSourceRFO@semprautilities.com or other written correspondence) containing company name and contact information by 5:00PM	N/A	10/17/2014	10/1/2014
4	Nondisclosure Agreements (NDAs) sent out to Respondents expressing interest.	N/A	N/A	10/1/2014
5	SDG&E provides Independent Evaluator (IE) with commercial viability metrics	N/A	10/2/2014	10/2/2014
6	SDG&E sends out request for commercial viability details	N/A	10/20/2014	10/10/2014
7	DEADLINE to receive Executed NDA. This information should be e-mailed to AllSourceRFO@semprautilities.com by 5:00pm to receive PowerAdvocate registration details required for Commercial Viability Details submission.	N/A	N/A	10/17/2014
8	DEADLINE for Respondents to submit Commercial Viability Details including: 1) Proposed technology, 2) Summary of existing installation capacity, location, and in-service during and other information requested to support commercial viability, and 3) 10MW, 4 hour energy density information (footprint, weight, height, clearances, efficiency rating). This information should be submitted to PowerAdvocate by 5:00pm	N/A	N/A	10/20/2014
9	DEADLINE for Respondents to submit proposed technology and other information requested to support commercial viability. This information should be submitted to PowerAdvocate by 5:00pm	N/A	10/31/2014	N/A
10	SDG&E sends out information on utility owned land including buildable area, environmental limitations (if any), interconnection capacity limitations (if known), expected permitting complexity.	N/A	N/A	10/31/2014

11	SDG&E notifies Respondents of technology acceptance and sends out technical specifications, minimum credit requirements, and Power Advocate registration details	N/A	11/7/2014	10/28/2014
12	DEADLINE TO SUBMIT QUESTIONSQuestion submittal cut-off date. Answers to all questions will be posted on the website no later than December 1, 2014.	11/14/2014 – date applies to ESSPPTA, ESSEPC and ESSBOT		
13	DEADLINE TO REGISTER for PowerAdvocate access / to download RFO forms and documents	12/1/2014	11/14/2014	11/4/2014
14	DEADLINE for Respondents to identify proposed projects by location / property to allow SDG&E to estimate interconnection and permitting cost. This information should be submitted to PowerAdvocate by 5:00pm	N/A	N/A	11/14/2014
15	Respondents provide conceptual design information to SDG&E. This information should be submitted to PowerAdvocate by 5:00pm	N/A	N/A	12/1/2014
16	Respondents NOT seeking O&M contract to extend throughout the expected useful life of the storage system should submit O&M costs using RFO forms to PowerAdvocate by 5:00pm	N/A	12/10/2014	12/10/2014
17	CLOSING DATE: Offers must be uploaded to and received by the RFO Website no later than 1:00 PM Pacific Prevailing Time on January 5, 2015.	1/5/2015 – date applies to ESSPPTA, ESSEPC and ESSBOT		
18	SDG&E Begins Bid Evaluation Process	1/6/2015 – date applies to ESSPPTA, ESSEPC and ESSBOT		
19	SHORTLIST NOTIFICATION SDG&E notifies Shortlisted Bidders	6/5/2015 – date applies to ESSPPTA, ESSEPC and ESSBOT		
20	SHORTLISTED BIDDERS ACCEPTANCE/WITHDRAWAL Letter due from Shortlisted Bidders indicating: a. Withdrawal from SDG&E's solicitation; OR b. Acceptance of shortlisted standing and including Shortlist Acceptance Fee SHORTLIST NOTIFICATION	+10 Days after Shortlist Notification Date applies to ESSPPTA, ESSEPC and ESSBOT		
21	SDG&E issues appreciation notices to unsuccessful Respondents	+3 Weeks after Shortlisted Bidders accept/withdraw Date applies to ESSPPTA, ESSEPC and ESSBOT		
22	SDG&E commences with ESSPPTA, ESSBOT, and ESSEPC negotiations	+11 Days after Shortlist Notification Date applies to ESSPPTA, ESSEPC and ESSBOT		
23	SDG&E Submits Advice letters with ESSPPTAs or applications with ESSBOTs and ESSEPCs to CPUC for approval [14]	Q1 2016 Date applies to ESSPPTA, ESSEPC 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				

[14] 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 (due date for SDG&E is September 5, 2015). This decision also acknowledges SDG&E's proposed timing as shown in these solicitation materials. When appropriate, SDG&E will request an extension of this deadline.

PRE-BID CONFERENCE / BIDDER OUTREACH EVENTS

SDG&E will host three bidder outreach events. The first event is scheduled for September 26, 2014 which will be an in-person event for all resource types (with dial-in / webinar available for those that cannot attend in-person). The second event will be a conference call / webinar only geared towards all resource types and is scheduled for October 24, 2014. The third event will focus primarily on the demand response, energy efficiency and energy storage product types, will be in-person (conference call / webinar available) and is scheduled for November 10, 2014. Participation in these eventsis NOT mandatory in order to submit an offer.

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

Any party interested in attending these events should email the following information to AllSourceRFO@SempraUtilities.com

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

7.0 RFO WEBSITE AND COMMUNICATION

The RFO and all subsequent revisions and documents are available for download from the RFO Website (http://www.sdge.com/AllSourceRFO2014) and the 2014 ES RFO event on the PowerAdvocate® website. Potential Respondents are responsible for monitoring the RFO Website and PowerAdvocate® for subsequent updates, notices and postings.

The 2014 ES 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:

Logging In

You access the PowerAdvocate platform via a web browser.

To log in

1. Open a web browser and go to 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**.

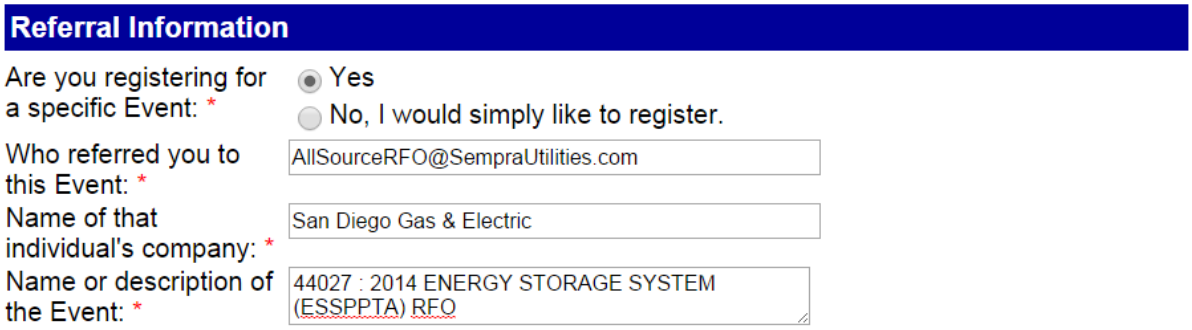
   Both are case-sensitive.

   If you do not have an account, go to poweradvocate.com 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:

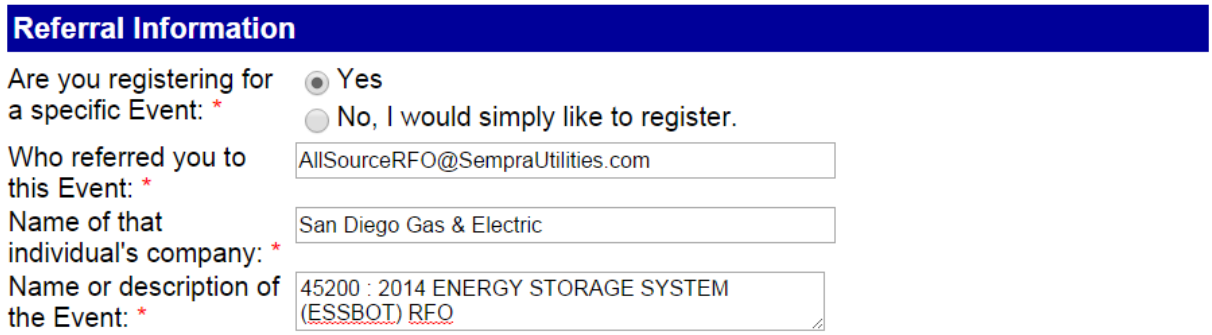
ENERGY STORAGE SYSTEM (ESSPPTA)



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

https://www.poweradvocate.com/pR.do?okey=44027&pubEvent=true

ENERGY STORAGE SYSTEM (ESSBOT)



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

https://www.poweradvocate.com/pR.do?okey=45200&pubEvent=true

ENERGY STORAGE SYSTEM (ESSEPC)

SDG&E will provide Respondents with PowerAdvocate registration information for ESSEPC event by Friday, October 17, 2014 after an executed NDA has been received.

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 AllSourceRFO@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.

Limit on Number of Bids

A MAXIMUM OF SIX (6) BIDS/OFFERS PER RESPONDENT WILL BE ACCEPTED.
A single bid may consist of multiple locations, hybrid technololgies (i.e. batteries and solar), or phased development as long as the package is priced as a single project.

Variation of significant project details, including the following, must be priced as a separate bid:

- Commercial operation date
- Term
- Energy Deliveries or Dispatchable Configuration
- Maximum Capacity
- Point of Interconnection
- Operational Constraints

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

If the respondent has questions or concerns regarding bid limits, please contact SDG&E at: AllSourceRFO@semprautilities.com

Required Participation Forms:

1) **Offer Form** – 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. Addtionally, there are additional / separate tabs within the workbook for ESSPPTA offers, ESSBOT offers and ESSEPC offers. Note that separate offer forms must be completed for offer price and credit costs.
2) **Project Description Form**
3) **Electric Interconnection Information –** Please provide copies of completed studies (if any), 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).
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) **Supplier Diversity Information -** 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 or a summary term sheet for the ESSBOT or ESSEPC**

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.

Any party interested in submitting an offer must register to receive access to the 2014 SDG&E ESS 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: AllSourceRFO@semprautilities.com
Carbon Copy (CC) to: Jon.Jacobs@paconsulting.com and Barbara.Sands@PAConsulting

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.

8.0 REJECTION OF OFFERS

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.

9.0 CONFIDENTIALITY

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.

10.0 ESS PROGRAM PARAMETERS

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), a CPUC-endorsed entity, is composed of non-market bidders 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. The PRG is 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, each IOU briefs its PRG on a periodic basis during the entire process.

Respondents are hereby notified that revealing confidential offer information to the PRG is required during PRG briefings in accordance with Section 10 ("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.

11.0 SDG&E BACKGROUND

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

Attachment B

2014 All Source RFO:

Energy Efficiency Product Type RFO Document

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

2014
LOCAL CAPACITY REQUIREMENT
REQUEST FOR OFFERS ("RFO")
ENERGY EFFICIENCY

VERSION 5 – UPDATED 12/18/2014

ISSUED
SEPTEMBER 5, 2014

OFFERS DUE
JANUARY 5, 2015

RFO WEBSITE
http://www.sdge.com/All SourceRFO2014

EMAIL QUESTIONS/COMMENTS TO
AllSourceRFO@semprautilities.com

Record of Changes

Date	Explanation of Change	Section / Page of Document
9/17/2014	Footnotes 14, 15 and 16 were incorrect (they had been referencing DR related materials). They have been updated to reference EE related materials.	7.0, A; p. 16
10/7/2014	Updated language regarding the limit on the number of bids that may be provided.	4.0, p. 10
10/21/2014	- Added language to the 'Credit Terms and Conditions' section to clarify that credit costs should not be included in the offer price. - Added language to the 'Quantitative Evaluation' section to explain how credit costs will be evaluated. - Added a sentence within the 'Offer Form' section to highlight that a separate credit cost offer form is required	11, p. 25 8. p. 19 4, p. 10
12/18/2014	Deleted participation criteria stating that the EE resource must have a minimum Total Resource Cost of 0.9. Note that a completed E3 calculator should still be submitted as part of the offer package.	7.0, A. 4., p. 16

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1.0 BACKGROUND AND SCOPE OF REQUEST

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") approved on March 13, 2014, San Diego Gas and Electric ("SDG&E") is issuing its 2014 Energy Efficiency ("EE") Request for Offers ("RFO") to solicit bids ("Bids") for energy efficiency program design and implementation approaches for innovative program(s) under SDG&E's administration which meet the targeted objectives described in this RFO. The Track 4 Decision authorized SDG&E to procure between 500 MW and 800 MW of incremental local capacity by 2022 to meet local capacity needs, at least 200 MW of which must come from preferred resources1.

SDG&E has separately filed an application for Commission approval of a 600 MW bilateral contract with a Conventional resource, the Carlsbad Energy Center (A.14-07-009). If approved, 600 MW of SDG&E's need will be filled by this contract and SDG&E will be authorized to procure only 200 MW of preferred resources, including at least 25 MW of energy storage. In this event, bidders shall be notified that 600 MW of the need eligible under this RFO has been filled. SDG&E encourages respondents to take this possibility into account and submit offers with both levels of need in mind (maximum of 775 MW if this application is not approved or 175 MW if approved).

This solicitation sets forth the terms and conditions of SDG&E's 2014 EE RFO. By responding to this RFO, the Respondent 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 Respondent'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 Respondent's obligations with respect to the RFO as well as describe the procedures that each Respondent 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 Model Agreement attached to these instructions, the terms and conditions in the Model Agreement will prevail.

To be considered in this RFO, an offer must be uploaded to the SDG&E RFO Website in accordance with this RFO Protocol no later than 1:00 PM Pacific Prevailing Time ("PPT"), on January 5, 2015.

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 Respondents, proceedings before the CPUC, and efforts to obtain regulatory approval. SDG&E intends to notify Respondents of any

[1] Preferred Resources are defined in the Energy Action Plan – as updated in the Energy Action Plan II and 2008 update to the Energy Action Plan II in the loading order as follows: "The loading order identifies energy efficiency and demand response as the State's preferred means of meeting growing energy needs. After cost-effective efficiency and demand response, we rely on renewable sources of power and distributed generation, such as combined heat and power applications. To the extent efficiency, demand response, renewable resources, and distributed generation are unable to satisfy increasing energy and capacity needs, we support clean and efficient fossil-fired generation." – See the Energy Action Plan II, p.2 at: http://www.energy.ca.gov/energy_action_plan/2005-09-21_EAP2_FINAL.PDF

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 solicitation can be found in Section 3, RFO Schedule.

Once Respondents have accepted their shortlisted position with SDG&E and remitted the Shortlist Acceptance Fee[2], 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 Respondent.

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

A. PROGRAM OBJECTIVE AND PROCUREMENT NEEDS

The primary objective of this EE RFO is to acquire EE capacity that is **incremental**[3] to SDG&E's current 2013-2014 and proposed 2015 EE program portfolios that would meet LCR needs in SDG&E's service territory.

To demonstrate that the EE products resources bid into the EE RFO are incremental, SDG&E defers to descriptions and references to the EE assumptions used in the CAISO Track 4 Studies and the CEC EE studies in its solicitation materials and advises Respondents that they must explain how their EE products are incremental to these assumptions. SDG&E encourages 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 or CEC EE studies.

Respondents may refer to the following sources, which describe SDG&E's EE baseline, in order to determine whether their programs 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;[4] and (4) 2013 CAISO Demand Response and Energy Efficiency Roadmap: Maximizing Preferred Resources[5]. In addition to these sources, a Respondent may also propose programs that target hard-to-reach markets that have not been traditionally addressed by programs and are therefore incremental and / or EE technologies that are not currently in Emerging Technologies or in the market potential or existing programs.

Final determination of the offer's compliance with the incremental requirement will be determined by the CPUC's approval of any Agreement resulting from the offer.

As stated above, the purpose of this RFO is to procure capacity (MW). Thus, all compensation associated with any submitted offer shall be based on delivery of capacity. Although

[2] See section 12 of this RFO for further details
[3] 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."
[4] 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.
[5] http://www.caiso.com/informed/Pages/CleanGrid/Demand_Response.aspx

energy savings (MWh) are to be verified and owned by SDG&E, no payments shall be made for delivery of energy savings.

The table below provides a high level overview of SDG&E's procurement needs for this RFO. SDG&E's need is defined in terms of the time frame within which deliveries are needed and the product categories with which SDG&E intends to meet such needs. A more detailed discussion of RFO eligibility requirements is provided at Section 7.0, Resource Criteria.

SDG&E EE Solicitation Procurement Need	Product Description
Energy Efficiency	Energy Efficiency Program that delivers long-term energy capacity and savings (although SDG&E will consider all contract terms, it prefers a contract term of 6 years or less). SDG&E prefers EE programs that start delivering capacity as early as 2017 (subject to CPUC approval), but some portion of the Delivery Period must encompass calendar year 2022.

B. MODEL AGREEMENTS ("AGREEMENT")

Shortlisted respondents must be poised to sign an agreement in substantially the form of the attached Model Agreement ("Model Agreement") (See Section 4.0 RFO Response Instructions). Elements of the Respondent's offer may be incorporated into the Agreement.

C. ENERGY EFFECIENCY PROGRAM OPERATIONS

San Diego Gas & Electric Company (SDG&E) designs, administers, and implements a large portfolio of customer energy efficiency (EE) programs. SDG&E utilizes third-party contractors to help implement a portion of its portfolio. These third-party contractors provide a range of services, including design, analysis, planning, and operation of these programs to serve residential and non-residential customers within SDG&E's service territory. SDG&E's current 2013-2014 EE program portfolio was approved by California Public Utilities Commission (Commission) in Decision (D.) 12-11-015. SDG&E's most current EE program implementation plans can be found on the Commission's EE website California Energy Efficiency Statistics at http://eestats.cpuc.ca.gov/Views/Documents.aspx?ReportType=PIP. Most recently, SDG&E filed for approval its 2015 EE program portfolio, the details of which can be found at http://www.sdge.com/regulatory-filing/10501/2015-energy-efficiency-program-portfolio-changes-phase1-rulemaking-13-11-005.[6]

Although this RFO is seeking capacity (MW) that will be incremental to the expected EE portfolio, all contracted EE programs must be coordinated with SDG&E's EE portfolio. During the term of an agreement, the Contractor may be expected to coordinate activities and gain SDG&E approval of marketing and operational activities.

[6] The Commission expects to approve SDG&E's 2015 EE program portfolio by June 2014.

2.0 RFO WEBSITE AND COMMUNICATIONS

The RFO and all subsequent revisions and documents are available for download from the RFO Website (http://www.sdge.com/AllSourceRFO2014) and the 2014 SDG&E EE RFO event on the PowerAdvocate® website. Potential Respondents are responsible for monitoring the RFO Website and PowerAdvocate® for subsequent updates, notices and postings.

The 2014 SDG&E EE RFO event on the PowerAdvocate® website contains the following: required RFO forms, documents, ands schedule. Respondents intending to bid and do not 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:

Logging In

You access the PowerAdvocate platform via a web browser.

To log in

1. Open a web browser and go to 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 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: *	(•) Yes ( ) No, I would simply like to register.
Who referred you to this Event: *	AllSourceRFO@semprautilities.com
Name of that individual's company: *	San Diego Gas & Electric
Name or description of the Event: *	44128: 2014 ENERGY EFFICIENCY (EE) RFO

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

https://www.poweradvocate.com/pR.do?okey=44128&pubEvent=true

The RFO website contains RFO forms and documents, RFO Schedule, and a Question and Answer forum. All questions or other communications regarding this RFO must be submitted via email to AllSourceRFO@semprautilities.com by the DEADLINE TO SUBMIT QUESTIONS as specified in Section 3.0 RFO Schedule. SDG&E will not accept questions or comments in any other form, except during scheduled bidders conferences.

If there is a conflict or inconsistency between the terms and conditions or other information contained on the RFO Website and the terms and conditions contained within this Energy efficiency Resources RFO document, the terms and conditions in the RFO document(s) will prevail.

3.0 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. SDG&E will be utilizing a platform designed and maintained by PowerAdvocate® for launching and managing offers received in response to this RFO. To access the RFO event, Respondent must register to create a username and password for PowerAdvocate®. The link with instructions to register is provided in Section 2.0 RFO Website and Communications. Respondents are responsible for accessing the RFO Website and PowerAdvocate® for updated schedules and possible amendments to the RFO or the solicitation process. Respondents shall register on PowerAdvocate® for the RFO no later than December 1, 2014, and submit offers no later than January 5, 2015 at 1:00 PM PPT.

NO.	ITEM	DATE
1.	RFO Issued	September 5, 2014
2.	Pre-Bid Conference / Respondent Outreach Events (Including E3 Training)	1) September 26, 2014 (all resources, in person or webinar) 2) October 24, 2014 (all resources, webinar only) 3) November 10, 2014 (EE, DR and Energy Storage, in person or webinar)
3.	DEADLINE TO REGISTER for RFO Website access / to download RFO forms and documents	December 1, 2014
4.	DEADLINE TO SUBMIT QUESTIONS Question submittal cut-off date. Answers to all questions will be posted on the website no later than December 1, 2014.	November 14, 2014
5.	CLOSING DATE: Offers must be uploaded to and received by the RFO Website no later than 1:00 PM Pacific Prevailing Time on January 5, 2015.	January 5, 2015
6.	SDG&E Begins Bid Evaluation Process	January 6, 2015
7.	Shortlist determination	May 18, 2015
8.	SHORTLIST NOTIFICATION SDG&E notifies Shortlisted Respondents	June 5, 2015
9.	SHORTLISTED RESPONDENTS ACCEPTANCE/WITHDRAWAL Letter due from Shortlisted Respondents indicating: a. Withdrawal from SDG&E's solicitation; OR b. Acceptance of shortlisted standing and including Shortlist Acceptance Fee	+10 Days after Shortlist Notification
10.	SDG&E issues appreciation notices to unsuccessful Respondents	+3 week after Shortlisted Respondents accept/withdraw
11.	SDG&E commences with Agreement negotiations*	+11 Days after Shortlist Notification
12.	SDG&E Submits Advice letters with Agreements to CPUC for approval	Q1 2016
13.	CPUC Approval	Late 2016 / 2017
14.	Program Implementation Start (pending CPUC Approval)	2017 / 2018
	* Negotiation time will vary depending on proposal specifics including proposed contract modifications.	

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 Respondents, proceedings before the CPUC, and efforts to obtain regulatory approval. SDG&E intends to notify Respondents of any schedule changes, but will not be liable for any change in schedule or for failing to provide notice of any change.

PRE-BID CONFERENCE / BIDDER OUTREACH EVENTS

SDG&E will host three bidder outreach events, which will include training on using the E3 calculator. The first event is scheduled for September 26, 2014 which will be an in-person event for all resource types (with dial-in / webinar available for those that cannot attend in-person). The second event will be a conference call / webinar only geared towards all resource types and is scheduled for October 24, 2014. The third event focusing primarily on the demand response, energy efficiency and energy storage product types will be in-person (conference call / webinar available) and is scheduled for November 10, 2014. Participation in these events 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 second and third events). SDG&E will make efforts to notify Respondents of outreach event details via e-mail as well as providing this information via the RFO Website.

Any party interested in attending these events should email the following information to AllSourceRFO@SempraUtilities.com

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

4.0 RFO RESPONSE INSTRUCTIONS

Respondents may submit proposals by submitting the forms listed below. Forms are available on the RFO Website and PowerAdvocate®. The failure to provide the listed information 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) BIDS/OFFERS PER RESPONDENT WILL BE ACCEPTED.
A single bid may consist of multiple locations, hybrid technologies (i.e. batteries and solar), or phased development as long as the package is priced as a single project.

Variation of significant project details, including the following, must be priced as a separate bid:

- Commercial operation date
- Term
- Energy Deliveries or Dispatchable Configuration
- Maximum Capacity
- Point of Interconnection
- Operational Constraints

Fill out separate offer forms for each bid. Only one Project Description Form is required per Respondent 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: AllSourceRFO@semprautilities.com

Required Forms:

If the respondent is submitting offers for more than one program, each program must be submitted in a separate compressed ZIP archive with its required forms. Forms and compressed ZIP archives must be clearly labeled to identify the program name and the submitted forms. All forms are located in the "1. Download Documents" Tab and must be submitted by uploading to the "2. Upload Documents" Tab.

1) **Offer Form** – Respondents 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. Note that separate offer forms must be completed for offer price and credit costs.
2) **Program Description Form**
3) **Electric Interconnection Information –** Not Applicable to the EE RFO.
4) **Credit Application** –A credit application will be required under all Agreements. Changes to terms and conditions will render the offer non-conforming and disqualify the program from further consideration.
5) **Supplier Diversity Information (Optional) -** Provide a copy of certification documents received from the Supplier Clearinghouse. An application can be made before submission of the offer and referenced in the offer.
6) **Redline to the Model Agreement (Optional)** SDG&E may post a pro forma agreement for specific product types. If SDG&E does not post a pro forma for the product type bid,

bidders will be provided a template applicable to their product if and when they are shortlisted.

7) **Proposed Program's E3 Calculator –** Submit a fully functional Excel Workbook (no pdfs or other screen shots) with all formulae unlocked, all worksheets included (not just the Output sheet), and no password protection.
8) **Workpaper(s) associated with MW reductions per EE unit.** Respondent shall provide workpaper(s) showing the capacity reduction - MW reduction/EE unit (e.g., MW/ EE appliance) and the unit's load profile. The proposal must include workpapers to show the MW reduction calculations. These workpapers are not standardized or provided by SDG&E and they may reference DEER-Database of Energy Efficiency Resources.
9) **Measurement and Verification Plan (M&V)** – Respondents shall provide a proposed M&V Plan to verify actual MW's delivered. M&V Plan shall include estimated costs.

The Program Description Form, Credit Application, and redlines to the Model Agreement (only if the agreement is applicable to bidder's product) must be in Word or Word-compatible format (not in PDF). The offer form and E3 Calculator 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.

Any party interested in submitting an offer must register to receive access to the 2014 SDG&E EE RFO event on PowerAdvocate® in order to submit an offer. To register, Respondents must follow the instructions outlined in Section 2, 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:	AllSourceRFO@semprautilities.com
Carbon Copy (CC) to:	jon.jacobs@paconsulting.com and 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 11 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.

SDG&E will review responses for the targeted objectives described in this RFO. The Respondent's proposed Program shall be a Resource Program that delivers capacity (MW) through

installation of EE measures and/or implementation of Program services. SDG&E has sole and absolute discretion to determine whether a Respondent meets SDG&E's general criteria for selection as described in Attachment 2, Program Description Form.

Respondent must be in "good standing"[7] with SDG&E in order to bid

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.

[7]Circumstances under which contractors would not be considered to be in good standing with SDG&E include, but are not limited to, the following: 1) outstanding unpaid bills to SDG&E, 2) program termination for cause during a previous program cycle, or 3) non-compliance with SDG&E's policies or Code of Conduct.

5.0 ENERGY EFFICIENCY PROGRAM PARAMETERS / ROLE OF THE PRG AND INDEPENDENT EVALUATOR

CALIFORNIA ENERGY EFFICIENCY PROGRAM

Commission and state energy policy, as expressed in the Energy Action Plan (EAP) and reaffirmed in Decision (D.) 04-12-048, is to make energy efficiency and demand response the IOUs' highest priority procurement resource. The 2005 EAP II continues strong support for the loading order and identifies energy efficiency and demand response as the State's preferred means of meeting growing energy needs. After cost- effective efficiency and demand response, we rely on renewable sources of power and distributed generation, such as combined heat and power applications. This is also consistent with California Public Utility code, § 454.5(b)(9)(C) 2 which requires IOUs to first meet their "unmet resource needs through all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible." In order to promote the resource procurement policies articulated in the Energy Action Plan and by the Commission, energy efficiency activities funded by ratepayers should offer programs that serve as alternatives to more costly supply-side resource options (resource programs).

D.07-10-032 established a broader framework for statewide coordination on energy efficiency program design, in order to overcome market barriers to more widespread adoption of energy efficiency and to capture longer-term savings. The decision directed the IOUs to work with Commission staff and market participants to prepare the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan). Adopted in D.08-09-040, the Strategic Plan set forth a roadmap for energy efficiency in California through 2020 and beyond, by articulating a long-term vision and goals for each economic sector and identifying specific near-term, mid-term and long-term strategies to achieve the goals. D.08-09-040 and the subsequent October 30, 2008 Ruling in A.08-07-021 directed the IOUs to align their EE programs with Strategic Plan goals by clearly identifying utility actions for all Strategic Plan near-term strategies and action steps, where a utility role is important, and to provide programs that reflect the Strategic Plan short-term steps and milestones.[8]

ENERGY EFFICIENCY ELIGIBILITY CRITERIA

SDG&E intends for programs / 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[9]. Agreements resulting from this RFO will require Respondents to perform all activities necessary to facilitate RA recognition for the programs. The Respondent shall be responsible for all costs to facilitate RA recognition.

PROCUREMENT REVIEW GROUP

The Procurement Review Group (PRG), a CPUC-endorsed entity, is 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

[8] Decision.08-09-040 OP 2

[9] 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. EE programs that provide RA value by reducing forecasted demand will also likely count toward SDG&E's RA obligations and therefore be conforming in this regard.

groups. The PRG is 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 on a periodic basis during the entire process.

Respondents are hereby notified that revealing confidential offer information to the PRG is required during PRG 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 to separately evaluate and report on the IOU's entire solicitation, evaluation, and selection process for this solicitation. This will serve as an independent review of SDG&E's implementation of the RFO process and final selections. The Independent Evaluator shall make periodic presentations regarding its findings to the IOU, and the IOU's PRG including the CPUC Energy Division staff. The intent is to preserve the independence of the Independent Evaluator by ensuring free and unfettered communication between the Independent Evaluator and the CPUC as well as an open, fair, and transparent process that the Independent Evaluator can affirm.

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

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

6.0 SDG&E BACKGROUND

SDG&E provides electricity to 3.4 million consumers. It delivers the electricity through 1.4 million meters in San Diego County and an adjacent portion of southern Orange County. SDG&E also delivers natural gas through 855,000 meters in San Diego County and transports electricity and natural gas for others. 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

7.0 RESOURCE CRITERIA

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 EE programs and/or who will provide proposed EE resource(s) must be located within SDG&E's service territory.
2. Some portion of the program's term must include the entire calendar year of 2022.
3. Minimum resource capacity of 0.5 MW[10] delivered by the program for the Delivery Period.
4. The EE resource must meet the requirements of the current RA counting rules[11].
5. The EE resource must be demonstrably incremental to the assumptions used in the California ISO studies[12]. Sellers are required to explain and/or show how their proposed EE resource is incremental. Sellers are encouraged to reference 1) SDG&E's current 2012-2014 EE program portfolio[13]; (2) SDG&E's proposed 2015-2016 EE program portfolio[14]; and / or (3) 2013 Integrated Energy Policy Report ("IEPR") EE forecast[15]. Incremental resources that are similar to existing EE resources must demonstrate, to SDG&E's satisfaction that the resource is "incremental" and provide creative products that are not part of existing or planned programs
6. The Respondent must state any affiliate relationship with Sempra Energy, if one exists.

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

[10] Note SDG&E will consider the administrative burden/feasibility of negotiating a high volume of agreements when selecting its shortlist.

[11] 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. EE programs that provide RA value by reducing forecasted demand will also likely count toward SDG&E's RA obligations and therefore be conforming in this regard.

[12] 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."

[13] SDG&E's current EE programs (see http://www.sdge.com/save-money/upgrade-and-save -- gives information on SDG&E's EE rebate programs; CPUC Decision approving SDG&E's current programs: http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M034/K299/34299795.PDF ; and reporting on SDG&E's current EE programs at http://eestats.cpuc.ca.gov/Views/Documents.aspx

[14] See http://www.sdge.com/regulatory-filing/10501/2015-energy-efficiency-program-portfolio-changes-phase1-rulemaking-13-11-005 for information about SDG&E's proposed 2015 EE program portfolio.

[15] See "Energy Efficiency Adjustments for a Managed Forecast: Estimates of Incremental Uncommittted Energy Savings Relative to the California Energy Demand Forecast 2012-2022" of September 14, 2012 at http://www.energy.ca.gov/2012_energypolicy/documents/demand-forecast/IUEE-CED2011_results_summary.xls ; See the 'mid savings elec' tab -- as discussed and directed in the Track 4 Decision

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 - AllSourceRFO@semprautilities.com) and the IE (jon.jacobs@paconsulting.com and Barbara.Sands@PAConsulting).

For EE resources, measure installation may begin prior to the Delivery Period during the Agreement Term. Capacity Payments will begin only upon reaching the minimum 0.5 MW capacity requirement.

8.0 EVALUATION CRITERIA AND SHORTLISTING

SDG&E will utilize all submitted documents to evaluate all offers. Respondents are responsible for the accuracy of all figures and calculations. Errors discovered during negotiations may impact Respondents standing on the short-list.

SDG&E will periodically brief the members of the PRG during the various stages of evaluation. Upon completion of SDG&E's evaluation process, SDG&E will brief the PRG members regarding SDG&E's recommendations for its short-list. Based upon the comments and recommendations received from the PRG, SDG&E may modify the preliminary short-list as necessary.

EVALUATING OFFERS

All incoming offers will be assessed for conformance as defined in 7.0A above. Respondents should conform to minimum participation criteria in order to be considered.

As required by the Track 4 Decision, SDG&E is soliciting a broad range of resources including energy efficiency, demand response, renewables, energy storage, CHP and conventional. 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. As part of this conformance check, the EE offers will be evaluated via the Total Resource Cost (TRC) (or the latest available CPUC approved test) process with a minimum threshold established for passing this test. Conforming offers will then go through the Least Cost Benefit Fit "LCBF" / Net Market Value "NMV" analysis described below to rank the offers. This ranking process may not produce enough capacity from positive NMV offers to reach the 25 MW threshold for storage offers and minimum 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.

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 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 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 a 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 2023), SDG&E may reserve procurement for future periods. This may allow for procurement of higher loading order preferred resources than are currently available.

QUANTATIVE EVALUATION

SDG&E evaluates and ranks offers based on 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 cash flow components for 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. These benefit and cost components are netted and discounted to yield a Net Present Value ("NPV") for each offer. The NPV of an offer is compared to the NPV of other offers to determine whether that offer is one of the combinations of least-cost offers. 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 NPV per MW. "Best-Fit" is achieved by ensuring that the combination of selected offers is the LCBF solution and fulfills the criteria further described below.

SDG&E evaluates the quantifiable attributes of each offer individually. These individual attributes will include: capacity benefits, energy benefits, and contract payments. Each of these attributes is described below.

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 Respondent's RA capacity value is based on monthly forecasts determined by SDG&E, which are then aggregated into annual capacity benefits. Projects/programs in the SDG&E service area will receive added local capacity benefit (note that in this RFO, customers associated with energy efficiency resources bid must be located within SDG&E's service territory).

For EE: the capacity reduction must include the MW reduction/EE unit (e.g., MW/ EE appliance) and the unit's load profile. The proposal must include workpapers to show the MW

reduction calculations. These workpapers may reference DEER-Database of Energy Efficiency Resources.

B. NET ENERGY BENEFITS

The energy benefit valuation is an optimized energy dispatch profile multiplied by the corresponding energy forward price curves. 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. These benefits are netted against the variable costs associated with generating the energy such as fuel costs and variable O&M to produce the Net Energy Benefit. For EE programs, the energy benefit is calculated using the energy savings profile in lieu of an optimized energy dispatch profile.

C. CONTRACT PAYMENTS

In determining the total cost of the offer, SDG&E will consider all of the contract payments. For EE, these payments are for delivered capacity (MW) during the Delivery Period.

QUALITATIVE EVALUATION

Qualitative factors and benefits will be used to determine advancement onto the short list. Qualitative factors may include, but are not limited to:

A. RESOURCE VIABILITY

SDG&E is seeking experienced companies and development teams to develop and operate energy efficiency programs utilizing known and proven technology to the degree available. Another aspect of resource viability may 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 MODEL AGREEMENT TERMS AND CONDITIONS

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

C. PARTICIPATION FROM DIVERSE BUSINESS ENTERPRISES

SDG&E encourages Diverse Business Enterprises ("DBEs"), "Women-Owned Businesses" or "Minority-Owned Businesses" or "Disabled Veteran Business Enterprises" as defined in G.O. 156, to participate in the RPS program and in this RFO. Furthermore, SDG&E 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 and verify their DBE contractors/subcontractor spending if any.

Additional information on SDG&E's DBE program and utilizing DBEs can be found at:

http://www.sempra.com/about/supplier-diversity/

and
http://www.cpuc.ca.gov/puc/supplierdiversity/

Like other qualitative factors, in the event of a tie between two offers, SDG&E will consider a Respondents status as a DBE and or a Respondent's plan to utilize the services of DBEs during project development.

SDG&E's DBE Program representatives will provide a presentation during the pre-bidding conference on September 26, 2014. DBEs can request additional information by contacting SDG&E at vendorrelations@semprautilities.com.

D. LOADING ORDER RANKING

SDG&E seeks resources in accordance with the loading order described in the Energy Action Plan. SDG&E will give preference to higher loading order ranked resources.

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 programs meet minimum resource criteria and/or;
4. the respondent is unable to comply with RFO timing and other solicitation requirements.

9.0 REJECTION OF OFFERS

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 EFFICIENCY AND IS VIGOROUSLY PURSUING THE GOALS OF THE RPS, IT MAKES NO GUARANTEE THAT A CONTRACT AWARD SHALL RESULT FROM THIS RFO EVEN AFTER AN OFFER HAS BEEN SHORTLISTED. IN ADDITION, SDG&E NOTES THAT SHORTLISTING AN OFFER DOES NOT CONSTITUTE SDG&E ACCEPTANCE OF ALL REDLINED CHANGES TO THE PROFORMA CONTRACT. 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.

10.0 CONFIDENTIALITY

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, PROGRAM 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 DATA, 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.

11.0 CREDIT TERMS AND CONDITIONS

Winning Respondents will be required to comply with the Credit and, Collateral and Service Warrantee/Guarantee requirements set forth in the Model 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 via a separate offer form. These costs will be considered as discussed in the quantitative evaluation section within this document).

Shortlist Acceptance Fee

The Shortlist Acceptance Fee is the greater of $100,000 or $2 per kW of the highest delivered capacity in any one calendar year 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) 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. Program-specific questions and answers will not be disclosed to other Respondents.

12.0 RFO ATTACHMENTS

The following documents are attachments to this RFO and are to be used preparing Respondent's proposal:

- **Offer Form** – Respondents 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.

- **Program Description Form –** Submit one per program.

- **Credit Application** – Submit one per program. A credit application will be required under all Agreements. Changes to terms and conditions will render the offer non-conforming and disqualify the program from further consideration.

- **Model Agreement – All requested changes to the model agreement must be submitted at the time of bid.**

- **E3 Calculator –** Submit a fully functional Excel Workbook (no pdfs or other screen shots) with all formulae unlocked, all worksheets included (not just the Output sheet), and no password protection.

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.[1] 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.[2] The Commission makes clear in the Track 4 Decision that "[p]rocurement authorized by this decision should begin *as soon as possible*."[3] The Commission noted further that "[p]rocurement needs may become critical as early as 2018 . . ."[4] 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."[5]

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.[6] 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.[7] 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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1 D.14-03-004, mimeo, Ordering Paragraphs ("OPs") 2 and 3.
2 *Id*.
3 *Id*. at p. 113 (emphasis added).
4 *Id*.
5 *Id*.
6 *Id*. at OP 7.
7 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.[8] 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.[9] 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."[10] 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."[11]

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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8 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.
9 D.14-03-004, *mimeo*, p. 62.
10 *Id*. at p. 90 (citing D.13-02-015, *mimeo*, Finding of Fact 30).
11 *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.[12] With a reliability need starting as early as 2018, SDG&E has been working diligently to negotiate a bilateral[13]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").[14] 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. [15]

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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12 *See, e.g.*, D.09-01-008, *mimeo*, p. 18

13 *See* D.14-03-004, *mimeo*, OP 3.

14 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.

15 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.[16]

- ***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.[17] 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;[18] (ii) enjoys local support by the City of Carlsbad;[19] (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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16 See discussion of "contingent" contracts set forth at D.14-03-004, *mimeo*, pp. 102-106.

17 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.

18 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.

19 *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.[20]

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

[20] 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.[21] 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[22] ("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.

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

[22] 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.[23]

- ***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)***:

[23] 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%.[24] 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.[25]

  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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[24] *2013 SDG&E DBE Annual Report*, pp. 2, 24. Available at: http://www.sempra.com/pdf/about/dbe_sdge_2013_2014_final.pdf.

[25] *Id*. at p. 4.

SDG&E is electing to procure a bilateral contract to meet the authorized need for the remaining 600 MW.[26] 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.

[26] 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? If yes, where located?
Overall description of procurement process:	
• Major procurement steps (i.e. soliciting bids, bid evaluation, selection of bids/signing contracts, filing application for Commission approval, expected decision, on-line date.)	pp. 3-5
• 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.	n/a
• Describe which elements of the solicitation will be made public	n/a
Timeline:	
• Detailed timeline that includes an estimate for when resources with specific MW quantities are expected to come online up to the year of authorization	pp. 4-5
• Also include:	
o 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	pp. 3-5
o Sub-timeline for any contingent contracts	n/a
o Major decision points for backup procurement when resources do not materialize	n/a
Location Details:	
• Indicate the substations and the locational effectiveness of the sites where the utility plans to procure resources	p. 5

Specific Requirements from Track 4 Decision	Applicable to this Conventional Procurement Plan? If yes, where located?
Description and quantification of how authorized demand-side resources are incremental:	
• 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.	n/a
o For energy efficiency: establish baseline planning assumptions that reflect LTPP planning assumptions.	n/a
▪ Detail how the utility will direct bidders to propose resources whose procurement would exceed the baseline.	n/a
▪ 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.	n/a
▪ 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.	n/a
o 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	n/a
▪ 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.	n/a
▪ 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.	n/a
▪ Detail how the utility will direct bidder to propose resources capable of meeting these criteria.	n/a
▪ State the methodology by which the utility will quantify and verify the operation of demand response resources to meet local reliability needs.	n/a

Specific Requirements from Track 4 Decision	Applicable to this Conventional Procurement Plan? If yes, where located?
LCR and flexible attributes: • Detail the LCR and flexible attributes of the various technology-specific resources considered for procurement. • Apply RA counting rules and the CAISO "non transmission alternatives" study in most cases. • In cases where these are no defined attributes for a resources, propose attributes with a detailed rationale.	 pp. 5 – 6 n/a n/a
Procurement Process: • 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. • Include information on structures of offers, selection, short listing and cost competitiveness threshold	 pp. 3-5 p. 6
Evaluation Details: • Process to evaluate different resources in a non-discriminatory fashion • Method to quantify costs and benefits related to capacity, energy, flexibility, GHG, ancillary services, etc for all resources • Standardized assumptions for costs and benefits across resource type • Method to capture non-energy and other quantitative benefits.	 p. 6 p. 6 p. 6 p. 6
CAM Details: • Indicate which resources should be subject to CAM treatment • Indicate which procured resources will count towards IOU program goals	 p. 7 p. 7

Project Details:
• Detail how utility plans to evaluate the viability of preferred resource projects.
• Include the following details for each technology type:
  o Desired start dates for delivery
  o Acceptable contract durations
  o Minimum size in terms of capacity
  o Interconnection requirements
	
	pp. 7-8
	
	p. 7
	p. 7
	p. 7
	p. 5

Other Details: • Bidder outreach before and after the solicitation including details like bidder conferences, advertisements and webinars • Participation of disadvantages business enterprises • Independent Evaluator details and role	 n/a pp. 7-8 p. 8

Specific Requirements from Track 4 Decision	Applicable to this Conventional Procurement Plan? If yes, where located?
Other statutes affecting procurement: • Cite relevant state laws and Commission decisions influencing this procurement	pp. 8-9
Documents: • Include non-binding pro formas and draft solicitation documents	n/a

Specific Requirements from D.13-02-015, Ordering Paragraphs 6, 7 and 8 of (SCE's LCR Decision)	Applicable to this Conventional Procurement Plan? If yes, where located?
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.[1] 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.[2] 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.[3]

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.[4] 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.[5] 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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1 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.

2 D.14-03-004, *mimeo*, Ordering Paragraphs ("OPs") 2 and 3.

3 *Id*.

4 *Id*. at OP 7.

5 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.[6] 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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6 D.14-03-004, *mimeo*, Ordering Paragraph 9.

evaluating each project's ability to contribute toward meeting LCR need. The CAISO report[7] 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.[8]

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.[9] 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 biders 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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[7] *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

[8] D. 14-03-004, *mimeo*, p. 113 and Ordering Paragraph 8.

[9] 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").[10] 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 is 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")[11]. 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

[10] 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.

[11] 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[12].

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;[13] or (4) 2013 Integrated Energy Policy Report ("IEPR") DR forecast[14]. 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 requirments 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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[12] California Demand Response: A Vision for the Future (2002-2007)

[13] 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*.

[14] See the SDG&E Mid.xls file at: 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 to 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[15] 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 is incremental: (1) SDG&E's current 2012-2014 DR program portfolio[16]; (2) SDG&E's proposed 2015-2016 DR program portfolio[17]; and / or (3) 2013 Integrated Energy Policy Report ("IEPR") DR forecast[18]. 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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[15] D.14-03-026, ordering paragraph 1.

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

[17] See 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.

[18] See the SDG&E Mid.xls file at: 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.[19] 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

[19] *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.[20]

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[21]. 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.[22] SDG&E is also currently working with the Commission on the implementation of the

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[20] 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.

[21] *See supra*, note 10.

[22] 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&Ewill 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" [23] 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.[24] 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.

[23] D.14-03-004, Attachment B, p. 1.

[24] 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

Target Date / Days relative to approval	Event / Procurement Step
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-T+90	Bidders conference(s) / stakeholder outreach event(s)
T+160	Offers due
T+300	Shortlist determination
Next avail 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 phasedin 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.[25] 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)

[25] 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.[26] 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.[27]

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. SGD&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.07-05-032and 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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[26] *See* D.13-02-015; D.11-05-005; D.08-09-012; D.07-09-044; and 06-07-029.

[27] 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[28]), 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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[28] 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.[29] 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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[29] 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.[30]

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

[30] 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.[31]

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[31] 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[32]. 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."[33] It "strongly encourage[d] SDG&E to pursue its own Living Pilot, or a tailored version of it."[34]

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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[32] *See supra*, note 10.
[33] D.14-03-004, *mimeo*, p. 66.
[34] *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.[35] Overall system needs are likely to be in the evening as the system loses generation from solar resources. [36]
- 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

[35] [Data regarding 2013 peak to be provided].
[36] [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.[37]

[37] *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 #
Overall description of procurement process: • Major procurement steps (i.e. soliciting bids, bid evaluation, selection of bids/signing contracts, filing application for Commission approval, expected decision, on-line date.) • 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. • Describe which elements of the solicitation will be made public	pp. 1-3 n/a p. 14
Timeline: • Detailed timeline that includes an estimate for when resources with specific MW quantities are expected to come online up to the year of authorization • Also include: o 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 o Sub-timeline for any contingent contracts o Major decision points for backup procurement when resources do not materialize	pp. 10-13 pp. 10-20 n/a pp. 20 - 22
Location Details: • Indicate the substations and the locational effectiveness of the sites where the utility plans to procure resources	p. 2

Specific Requirements from Track 4 Decision	Page #
Description and quantification of how authorized demand-side resources are incremental:	
• 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.	
o For energy efficiency: establish baseline planning assumptions that reflect LTPP planning assumptions.	p. 5
▪ Detail how the utility will direct bidders to propose resources whose procurement would exceed the baseline.	
▪ 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.	p. 5
▪ 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.	p. 7
o 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	
▪ 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.	pp. 5-6
▪ 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.	pp. 5-6
▪ Detail how the utility will direct bidder to propose resources capable of meeting these criteria.	pp. 5-6
▪ State the methodology by which the utility will quantify and verify the operation of demand response resources to meet local reliability needs.	pp. 5-6

Specific Requirements from Track 4 Decision	Page #
LCR and flexible attributes: • Detail the LCR and flexible attributes of the various technology-specific resources considered for procurement. • Apply RA counting rules and the CAISO "non transmission alternatives" study in most cases. • In cases where these are no defined attributes for a resources, propose attributes with a detailed rationale.	pp. 7-9; pp. 15-18 pp. 15-18 p. 17
Procurement Process: • 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. • Include information on structures of offers, selection, short listing and cost competitiveness threshold	pp. 11-13 pp. 15-20; p. 7
Evaluation Details: • Process to evaluate different resources in a non-discriminatory fashion • Method to quantify costs and benefits related to capacity, energy, flexibility, GHG, ancillary services, etc for all resources • Standardized assumptions for costs and benefits across resource type • Method to capture non-energy and other quantitative benefits.	p. 7 pp. 15-20 p. 7; pp. 15-20 p. 20
CAM Details: • Indicate which resources should be subject to CAM treatment • Indicate which procured resources will count towards IOU program goals	pp. 13-14 p. 8-9
Project Details: • Detail how utility plans to evaluate the viability of preferred resource projects. • Include the following details for each technology type: o Desired start dates for delivery o Acceptable contract durations o Minimum size in terms of capacity o Interconnection requirements	pp. 2-3
Other Details: • Bidder outreach before and after the solicitation including details like bidder conferences, advertisements and webinars • Participation of disadvantages business enterprises • Independent Evaluator details and role	pp. 11-12 p. 20 p. 13
Other statutes affecting procurement: • Cite relevant state laws and Commission decisions influencing this procurement	p. 14

Specific Requirements from Track 4 Decision	Page #
Documents: • Include non-binding pro formas and draft solicitation documents	Appendix B

Specific Requirements from D.13-02-015, Ordering Paragraphs 6, 7 and 8 of (SCE's LCR Decision)	Page #
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

STATE OF CALIFORNIA EDMUND G. BROWN JR., *Governor*

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,

Edward Randolph
Director, Energy Division

Attachment F

Director, CPUC Energy Division Letter

Approving SDG&E's Preferred Resources Procurement Plan

STATE OF CALIFORNIA
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

2014 Energy Storage Distribution Reliability / Power Quality Request for Proposal Seeking a 4 MW Energy Storage System

Post Solicitation Report

SDG&E's 2014 Energy Storage Distribution Reliability/Power Quality Request for Proposal Seeking a 4 MW Energy Storage System

Post-Solicitation Report

December 1, 2015

PUBLIC VERSION

TABLE OF CONTENTS

I. Introduction and Purpose of the Post-solicitation Report

In compliance with Decision (D.) 13-10-040 Adopting Energy Storage Procurement Framework and Program Design, and D.14-10-045 Approving the San Diego Gas & Electric Company (SDG&E), Pacific Gas and Electric Company (PG&E), and Southern California Edison Company (SCE) Storage Procurement Framework and Program Applications for the 2014 Biennial Procurement Period, SDG&E respectfully submits this Post-solicitation Report (Report) to the California Public Utilities Commission (CPUC or Commission) to communicate the results of its 2014 Energy Storage Distribution Reliability/Power Quality Request for Proposal Seeking a 4 MW Energy Storage System (2014 Storage RFP).[1]

D.13-10-040 (the Storage Framework Decision) mandates that the Investor Owned Utilities (IOUs) run solicitations for energy storage on December 1, 2014, and then "submit contracts for approval within 12 months after the solicitation date."[2] Similarly, D.14-10-045 (the 2014 Procurement Plan Decision) directs SDG&E, PG&E, and SCE to file an Application "seeking Commission approval of contracts for the winning bids selected from their 2014 solicitation to be submitted no later than one year from December 1, 2014."[3] However, neither the Storage Framework nor the 2014 Procurement Plan Decisions outline a process for communicating the results of solicitations that *do not* result in contracts.[4] SDG&E did not execute a contract following its 2014 Storage RFP, and therefore is not filing an application seeking the Commission's approval of a "winning bid."

[1] D.13-10-040; D.14-10-045.
[2] D.13-10-040 ordering paragraph 3, COL 43.
[3] D.14-10-045 COL 40.
[4] D.13-10-040 at COL 43 states that "the utilities should provide a post-solicitation report *and* submit contracts for approval within 12 months after the solicitation date" (emphasis added). While this conclusion appears to envision a post-solicitation report be filed concurrent with contracts, it is unclear if this also clearly constitutes a requirement to submit post-solicitation report for procurement processes that do not result in contracts.

SDG&E is aware, however, that information about solicitation processes and results provide important data points for market participants, particularly at this early stage of the State's energy storage procurement efforts. In this spirit, and to inform parties and the Commission regarding future solicitations, SDG&E is providing this Report to describe its 2014 Storage RFP, evaluation processes, results, and importantly, lessons learned.

As discussed in greater detail below, the 2014 Storage RFP was one *small* portion of SDG&E's Commission-approved 2014 procurement plan for energy storage. The bulk of SDG&E's 2014 energy storage procurement occurred through SDG&E's All Source Request for Offers (All Source RFO) that was issued on September 5, 2014 and included an energy storage product type. SDG&E anticipates filing an application seeking Commission approval of energy storage contract(s) arising from this RFO on or before March 30, 2016.[5]

Section II of the Report provides background on SDG&E's storage portfolio and its progress towards the Commission's energy storage targets, and also describes SDG&E's 2014 storage procurement plan including both the All Source RFO and the Distribution RFP. Section III summarizes SDG&E's 2014 Storage RFP, including the solicitation design, evaluation processes and methodology, and results. Section IV of this Report outlines SDG&E's conclusions, observations and lessons learned from this storage solicitation.

II. Background

On October 21, 2013 the Commission adopted a collective 1,325 MW energy storage procurement "target" for the three IOUs.[6] In adopting the energy storage targets, the

[5] On November 2, 2015, SDG&E requested a 120 day extension to file energy storage contracts from the 2014 All Source RFO. CPUC Executive Director Timothy J. Sullivan granted SDG&E's request on November 25, 2015. SDG&E will file an application requesting approval of its 2014All Source RFO storage contracts by March 30, 2016.

[6] Energy Service Providers and Community Choice Aggregators must procure energy storage equivalent to 1% of expected peak load by 2020.

Commission's express goal was to "encourage the development and deployment of *new* energy storage technologies" – in short, to transform the energy storage market.[7] To ensure the market transforms broadly across all sectors, the Commission parsed the procurement targets across three different segments or domains: transmission, distribution and customer sited. Further, to enable diverse storage solutions in these domains, D.13-10-040 did not specify a minimum amount of time that a storage device would be required to discharge at its maximum capability, and also held that large scale (>50MW) pumped hydro storage and projects that were on-line prior to 2010 do not count towards the target.

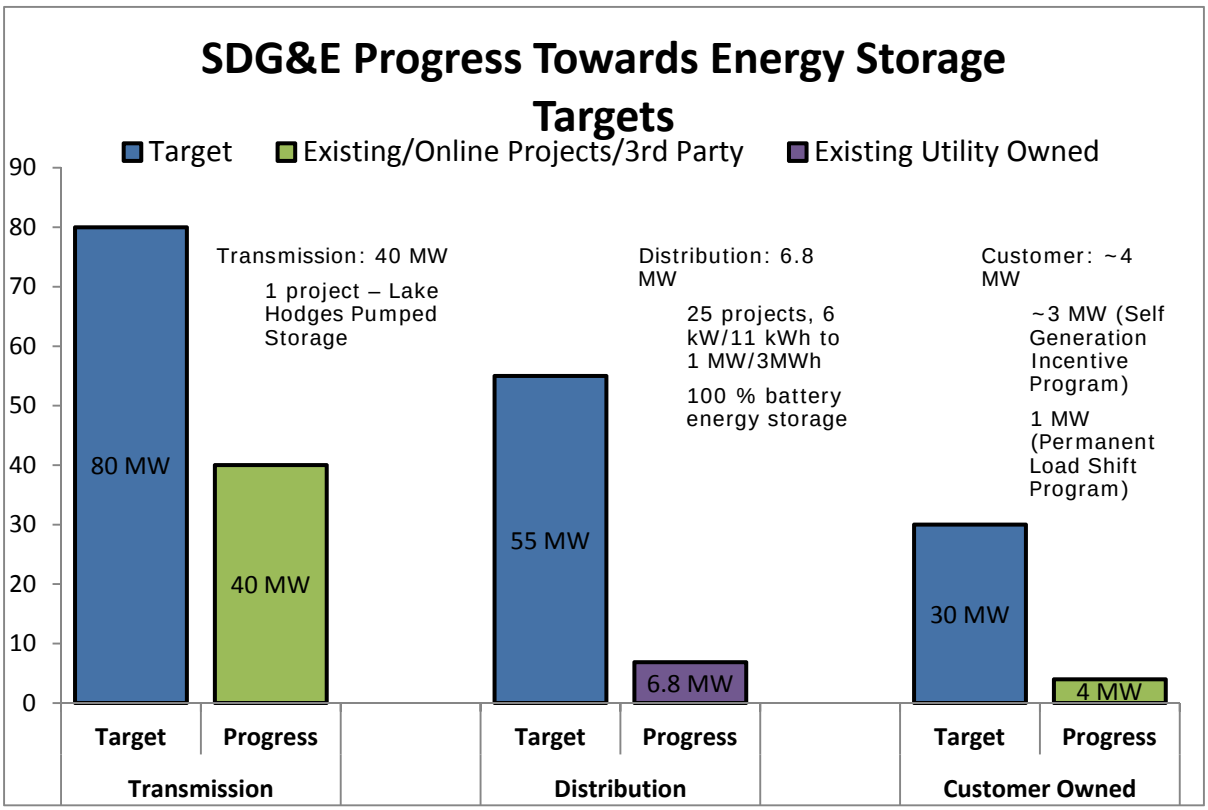
A. SDG&E's Progress Towards Meeting the Targets

SDG&E's share of the adopted energy storage target is 165 MW, procured by 2020, and installed by 2024. However, D.14-10-045 approved SDG&E's request to count approximately 51 MW of existing or under-construction energy storage projects towards its total target. This figure included 40 MW of pumped hydro at Lake Hodges, approximately 7 MW Smart Grid storage demonstration projects, and roughly 4 MW of customer-connected storage or permanent load shifting technology.[8] Factoring in these qualifying projects, SDG&E's net procurement target is approximately 114 MW. SDG&E's targets by domain, and its current progress towards those targets, are outlined in Figure 1, below.

[7] D.13-10-040 at p. 23 (emphasis added). The Commission's focus is on transforming the market for new storage technologies, like batteries, flywheels, and compressed air.

[8] SDG&E currently has 6.87 MW of energy storage connected in the distribution domain. This total is slightly higher than the amount SDG&E included in its 2014 storage procurement plan, and includes storage projects that have since become operational.

Figure 1: SDG&E's Energy Storage Procurement Targets by Domain, and current progress.



In addition to establishing energy storage targets, the Commission also adopted a biennial procurement framework to ensure the targets are met. The Commission proposed biennial targets in each domain, and the IOUs are required to run biennial storage solicitations in 2014, 2016, 2018, and 2020 to achieve those targets. The IOUs must file – and the Commission must approve – energy storage procurement plans prior to each solicitation that outline the amount of storage by domain that the IOU seeks to procure.[9] SDG&E's adopted energy storage procurement targets by domain and CPUC proposed procurement schedule are provided in Table 1, below.

[9] While the Commission prefers storage procurement to occur through the defined solicitation process, it acknowledged that in some instances storage procurement "outside of a competitive solicitation can be considered on a case-by-case basis." D.13-10-040 at p. 56.

Table 1: Adopted Energy Storage Procurement Targets by Domain and CPUC Proposed Procurement Schedule

Storage Grid Domain Point of Interconnection	2014	2016	2018	2020	Total
San Diego Gas & Electric					
Transmission	10	15	22	33	80
Distribution	7	10	15	23	55
Customer	3	5	8	14	30
Subtotal SDG&E	**20**	**30**	**45**	**70**	**165**

SDG&E's combined 2014 target across all three domains totaled 20 MW.[10] SDG&E's existing and in progress storage projects met or exceeded the established 2014 targets in each domain. Accordingly, D.14-10-045 found that "SDG&E, PG&E, and SCE are in compliance with or exceed 2014 procurement targets … ."[11]

B. SDG&E's 2014 Energy Storage Procurement Plan

Despite being in compliance for the 2014 procurement cycle, SDG&E's 2014 energy storage procurement plan proposed to seek an additional 16 MW in the 2014 cycle. That proposal included 10 MW of transmission-connected storage to satisfy Local and Flexible capacity requirements, and 6 MW of distribution connected storage. The 6 MW of distribution connected storage was further divided into two separate use profiles: 2 MW of distribution-connected storage to satisfy Local and Flexible capacity requirements, and 4 MW of distribution-connected storage to address specific reliability or power quality issues. SDG&E's approved procurement plan indicated that SDG&E would seek all 16 MW through two distinct solicitations: the 2014 All Source RFO, and the 2014 Storage RFP.

[10] D.14-10-045 FOF 4.
[11] Id. at p. 20.

i. 2014 All Source RFO

In D.14-03-004 (the Track 4 Decision), the Commission authorized SDG&E to procure between 500 MW and 800 MW of in-basin capacity by 2022 to meet long term local capacity requirements (LCR) resulting from the unexpected retirement of the San Onofre Nuclear Generating Station (SONGS) and the planned retirement of the coastal power plants that use Once-Through Cooling (OTC) technology. Of the 800 MW authorization, the Commission required that 200 MW consist of preferred resources, including at least 25 MW of energy storage.

SDG&E issued its 2014 All Source RFO on September 5, 2014.[12] In this solicitation, energy storage competed head to head with conventional generation, distributed generation, energy efficiency, demand response, and renewable generation. Specific to storage, the 2014 All Source RFO sought between 25 MW and 800 MW of energy storage to meet local resource adequacy needs.[13] In this way, SDG&E utilized the 2014 All Source RFO to solicit *both* the 10 MW transmission-connected, and the 2 MW distribution-connected storage to meet Local and Flexible capacity requirements described in SDG&E's 2014 energy storage procurement plan.[14] The energy storage product type within the 2014 All Source RFO solicited offers for both third-party owned, contracted resources and utility-owned resources. While SDG&E mandated that storage must meet local resource adequacy requirements (e.g., must have the ability to continually discharge at maximum capability for a minimum of 4 hours) as well as the other

[12] See http://www.sdge.com/all-source-2014-rfo.
[13] Subsequent to issuing the RFO, in D.15-05-051, the Commission approved the power purchase tolling agreement with Carlsbad Energy Center. This action reduced SDG&E's remaining authorization, and also required all remaining residual procurement to consist of in-basin preferred resources and/or energy storage.
[14] D.14-10-045 COL 41 recognizes the 2014 All Source RFO as SDG&E's solicitation vehicle for 10 MW transmission and 2 MW distribution level Local Capacity Requirement outlined in SDG&E's 2014 energy storage procurement plan.

conformance requirements detailed within the RFO documents, bidders were free to offer systems as small as 500 kW and up to 800 MW at any location within the San Diego local capacity requirement (LCR) sub-area as defined by the CAISO.[15] For behind-the-meter storage, respondents were directed to the Demand Response product type and required a minimum size of 500 kW in aggregate.[16]

The 2014 All-Source RFO evaluation process followed procurement procedures established within the Long Term Procurement Plan, and was managed in consultation with SDG&E's Procurement Review Group (PRG) and Cost Allocation Mechanism (CAM) PRG. In addition, the 2014 All Source RFO involved the oversight of an Independent Evaluator (IE).

The 2014 All Source RFO closed on January 5, 2015, and SDG&E received conforming energy storage offers and storage-based Demand Response offers from a wide range of bidders, and communicated a recommended shortlist of selected projects to its CAM PRG on May 27, 2015. As a result of this 2014 All Source RFO process, SDG&E is currently negotiating first-of-their-kind energy storage contracts which, in aggregate, exceed the minimum requirements for energy storage specified in D.14-03-004.[17] SDG&E anticipates filing an application seeking Commission approval of energy storage contracts arising from the 2014 All Source RFO (as well as any other contracts that result from the 2014 All Source RFO) on or before March 30, 2016.

[15] See section 3.0 – Eligibility Requirements in the Energy Storage System RFO document, available here: http://www.sdge.com/sdge-2014-request-offers-seeking-storage-power-purchase-agreements
[16] See section 3.0 B – Resource Criteria in the Demand Response RFO document, available here: http://www.sdge.com/sdge-2014-request-offers-seeking-dr-power-purchase-agreements
[17] Decision Authorizing Long-Term Procurement for Local Capacity Requirements Due to Permanent Retirement of the San Onofre Nuclear Generating Station (Track 4 Decision) and the planned retirement of the coastal power plants that use Once-Through Cooling (OTC) technology. That Decision required SDG&E to procure a minimum of 25 MW of energy storage to address local capacity needs created by the early retirement of SONGS and the planned retirement of once through cooling resources.

ii. 2014 Storage RFP

SDG&E solicited the remaining 4 MW of distribution-connected storage outlined in SDG&E's 2014 energy storage procurement plan using a request for proposal (RFP) process. The 2014 Storage RFP solicited storage to potentially defer (but not displace or avoid) the construction of a planned substation by two to three years. Put simply, the RFP looked to assess whether a small quantity of energy storage deployed at a specific location could mitigate forecasted overloads and effectively delay the need to construct a new substation by a few years. If such a delay were possible, the RFP evaluation would determine whether the estimated savings associated with deferred construction of the substation was likely to offset the projected costs of acquiring the energy storage; i.e., whether acquiring energy storage would be cost-effective for customers. As discussed in greater detail below, unlike the largely generic capacity solicited in the 2014 All Source RFO, the 2014 Storage RFP solicited storage for a very specific use case. As a consequence, the 2014 Storage RFP contained very specific requirements regarding the system's size, minimum amount of time that the system would have to continually discharge at maximum capability, total throughput, cycle life, warranty, etc.

SDG&E issued the 2014 Storage RFP on December 1, 2014, and proposals were due on March 31, 2015. SDG&E received 12 proposals in total, with 10 surviving initial conformance screens. Unlike the RFO that followed evaluation procedures established in the LTPP proceeding, the 2014 Storage RFO followed procurement procedures associated with procuring distribution system/distribution reliability infrastructure, such as transformers, poles, or wires. Moreover, unlike the 2014 All Source RFO, which solicited multiple ownership models for energy storage, the 2014 Storage RFP solicited proposals for utility-owned resources only. More specifically, SDG&E sought proposals from suppliers to negotiate and enter into an Equipment

Supply and Installation Agreement, under which the supplier would manufacture, install and commission the system at location(s) determined by SDG&E on its distribution system, and title to the system would rest with SDG&E upon commissioning. Finally, the solicitation involved the oversight of an Independent Evaluator (IE).

III. 2014 Storage RFP Process Summary

A. Solicitation Process

i. Process Overview

SDG&E established an open, transparent and competitive process for the procurement effort, which included the following protocols:

- SDG&E created a 2014 Storage RFP solicitation website allowing respondents to download solicitation documents, participate in a Question and Answer forum ("Q&A"), and view updates or revisions associated with the process;
- SDG&E established a webpage through the PowerAdvocate® website to accept electronic offers, along with a 2014 Storage RFP specific email to accept questions;
- The IE participated in the RFP design, and bid evaluation process.

ii. RFP Design

SDG&E issued RFP documents on December 1, 2014 soliciting energy storage with the capability to inject a total of 4MW/12MWh onto one or more 12kV circuits, in 1MW/3MWh incremental sub-units. The solution was initially intended to either improve power quality or address impending overload conditions, potentially enabling some measure of distribution capacity deferral. Given the solution's specific function at specific locations, the 2014 Storage RFP detailed very specific eligibility and system performance criteria, including, but not limited to:

- **Site conformance requirements**: Because the system was intended to address overload issues in a specific geographic location, and would be sited on SDG&E owned property in that area, the RFP required that total system size could not exceed 0.6 acres, and sub-

units could not exceed a footprint of 6,400 square feet. SDG&E also required that containerized solutions should not exceed 20' in length.

- **Commercial viability requirements**: The 2014 Storage RFP's ownership model envisioned an Equipment Supply and Installation Agreement, whereby the bidder would be entirely compensated at time of commissioning.[18] Accordingly, to adequately protect the customers' investment, SDG&E required a certain degree of demonstrated commercial viability from both the bidders and their proposed technologies. Specifically, SDG&E required bidders (i) have prior experience installing at least one grid connected 1MW or greater system where the system had been in continuous operation for 1 year, and (ii) to have contracts for three or more additional systems. Additionally, Battery Management System (BMS), Power Conversion System (PCS), DC/AC Inverters, and other power electronics utilized by the bidders must be commercially available and previously deployed and applied to a storage system at a 1 MW+ scale.

- **System performance requirements**: To create operational flexibility and maximize customer benefits, SDG&E required a minimum amount of 2,250 lifetime cycles at 80% or more depth of discharge, and 150,000 lifetime cycles at 10% depth of discharge.

- **Capacity guarantee and warranty requirements**: To protect customer investment and ensure continued operations throughout the system's useful life, SDG&E required bidders to include a minimum two (2) year warranty on the complete storage system, including installation. Additionally, warranty periods of five (5) and ten (10) years or useful life period, whatever is shorter, were required. If the expected useful life of the equipment exceeded ten years, additional warranty periods priced out to the end of the expected useful life were required.

1. Outreach, Bidder Conference, and Communication

On December 1, 2014, SDG&E advertised the 2014 Storage RFP on its website. Additionally, SDG&E contacted various trade groups including the California Energy Storage Alliance (CESA) and the national Energy Storage Alliance (ESA) to provide their members information regarding the solicitation, and links to the website with the solicitation documents. SDG&E held bidders conferences on January 14, 2015 and January 29, 2015. SDG&E invited participation via WebEx and posted Q&A from the webinar on PowerAdvocate®.

Additionally, after bids were received, and in an effort to address inconsistencies in the way information was presented and to ensure a uniform comparison of equipment performance,

[18] This is distinguishable from a tolling agreement whereby payments are made to the supplier over the life of the contract.

SDG&E issued a request for information (RFI) from bidders on June 26, 2015 and conducted a bidders conference on July 10, 2015 to discuss the RFI. The RFI provided bidders an opportunity to supply information necessary for evaluation that was either: 1) not originally supplied, 2) incomplete, or 3) not supplied in an easily comparable format. The RFI also requested specifics about the proposed hardware, such as battery cell and inverters. SDG&E posted Q&A from the webinar on PowerAdvocate®.

2. Safety

To ensure safe design and operations, SDG&E requires that bidders demonstrate that their system designs meet all applicable standards established by NFPA, OSHA, NEC, and others as needed based on the technology proposed. Additionally, systems must be designed to operate according to SDG&E's electrical design standards and system protection requirements, including compliance with IEEE standards and SCADA controls and permissions. These requirements are clearly stated in SDG&E's Energy Storage Technical Specifications document in the RFP bid package and included well defined objectives, clearly stated performance expectations, and system specifications including designation of applicable safety standards, methods and systems required to assure safety, and explicitly defined protocols for remote communications, including details of SCADA integrated interconnection and relay protocols. In addition, the RFP specified requirements for Factory Acceptance Testing & Site Acceptance Testing, and required the bidders to provide detailed grid isolation functions and methods.

SDG&E has used these safety specifications for prior storage solicitations, and vendors have been generally receptive of the specification. SDG&E works with bidders early in the process to address and resolve any ambiguity in SDG&E's specifications.

iii. Independent Evaluator

PA Consulting Group was involved in all aspects of SDG&E's 2014 Storage RFP process including, but not limited to reviewing RFP document development and creation of evaluation criteria, reviewing and monitoring of all received bids, involvement in bid evaluation for conformance and ranking, conducting the evaluation analysis, and participating at the bidder's conference. The IE's report is attached as Appendix 1 to this report.

iv. Procurement Review Group

The 2014 Storage RFP sought to potentially defer traditional distribution system infrastructure, like transformers or reconductors. This type of asset procurement is generally not within the purview of SDG&E's Procurement Review Group (PRG), who focuses instead on energy and capacity related procurement. Despite being outside the PRG's normal scope, SDG&E did brief its PRG on February 20, 2014 to provide information on the 2014 Storage RFP and help prevent possible confusion with SDG&E's other storage procurement efforts (like the 2014 All Source RFO).

B. Two-Part Evaluation Process

SDG&E received bids from 12 bidders on March 31, 2015. Following the initial conformance evaluation – which identified three (3) bidders who were unable to demonstrate minimum commercial viability – SDG&E undertook a two-part bid evaluation process. As described in more detail below, the first step evaluated and ranked bids based on quantitative and qualitative criteria, such as experience and price. The second step evaluated the cost/benefit of the highest ranked bid from step one against the cost/benefit of the conventional solution the storage was designed to defer. If the storage solution proved cost-effective both quantitatively

and qualitatively at the conclusion of this two-step process, SDG&E intended to short-list that highest ranked bidder, and move to contract negotiations.[19]

i. Step One: Initial Evaluation and Bid Ranking

Determining overall cost-effectiveness in the 2014 Storage RFP required SDG&E to first evaluate and rank conforming bids relative to each other on a variety of quantitative and qualitative metrics. These factors included price, technology (e.g., battery cell and inverter manufacturers), system configuration (e.g., footprint size, number of inverters per module, etc.), and experience. This last factor, for example, included evaluating the volume and size of the bidder's energy storage deployments, and past experience with SDG&E. The bidder's financial stability and diversity were also weighted components of the step-one evaluation. While price was more heavily weighted than other factors, it was not the only factor considered. Thus, a bidder with the lowest overall price might not be the highest ranked bidder once all other factors (experience, diversity, system configuration, etc.) were evaluated and weighed.

Through the course of the step-one evaluation, it became clear that in some cases otherwise conforming bids lacked sufficient detail to permit a complete and accurate evaluation. In an effort to address inconsistencies in the way information was presented, and ensure consistent comparison all conforming bids, SDG&E issued a supplemental request for information (RFI) from bidders on June 26, 2015 and conducted a bidders' conference on July 10, 2015 to discuss the RFI. The RFI provided bidders an opportunity to supply information necessary for evaluation that was either: 1) not originally supplied, 2) incomplete, or 3) not

[19] As described in Section IV below, *infra*, no bidder advanced beyond the two step evaluation process, and therefore no bid was ultimately shortlisted.

initially supplied in an easily comparable format. Responses to the RFI were due July 24, 2015.[20]

SDG&E completed its step-one evaluation in August, 2015. The highest ranked bidder moved to step-two.[21]

ii. Step Two: Establish Cost-effectiveness of Storage Solution Relative to the Conventional Solution

SDG&E contracted DNV GL to perform an independent cost-effectiveness analysis on the highest ranked bid from the 2014 Storage RFP. DNV GL applied its proprietary ES-GRID modeling tool to assess the cost-effectiveness of the capacity upgrade deferral for each of the defined scenarios. The ES-GRID tool is an advanced modeling and simulation tool designed to assess the cost-effectiveness of energy storage connected on the distribution system. The tool is customized to a specific system and can assess the cost and benefits of single or bundled storage applications. Through scenario development, the tool allows for the direct comparison of multiple scenarios of a particular energy storage use case.

1. Background

SDG&E identified a planned substation as a potential candidate for deferral by a cost-effective energy storage project. The planned substation is needed to accommodate expected growth of end-use load in one area of SDG&E's distribution service territory, maintain substation and circuit reliability, and reduce area substation loading to optimum operating

[20] Two bidders who were initially conforming did not respond to the RFI. In the RFI documents, and at the July 10, 2015 web-conference, SDG&E made clear that failure to respond would hinder SDG&E's ability to accurately evaluate bids, and could render those who failed to respond non-conforming.
[21] Only one bid was evaluated in the Step Two process because there were no meaningful differences between the proposals that would have influenced the outcome of the Step Two evaluation. All of the proposals included lithium ion battery based storage systems with similar system performance parameters (charge and discharge limits, power rating, energy capacity, inverter efficiency, storage efficiency, etc.). While price was a heavily weighted factor in the Step One evaluation, it was not the only factor. The highest ranked bidder had the second lowest price, but that price was less than 3% higher than the lowest price bidder, who ranked lower in the other scored categories.

conditions. Currently, there are three substations supplying power to this area. The substations are connected to the transmission grid and draw power from the transmission system to supply multiple distribution feeder circuits which ultimately connect with individual end-use customers. Within each substation are transformers that connect the high voltage transmission system to the lower voltage distribution feeder circuits. By 2018, forecast load growth in the area is projected to increase the amount of power which flows across at least one of the existing transformers to a level that exceeds the thermal capability of that transformer. SDG&E has determined that by constructing the planned substation, and relocating four of the existing distribution feeder circuits to the new substation, power flows across the *existing* transformers will be reduced, thereby allowing continued, reliable growth in the area.

The 2014 Storage RFP was designed to determine whether (i) an energy storage project could inject enough power, at the right times of the day and year and at the low voltage side of the existing transformers (where the distribution feeder circuits connect) to reduce power flows across the existing transformers to delay the point in time when the planned substation would need to be constructed, and (ii) the savings associated with deferring the construction of the planned substation would offset the cost of the energy storage project; i.e., would be cost-effective for SDG&E customers.

2. Scenario Development

SDG&E worked with DNV GL to define a set of scenarios and inputs for the ES-GRID model runs. This scenario based approach allows for the cost-effectiveness of the energy storage project to be assessed over the range of bid pricing options, storage power and energy configurations, substation upgrade costs, and transformer bank overload triggers. The sensitivity factors and levels for all sensitivities considered are shown in Table 2, below.

Table 2: Cost-effectiveness Analysis Sensitivities

Sensitivity Factors	# of Levels	Levels	Additional Notes
Energy Storage Power Rating	2	2 MW / 6 MWh 4 MW / 12 MWh	
Energy Storage Warranty Option	3	2-Year 5-Year 10-Year	SDG&E requested that bidders provide pricing for three warranty options, 2, 5, and 10 year warranties.
Energy Storage Capacity Maintenance Options	2	Oversized Augmented	The highest ranked bidder offered two energy capacity maintenance options: oversized and augmented.[22]
Substation Upgrade Cost	3	Low: -20% Med: ± 0% High: +20%	SDG&E specified 3 ranges for substation cost. The medium value is SDG&E budgeted cost (including 30% contingency), with ±20% for High and Low sensitivities. An annual $205,714 O&M cost after the substation upgrade was also considered.
Transformer Bank Overload Trigger	1 per Storage Power Rating	98% for 2 MW solution 100% for 4 MW solution	SDG&E identified 2 transformer bank overload triggers.
Total Number of Runs:	36		

3. Methodology

To compute the number of years of deferral that each energy storage configuration can provide, the model used SDG&E's hourly SCADA load data and forecast load for each of the identified transformers. For each scenario, and across all 10 years of the simulation horizon, ES-GRID computed the optimal hourly energy storage dispatch schedule for peak shaving on the impacted transformer bank. For each scenario, the ES-GRID analysis produces the hourly storage dispatch profiles, number of years of deferral, and days that storage would be dispatched for peak shaving.

[22] Battery cells degrade with usage. To keep the system's rated power and energy consistent throughout the battery's useful life, developers must either plan to replace or augment cells as they degrade, or initially oversize the system to account for degradation. Augmenting takes advantage of forecast price declines for battery cells and is typically a lower cost option.

Using the computed deferral period, the model next calculated the net present value (NPV) based on various benefit and cost elements such as capital expenditure, installation cost, fixed and variable O&M costs, storage charging cost, deferral benefit, and deferred/avoided tax payments.

4. Results

DNV-GL simulated a total of 36 scenarios. As explained and documented more fully below, SDG&E found that 35 of 36 scenarios were not reasonably cost effective after applying both quantitative and qualitative evaluation criteria. For the scenarios with 4 MW / 12 MWh storage solution and a 100% loading trigger, the model determined that 12 were cost effective (i.e., had a positive NPV), and concluded it is possible to defer the planned substation for three years, starting in 2018. For these scenarios, storage is dispatched in a limited number of hours on three days in 2018, 2019, and 2020.[23] However, a closer look at the results revealed the following:

- Half of the cost-effective scenarios (6 of 12) required the planned substation to fall within the "high" cost category, or 20% *over* the engineering budget.
    - As highlighted in Table 2, above, SDG&E used the budgeted substation costs as the mid-range upgrade cost sensitivity with ±20% for High and Low sensitivities. Six of the twelve cost-effective scenarios relied on the unlikely "high" (+20%) substation cost sensitivity. Six of the cost-effective scenarios relied on the

[23] The cost-effectiveness results described here include only the single application of capacity upgrade deferral. SDG&E recognizes that because the storage devices are needed for a only a limited number of days to accomplish its deferral objectives, additional revenue streams such as market participation revenue, could improve the economics further. However, SDG&E is reluctant to include this potential value stream in the cost-effectiveness evaluation until regulatory rules permitting these dual use or "benefit stacking" applications are defined and adopted. SDG&E looks forward to developing these rules with parties and the Commission in the near future.

Of particular importance to SDG&E are unresolved (and as yet, un-scoped) issues around cost allocation for dual use resources. For example, the costs for a storage asset that (as here) is designed to defer investment in traditional distribution system infrastructure would be allocated to all customers who utilize the distribution system, i.e., both bundled *and* unbundled customers, though distribution rates. SDG&E is, however, unaware of a Commission-approved cost or benefits allocation mechanism that would both track and allocate costs and benefits of that same resource also participating in the wholesale markets.

expected, mid-cost estimate, as described below. Zero cases were cost effective with the low (-20%) cost sensitivity.

- This was a key fact for SDG&E. The budgeted substation costs (the mid case sensitivity) already *includes* a 30% contingency, indicating that the probability of the actual costs exceeding the mid-case was low.[24] Indeed, the 30% contingency increases the probability that the substation will come in at or below budget.

- Accordingly, these 6 scenarios were not considered cost-effective alternatives.

- Of the six remaining cost effective cases, 4 contained warranty options that were *significantly less* than the asset's useful life.

  - As highlighted in Table 2, above, in an effort to better understand pricing strategies, SDG&E requested and bidders provided pricing for three different warranty options: 2 year, 5 year, and 10 year.

  - Although there were somewhat predicable cost savings for the 2 and 5 year warranty options, those savings come with significant added risks to customers, particularly when, as here, the procured technology is nascent, and the application (deferral) is untested in SDG&E's service territory.

  - Accordingly, while having positive NPVs, the 2 and 5 year warranty options were not considered cost-effective alternatives.

- Only 2 of the 12 scenarios were cost effective using the mid-case substation costs, and the 10 year warranty option.

  - Scenario 30, utilizing the mid-case substation costs, augmented capacity maintenance option, and a 10 year warranty resulted in an estimated NPV savings of $700,000.

  - Scenario 27, utilizing the mid-case substation costs, oversized capacity maintenance option, and 10 year warranty resulted on NPV savings of approximately $3000, and is essentially the breakeven case.

The financial results for all the scenarios with a positive NPV savings, including those rejected by SDG&E for the reasons outlined above, are listed in Table 3, below.

[24] Engineering budget estimates for substations and other large infrastructure projects typically contain a 30% contingency that is designed to address unforeseen costs or cost increases associated with project materials, labor and/or permitting. The contingency percentage may be refined during the subsequent project approval phase.

Table 3: Scenario Results with Positive NPV

Scenario #	Storage Sizing	Upgrade Cost	Capacity Maintenance	Warranty Option	Benefit/Cost Ratio	NPV Savings
34	4MW /	High Case	Augmented	2-year	1.33	$3.1M
35	4MW /	High Case	Augmented	5-year	1.32	$3.0M
36	4MW /	High Case	Augmented	10-year	1.27	$2.6M
31	4MW /	High Case	Oversize	2-year	1.24	$2.4M
32	4MW /	High Case	Oversize	5-year	1.22	$2.3M
33	4MW /	High Case	Oversize	10-year	1.19	$2.0M
28	4MW /	Mid Case	Augmented	2-year	1.12	$1.1M
29	4MW /	Mid Case	Augmented	5-year	1.11	$1.0M
30	4MW /	Mid Case	Augmented	10-year	1.07	$0.7M
25	4MW /	Mid Case	Oversize	2-year	1.04	$0.4M
26	4MW /	Mid Case	Oversize	5-year	1.03	$0.3M
27	4MW /	Mid Case	Oversize	10-year	1.00	$2,919

IV. SDG&E's Conclusions, Observations and Lessons Learned from the RFP

Removing the breakeven case, the above results and discussion indicate that in 35 of 36 scenarios, the storage solution solicited here was not reasonably cost effective. The NPV savings of the lone cost effective scenario is $700,000.00. To put that amount into perspective, it is approximately 5% of the total installed cost for the highest ranked storage solution, and approximately 1% of the estimated substation costs, which includes a 30% contingency. Put another way, the entire quantitative value of pursuing the storage solution rests on that solution's actual costs being almost exactly its estimated costs. If the actual costs exceed the estimated costs by 5% or more, the immediate value to customers is entirely eroded. Similarly, if the substation's actual costs are only 1% less than estimated costs – not an implausible outcome give that the substation's estimated costs include a 30 % contingency – there is no immediate value to customers in having installed storage to defer construction of the planned substation.

Given these objectively thin margins, SDG&E elected to not pursue the storage solution in this particular instance. This decision is tempered by broad, qualitative considerations,

including: 1) the Commission's determination that SDG&E is in compliance with its 2014 targets, and is therefore *not* required to procure additional storage in the 2014 procurement cycle; 2) the Framework and 2014 Procurement Plan Decisions' requirement to procure cost effective storage, not storage at any cost; and 3) SDG&E's strong belief that lessons learned from this process (outlined below) will likely generate procurement outcomes in future storage solicitations that yield higher overall value to customers, including those seeking deferral of conventional distribution assets.

A. Lessons learned

SDG&E thanks and appreciates the time and effort of bidders who responded to the 2014 Storage RFP, and to the subsequent RFI. SDG&E believes this was a successful solicitation, despite not ultimately contracting with a bidder, largely because the lessons learned in this initial solicitation will inform future solicitations, and help generate positive outcomes.

- **Storage is cost-effective in certain circumstances today, and its cost-effectiveness should only improve over time**. SDG&E's conclusion here that storage was not a cost-effective alternative is limited to the facts of this specific, narrow use case. In fact, as stated earlier with regard to the 2014 All Source RFO, SDG&E is currently negotiating cost effective energy storage related contracts, and will file those contracts in its Track 4 Application no later than the end of Q1, 2016. That said, unlike storage solicitations seeking generic local capacity (like the All Source RFO), SDG&E notes that deferral use cases for storage are (as we have learned) fact-specific evaluations, and outcomes are sensitive to a number of variables specific to each project and proposed solution. In this particular instance, under the particular facts involved in this RFP, and after balancing all the quantitative and qualitative components of this particular solicitation, SDG&E concluded that the storage solution was not a cost effective alternative.

  SDG&E has purchased or contracted with over 47 MW of currently on-line and operational energy storage, and as a result of the 2014 All Source RFO, is currently negotiating contracts for energy storage resources that in aggregate exceed the 25 MW minimum requirements for energy storage specified in D.14-03-004.[25] SDG&E strongly believes that energy storage in general is, and will increasingly become cost-competitive resource options. SDG&E looks forward to soliciting and evaluating storage for various use cases and applications in upcoming procurement cycles.

[25] See footnote, 17 *infra*.

- **Evaluating Storage for a Deferral Application is Project and Solution Specific**. For distribution deferral, energy storage solutions have the potential to be competitive, even if on balance the solution was not cost-competitive in this specific case. Distribution deferral alternatives are a relatively new frontier, and the design and specifications included in solicitations for deferral projects solutions are evolving. Information learned in this solicitation will inform and improve successor solicitations, and over time the solicitation processes for energy storage applications will become easier and more efficient.

- **Balancing Specificity and Flexibility in Deferral Solicitations is Critical**. Unlike storage solicitations seeking generic local capacity, deferral use cases for storage are fact-specific exercises, requiring the evaluation of a specific quantity of storage, with the ability to provide continuous output at maximum capacity for a particular amount of time, located in a specific area, in a potentially small footprint, to meet an identified reliability (as opposed to market) need. Clearly, in deferral use cases, specificity is required to generate bids that have a high probability of meeting the defined need; however, achieving the right mix if specificity and flexibility will take time to develop.

- **Commercial Viability Will Remain an Issue in Early Solicitations:** Approximately 25% of bidders into SDG&E's storage Distribution Reliability RFP failed the commercial viability screens and were deemed non-conforming. Additionally, a significant portion of the storage offers into of the 2014 All Source RFO were also deemed non-conforming (some due to viability concerns). These screens – set up to protect customers– require a bidder to demonstrate experience deploying a substantially sized, commercially operational storage system. For utility-owned storage resources, the screens are essential to help ensure customer dollars are spent on projects and developers that have at least some demonstrable experience with similar projects. While commercial viability screens are necessary, they also continue to present "chicken-and-egg" challenges for both new, start-up storage firms, as well as established electrical infrastructure firms with newly formed energy storage businesses.

B. Compliance with Public Utilities Code Section 2838.

Public Utilities Code § 2838(a) (1) requires that by January 1, 2016 "each load-serving entity shall submit a report to the commission demonstrating that it has complied with the energy storage system procurement targets and policies adopted by the commission."[26] This Report constitutes compliance with § 2838(a) (1)'s reporting requirement. As explained in Section II of this Report, SDG&E's existing and in progress storage projects meet or exceeded the Commission's established 2014 energy storage targets in each domain. In addition, the

[26] PUC § 2838.

Commission has previously acknowledged in D.14-10-045 that SDG&E is in compliance with and exceeds its 2014 procurement targets.[27]

[27] D.14-10-045 at p. 20.

Attachment A

Confidential Declaration

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

DECLARATION OF RANDY NICHOLSON REGARDING CONFIDENTIALITY OF CERTAIN DATA

I, Randy Nicholson do declare as follows:

1. I am a Policy Manager for San Diego Gas & Electric Company ("SDG&E"). I have reviewed the following materials being provided to the CPUC regarding SDG&E's 2014 Distribution Reliability / Power Quality Program Request for Proposals for a 4 MW Energy Storage System ("2014 Storage RFP"):

   - Independent Evaluator Report on the 2014 Distribution Reliability / Power Quality Program Request for Proposals for a 4 MW EnergyStorage System

2. I am personally familiar with the facts and representations in this Declaration and, if called upon to testify, I could and would testify to the following based upon my personal knowledge and/or belief.

3. I hereby provide this Declaration in accordance with D.06-06-066, as modified by D.07-05-032, and D.08-04-023, to demonstrate that the confidential information ("Protected Information") provided concurrently herewith, falls within the scope of data protected pursuant to the IOU Matrix attached to D.06-06-066 (the "IOU Matrix").[1/] In addition, the Commission has made clear that information must be

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[1/] The Matrix is derived from the statutory protections extended to non-public market sensitive and trade secret information. (*See* D.06-06-066, *mimeo*, note 1, Ordering Paragraph 1). The Commission is obligated to act in a manner consistent with applicable law. The analysis of protection afforded under the Matrix must always produce a result that is consistent with the relevant underlying statutes; if information is eligible for statutory protection, it must be protected under the Matrix. (*See Southern California Edison Co. v. Public Utilities Comm.* 2000 Cal. App. LEXIS 995, *38-39) Thus, by claiming applicability of the Matrix, SDG&E relies upon and simultaneously claims the protection of Public Utilities Code §§ 454.5(g) and 583, Govt. Code § 6254(k) and General Order 66-C.

protected where "it matches a Matrix category exactly or consists of information from which that information may be easily derived."[2/]

4. I address below each of the following five features of Ordering Paragraph 2 in D.06-06-066:

- That the material constitutes a particular type of data listed in the Matrix,
- The category or categories in the Matrix to which the data corresponds,
- That it is complying with the limitations on confidentiality specified in the Matrix for that type of data,
- That the information is not already public, and
- That the data cannot be aggregated, redacted, summarized, masked or otherwise protected in a way that allows partial disclosure.[3/]

5. SDG&E's Protected Information: As directed by the Commission, SDG&E demonstrates in table form below that the instant confidentiality request satisfies the requirements of D.06-06-066:[4/]

Data at issue	D.06-06-066 Matrix Category	Period of Confidentiality
Attachment B *Independent Evaluator Report on the 2014 Distribution Reliability / Power Quality Program Request for Proposals for a 4 MW Energy Storage System* • Section 1.1 • Section 3.1	VIII A.	Raw Bid Data – Always confidential

2/ *See, Administrative Law Judge's Ruling on San Diego Gas & Electric Company's April 3, 2007 Motion to File Data Under Seal*, issued May 4, 2007 in R.06-05-027, p. 2 (emphasis added).

3/ D.06-06-066, as amended by D.07-05-032, *mimeo*, p. 81, Ordering Paragraph 2.

4/ *See, Administrative Law Judge's Ruling on San Diego Gas & Electric Company's Motions to File Data Under Seal,* issued April 30 in R.06-05-027, p. 7, Ordering Paragraph 3 ("In all future filings, SDG&E shall include with any request for confidentiality a table that lists the five D.06-06-066 Matrix requirements, and explains how each item of data meets the matrix").

• Section 3.5 • Section 4.2.2 • Figure 2 • Figure 3 • Section 5.3 • Section 5.5 • Figure 4 • Section 5.8 • Section 5.8.1 • Section 6.3		
Attachment B *Independent Evaluator Report on the 2014 Distribution Reliability / Power Quality Program Request for Proposals for a 4 MW Energy Storage System* • Section 1.1 • Section 3.1 • Section 3.5 • Section 4.2.2 • Figure 2 • Figure 3 • Section 5.3 • Section 5.5 • Figure 4 • Section 5.8 • Section 5.8.1 • Section 6.3	VIII B.	Confidential for 3 years after winning bidders selected.

5. As an alternative basis for requesting confidential treatment, SDG&E submits that the Protected Information constitutes material, market sensitive, electric procurement-related information protected under §§ 454.5(g) and 583, as well as trade secret information protected under Govt. Code § 6254(k). Disclosure of this information

would place SDG&E at an unfair business disadvantage, thus triggering the protection of G.O. 66-C.[11]

6. Under the Public Records Act, Govt. Code § 6254(k), records subject to the privileges established in the Evidence Code are not required to be disclosed.[5] Evidence Code § 1060 provides a privilege for trade secrets, which Civil Code § 3426.1 defines, in pertinent part, as information that derives independent economic value from not being generally known to the public or to other persons who could obtain value from its disclosure.

7. Public Utilities Code § 583 establishes a right to confidential treatment of information otherwise protected by law.[6] If disclosed, the Protected Information could provide parties, with whom SDG&E is currently negotiating, insight into SDG&E's contract terms with this particular counterparty, which would unfairly undermine SDG&E's negotiation position and could ultimately result in increased cost to ratepayers. In addition, if developers mistakenly perceive that SDG&E is not committed to assisting their projects, disclosure of the Protected Information could act as a disincentive to developers. Accordingly, pursuant to P.U. Code § 583, SDG&E seeks confidential treatment of this data, which falls within the scope of P.U. Code § 454.5(g), Evidence Code § 1060 and General Order 66-C.

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[11] This argument is offered in the alternative, not as a supplement to the claim that the data is protected under the IOU Matrix. California law supports the offering of arguments in the alternative. *See, Brandolino v. Lindsay*, 269 Cal. App. 2d 319, 324 (1969) (concluding that a plaintiff may plead inconsistent, mutually exclusive remedies, such as breach of contract and specific performance, in the same complaint); *Tanforan v. Tanforan*, 173 Cal. 270, 274 (1916) ("Since . . . inconsistent causes of action may be pleaded, it is not proper for the judge to force upon the plaintiff an election between those causes which he has a right to plead.")

[5] *See also* Govt. Code § 6254.7(d).

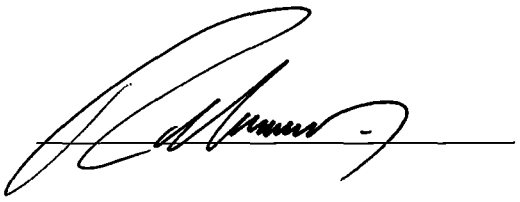
[6] *See*, D.06-06-066, *mimeo*, pp. 26-28.

8. The Protected Information also constitutes confidential trade secret information of the counterparty for this particular project. Disclosure of this market sensitive information could harm the developer's ability to negotiate necessary contracts and/or could invite interference with project development by competitors.

9. Pursuant to the relevant statutory provisions described herein, SDG&E hereby requests that the Protected Information be protected from public disclosure.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge.

Executed this 1st day of December 2015, at San Diego, California.



Randy Nicholson
Policy Manager
San Diego Gas & Electric Company

Attachment B

Independent Evaluator Report on the 2014 Distribution Reliability / Power Quality Program Request for Proposals for a 4 MW Energy Storage System

(Public Version)

PA Consulting Group

San Diego Gas & Electric

Independent Evaluator Report on the 2014 Distribution Reliability / Power Quality Program Request for Proposals for a 4 MW Energy Storage System

December 1, 2015

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Version no: 1.0

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Foreword

PA Consulting Group, Inc. (PA) has served as the Independent Evaluator (IE) of San Diego Gas & Electric Co.'s (SDG&E's) 2014 Request for Proposals for a 4 MW Energy Storage System for its Distribution Reliability / Power Quality Program (Storage RFO). This is PA Consulting Group's Independent Evaluator Report. It addresses the conduct and evaluation of SDG&E's Storage RFO, which resulted in a decision to accept no bids (an empty shortlist).

This report contains confidential and/or privileged materials. Review and access are restricted subject to PUC Sections 454.5(g), 583, D.06-06-066, GO 66-C and the Confidentiality Agreement with the California Public Utilities Commission (CPUC).

This document has been formatted in accord with the 2014 RPS Solicitation Shortlist Report Template, which was marked "v.02/19/2015" and provided via email from the CPUC Energy Division on April 15, 2015, but which has been modified (especially in chapter 4) to account for the fact that this is not an RPS solicitation. The chapters of this report correspond in sequence to the top-level items in the RPS Independent Evaluator (IE) Report Template – Standard Form.

Contents

1 Executive Summary

1.1 High-Level Summary of Activities

PA reviewed SDG&E's Energy Storage plan prior to its filing, and provided advice and commentary. In particular, SDG&E and PA discussed the evaluation criteria at length.

- PA participated in an initial pre-bidder conference on January 14, 2015. PA was provided all questions submitted by bidders and was in attendance when answers were provided during the conference on January 29.
- Due to technical difficulties experienced during the initial pre-bidder conference, a follow up pre-bidder conference was held.
- The bids received by SDG&E were made available to PA through Power Advocate. PA participated in an in-person meeting with SDG&E to identify conforming and non-conforming bids.
- After initial evaluation of bids by SDG&E, a Request for Information (RFI) was released on June 25, 2015 to conforming bidders. A corresponding pre-bidder conference was held for the RFI on July 10, 2015, with an RFI submission due date of July 24, 2015.
- SDG&E evaluated [redacted] conforming bids using a predefined Scoring Matrix. The [redacted] was then identified and a cost/benefit analysis was performed by SDG&E's consultant DNV GL. Based on this analysis and other qualitative considerations, SDG&E decided not to award a winner in this solicitation. PA reviewed the evaluation and the results of the cost/benefit analysis, and questioned SDG&E on the basis for its decision, in order to conclude that SDG&E's decision was reasonable, and fairly arrived at.

1.2 High-Level Summary of Findings

SDG&E in no way prevented PA from observing its process and analyzing its methods, and did not interfere with PA's evaluation.

- This solicitation was administered fairly. SDG&E performed adequate bidder outreach for the RFO and corresponding RFI. SDG&E's treatment of non-conforming bids was fair and reasonable. PA detected no favoritism through the course of the evaluation.
- The solicitation engendered a robust response from the energy storage vendor community.
- SDG&E's evaluation methodology was reasonable. Estimation of total deferred costs was the most complex part of the bid evaluation process.
- SDG&E decided not to shortlist any of the conforming bidders (and therefore to make no award). This decision was informed by a cost-effectiveness analysis of the least cost bid, but was not solely based on these findings. SDG&E considered various qualitative criteria that compared the bids against traditional assets. These considerations are further explained in this report.
- In the course of the bid evaluation, PA and SDG&E discovered that the initial RFO document had specified significantly more operational flexibility than was necessarily or feasible (by specifying requirements for multiple cycling modes which , if combined, would have covered

more than 8760 hours in a year). PA recommends that SDG&E more realistically and clearly define desired operational specifications for their subsequent energy storage procurements and clarify the relationship (inclusive or exclusive) between different requirements.

- PA also recommends that SDG&E formally seek feedback from all potential bidders who registered on PowerAdvocate® for the 2014 ESS RFP or who attended the pre-bid conference webinar(s), as to their reasons for bidding (or not bidding) and their opinion of SDG&E's conduct and evaluation of the RFO

2 Role of the Independent Evaluator

This chapter describes the history of the requirements for Independent Evaluators at the Federal level and in California. It includes a list of the IE's roles as well as a summary of PA's activities in fulfilling those roles.

2.1 The IE requirement

Regulatory requirements for an IE of resource procurement can be traced to the Federal Energy Regulatory Commission's (FERC's) "Opinion and Order … Announcing New Guidelines for Evaluating Section 203 Affiliate Transactions" (108 FERC ¶ 61,081 (2004)). That decision addressed ways to demonstrate that a utility's procurement of power from an affiliate was not abusive or unfair, under the standards of the Edgar decision (55 FERC ¶ 61,382 (1991)). FERC provided a set of guidelines, which presumably would be sufficient to demonstrate that the utility had not unfairly favored its affiliate. One of those guidelines was that "an independent third party should design the solicitation, administer bidding, and evaluate bids prior to the company's selection." FERC proposed not just independent evaluation but independent conduct of all aspects of the solicitation (except, presumably, the need determination).

The California Public Utilities Commission (CPUC) referenced those guidelines in its December 2004 decision on long-term resource procurement.[1] The CPUC stated that although it had not previously required the use of an IE for resource procurement, it would "require the use of an IE in resource solicitations where there are affiliates, IOU-built, or IOU-turnkey bidders" from that point forward.[2] The CPUC's intention was clearly that the IE should ensure that the utility did not favor itself, its affiliates or its shareholders (shareholders may earn a return on "ownership projects" – IOU-built or turnkey – but not on independent PPAs). The CPUC stated explicitly that it would not require the IE to conduct or administer the solicitation, nor would it "allow the IEs to make binding decisions on behalf of the utilities." Under this decision the role of the IE is to provide advice to the utility in "the design, administration, and evaluation aspects of the RFO" and to observe the utility's procurement and evaluation process in order to provide a fairness opinion.

D. 04-12-048 did not require IEs for procurements in which there were no affiliate or ownership bids. But in its decision approving the utilities' plans for 2006 Renewables Portfolio Standard (RPS) solicitations, the CPUC determined that Independent Evaluators would be required for these and "all future solicitations" (it is unclear whether this means only all future RPS solicitations).[3] The role of the IE is still not to conduct or administer the solicitation but to "separately evaluate and report on the

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[1] California Public Utilities Commission, Decision (D.) 04-12-048, May 26, 2006, p. 135f and Findings of Fact 94-95 on pp. 219-220.

[2] D. 04-12-048, p. 135f and Ordering Paragraphs 26i and 28 on p. 245. This Decision explicitly referenced All-Source solicitations, but see D. 06-05-039 (note 3 *infra*).

[3] California Public Utilities Commission, Decision (D.) 06-05-039, May 26, 2006, p. 46, Finding of Fact 20b on p. 78, Conclusion of Law 3e(2) on p. 82 and Ordering Paragraph 8 on p. 88.

IOU's entire solicitation, evaluation and selection process."[4] The Decisions that approved the utility RPS solicitation plans for 2007 and 2008[5] did not further elaborate on the IE role but took the participation of an IE as a given.

D. 09-06-018, which approved the utility RPS solicitation plans for 2009, contained additional requirements related to the use of Project Viability Calculators and directed "that project-specific project viability information should be included in the confidential appendices to advice letters and validated by the IE in the confidential versions of IE reports."[6] The reference to the Project Viability Calculator has been incorporated by Energy Division in its template language for Section 8, which is only completed in the final IE report submitted with each contract Advice Letter.

In docket 11-05-005, the CPUC considered requiring the preliminary Independent Evaluator report, which reports on the bid evaluation, to be split into two parts.[7] The part of the report dealing with bid materials would be submitted at the same time as the utility's RPS Procurement Plan. In its later Decision 12-11-016, the CPUC decided not to prescribe that modification.[8]

2.2 PA's role as Independent Evaluator

In April 2006, SDG&E retained PA to be the Independent Evaluator for an All-Source Request for Offers (All-Source RFO). SDG&E anticipated that there might be affiliate bids in that RFO, as in fact there were. The CPUC Energy Division, as well as the rest of SDG&E's Procurement Review Group (PRG), participated in the decision to select PA. PA's contract was subsequently amended to include the independent evaluation of additional SDG&E procurement activities.

When PA was contracted as IE for the All-Source RFO, PA and SDG&E agreed on an interpretation of the IE role that would not include a complete LCBF evaluation or full replication of the utility's computations, although PA would spot-check them. PA's role would be that of an observer and an adviser as needed. PA subsequently served as Independent Evaluator for a number of SDG&E's other RFOs, including subsequent RPS RFOs and RFOs for fossil-fired or all-source capacity. In each case, PA and SDG&E used the above interpretation of the IE role -- except that since 2009 PA has conducted the complete LCBF evaluation for RPS RFOs -- and it was adopted for the 2014 Energy Storage System RFP.

PA's emphasis has been on issues of fairness and equity. PA reviews the reasonableness of SDG&E's evaluation criteria and algorithms, checks the calculations, and reviews results provided by other third parties, but does not enforce a single standard of evaluation. While PA may have an opinion about the "best" way to value certain attributes or even to conduct a multi-attribute evaluation,

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[4] D. 06-05-039, p. 46.

[5] California Public Utilities Commission, Decision (D.) 07-02-011, Feb. 15, 2007 and Decision (D.) 08-02-008, Feb. 15, 2008. The decisions actually only conditionally approved the plans but the conditions were not connected with the use of IEs.

[6] California Public Utilities Commission, Decision (D.) 09-06-018, June 8, 2009, p. 24.

[7] "Assigned Commissioner's Ruling Identifying Issues and Schedule of Review for 2012 Renewables Portfolio Standard Procurement Plans", May 5, 2012.

[8] California Public Utilities Commission, Decision (D.) 12-11-016, November 14, 2012, p. 73.

its role as IE has not been to judge SDG&E's evaluation against a standard, but rather to determine that SDG&E's evaluation has not unfairly favored affiliates or ownership bids, or favored SDG&E and its shareholders in any other way.[9]

2.3 PA's activities

PA and SDG&E began to discuss plans for the Energy Storage System (ESS) RFP in early November, 2014. SDG&E provided PA a draft of the RFP for review prior to its release, which SDG&E then modified in response to PA's advice and comments. SDG&E and PA discussed the evaluation criteria at length. PA was provided extensive access to all the SDG&E staff involved in the evaluation of the ESS RFP, and performed the following activities:

- PA participated in the pre-bidder conference on January 14, 2015. There were technical problems with the teleconference bridge during the bidder conference, so SDG&E scheduled a second bidder conference on January 29 (in which PA also participated). PA was provided all questions submitted by bidders either at the bidder conferences or submitted electronically. PA and SDG&E discussed the questions and answers via email and teleconference. PA was provided copies of SDG&E's answers, which were posted on the website. The bids received by SDG&E were transferred via PowerAdvocate® to PA on the day they were due, i.e. on March 31, 2015.
- PA advised SDG&E on development of an RFI to get further information from bidders. PA participated in an RFI pre-bidder conference on July 10, 2015 and was provided all questions submitted by bidders and answers posted online by SDG&E.
- PA was in regular contact with the SDG&E evaluation team and was provided all the data in the evaluation process. PA was responsible for ensuring objective review by SDG&E for all bid received. PA also reviewed questions put by SDG&E to bidders, and bidders' answers.
- PA advised SDG&E on judgments about bid conformance to RFP requirements.
- SDG&E in no way prevented PA from observing its process and analyzing its methods, and solicited feedback from PA while performing evaluation and scoring.

2.4 Other relevant information or observations related to PA's role or activities

It is PA's understanding that confidential treatment of the information in an IE report is obtained through procedures defined in CPUC Rulemaking (R.) 05-06-040.[10] Under that Ruling a person or party that serves testimony, supplies data or files an advice letter requests confidential treatment of some data within that submittal and must accompany the data by a declaration under penalty of perjury that justifies the claim of confidentiality.

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[9] E.g., it would have been unfair for SDG&E to design an evaluation method that favored a category of bidders on whose behalf SDG&E would have to make extensive rate-based transmission or distribution investments.

[10] "Administrative Law Judge's Ruling Clarifying Interim Procedures for Complying with Decision 06-06-066", August 22, 2006.

PA delivers its IE report to SDG&E and SDG&E in turn submits it to the CPUC. It is PA's understanding that each utility separately submits its IE's report and requests confidential treatment for parts of that report. Because it is the utility that identifies confidential data and provides the associated declaration, PA believes that it is the utility's role to determine which data in the report it redacts as confidential and the utility's responsibility to defend that determination. SDG&E's view of confidentiality may be more or less expansive than PA's. While PA has in the past provided recommendations to SDG&E about which parts of its IE reports should be held confidential, in general PA takes a "minimal redaction" (redaction only of information about identifiable bids) view. SDG&E always makes the ultimate determination of data to redact.

3 Adequacy of outreach and robustness of solicitation

This chapter describes the information provided by the utility to potential bidders, and the utility's efforts to stimulate a wide and robust response to the RFP.

3.1 Adequacy of outreach - Notifications / announcements

California's Assembly Bill 2514 required the CPUC to open a proceeding to determine appropriate energy storage procurement targets for the state's investor-owned utilities. In October 2013, the CPUC adopted an energy storage procurement target of 1,325 MW for PG&E, SCE, and SDG&E by 2020, with installations required by the year end of 2024. This decision was highly publicized across California and the energy industry as a whole.

SDG&E provided PA with a list of [redacted] distinct email addresses, identified with [redacted] separate companies, to which it sent an announcement the RFO (as well as the Energy Storage Association (ESA) and California Energy Storage Alliance (CESA)). The day after the RFP was released, SDG&E posted a link on sdge.com/rfo that pointed to a page instructing interested parties to send an email request for the NDA that was required to access the RFP. At the time the second bidder conference was scheduled (see Section 2.3) SDG&E informed PA that it was notifying [redacted] of the rescheduled teleconference.

At the time this solicitation was released, there was a parallel SDG&E 2014 All-Source RFO requesting bids for 800 MW of preferred resources, with a target of 25 MW to come from qualifying energy storage resources. Due to the overlapping timing of these solicitations, there was some initial confusion on the part of some bidders who were participating in the All-Source solicitation. PA advised SDG&E on the creation of a document explaining the difference between the two solicitations and clarified that access to the 2014 Distribution Reliability / Power Quality Program RFP required an NDA and registration with PowerAdvocate® . This document was posted on the SDG&E website on December 8. The next day SDG&E sent an email to the service list of the CPUC energy storage proceeding (R.10-12-007) containing essentially the same information.

In PA's opinion, SDG&E did adequate outreach. There were [redacted] registrants on the PowerAdvocate® site.

3.2 Clarity of solicitation materials

PA reviewed SDG&E's RFP and supporting forms. PA's opinion was that the RFP was clear and supporting forms were generally well-designed and would elicit appropriate information. However, throughout the course of the solicitation, based on bidder communication and internal reviews, PA and SG&E identified the following areas in the RFP that could have been further clarified:

- Instructions to provide specifications on all proposed power electronics that would be used in the system, with information regarding their manufacturers and models.

- The expectation that bidders would attach technical specifications for electric configuration of system (ie single line diagram) should have been stated as a requirement.
- SDGE's desired container size was not stated strongly enough: The RFP stated 20 ft. containers were preferred, but some bids only provided 40 ft. quotes with 20 ft. options. SDG&E would have preferred that each bidder provide a full quotation using 20 ft. containers..
- Not all bidders recognized that SDG&E expected the ESS to maintain an AC capacity of 4 MW / 12MWh throughout a ten (10) year warranty period. Also, SDG&E should have requested that bidders specify an approach to guarantee this capacity, either through oversizing the battery of augmenting it.
- Clearer and more realistic operational specifications and clarity on the relationship (inclusive or exclusive) between different requirements.

3.3 Bidder's conference

SDG&E held two RFP pre-bid conferences and also posted on PowerAdvocate® answers to questions submitted by bidders. The decision by SDG&E to hold a second pre-bid conference was in response to technical difficulties with the conferencing solution during the initial conference.

SDG&E released a follow-up RFI to all conforming bidders and held a bidder conference related to that RFI on July 10, 2015. SDG&E posted answers to bidder questions on Power Advocate.

3.4 Feedback

SDG&E has not formally sought bidder feedback. Given SDG&E's decision to not select a bidder but continued interest in procuring energy storage systems, PA recommends that SDG&E formally seek feedback from all potential bidders who registered on PowerAdvocate® for the 2014 ESS RFP or who attended the pre-bid conference webinar, as to their reasons for bidding (or not bidding) and their opinion of SDG&E's conduct and evaluation of the RFP.

3.5 Solicitation robustness

PA typically judges the robustness of the solicitation by the number of bids received. In PA's opinion, the solicitation engendered an acceptable response given the technical specification and relative immaturity of energy storage technology. [redacted] bidders submitted proposals into Power Advocate by the March 31, 2015 bid submission deadline. As there have been no comparable historical solicitations, it is not possible to evaluate bidder response relative to past RFPs.

4 Fairness of evaluation methodology

This chapter describes SDG&E's quantitative evaluation methodology and PA's opinion of its application.

4.1 Principles used to evaluate methodology

PA has used the following principles to guide its evaluation. These principles were originally codified by PA in its report on SDG&E's 2006 RPS RFO:[11]

- 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)
- 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 require that the procurement must result in contract awards. They do not also specifically address "consistent" evaluation of bids of different sizes and timing because PA considers the fairness of such analysis to fall within the area of reasonableness; and it is conceivable that a consistent evaluation may not be the most reasonable.

4.2 SDG&E's evaluation methodology

PA reviewed and provided input in development of SDG&E's ESS RFP Evaluation Matrix. This scoring matrix was used to consistently evaluate conforming bids utilizing the criteria presented in Figure 1.

[11] 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.

Figure 1: SDG&E ESS RFP Evaluation Matrix High-Level Criteria

Number	Category Description	Total Category Weight
1	Technical Merit of System	40%
2	Quality of Proposal	5%
3	Proof of Performance/Experience	15%
4	Terms and Conditions	5%
5	Financial Stability (of bidder)	5%
6	Cost	20%
7	Diversity	5%

4.2.1 Consistency with plan and intent

In its 2014 Energy Storage System RFP, SDG&E identified the following areas that would be covered as part of their evaluation protocol:

- Conduct an analysis of all conforming offers received from qualified bidders;
- Compare the total cost of the energy storage system to the total cost of other traditional and alternative solutions;
- Calculate quantifiable benefits for the energy storage system and other traditional and alternative solutions;
- Calculate and compare the Benefit-to-Cost ratios of energy storage systems to other traditional and alternative solutions; and
- Identify and compare qualitative benefits for the energy storage system and other traditional and alternative solutions.

PA believes that in performing its evaluation, SDG&E stayed consistent to the abovementioned evaluation guiding principles. This methodology led SDG&E to select no bidder to whom to award the RFP. Bids that met the RFP requirements were all considered to have equal benefit. SDG&E compared bids on a set of criteria that measured both cost and indicators of the bidder's ability to fulfill its commitment and achieve that benefit. SDG&E's decision to select no bidder was based on a subsequent comparison of the most attractive bid with other solutions.

4.2.2 Offer valuation

SDG&E went through a comprehensive assessment of conforming bids, and consistently followed the evaluation protocol set forth in the RFP. This section contains discussion of key SDG&E evaluation activities and methodologies.

Request for Information (RFI)

SDG&E requested additional information from all conforming bidders to get better-standardized data for the following areas:

- Balance of System Equipment Summary;
- Battery Capacity / Degradation;
- Previous Project Experience;
- Battery Manufacturing Capability Details;
- Conceptual Single-Line Diagram;
- Blackstart Capability / Auxiliary Loads / Fire Suppression Requirements; and
- System Operational Performance Specifications.

A copy of the RFI form distributed to bidders is contained in Appendix A. The information received was then used to populate and further inform scoring using the ESS Evaluation Matrix. [redacted] bidders uploaded RFP responses to PowerAdvocate® by the July 24, 2015 deadline:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

Somewhat later, SDG&E discovered that [redacted] bidder had returned [redacted] response via email instead of through PowerAdvocate® :

- [redacted]

SDG&E decided to allow this response.

PA believes that adequate communication was maintained by SDG&E with bidders during the RFI process.

Capacity Maintenance Strategy

The ESS RFP included the following requirements for energy storage system capacity at year 10 of operation:

- Annually meet a minimum amount of 2,250 cycles at 80% or more depth of discharge; and
- Annually meet a minimum amount of 150,000 cycles at 10% depth of discharge.

In the RFI released to bidders, SDG&E requested that bidders further clarify how they will meet the RFP required discharge duration of three hours at full power rating (12 MWh) for the duration of the applicable warranty period (two (2) years, five (5) years, or ten (10) years), based on an expected

operation that includes a minimum of 2,250 cycles at 80% or more depth of discharge (DOD), and 150,000 cycles at 10% DOD.

SDG&E provided an example of the preferred data format for reporting this information in the RFP. This format was designed so that bidders could provide various combinations of cycle lengths (to accomplish both 2,250 cycles at 80% DOD and also 150,000 cycles at 10% DOD, as could be inferred as SDG&E's requirement, would take more than 8760 hours per year). Also, SDG&E requested that bidders specify how any capacity degradation would be offset (i.e. oversizing or augmentation). Bidders provided the following capacity maintenance strategies:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

This information was then used to calculate the battery's initial capacity and end of useful life capacity at year 10. Subsequent to this, SDG&E performed a calculation for the incremental cost to each bid to maintain 12 MWh at year 10 based on pricing information for the bidders.

Evaluation Results

PA participated in 3 meetings with SDG&E to evaluate conforming bidders who submitted RFI responses. PA was present in person during the evaluation meetings with SDG&E. PA did not witness any misconduct or favoritism by the SDG&E team while evaluating the bids. Figure 2 below presents the final scores of the[redacted] bidders assessed.

[redacted]

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Bidder ranking was determined by highest overall total weighted score, with weighted determined by the criteria shown in Figure 1.

Cost-Effectiveness Evaluation

Based on the result of the ESS RFP Evaluation Matrix, [redacted] was selected for a cost effectiveness evaluation. PA and SDG&E discussed the option of selecting additional bidders to be included, and agreed have DNV GL analyze the highest bidder and then consider the potential of including others. As cost was a key driver (25%) of selection criteria, an initial review of scores determined that it would be unlikely that another bidder would result in a more cost effective option.

DNV GL evaluated the bid under varying power rating, warranty and capacity maintenance options with 3 substation cost scenarios, or sensitivities. This resulted in 36 cases in total. The final cost effectiveness evaluation resulted in 12 cost effective cases, as shown by Figure 3. Four of those cases included the 10-year warranty option, and out of these four cost effective 10-year warranty scenarios, only two – cases 30 and 27 – were shown to be cost-effective with the expected substation cost of [redacted] million.

[redacted]

Figure 3: Cost Effective Cases Identified

Scenario #	ESS Size	Upgrade Cost	Capacity Maintenance Option	Warranty Option	Benefit/Cost Ratio	NPV
34	4MW 12MWh	[redacted]	Augmented	2-year	1.33	$3.1M
35	4MW 12MWh	[redacted]	Augmented	5-year	1.32	$3.0M
36	4MW 12MWh	[redacted]	Augmented	10-year	1.27	$2.6M
31	4MW 12MWh	[redacted]	Oversize	2-year	1.24	$2.4M
32	4MW 12MWh	[redacted]	Oversize	5-year	1.22	$2.3M
33	4MW 12MWh	[redacted]	Oversize	10-year	1.19	$2.0M
28	4MW 12MWh	[redacted]	Augmented	2-year	1.12	$1.1M
29	4MW 12MWh	[redacted]	Augmented	5-year	1.11	$1.0M
30	4MW 12MWh	[redacted]	Augmented	10-year	1.07	$0.7M
25	4MW 12MWh	[redacted]	Oversize	2-year	1.04	$0.4M
26	4MW 12MWh	[redacted]	Oversize	5-year	1.03	$0.3M
27	4MW 12MWh	[redacted]	Oversize	10-year	1.00	$2,919

Although SDG&E's consultant analyzed a total of 36 cases, only a subset of these were consistent with RFP requirements. A number of case parameters were in SDG&E's control. The only relative uncertainty was substation upgrade cost, and thus the only actual sensitivity to the project's cost-effectiveness.

4.2.3 Evaluation of offers' project viability

PA believes that SDG&E adequately considered the factors that could impact the ESS project viability. PA notes that considerable emphasis was placed on screening bidders based on their product's commercial viability and previous project track record. These were criteria cited by SDG&E in the RFP and included in the ESS Evaluation Matrix.

4.3 Future improvements

PA recommends that SDG&E perform a proactive assessment of the value that should be attributed to energy storage systems for deferring substation capital expenditures.

The follow up RFI release by SDG&E was a necessary step to get clarity and help standardize the initial bids received from RFP participants. For future solicitations, PA recommends that SDG&E provide a similar template to the one created in the RFI, to ensure consistency in the way bidders provide technical specifications and corresponding price quotes.

5 Procedural fairness of the bid evaluation

This chapter addresses the application or administration of the methodology described in chapter 4.

5.1 Principles used to determine fairness of process

As in the previous section, PA used principles originally codified by PA in its report on SDG&E's 2006 RPS RFO:[12]

- Were affiliate bids treated the same as non-affiliate?
- 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 the procurement target chosen so that SDG&E would have a reasonable chance of meeting its target (taking into account contract failures)?
- Was there a reasonable justification for any fixed parameters that enter into the methodology (e.g., RMR values; debt equivalence parameters)?
- Were qualitative factors used only to distinguish among substantially equal bids?

5.2 Administration and bid processing

Where applicable, PA believes that SDG&E administered the evaluation of bids it received in consistent with the principles presented above.

5.3 Conformance check

PA and SDG&E jointly screened bids for conformance and decided on acceptance or rejection of individual bids. SDG&E and PA deemed [redacted] bids to be non-conforming. Non-conformance was due to:

- Lack of evidence that a bidder had at least one installation with grid-connected 1 MW (or greater) power capacity.
- Lack of evidence that a bidder had contracts for (at least) an additional three (3) units of grid-connected 1 MW (or greater) power capacity.
- Lack of evidence that a bidder had at least one installation with grid-connect 1 MW (or greater) power capacity in continuous operation for at least one year.

[12] Jacobs, op. cit., p. 3-1.

- Lack of evidence that a bidder's proposed Battery Management System (BMS), Power Conversion System (PCS), DC/AC inverters, and other electronics were commercially available, previously deployed, and applied to an installed ESS with 1 MW (or greater) power capacity.

During the conformance check, PA and SDG&E identified multiple areas where bidders may not have fully understood the information that SDG&E was seeking. Therefore, SDG&E sent a subsequent RFI to clarify: (1) commercial viability, (2) proposed equipment manufacturers and models, and (3) battery degradation/capacity maintenance strategy. PA considers this to have been a fair approach, as it was distributed to all conforming bidders.

Overall, PA believes that SDG&E's identification of non-conforming bids was fair and reasonable.

5.4 Parameters and inputs for SDG&E's analysis

PA believes that the parameters and inputs used by SDG&E for assessing and scoring bids were reasonable and fair. Objective evaluation of all bidders was performed in accordance with the evaluation criteria presented in the RFP, utilizing the same criteria in the RFP Bid Conformance Matrix and 2014 ESS Evaluation Matrix to analyze each bid.

5.5 Parameters and inputs for outsourced analysis

SDG&E utilized a consultant, DNV GL, to perform cost effectiveness modelling analysis of the lowest cost conforming bid [redacted].SDG&E's provided the following inputs to their consultant for performing this evaluation:

- Circuit model;
- Customer load profile(s);
- ESS energy and power ratings;
- ESS and inverter combined efficiencies;
- Transformer power capacity;
- ESS initial energy and minimum state of charge;
- Storage installation costs;
- Substation O&M costs;
- Purchase year / on-line year;
- [redacted] bid costs;
- Transformer bank upgrade cost;
- Expected tax life; and
- Sales tax.

The outsourced analysis considered varying ESS power ratings, capacity maintenance, and warranty options under three (3) substation upgrade cost sensitivity scenarios. As shown below by Figure 4, this yielded 36 cases which were analyzed for cost-effectiveness.

Figure 4: DNV GL Storage Cost Effectiveness Case Parameters[13]

Factor	# of Levels	Levels	
ES power rating	2	2 MW 4 MW	
ES duration	1	3 hr	
Transformer bank overload trigger	1	98% for 2MW ES 100% for 4MW ES	
Substation upgrade cost	3	Low: [redacted] Med: [redacted] High: [redacted]	+ Annual O&M costs of $205,714
Capacity maintenance option	2	Oversize Augmented	
Warranty option	3	2-year 5-year 10-year	
Total Batch Runs	**36**		

The following cash flows were considered in the modelling of cost effectiveness:

- Substation deferral revenue;
- Day ahead energy market revenue for deferral;
- Variable O&M cost of deferral;
- Charging cost of deferral;
- ESS capital expenditure including sales tax;
- ESS installation cost;
- Annual ESS O&M cost;
- Deferred tax; and
- Free cash flow.

The results of the study considered cost-effectiveness based solely on deferral of [redacted] Substation upgrade, in other words, it was assumed that the ESS would only operate in those hours in which reliability indices would otherwise have indicated the need for a substation upgrade.

[13] Source: DNV GL, "Cost Effectiveness [redacted] Substation Upgrade Deferral", October 22, 2015

5.6 Additional measures

There were no affiliate bids submitted as part of this RFP. SDG&E had requested bidders provide turnkey bids for ESS that would be owned by the utility, which were in that respect all prospectively affiliate bids (they all would result in utility ownership) but none were from parties already legally affiliated with SDG&E.[14]

5.7 Additional criteria or analysis

SDG&E compared the highest-scoring bids with traditional assets. This had been implied as part of the evaluation criteria in the RFP. In discussions with PA regarding its final decision, SDG&E identified the following additional qualitative criteria considered:

- Technology risk associated with deploying energy storage for distribution reliability in comparison to traditional substation upgrades, and additional capability and experience needed by SDG&E resources to operate the ESS and maintain asset health for prolonged period.
- Potential for scheduling delays and other project contingencies to negatively affect the already relatively low project NPVs of the two viable cost-effective cases.
- Uncertainty regarding actual cost for moving the ESS after completing three-years of service to defer substation capital spend. When it had initially developed the RFP, SDG&E had envisioned the purchase of a storage system that could be used to defer a substation upgrade for a few years, after which it would be moved to another substation for a similar purpose. The possibly high cost of doing so created the potential for the ESS to become a stranded asset.

5.8 Results analysis

The following considerations influenced PA's opinion:

a. Substantial initial correspondence between bidders requesting access to the RFP and SDG&E was observed by PA. Bidders were required to register on PowerAdvocate® and enter a Non-Disclosure Agreement to gain access to the RFP.

b. PA recommended that anecdotal experiences of previous projects with specific vendors or equipment manufacturers be limited in determining scores for bidders.

c. Information submitted by bidders in the RFI was critical to informing scoring in both Technical Merit (40% category weight) and Cost (25% category weight). Therefore, PA encouraged SDG&E to place significant emphasis on making sure sufficient and comprehensive outreach was performed to inform all bidders of expectations.

[14] The tern "legal affiliate" is used to emphasize that companies which had previously had been vendors to SDG&E were not considered as already affiliated.

d. PA initially suggested that more than one bidder be included in the cost effectiveness analysis. SDG&E considered this recommendation and resolved to wait for the cost effectiveness results before deciding whether or not to perform this analysis on subsequent bids.

e. DNV GL performed multiple batch cost effectiveness modelling runs to assess the NPV of different scenarios. This was due to continued refinement of financial assumptions including substation upgrade costs, [redacted] cost estimates, sales taxes, and others.

5.8.1 Overall judgment

PA's judgment is that this solicitation was fairly administered. PA did not identify any favoritism or preferential treatment by SDG&E towards any of the bidders involved. PA recognizes that SDG&E has shown a conservative outlook towards the viability of energy storage to provide cost effective capital deferral when compared to traditional substation replacement/upgrade projects in the context of this solicitation. This comparative analysis is not inconsistent with the evaluation protocol SDG&E identified in the RFP, which is discussed in Section 4.2.1. Factors contributing to project viability concerns included:

- Two cases were shown to be cost-effective when considering the 10-year warranty requested in the RFP and [redacted] million substation upgrade cost estimate provided by SDG&E's engineers. These two cases yielded modest NPVs: $0.7 million for Scenario #30 and $2,919 for Scenario #27.
- The cost to install the energy storage system at a substation, approximately [redacted] million, was much higher than originally anticipated. This heavily impacted the financial feasibility of being able to move the energy storage system to another location after completing the two-year substation capital deferral.
- Sales tax was not included in the earliest cost-effectiveness batch runs. Including an 8% San Diego sales tax on ESS equipment cost, balance of system equipment cost, and design through commissioning labor. This substantially reduced the NPV of Energy Storage Systems.
- Uncertainty associated with energy storage system O&M processes and expenditures, as well as the potential for energy storage costs to decline rapidly in the near future contributed to the qualitative cost-effectiveness comparison against traditional assets.

5.9 Other relevant information or suggestions for improvement

To ensure continued interest from the energy storage vendor community, PA suggests that SDG&E consider the following recommendations for future solicitations:

- Coordination by SDG&E to inform internal resources and external bidders involved in other concurrent solicitations to alleviate potential confusion.
- Proactive bidder outreach on solicitation status. Multiple bidders reached out to SDG&E throughout the process to inquire if a decision had been made on the RFP.
- Proactive internal due-diligence to identify costs associated with civil design, installations, operations, and financial treatment of energy storage assets.

6 Commission Approval of the Proposed Action

Through the bid evaluation and selection process, PA believes that SDG&E performed objective and unbiased evaluation of the bids that were submitted. SDG&E followed a consistent evaluation methodology for all bidders through the conformance check, follow on RFI process, and utilizing the Evaluation Scoring Matrix to rank conforming bids.

The remainder of this chapter describes SDG&E's final decision.

6.1 Overall fairness

PA affirms that SDG&E conducted a fair solicitation that was consistent with Commission decisions. PA observed the bidder outreach, communication, and evaluation performed by SDG&E and deems it to be objective and sufficient.

6.2 Value of the proposed action

PA believes that SDG&E acted in the best interest of their ratepayers in making the decision not to award the RFP to any of the bidders. However, PA notes that preemptive analysis by SDG&E for costs associated with installation and clearer technical specifications to bidders provided to bidders would given earlier insight. PA has provided recommendations for SDG&E to consider implementing in future energy storage solicitations in Section 4.3 of this report.

6.3 Consistency of the action with SDG&E's portfolio

No bidders were shortlisted in this solicitation. From the results of the Evaluation Scoring Matrix, [redacted] was selected for a cost effectiveness modelling analysis.

6.4 Opinion

PA believes that SDG&E performed a fair and reasonable evaluation that was consistent with the protocol outlined in the 2014 ESS RFP. SDG&E's final decision to not select a bidder to aware the RFP was also in adherence with the protocol, as it was based on qualitative factors resulting from a comparison with investment into more traditional assets.

Appendix A: ESS Request for Information

This appendix provides the RFI template provided to bidders.

Request for Information - SDG&E Energy Storage System ("ESS") 2014 RFP

General Instructions

To facilitate evaluation of bids submitted in response to the *2014 Distribution Reliability/Power Quality Program Request for Proposal (RFP) Seeking a 4 MW Energy Storage System* , SDG&E requires the following additional information from all bidders. Bidders shall complete each tab of this workb ook, and provide all requested information in the specified format to be considered conforming for further evaluation. While a bidder may have supplied some or all of this information in its bid documents, bidders are nevertheless required to resupply/resubmit all requested information in the specified format. Failure to submit all requested information may render that proposal non-conforming.

Completion and Submittal Instructions

1. Bidder must complete all tabs (2 through 7) of this workbook.
2. Bidder must type response in the yellow highlighted fields in each tab.
3. Bidder may provide supplemental information in the yellow highlighted "Additional Comments" field in each tab.
4. Bidder must not change the formatting of this workbook.
5. Bidder must upload the completed RFI workbook in Power Advocate by 2:00pm PPT on Friday July 24, 2015.

Responses to this Request for Information are due no later than **2:00 p.m PPT (pacific prevailing time) on July 24, 2015**.

SDG&E will host a conference call with all bidders on July 10, 2015 from **10:00am to 12:00pm PPT (pacific prevailing time)** to answer any clarifying questions. Details and dial-in information will follow.

In addition, bidders will have an opportunity to ask further clarifying questions via email from **5:00 p.m. PPT July 10, 2015 to 5:00 p.m. PPT July 17, 2015.**

EMAIL QUESTIONS/COMMENTS TO:

dcastillo2@semprautilities.com

EQUIPMENT SUMMARY

Bidder shall provide a summary of the proposed equipment in the format from the table below. Bidder **must** answer each question in table format to be considered conforming for further evaluation. Bidder must provide a **single manufacturer and single model** for each line item to be considered conforming for further evaluation. Bidders providing multiple manufacturers and/or models for any line item will be considered non-conforming. Bidder shall provide data sheets for all items listed below. If single data sheet is not available for Battery Rack System, Bidder shall provide individual data sheets for each component.

SDG&E 4 MW/12 MWH ESS RFP
PROPOSED EQUIPMENT SUMMARY TABLE

	Manufacturer	Model	Rating	UL Listed	Quantity
Inverter					
Battery Cells					
Battery Modules					
Battery Rack System					
BMS					
Control System Software					
Control System Hardware					
Fire Suppression Agent					
Other					

Additional Comments:

BATTERY CAPACITY/DEGRADATION

It is assumed that the proposed system will meet the required discharge duration of three hours at full power rating (12 MWh AC or 3 MWh AC per 1 MW block) for the duration of the selected warranty period. Over the ten year operating life, each energy storage system will be expected to operate a minimum of 2,250 cycles at 80% or more depth of discharge (DOD), and 150,000 cycles at up to 10% DOD (Note: The exact cycles for the Specified Baseline Operation are provided in the table below). Please confirm that the capacity will be guaranteed to meet rated value (12 MWh AC) for the applicable warranty period. If there are any restrictions on the capacity guarantee, the restrictions must be specified.

Please provide information necessary to evaluate system capacity/degradation for duty cycles other than the Specified Baseline Operation. The values highlighted in yellow for the Specified Baseline Operation shall be provided by the Bidder (Sample values are provided for clarity, Bidder shall replace sample values). Example 1 and Example 2 show how the degradation factors will be applied to actual operation that does not match the Specified Baseline Operation. Total degradation is calculated as the sum of the individual degradation values.

Specified Baseline Operation					Example 1 Operation					Example 2 Operation				
Depth of Discharge	Capacity Degradation/Cycle	Cycles	Capacity Degradation (%)	MWh/MW/yr	Depth of Discharge	Capacity Degradation/Cycle	Cycles	Capacity Degradation (%)	MWh/MW/yr	Depth of Discharge	Capacity Degradation/Cycle	Cycles	Capacity Degradation (%)	MWh/MW/yr
2%	2.00E-08	10,000	0.0%	60	2%	2.00E-08	100,000	0.2%	600	2%	2.00E-08	120,000	0.2%	720
5%	1.25E-07	40,000	0.5%	600	5%	1.25E-07	-	0.0%	-	5%	1.25E-07	50,000	0.6%	750
10%	5.00E-07	100,000	5.0%	3,000	10%	5.00E-07	20,000	1.0%	600	10%	5.00E-07	20,000	1.0%	600
20%	2.00E-06	-	0.0%	-	20%	2.00E-06	5,000	1.0%	300	20%	2.00E-06	10,000	2.0%	600
30%	4.50E-06	-	0.0%	-	30%	4.50E-06	3,000	1.4%	270	30%	4.50E-06	-	0.0%	-
40%	8.00E-06	-	0.0%	-	40%	8.00E-06	2,000	1.6%	240	40%	8.00E-06	4,000	3.2%	480
50%	1.25E-05	-	0.0%	-	50%	1.25E-05	1,000	1.3%	150	50%	1.25E-05	2,400	3.0%	360
60%	1.80E-05	-	0.0%	-	60%	1.80E-05	700	1.3%	126	60%	1.80E-05	-	0.0%	-
70%	2.45E-05	-	0.0%	-	70%	2.45E-05	500	1.2%	105	70%	2.45E-05	400	1.0%	84
80%	3.20E-05	2,250	7.2%	540	80%	3.20E-05	300	1.0%	72	80%	3.20E-05	500	1.6%	120
90%	4.05E-05	-	0.0%	-	90%	4.05E-05	200	0.8%	54	90%	4.05E-05	700	2.8%	189
100%	5.00E-05	-	0.0%	-	100%	5.00E-05	50	0.3%	15	100%	5.00E-05	300	1.5%	90
	Capacity Degradation/Day	Days				Capacity Degradation/Day	Days				Capacity Degradation/Day	Days		
	1.00E-05	3,650	3.7%			1.00E-05	3,650	3.7%			1.00E-05	3,650	3.7%	
TOTAL CAPACITY DEGRADATION			16.4%	4,200	TOTAL CAPACITY DEGRADATION			14.6%	2,532	TOTAL CAPACITY DEGRADATION			20.6%	3,993
GUARANTEED CAPACITY			100.0%		GUARANTEED CAPACITY			100.0%		GUARANTEED CAPACITY			95.7%	

Notes:

1. System capacity will be expected to be equal to 100% for any combination of cycles/time that results in a total calculated degradation that is less than the Baseline value.

2. If values in column C are interpolations from a curve, please provide formula for curve.

Describe how capacity degradation will be offset (e.g. augmentation, oversize):

Additional Comments:

PROJECT EXPERIENCE

Bidder shall provide information on project experience and project pipeline in the format shown in the table below. If bidder believes project name and location information is confidential, bidder may omit project name and location from its response.

SDG&E 4 MW/12 MWH ESS PROPOSED EQUIPMENT SUMMARY

SYSTEMS INSTALLED > 1 YEAR

			If Applicable				
		System #1	System #2	System #3	System #4	System #5	Total
System Name							# Systems =
System Location							NA
System Integrator							
System Power	MW						
System Energy	MWh						
Installation Date							NA
Battery System	Mfg/Model						NA
BMS	Mfg/Model						NA
Control System	Mfg/Model						NA
PCS	Mfg/Model						NA
Unplanned Outages	hrs						
Full Equivalent Discharge Cycles	#						

INSTALLED < 1 YEAR AND SYSTEMS ON ORDER

		If Applicable					
		System #1	System #2	System #3	System #4	System #5	Total
System Name							# Systems =
System Location							NA
System Integrator							
System Power	MW						
System Energy	MWh						
Order Date							NA
Installation Date - Est. or Actual							NA
Battery System	Mfg/Model						NA
BMS	Mfg/Model						NA
Control System	Mfg/Model						NA
PCS	Mfg/Model						NA

Additional Comments:

BATTERY MANUFACTURING

Bidder shall provide the following information about its battery manufacturer.

Manufacturer:

Factory Location:

Manufacturing Capacity (MW/yr and MWh/yr):

Please provide certificate of ISO 9001 compliance. If not currently compliant, bidder shall provide estimated date of certification.

Additional Comments:

GENERAL INFORMATION

Bidder shall provide the following additional information:

1. Conceptual single-line diagram: Bidder shall provide a conceptual single line diagram. **Note: Bidder must upload conceptual single line diagram in Power Advocate as a separate file.**

2. Blackstart Capabilities: Bidder shall describe blackstart functionality, and describe initiation processes and procedures.

3. Auxiliary loads: Bidder shall specify and quantify all auxiliary loads (e.g., hvac, fire suppression, etc).

4. Fire Suppression System: Bidder shall describe fire suppression system in detail. Bidder shall specify if the system is water based or uses chemical suppression. If the former, bidder shall indicate whether fire suppression system requires a dedicated water source. Bidder shall describe monitoring and describe process for remote annunciation of fire system conditions and activation.

Additional Comments:

SYSTEM PERFORMANCE

Data Category	Explanation of Requested Data	Supplier Response
Inverter Power Capacity	Inverter power capacity in MW. Pmax equal for charging and discharging. Generally, inverter power capacity is equal to the storage power capacity. (in AC at point of common coupling, per Sched A: "Technical Specifications" section 5.3.1)	
Storage max power @ discharge	Discharge Pmax in MW (in AC at point of common coupling, per Sched A: "Technical Specifications" section 5.3.1)	
Storage min power @ discharge	Discharge Pmin in MW (in AC at point of common coupling, per Sched A: "Technical Specifications" section 5.3.1)	
Storage max power @ charge	Charge Pmax in MW (in AC at point of common coupling, per Sched A: "Technical Specifications" section 5.3.1)	
Storage min power @ charge	Charge Pmin in MW (in AC at point of common coupling, per Sched A: "Technical Specifications" section 5.3.1)	
Duration	Duration at discharge Pmax (hours) (in AC at point of common coupling, per Sched A: "Technical Specifications" section 5.3.1)	
Inverter Efficiency	Round trip efficiency of inverter in % of energy flow through inverter, inclusive of any parasitic loads. Please submit a six (6) point curve detailing efficiency at 5%, 10%, 25%, 50%, 75% and 100% of rated power. (See Sched A: "Technical Specifications" section 5.2.4)	
Storage Efficiency	Round trip efficiency of storage modules in % of energy flow through storage, inclusive of any parasitic loads. Please submit a six (6) point curve detailing efficiency at 5%, 10%, 25%, 50%, 75% and 100% of rated power. (See Sched A: "Technical Specifications" section 5.2.4)	
Minimum State of Charge	Minimum state of charge of storage in % of storage energy capacity, i.e. % of Pmax*Duration. If the USABLE capacity has been defined as 0% SOC to 100% SOC, the minimum SOC is expected to be 0%.	
Zero-crossing binary	Can the device switch from charge to discharge within the same hour? YES = 1, NO = 0	
Regulation While Charging Binary	Participate in Regulation market while charging? YES = 1, NO = 0	
Regulation While Discharging Binary	Participate in Regulation market while discharging? YES = 1, NO = 0	
Spinning Reserve Market	Participate in Spinning Reserve market? YES = 1, NO = 0	
Discharge Max Reg Up	Maximum capacity that can be committed for Reg Up while discharging (MW)	
Charge Max Reg Up	Maximum capacity that can be committed for Reg Up while charging (MW)	
Discharge Max Reg Down	Maximum capacity that can be committed for Reg Down while discharging (MW)	
Charge Max Reg Down	Maximum capacity that can be committed for Reg Down while charging (MW)	
Discharge Max Spin	Maximum capacity that can be committed for Spinning Reserve while discharging (MW)	
Charge Max Spin	Maximum capacity that can be committed for Spinning Reserve while charging (MW)	
Cycle	Characterization of 1 cycle in terms of % discharge of storage capacity, i.e. % discharge of Pmax*Duration	
Maximum Switching	What is the maximum number of charge/discharge transitions the device can perform in 1 day?	
Storage Calendar Life	Calendar life of storage and inverter system in years	
Forced Outage Rate	Estimate % of time in a year, the system undergoes forced outage.	
Maintenance Outage Rate	Estimate % of time in a year, the system is scheduled for maintenance outages.	
Replacement Cost	Replacement cost of the battery/modules within the storage system in % of total build cost, if the replacement were made on the year of first installation. The replacement cost is escalated by the build cost esc rate to assess the replacement cost for any year after the first installation year.	

Additional Comments:

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ENTIRE DOCUMENT IS CONSIDERED CONFIDENTIAL

Attachment H

Hecate Energy Bancroft LLC

Energy Storage Power Purchase Tolling Agreement

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

DECLARATION OF PATRICK K. CHARLES REGARDING CONFIDENTIALITY OF CERTAIN DATA

I, Patrick K. Charles, do declare as follows:

1. I am the Origination Analytics Manager in the Electric & Fuel Procurement Department for San Diego Gas & Electric Company ("SDG&E"). I have reviewed my prepared direct testimony submitted in support of SDG&E's Application for Approval of Energy Storage and Energy Efficiency Contracts Arising from the Track IV Local Capacity Requirement All Source Request for Offers (A.16-03-xxx), submitted concurrently herewith (the "Track IV Testimony"). In addition, I am personally familiar with the facts and representations in this Declaration and, if called upon to testify, I could and would testify to the following based upon my personal knowledge and/or belief.

2. I hereby provide this Declaration in accordance with D.06-06-066, *et seq.*, to demonstrate that the confidential information ("Protected Information") provided in the Track IV Testimony submitted concurrently herewith (described below) falls within the scope of data protected as confidential pursuant to the IOU Matrix attached to the Commission's confidentiality decision, D.06-06-066 (the "IOU Matrix") and/or under relevant statutory provisions.[1/]

[1/] The Matrix is derived from the statutory protections extended to non-public market sensitive and trade secret information. (*See* D.06-06-066). The Commission is obligated to act in a manner consistent with applicable law. The analysis of protection afforded under the Matrix must always produce a result that is consistent with the relevant underlying statutes; if information is eligible for statutory protection, it must be protected under the Matrix. (*See Southern California Edison Co. v. Public Utilities Comm.* 2000 Cal. App. LEXIS 995, *38-39) Thus, by claiming applicability of the Matrix, SDG&E relies upon and simultaneously claims the protection of applicable statutory provisions including, but not limited to, Public Utilities Code §§ 454.5(g) and 583, Govt. Code § 6254(k) and General Order 66-C.

3. In D.06-06-066, the Commission adopted rules governing confidentiality of certain categories of electric procurement data submitted to the Commission by investor owned utilities ("IOUs") and energy service providers ("ESPs"). The Commission established two matrices – one applicable to IOUs, the other to ESPs – setting forth categories and sub-categories of data and providing a confidentiality designation for each.[2/]

4. To the extent information matches a Matrix category, it is entitled to the protection the Matrix provides for that category of information. In addition, the Commission has made clear that information must be protected where "it matches a Matrix category exactly . . . or consists of information from which that information may be easily derived."[3/] In order to claim the protection afforded by the relevant Matrix, the party seeking confidential treatment must establish:

1) That the material it is submitting constitutes a particular type of data listed in the Matrix,
2) Which category or categories in the Matrix the data correspond to,
3) That it is complying with the limitations on confidentiality specified in the Matrix for that type of data,
4) That the information is not already public, and
5) That the data cannot be aggregated, redacted, summarized, masked or otherwise protected in a way that allows partial disclosure.[4/]

2/ *See*, D.06-06-066, as amended by D.07-05-032, *mimeo*, Appendices 1 and 2.
3/ *See*, *Administrative Law Judge's Ruling on San Diego Gas & Electric Company's April 3, 2007 Motion to File Data Under Seal*, issued May 4, 2007 in R.06-05-027, p. 2 (emphasis added).
4/ D.06-06-066, as amended by D.07-05-032, *mimeo*, p. 81, Ordering Paragraph 2.

5. SDG&E's Protected Information: The Protected Information, consisting of the information described below, is protected pursuant to the following Matrix categories:

Data at Issue	Matrix Requirements	How Moving Party Meets Requirements
Highlighted / shaded portions of my Track IV Testimony on the following pages / line numbers: - PKC-27: lines 11-13, 16-24 and 27-32 - PKC-28: lines 2-3 And The entirety of Attachment H, the Hecate Energy Bancroft LLC Energy Storage Power Purchase Tolling Agreement (the "Hecate Contract")	Demonstrate that the material submitted constitutes a particular type of data listed in the IOU Matrix	The redacted data in includes information specifically describing certain contract terms included in the Hecate Contract
	Identify the Matrix category or categories to which the data corresponds	Matrix category VII B
	Affirm that the IOU is complying with the limitations on confidentiality specified in the Matrix for that type of data	In accordance with the limitations on confidentiality set forth in the IOU Matrix, SDG&E requests that the information be kept confidential for a period of three (3) years from the date the contract begins deliveries or until one (1) year following expiration, whichever comes first.
	Affirm that the information is not already public	SDG&E has not publicly disclosed this information and is not aware that it has been disclosed by any other party.
	Affirm that the data cannot be aggregated, redacted, summarized, masked or otherwise protected in a way that allows partial disclosure.	The information is provided in a way that accurately and fully describes the Hecate Contract for Commission evaluation. The data cannot be aggregated, redacted, further summarized, masked or otherwise protected in a way that allows partial disclosure.

6. SDG&E intends to comply with the limitations on confidentiality specified in the Matrix for the type of data that is provided herewith.

7. I am not aware of any instance of public disclosure of the Protected Information.

8. The Protected Information cannot be provided in a form that is further aggregated, redacted, or further summarized and still provide the level of detail requested and expected by the Commission.

9. As an alternative basis for requesting confidential treatment, SDG&E submits that the confidential information provided in the Track IV Testimony is material, market sensitive, electric

procurement-related information protected under§§ 454.5(g) and 583, as well as trade secret information protected under Govt. Code § 6254(k), and that the disclosure of this information would place SDG&E at an unfair business disadvantage, thus triggering the protection of G.O. 66-C.[5/]

10. Public Utilities Code § 583 establishes a right to confidential treatment of information otherwise protected by law.[6/]

11. Public Utilities Code § 454.5(g) provides:

The commission shall adopt appropriate procedures to ensure the confidentiality of any market sensitive information submitted in an electrical corporation's proposed procurement plan or resulting from or related to its approved procurement plan, including, but not limited to, proposed or executed power purchase agreements, data request responses, or consultant reports, or any combination, provided that the Office of Ratepayer Advocates and other consumer groups that are nonmarket participants shall be provided access to this information under confidentiality procedures authorized by the commission.

12. Under the Public Records Act, Govt. Code § 6254(k), records subject to the privileges established in the Evidence Code are not required to be disclosed.[7/] Evidence Code § 1060 provides a privilege for trade secrets, which Civil Code § 3426.1 defines, in pertinent part, as information that derives independent economic value from not being generally known to the public or to other persons who could obtain value from its disclosure.

13. In addition, Commission General Order 66-C protects "[r]eports, records and information requested or required by the Commission which, if revealed, would place the regulated company at an unfair business disadvantage."

[5/] This argument is offered in the alternative, not as a supplement to the claim that the data is protected under the IOU Matrix. California law supports the offering of arguments in the alternative. *See, Brandolino v. Lindsay*, 269 Cal. App. 2d 319, 324 (1969) (concluding that a plaintiff may plead inconsistent, mutually exclusive remedies, such as breach of contract and specific performance, in the same complaint); *Tanforan v. Tanforan*, 173 Cal. 270, 274 (1916) ("Since . . . inconsistent causes of action may be pleaded, it is not proper for the judge to force upon the plaintiff an election between those causes which he has a right to plead.")

[6/] *See*, D.06-06-066, *mimeo*, pp. 26-28.

[7/] *See also* Govt. Code § 6254.7(d).

14. If disclosed, the Protected Information could provide parties with whom SDG&E is currently or will soon be negotiating insight into SDG&E's procurement needs, which would unfairly undermine SDG&E's negotiation position and could ultimately result in increased cost to ratepayers. In addition, if developers mistakenly perceive that SDG&E is not committed to assisting their projects or keeping Protected Information secure, disclosure of the Protected Information could act as a disincentive to developers for offering projects into SDG&E's request for offers or negotiate higher prices based on knowledge of the Protected Information. Accordingly, pursuant to P.U. Code § 583, SDG&E seeks confidential treatment of this data, which falls within the scope of P.U. Code § 454.5(g), Govt. Code § 6254(k) and General Order 66-C.

15. Developers' Protected Information: The Protected Information provided in the Track IV Testimony may also constitute confidential trade secret information of the involved projected developers that SDG&E is obligated to protect. The project status information set forth in the Track IV Testimony relates directly to the pricing and contractual terms of the Hecate Contract. Disclosure of this extremely sensitive information could harm developers' ability to negotiate necessary contracts and/or could invite interference with project development by competitors.

16. In accordance with the statutory provisions described herein, SDG&E hereby requests that the information set forth in the Track IV Testimony be protected from public disclosure.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge.

Executed this 29th day of March, 2016, at San Diego, California.

Patrick K. Charles
Origination Analytics Manager