

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

Application of SAN DIEGO GAS & ELECTRIC  
COMPANY (U 902 M) for Approval of its Energy Storage  
Procurement Framework and Program As Required by  
Decision 13-10-040.

Application No. 14-02-\_\_\_\_  
(Filed February 28, 2014)

Application No. 14-02-\_\_\_\_  
Exhibit No.: (SDG&E-2)

**PREPARED DIRECT TESTIMONY OF  
PATRICK K. CHARLES  
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY**

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA  
FEBRUARY 28, 2014**



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1 potentially participate in wholesale markets and be installed on SDG&E's distribution  
2 network and in these cases, the procurement methodology will mirror that of the  
3 transmission domain (and SDG&E may utilize the same solicitation for both). For  
4 energy storage systems that provide a distribution reliability function, SDG&E will  
5 utilize procurement methods historically used to procure distribution assets as  
6 authorized in the Energy Storage Decision<sup>4</sup>. Energy storage systems programs within  
7 the customer domain are not proposed here but may be proposed via application or other  
8 processes in the future. However, within all of these domains, SDG&E sees the value of  
9 employing a competitive process such as a Request for Offer ("RFO") or Request for  
10 Proposal ("RFP") process.

11           The RFO process discussed in SDG&E's LTPP<sup>5</sup> associated with longer-term,  
12 non-standard products is suitable and applicable for the energy storage systems that  
13 SDG&E intends to procure within the transmission and distribution (Local and Flexible  
14 Capacity Requirements program) domains. As described in the LTPP, this process is  
15 generally composed of the following steps: 1) portfolio need analysis, 2) RFO  
16 documentation development, 3) RFO promulgation to the marketplace, 4) development  
17 of offer evaluation criteria, and 5) contract negotiation. Also included, but not  
18 specifically enumerated in this listing is the receipt of offers, conducting the offer  
19 analysis and the associated determination of a short list as well as the overarching  
20 involvement in this process of SDG&E's Independent Evaluator ("IE") and the

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<sup>4</sup> See D.13-10-040, Appendix A, section 3)a) – Procurement Schedule – p. 5, "Storage projects involving distribution reliability applications shall be procured via existing processes used by IOUs for other distribution reliability utility assets."

<sup>5</sup> See SDG&E advice letter 2362-E-A, section II.A.5.b. Procurement Practices and Methods for Long-Term Transactions, sheet no. 50. This advice letter can be found on SDG&E's website at: <http://regarchive.sdge.com/tm2/pdf/2362-E-A.pdf>

1 Procurement Review Group (“PRG”). Additionally, as discussed in the LTPP, SDG&E  
2 has authority to enter into bi-lateral contracts to purchase longer term non-standard  
3 products and although SDG&E prefers and intends to utilize the RFO process discussed  
4 herein, it may pursue such a bi-lateral opportunity if circumstances warrant such an  
5 approach.<sup>6</sup>

6 SDG&E’s procurement methodology for energy storage systems within the  
7 Distribution Reliability / Power Quality program consists of its standard procurement  
8 procedures associated with the procurement of regular course of business distribution  
9 reliability assets. This includes a multiple step RFP process detailed below in section  
10 II.B.2a. (Distribution Reliability / Power Quality).

11 SDG&E does not intend to procure any energy storage systems within the  
12 customer domain for the 2014 procurement cycle. For future solicitation cycles SDG&E  
13 may pursue energy storage opportunities within the customer domain but the exact  
14 procurement methodology that SDG&E will utilize is not clear given SDG&E’s  
15 expectations that today’s business models regarding demand response (“DR”) will likely  
16 evolve.

17 In accordance with the Energy Storage Decision, SDG&E will conduct up to  
18 four solicitation cycles – in 2014, 2016, 2018 and 2020 – in pursuit of energy storage  
19 resources as defined in Public Utilities code section 2835(a)<sup>7</sup>. SDG&E will consider  
20 utility-owned, third-party owned, customer-owned and joint ownership as it pursues the  
21

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<sup>6</sup> Ibid, section II.A.4.o. Bilaterally Negotiated Contracts for Conventional Resources, sheet no. 34 and 35.

<sup>7</sup> Except for pumped storage resources with capacities that exceed 50MW, as specified in the Energy Storage Decision.

1 energy storage targets outlined in the Energy Storage Decision including contracting  
2 with customer-sited storage resources directly or via aggregation by third parties.  
3 SDG&E intends to pursue utility ownership in the 2014 solicitation cycle and will  
4 evaluate utility ownership in all domains in future solicitation cycles. Therefore,  
5 throughout its energy storage procurement effort, SDG&E will pursue a competitive  
6 process consistent with that described in CPUC decision 07-12-052.<sup>8</sup> As SDG&E  
7 considers potential utility ownership in the three grid domains either in the initial  
8 solicitation cycle or in future solicitation cycles, SDG&E will determine whether an  
9 RFO for turnkey development under a Purchase and Sale Agreement (“PSA”) is  
10 appropriate or whether another approach such as the utilization of an Engineering,  
11 Procurement and Construction (“EPC”) contract or straight utility build project approach  
12 is appropriate.

### 13 **1. Need Discussion**

14 The Energy Storage Decision requires reference be provided to a needs study of  
15 the California Independent System Operator (CAISO), if available<sup>9</sup> as part of this  
16 application. In response, SDG&E points to the 2014 Local Capacity Technical Analysis  
17 conducted by the CAISO<sup>10</sup>, but more generally would point to its LTPP, the CAISO’s  
18 2012-2016 Strategic Plan, and the CAISO’s Draft 2013-2014 Transmission Plan (“Draft  
19 Transmission Plan”). It should be noted that these studies only address local and system  
20 resources needs. They do not address needs or issues related to the distribution system

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<sup>8</sup> D.07-12-052 was issued on December 20, 2007 and adopts the LTPP of SDG&E, Pacific Gas & Electric (PG&E) and Southern California Edison (SCE) and can be found on the CPUC’s website at: [http://docs.cpuc.ca.gov/PublishedDocs/WORD\\_PDF/FINAL\\_DECISION/76979.PDF](http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/76979.PDF). The requirement to pursue this type of competitive process can be found at p. 6 of Appendix A to the Energy Storage Decision.

<sup>9</sup> See D.13-10-040, Appendix A, p. 8.

1 that energy storage could potentially address. For example, utilizing energy storage on  
2 the distribution network to address the high penetration of distributed photovoltaic  
3 systems and the power quality challenges these present was addressed in SDG&E's  
4 2012 General Rate Case application (A.10-12-005) and the Commission's subsequent  
5 decision approving that application (D.13-05-010)<sup>11</sup>.

6 In its LTPP, SDG&E includes a need discussion of some length<sup>12</sup> and to  
7 summarize, SDG&E plans for its bundled customers' energy and capacity need, as well  
8 as the grid reliability needs in SDG&E's service territory, over a ten year planning  
9 horizon. This is done by looking at load forecasts, and existing and committed  
10 resources. Then, in response to utility procurement related requests, the Commission  
11 will authorize and/or require SDG&E to meet the resource needs of its bundled  
12 customers and to procure any new resources that are required to meet grid reliability  
13 requirements. Energy Storage possessing the necessary attributes can also contribute to  
14 meeting these needs.

15 The CAISO has outlined in its 2012-2016 Strategic Plan, "Building a Sustainable  
16 Energy Future"<sup>13</sup> the challenge of managing the grid during this period of industry  
17 transformation that is currently underway. The increasing flexibility that is needed to  
18 maintain stability in our electric system given the growing amounts of non-dispatchable

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<sup>10</sup> The CAISO Local Capacity Technical Analysis final report and study results can be found on the CAISO website at:

[https://www.caiso.com/Documents/Final2014LocalCapacityTechnicalStudyReportApr30\\_2013.pdf](https://www.caiso.com/Documents/Final2014LocalCapacityTechnicalStudyReportApr30_2013.pdf)

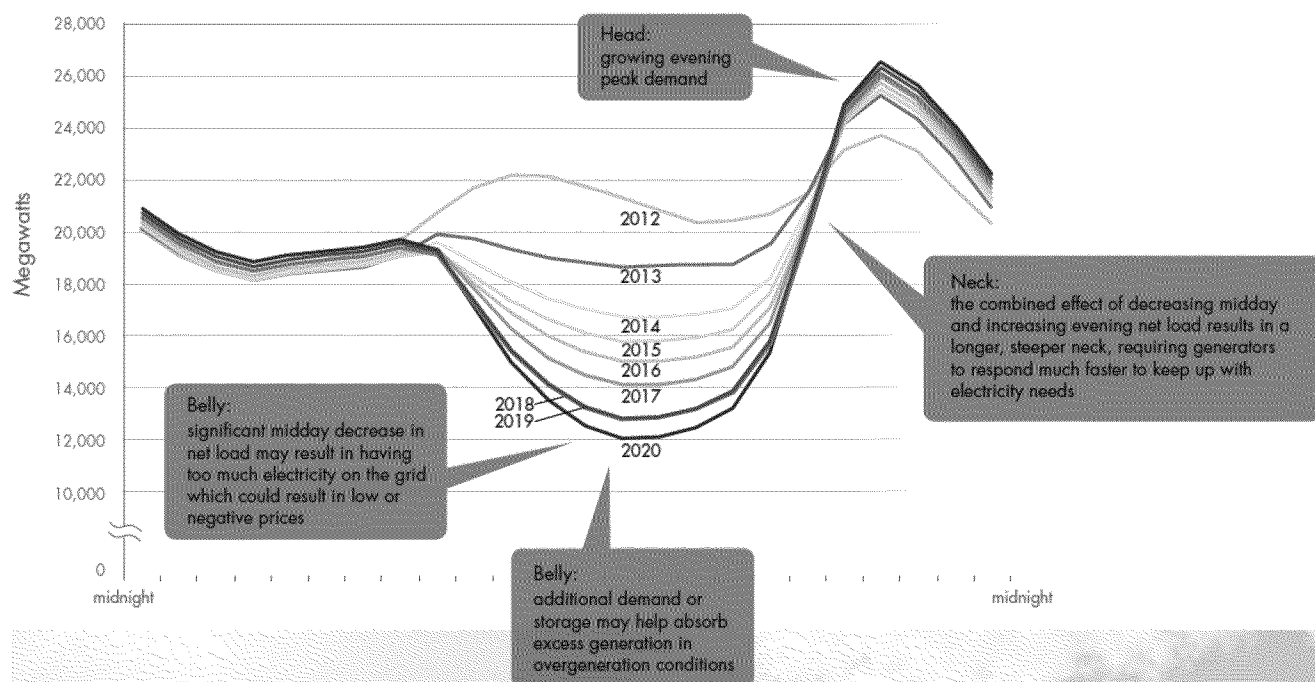
<sup>11</sup> D.13-05-010 can be found on the CPUC website at:

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M065/K336/65336060.PDF> ; see page 210 for the table of approved Smart Grid related projects and related discussion.

<sup>12</sup> See SDG&E's LTPP filed July 25, 2012 – Advice Letter 2362-E-A found on SDG&E's website at <http://regarchive.sdge.com/tm2/pdf/2362-E-A.pdf> , section III.D. (Need Determinations), beginning at sheet 91

<sup>13</sup> This plan can be found on the CAISO website at: <http://www.caiso.com/Documents/2014-2016StrategicPlan-ReaderFriendly.pdf>

1 renewable resources – primarily solar resources – is well illustrated by the so-called  
2 CAISO ‘Duck Chart’ (also from the CAISO 2012-2016 Strategic Plan):



3  
4 The deepening belly of the duck is a clear indication that increasingly flexible resources  
5 – such as energy storage - will be needed as we look ahead to 2020.

6 The CAISO 2014 Local Capacity Technical Analysis and associated Local  
7 Capacity Requirements (“LCR”) are outlined in the CAISO’s April 30, 2013 report. To  
8 summarize, the report states that “the San Diego LCR needs have slightly increased due  
9 to load growth and significantly increased due to the absence of SONGS.”<sup>14</sup> The Draft  
10 Transmission Plan lays out a longer term vision of resource and transmission needs  
11 within the San Diego LCR area<sup>15</sup>. To summarize, this draft plan recognizes the  
12 challenges faced in maintaining southern California reliability in light of the retirement  
13 of SONGS and mentions the following among three areas that require further study:

<sup>14</sup> See page 3 of the CAISO Local Capacity Technical Analysis final report found on the CAISO website at: [https://www.caiso.com/Documents/Final2014LocalCapacityTechnicalStudyReportApr30\\_2013.pdf](https://www.caiso.com/Documents/Final2014LocalCapacityTechnicalStudyReportApr30_2013.pdf)  
SONGS refers to the San Onofre Nuclear Power Station.



1 “continuing the coordinated and iterative process of addressing southern California (LA  
 2 Basin and San Diego area) needs with an emphasis on preferred resources, as well as  
 3 resolving remaining technical decisions regarding recommended solutions that  
 4 contribute to the overall need”<sup>16</sup>. SDG&E anticipates that a CPUC decision in Track IV  
 5 of the 2012 LTPP proceeding (R. 12-03-014) may provide additional guidance to  
 6 SDG&E as to the Commission’s desire for storage to meet local capacity needs<sup>17</sup>.

7 **B. Procurement Methodology Discussion for 2014 Solicitation Cycle**

8 The following table illustrates SDG&E’s procurement intent for the 2014  
 9 solicitation cycle:

10 **Table PKC-1**  
 11 **2014 Solicitation Cycle – SDG&E Procurement Intent**

Domain	Program – Short Description	Capacity (MW)	3 <sup>rd</sup> Party Ownership	IOU Ownership
Transmission	1. Local and Flexible Capacity Requirements - Transmission Connected	Up to 10MW	Y	Y
Distribution	2. Local and Flexible Capacity Requirements - Distribution Connected	Up to 2MW	Y	Y
	3. Distribution Reliability / Power Quality	Up to 4MW	N	Y

12  
 13  
 14

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<sup>15</sup> The CAISO 2013-2014 Draft Transmission Plan is available on the CAISO website at:  
<http://www.caiso.com/Documents/Draft2013-2014TransmissionPlan.pdf>

<sup>16</sup> See the CAISO 2013-2014 Draft Transmission Plan, p. 12 (plan available at:  
<http://www.caiso.com/Documents/Draft2013-2014TransmissionPlan.pdf> )

<sup>17</sup> Administrative Law Judge Gamson issued an LTPP track four Proposed Decision on February 11, 2014 that included references for authorization of 25 MW of energy storage. Comments are due March 3, 2014 and reply comments on March 10. It may first appear on the Commission’s March 13, 2014 agenda for approval.

1           **1.    Transmission Domain**

2           For the initial procurement cycle, SDG&E intends to procure energy storage  
3 within the transmission domain via an RFO process for third party owned systems that  
4 will be contracted via either an Energy Storage System Tolling Agreement or via  
5 SDG&E’s Resource Adequacy (“RA”) long form EEI confirmation agreement (EEI is  
6 the Edison Electric Institute). The RFO for this initial solicitation is intended to be  
7 structured much like other RFO’s that SDG&E issues and the intended structure  
8 includes sections on background information, the procurement process, eligibility  
9 requirements, interconnection, evaluation criteria, schedule, website / communications  
10 with potential vendors and response instructions. Along with the RFO document itself,  
11 other forms and information will be provided to and/or required from potential bidders  
12 such as an offer form (likely to be an excel file), project description form, electric  
13 interconnection documentation, credit application, supplier diversity information as well  
14 as a red-lined version of the form agreement.

15           For the 2014 solicitation cycle, SDG&E is seeking up to 10 MW of third party  
16 owned energy storage capacity within the Transmission domain. SDG&E may procure  
17 less than or greater than 10 MWs based on the offers received. If the third party market  
18 fails to materialize or if utility ownership provides better system benefits or reduces  
19 costs, then SDG&E may pursue utility owned options.

20           As required by the Energy Storage Decision, SDG&E intends to issue its initial  
21 solicitation no later than December 1, 2014. This applies for all domain programs for  
22 which third party ownership is being considered, as shown in Table PKC-1, above.

23  
24                           **a.    Local and Flexible Capacity Requirements (LFCR) –**

PKC-8

1 **Transmission Connected**

2 For the 2014 solicitation cycle (and perhaps future solicitation cycles if  
3 appropriate), SDG&E intends to require that the energy storage systems bid into the  
4 transmission domain solicitation meet the requirements to count for RA credit in  
5 SDG&E’s regulatory showings related to RA. Therefore, SDG&E intends to require  
6 that these systems meet the RA counting rules<sup>18</sup>. In the 2014 solicitation cycle, SDG&E  
7 is seeking energy storage that will count towards the San Diego area Local Capacity  
8 Requirement (LCR) (“Local”). In future solicitation cycles, SDG&E may also consider  
9 energy storage systems that provide capacity in the Greater San Diego – Imperial Valley  
10 LCR area (“Local – IV”) or other LCR sub-areas in which SDG&E owns transmission.  
11 Additionally for future solicitation cycles SDG&E may seek energy storage that will  
12 count towards system capacity requirements (“System”). For the 2014 Solicitation cycle  
13 within the transmission domain, SDG&E will only consider energy storage systems  
14 interconnected within SDG&E’s service territory<sup>19</sup>. Finally, SDG&E will consider  
15 offers that meet flexible capacity requirements to the extent such requirements are  
16 defined and adopted by the CPUC prior to SDG&E’s issuance of its 2014 solicitation.

17 Within all grid domains and programs, SDG&E intends to structure its  
18 solicitation in a flexible enough manner to accommodate all technology types that  
19

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<sup>18</sup> RA counting rules change over time, and SDG&E will describe the rules in the clearest manner possible in the solicitation document. Recent Commission decisions that discuss RA requirements include D.11-06-022 and D.13-06-024 among others.

<sup>19</sup> Specifically, SDG&E will seek local resources defined as storage projects that connect to transmission that is electrically west of the ECO substation, electrically west of the Ocotillo substation and electrically south of the SONGS substation. This is close to, but not exactly the same as, SDG&E’s distribution service territory

1 qualify as energy storage systems under Public Utilities code, section 2835, including  
2 thermal storage or any other type of qualifying energy storage system.

3 As stated, procurement for the transmission domain will be accomplished  
4 utilizing an RFO process following a similar methodology as that articulated in  
5 SDG&E's LTPP (specifically, section II.A.5). An overview of the process is as follows:

- 6  Portfolio need analysis / suitable products determination.
  - 7  SDG&E has determined that eligible products within this domain must provide
  - 8 RA benefit. In order to count for RA, storage must currently meet at least one of
  - 9 the existing RA Qualifying Capacity ("QC") counting rules. QC is the measure of
  - 10 a resource's ability (in MW) to meet peak load conditions, and is a prerequisite
  - 11 for any resource to satisfy a Load Serving Entities' ("LSEs") System or Local RA
  - 12 requirement. Currently, the least constraining of the QC counting requirements
  - 13 are those related to demand response that require a qualifying resource must be
  - 14 able to run for a minimum of four hours per day for three consecutive days.
  - 15 However, in R.11-10-023, the Commission is in the process of creating new QC
  - 16 counting rules for energy storage resources and the precise requirements will not
  - 17 be known until later in 2014.<sup>20</sup> Additionally, location may affect the project's
  - 18 capacity benefit (Local, Local-IV, System). Also, for a resource to be counted for
  - 19 RA it must be determined to be fully deliverable by the CAISO. Thus, SDG&E

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<sup>20</sup> R.11-10-023 *Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local Procurement Obligations* (Filed October 20, 2011). This Rulemaking is also considering new Effective Flexible Capacity (EFC) counting rules for storage resources. EFC measures a resource's ability to meet system ramping needs, and an EFC calculation is a prerequisite for storage resources to be eligible to satisfy an LSE's new-adopted Flexible RA requirements. Currently, Energy Division staff is proposing that a storage resource's EFC could be greater than its QC. If this distinction holds, it will provide an additional basis for valuation, and will be incorporated into SDG&E's evaluation process.

1 will require these resources request Full Capacity Deliverability Status in the  
2 CAISO interconnection process.<sup>21</sup>

- 3  Drafting of the RFO document.
  - 4  Creation of the RFO document is a multi-disciplinary task, utilizing subject
  - 5 matter experts from the procurement, resource planning, legal and credit
  - 6 functions. The RFO will include a detailed description of the energy storage
  - 7 products sought and any requirements that must be met (such as the RA
  - 8 requirement discussed above), the term of the agreements (SDG&E proposes
  - 9 contract delivery terms between 5 and 20 years).
  - 10  SDG&E will consult with its IE, PRG, and the Commission’s Energy Division on
  - 11 the type and quantity of energy storage products to be solicited. The evaluation
  - 12 process and criteria to be used in ranking offers and any unique considerations in
  - 13 the RFO will be detailed. SDG&E’s current intent with regard to evaluation
  - 14 methodology is discussed in the testimony of Armando Infanzon.
- 15  Distribution of the RFO to the market. In order to achieve a robust response to the
- 16 solicitation, SDG&E intends to utilize the broadest possible distribution list for
- 17 promulgating the RFO document to potential bidders. This will include Western
- 18 Systems Power Pool (“WSPP”) membership, past RFO participants, storage industry
- 19 groups, and all parties that have inquired about energy storage procurement.

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<sup>21</sup> The resource must request ‘Full Capacity Deliverability Status’ in the resource’s generation interconnection request at the CAISO. In making such a request, the generation resource becomes eligible to receive a Net Qualifying Capacity (NQC) designation in the CAISO’s annual deliverability assessment for the upcoming RA compliance year. The NQC amount that could be as large as the generator’s Qualifying Capacity and may be less pursuant to the assessment of its Net Qualifying Capacity by the ISO. See the CAISO glossary of terms and acronyms at:  
[https://www.caiso.com/Pages/glossary.aspx?Paged=TRUE&p\\_SortBehavior=0&p\\_Term=Fast%20Start%20Unit&p\\_ID=302&PageFirstRow=351&&View={02340A1A-683C-4493-B284-8B949002D449}](https://www.caiso.com/Pages/glossary.aspx?Paged=TRUE&p_SortBehavior=0&p_Term=Fast%20Start%20Unit&p_ID=302&PageFirstRow=351&&View={02340A1A-683C-4493-B284-8B949002D449})

1 SDG&E may also pursue additional avenues to educate stakeholders such as  
2 conducting a bidder's conference or other stakeholder outreach.

3  Preparation of offer evaluation criteria. SDG&E will establish the evaluation criteria  
4 in advance of issuing the RFO in consultation with its IE and the PRG. Details of  
5 SDG&E's current intent regarding the evaluation methodology are included in the  
6 testimony of Armando Infanzon.

7  Offer conformance. Certain minimum standards will be defined and will be required  
8 in order for an offer to be deemed conforming. These may include, but are not  
9 limited to:

10  Specification of project location / evidence of site control. SDG&E's  
11 current intent is to require that energy storage systems associated with the  
12 transmission domain be located within SDG&E's service territory (see  
13 footnote 19, above, for further details)..

14  Willingness to commit to a commercial operation date within the bounds  
15 set in the RFO. In general, systems must come on-line prior to December  
16 31, 2024 but for the 2014 solicitation cycle, an earlier on-line date may  
17 be required.

18  Willingness to commit to a contract term acceptable under the RFO  
19 (delivery terms of five to twenty years are proposed).

20  Evidence of the project having gone through the interconnection study  
21 process. This could include CAISO Generator Interconnection  
22 Procedures ("GIP") Phase II or equivalent process or exemption and an  
23 existing interconnection agreement for the duration of the contract.

1 Interconnection cost estimates also come from these studies. For the 2014  
2 solicitation cycle due to timing concerns, SDG&E intends to be flexible  
3 with regard to requiring a Phase II study and will not automatically  
4 consider bids that lack this study to be nonconforming.

5 Additionally, technical capabilities of the storage system must meet the  
6 minimum specifications defined in the RFO. These may include (list is not intended to  
7 be exhaustive):

- 8  Capacity – minimum system capacity.
- 9  Ramp rate(s).
- 10  Dispatchability ranges (minimum / maximum storage levels, maximum  
11 discharge amounts, efficiency factors, efficiency degradation limits, time  
12 to charge, as well as perhaps other requirements yet to be developed)
- 13  Cycle limitations (number of deep discharges per week, month or year)  
14 perhaps similar discharge limitations for discharges that are not  
15 considered “deep” discharges.
- 16  Must have the capability to meet the RA counting rules (for example,  
17 four hours of discharge capability for three consecutive days).

## 18 **2. Distribution Domain**

19 SDG&E intends to procure energy storage within the distribution domain via  
20 both an RFO process for third party owned systems that will be contracted via either an  
21 Energy Storage System Tolling Agreement or via SDG&E’s RA long form EEI  
22 confirmation agreement and via utility ownership. SDG&E intends to procure up to two  
23 (2) MWs associated with the third party owned or utility owned, contracted energy

1 storage resources to support the ‘Local and Flexible Capacity Requirements –  
2 Distribution Connected’ (“LFCR-DC”) program, and up to four (4) MW of utility  
3 owned storage resources for the ‘Distribution Reliability / Power Quality’ program in  
4 the initial 2014 solicitation cycle.

5 The RFO associated with the LFCR-DC program is intended to be structured  
6 much like that described above for the transmission domain, Local and Flexible  
7 Capacity Requirements program and SDG&E may utilize a single solicitation for both of  
8 these programs in the 2014 solicitation cycle. Intended structure for the LFCR-DC  
9 program RFO includes sections on background information, the procurement process,  
10 eligibility requirements, interconnection, evaluation criteria, schedule, website /  
11 communications with potential vendors and response instructions. Along with the RFO  
12 document itself, other forms and information will be provided to and/or required from  
13 potential bidders such as an offer form (likely to be an excel file), project description  
14 form, electric interconnection documentation, credit application, supplier diversity  
15 information as well as a red-lined version of the form agreement. Although SDG&E  
16 intends to mirror the requirements of the transmission domain solicitation within the  
17 LFCR-DC program, it may consider offers that do not meet all of the RA counting rules  
18 (that is, LFCR-DC offers that do not meet RA counting rules will not automatically be  
19 considered nonconforming).

20 For the Distribution Reliability / Power Quality program, SDG&E proposes  
21 utility ownership of such energy storage systems for the 2014 solicitation cycle. As  
22 detailed in the Energy Storage Decision, the energy storage systems procured via this  
23 program are intended to be for distribution reliability purposes, and intended to fit  
24 within the following language from that decision: “storage projects involving



1 distribution reliability applications shall be procured via existing processes used by  
2 IOUs for other distribution reliability utility assets.”<sup>22</sup>

3 **a. Local and Flexible Capacity Requirements – Distribution Connected**

4 SDG&E intends to solicit projects in this program via an RFO process seeking  
5 up to two (2) MWs in capacity. This product is very similar to that being sought in the  
6 transmission domain as part of the Local and Flexible Capacity Requirements program.  
7 SDG&E may conduct this solicitation as a part of the transmission domain solicitation  
8 discussed above, or may choose to conduct a separate RFO solely for distribution level  
9 bids, but following an identical process as that described above for the transmission  
10 domain. In the case of the LFCR-DC program, interconnection with SDG&E’s  
11 distribution system will be required, and therefore projects will be required to be located  
12 within SDG&E’s distribution service territory.

13 **b. Distribution Reliability / Power Quality**

14 SDG&E intends to solicit projects in this program via a Request For Proposal  
15 (“RFP”) for up to four (4) MWs in capacity utilizing a process similar to that used for  
16 the purchase of other utility distribution reliability assets. Procurement of energy  
17 storage systems for the distribution domain intended for this application / program will  
18 be conducted by SDG&E’s Supply Management Department (“Supply Management”).  
19 SDG&E’s procurement process for utility owned assets installed as part of its electric  
20 distribution system is summarized as follows:

- 21 1. The procurement process to procure company owned assets begins with  
22 representatives of Supply Management meeting with representatives of the  
23 business unit(s) involved (ie: Distribution Planning) and other stakeholders

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<sup>22</sup> See D.13-10-040, p 5.

1 (together, this working group is referred to as the “Sourcing Team”) to develop  
2 the business requirements, supplier qualifications, and to gather and summarize  
3 the specifications for the equipment and the associated scope of work for the  
4 company asset to be procured.

5 2. Identifying potential suppliers. After consulting with the Sourcing Team, Supply  
6 Management conducts a market assessment to identify qualified suppliers.

7 Suppliers considered may include but are not limited to, incumbents and their  
8 competitors, industry leaders and suppliers that have solicited SDG&E in the  
9 past as well as qualified diverse business enterprises. Once a comprehensive  
10 supplier list is developed, the Sourcing Team reviews the suppliers and narrows  
11 down the list to those that best meet the qualifications based on existing,  
12 publically available information and experience to submit bids.

13 3. Creating the Request for Proposal (“RFP”). Supply Management creates the  
14 RFP document based on input, review and approval from multiple disciplines  
15 including engineering, legal and risk management. The RFP document contains  
16 all applicable schedules that include but are not limited to: specifications,  
17 drawings, scope of work, company terms and conditions and insurance  
18 requirements.

19 4. Promulgating the RFP document. Upon review and approval by all stakeholders,  
20 including legal, the RFP document is promulgated by Supply Management to the  
21 suppliers identified earlier in the process. The RFP document is published  
22 electronically and includes a schedule with deadlines for questions and answers,  
23 bidder conference and proposal submittal.

- 1 5. Evaluating supplier proposals. Prior to the publication of the RFP, an internal,  
2 confidential scoring matrix is developed and approved by the Sourcing Team to  
3 evaluate all proposals. The evaluation criteria may include such things as the  
4 suppliers technical capabilities, pricing, services offered, exceptions to  
5 SDG&E's terms and conditions, supplier's financial stability, risk profile of the  
6 submittal and Diversified Business Enterprise ("DBE") qualification of the  
7 bidder and / or DBE subcontracting commitment. The Sourcing Team evaluates  
8 each proposal using the same criteria and assigns a score to each supplier's offer.  
9 SDG&E's current intent with regards to the evaluation protocol methodology is  
10 discussed in Mr. Infanzon's testimony.
- 11 6. Contract award. After review and scoring of all proposals, a meeting is  
12 conducted by Supply Management with all stakeholders to review and discuss  
13 the results and come to a consensus to award a contract. Once consensus is  
14 reached, Supply Management notifies the winning supplier of the contract award.  
15 If the awarded supplier has not conducted business with SDG&E in the past, a  
16 plant qualification is performed at the factory where the assets to be procured  
17 will be manufactured. In some cases, the Sourcing Team may want to further  
18 interview the top suppliers before making an award decision.
- 19 7. Contract negotiation and execution. Following contract award notification,  
20 Supply Management drafts the contract incorporating SDG&E's terms and  
21 conditions and Supply Management and or other members of the sourcing team  
22 engage the supplier in negotiations. After reaching agreement on the contract  
23 terms, the contract is executed by both parties at the appropriate level within the  
24 organization (depending on the level of the commitment).

1 The Distribution Reliability / Power Quality program will focus on soliciting  
2 utility-owned energy storage systems via a competitive RFP process to: 1) address  
3 power quality and voltage issues on the distribution system, and 2) potentially enable  
4 some measure of capacity deferral.

5 1) *Power Quality & Voltage Issues* - Two types of utility-owned energy storage  
6 systems will be pursued in this area to assist in addressing intermittency issues  
7 created by the variable output of renewable energy resources. One solution will  
8 place energy storage systems on circuits with high penetrations of customer  
9 distributed generation systems (this type of energy storage system is commonly  
10 known as Community Energy Storage or CES). Additionally, energy storage  
11 systems will be strategically located in load-serving substations to mitigate the  
12 impact of multiple circuits with high penetrations of intermittent distributed  
13 generation systems. To date, SDG&E has deployed several batteries in the CES  
14 application as well as in load-serving substations and continues working on  
15 several other locations as part of the SDG&E's 2012 GRC Energy Storage  
16 Program (see the testimony of Mr. Lee Krevat for a listing of existing energy  
17 storage projects).

18 System and operational requirements will be fully defined as part of the  
19 competitive RFP process; however, the following table provides a high level  
20 overview of the requirements for these systems:

21

22

**Table PKC-2**

	CES	Substation
Size	Less than 500 kW	Greater than or equal to

PKC-18

	500 kW	
<b>Duration</b>	Site Dependent	Site Dependent
<b>Portability</b>	Dependent on deployment duration	Dependent on deployment duration

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12

2) *Capacity Deferral* – Utility-owned energy storage systems will be pursued through the Distribution Reliability / Power Quality program to mitigate system overloads, reliability concerns, and congestion points as a potential solution for deferral of traditional distribution capital infrastructure upgrades. These systems may be located in or near load-serving substations or along distribution circuits. SDG&E will evaluate different energy storage technologies via its RFP process to provide the capacity deferral discussed in this section. System and operational requirements for these energy storage systems will be fully defined as part of the competitive RFP process; however, the following table provides a high level overview of the requirements for these systems:

**Table PKC-3**

<b>Size</b>	Greater than 500 kW
<b>Duration</b>	Site Dependent
<b>Portability</b>	Dependent on deployment duration

13  
14  
15  
16

**3. Customer Domain**

For the 2014 solicitation cycle, SDG&E does not intend to procure any additional energy storage capacity given the existing energy storage already in place or in development within this domain (approximately 4.6 MW - see Mr. Krevat’s testimony

1 for further details). However, for future solicitation cycles, SDG&E does intend to  
2 procure energy storage systems within the customer domain, but at this point in time is  
3 not clear which business models, ownership structures or contracting mechanisms are  
4 most well suited to this domain. SDG&E anticipates updating our intended procurement  
5 methodology in these circumstances in the future.

6 **III. CONCLUSION**

7 This concludes my prepared direct testimony.  
8

1 **IV. STATEMENT OF QUALIFICATIONS**

2 My name is Patrick K. Charles and I am the Origination Analytics Manager for  
3 SDG&E's Origination and Portfolio Design group in the Electric and Fuel Procurement  
4 (E&FP) department. My business address is 8315 Century Park Court, CP21D, San  
5 Diego California 92123. I have worked in the energy industry for SDG&E for  
6 approximately 15 years.

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

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

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

23 I have previously provided testimony to the Commission