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-1)

PREPARED DIRECT TESTIMONY OF

LEE S. KREVAT

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

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

#285613

TABLE OF CONTENTS

I. INTRODUCTION / OVERVIEW 1
II. OVERALL STRATEGY & 2014-2020 PLAN 2
III. EXISTING PROJECTS ELIGIBLE TO COUNT TOWARD SDG&E'S PROCUREMENT TARGET 5

A. Transmission Domain 7
B. Distribution Domain 9
C. Customer Domain 11

IV. PROPOSED 2014 PROCUREMENT PLAN OVERVIEW 12

A. Transmission Domain 15
B. Distribution Domain 16

V. SDG&E's CUSTOMER DOMAIN EFFORTS 17
VI. CONCLUSION 20
VII. STATEMENT OF QUALIFICATIONS 21

PREPARED DIRECT TESTIMONY OF
LEE S. KREVAT
ON BEHALF OF SDG&E

I. INTRODUCTION / OVERVIEW

The purpose of my testimony is to describe San Diego Gas & Electric's ("SDG&E") overall strategy for procuring energy storage pursuant to California Public Utilities Commission ("CPUC") decision ("D.") 13-10-040[1] ("the Energy Storage Decision").

SDG&E is committed to meeting the procurement targets initiated by California Assembly Bill (AB) 2514 and established in the Energy Storage Decision. SDG&E seeks to comply with the procurement targets by procuring cost-effective and operationally viable energy storage systems ("ESS") that provide value to customers, utility operations and that benefit society in general within SDG&E's service territory. Cost-effectiveness for ESS will differ based on the different use cases and applications that SDG&E intends to procure during the 2014 solicitation cycle and subsequent cycles. Operational viability for ESS is difficult to define at this time due to the nascent nature of the technology and the limited bids/proposals that we have seen. A strict definition may be that operational viability occurs when the energy storage system is a commercial off-the-shelf system that can be interconnected to the grid at any level and perform the functions for which it is was procured in a safe, reliable manner for the

[1] D.13-10-040 – Decision Adopting Energy Storage Procurement Framework and Design Program – was issued on 10/21/2013 and can be found on the CPUC website at: http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M079/K533/79533378.PDF

unit's useful life according to the manufacturer's specifications. SDG&E does not wish to define viability that strictly at this time. We feel that it would be prudent, at least for the first solicitation cycle, to examine bids on a case-by-case basis in order to understand what may or may not be viable. The ultimate decision will rely on qualitative factors as well as quantitative factors.

The specific drivers for the procurement of energy storage systems in the SDG&E service territory will likely evolve during 2014-2020. However, current drivers include, but are not limited to, the explosive growth of distributed generation ("DG"), particularly photovoltaics ("PV"), need to integrate renewable power, and replacement of local capacity resources as a result of the shutdown of the San Onofre Nuclear Generation Station ("SONGS") and once-through-cooling power plants. The following sections provide an overview of SDG&E's strategy.

II. OVERALL STRATEGY & 2014-2020 PLAN

According to the Energy Storage Decision, SDG&E is instructed to solicit and target 165 megawatts ("MW") of energy storage capacity by 2020. That capacity must be in-service no later than 2024. SDG&E will conduct biennial solicitation cycles between 2014 and 2020 and procure capacity for the three domains established in the Energy Storage Decision: transmission, distribution and customer. For the initial proposed programs SDG&E will only seek offers in the transmission and distribution domains. SDG&E may also pursue other procurement methods as appropriate. The Energy Storage Decision established the following schedule for SDG&E's procurement targets for 2014-2020:

Table LK-1

SDG&E's Procurement Schedule Based on the Energy Storage Decision

	2014	2016	2018	2020	2014-20
Transmission	10 MW	15 MW	22 MW	33 MW	80 MW
Distribution	7 MW	10 MW	15 MW	23 MW	55 MW
Customer	3 MW	5 MW	8 MW	14 MW	30 MW
Total	20 MW	30 MW	45 MW	70 MW	165 MW

1. Revised SDG&E Table – Accounting for Existing Projects and Domain Transfers

Based on the projects and programs approved in the Energy Storage Decision (D.13-10-014, Section 4.5 – Adjustments to Targets), existing projects proposed for inclusion by SDG&E in Section III of this testimony and the proposed 2014 procurement plan[2] described in Testimony of Patrick K. Charles, SDG&E is herein proposing the following revised schedule:

Table LK-2

SDG&E's 2014-2020 Proposed Procurement Schedule – All Domains

	2014	2016	2018	2020	2014-2020
Excess Procurement from Previous Cycles		47 MW	43 MW	31 MW	
Existing Projects	51 MW	3 MW	0 MW	0 MW	54 MW
Solicitation	16 MW	23 MW	33 MW	39 MW	111 MW
Total Capacity Available	67 MW	26 MW	33 MW	39 MW	165 MW
Procurement Target	20 MW	30 MW	45 MW	70 MW	
Excess/(Pending) Procurement Target	47 MW	43 MW	31 MW	0 MW	

[2] A proposed decision was issued on February 11, 2014 in R.12-03-014 which would require SDG&E to procure a minimum of 25 MWs of energy storage. SDG&E understands this amount to count towards the procurement targets established in the Energy Storage Decision and not to be an incremental requirement.

The 2014 solicitation cycle and subsequent solicitation cycles will seek to identify projects consistent with the guiding principles established in AB 2514 and Pub. Util. Code §2835(a)(3). These guiding principles include:

- The optimization of the grid, including peak reduction, contribution to reliability needs, or deferment of transmission and distribution upgrade investments;
- The integration of renewable energy, and
- The reduction of greenhouse gas emissions to 80 percent below 1990 levels by 2050, per California's goals.

The following tables reflect the revised proposed schedules for each of the domains established in the Energy Storage Decision. It should be noted that this is merely the expectation at this time and may change as time goes on. SDG&E may take advantage of the option to transfer between the transmission and distribution domain. We may also choose to over-procure and bank or defer based on the cost/value of offers.

Table LK-3

SDG&E's 2014-2020 Proposed Procurement Schedule – Transmission Domain

	2014	2016	2018	2020	2014-2020
Excess Procurement from Previous Cycles		40 MW	35 MW	23 MW	
Existing Projects	40 MW	0 MW	0 MW	0 MW	40 MW
Solicitations	10 MW	10 MW	10 MW	10 MW	40 MW
Total Capacity Available	50 MW	10 MW	10 MW	10 MW	80 MW
Procurement Target	10 MW	15 MW	22 MW	33 MW	80 MW
Excess/(Pending) Procurement Target	40 MW	35 MW	23 MW	0 MW	

Table LK-4

SDG&E's 2014-2020 Proposed Procurement Schedule – Distribution Domain

	2014	2016	2018	2020	2014-2020
Excess Procurement from Previous Cycles		5 MW	4 MW	4 MW	
Existing Projects	6 MW	0 MW	0 MW	0 MW	6 MW
Solicitation	6 MW	9 MW	15 MW	19 MW	49 MW
Total Capacity Available	12 MW	9 MW	15 MW	19 MW	55 MW
Procurement Target	7 MW	10 MW	15 MW	23 MW	55 MW
Excess/(Pending) Procurement Target	5 MW	4 MW	4 MW	0 MW	

Table LK-5

SDG&E's 2014-2020 Proposed Procurement Schedule – Customer Domain

	2014	2016	2018	2020	2014-2020
Excess Procurement from Previous Cycles	0.0 MW	1.6 MW	3.6 MW	3.6 MW	
Existing Projects	4.6 MW	3.0 MW	0.0 MW	0.0 MW	7.6 MW
Solicitation	0.0 MW	4.0 MW	8.0 MW	10.4 MW	22.4 MW
Total Capacity Available	4.6 MW	7.0 MW	8.0 MW	10.4 MW	30.0 MW
Procurement Target	3.0 MW	5.0 MW	8.0 MW	14.0 MW	30.0 MW
Excess/(Pending) Procurement Target	1.6 MW	3.6 MW	3.6 MW	0.0 MW	

III. EXISTING PROJECTS ELIGIBLE TO COUNT TOWARD SDG&E'S PROCUREMENT TARGET

This section provides a brief narrative on existing projects and justification for counting them towards SDG&E's procurement targets as described hereafter. Further details of all existing projects are in Appendix A to SDG&E's Application.

SDG&E has implemented energy storage deployment efforts for a number of years. Lake Hodges Pumped Hydro is an example of an early project. Additionally,

energy storage was pursued as part of the Borrego Spring Microgrid project. Also, SDG&E proposed additional deployment of energy storage systems as part of its 2012 General Rate Case ("GRC"). Both of these programs were approved for procurement eligibility in the Energy Storage Decision.[3]

The following table provides an overview of SDG&E's existing projects:

Table LK-6

SDG&E's Existing Energy Storage Projects

Domain	Projects	Capacity
Transmission	1. Lake Hodges Pumped Hydro	40.00 MW
	Total Transmission Domain	*40.00 MW*
Distribution	1. Borrego Springs Microgrid Project	0.57 MW
	2. SDG&E's 2012 GRC Energy Storage Program	5.58 MW
	Total Distribution Domain	*6.15 MW*
Customer	1. Self-Generation Incentive Program	3.66 MW
	2. Permanent Load Shifting	1.00 MW
	Total Customer Domain	*4.66 MW*
	Total Existing Capacity	***50.81 MW***

SDG&E currently has in place or in progress 50.81 MW of energy storage capacity of which 46.15 MW are the result of Lake Hodges Pumped Hydro agreement and utility-owned projects connected at the transmission and distribution level. The remaining quantity comes from existing customer side programs such as Self-Generation Incentive Program ("SGIP") and Permanent Load Shifting ("PLS") program which are approved for procurement eligibility in the Energy Storage Decision[4]. These customer

[3] D.13-10-040 at 28-29.
[4] Decision13-10-040 at 27-28.

side programs account for another 4.66 MW of energy storage capacity based on proposed projects as of December 31, 2013.

The projects included in this section are either already approved for procurement eligibility in the Energy Storage Decision or comply with the requirements adopted in Appendix A of the Energy Storage Decision. These requirements are the following:

a. The project is installed and first becomes operational after January 1, 2010.

b. The project demonstrates its ability to meet one or more of the following purposes: grid optimization, integration of renewable energy, or reduction of greenhouse gas emissions.

c. The project will be operational by no later than the end of 2024.

d. For pumped hydro systems, the system is not more than 50 MW in size.

A. Transmission Domain

SDG&E has 40 MW of transmission level energy storage capacity as of December 31, 2013 from existing projects – specifically, the Olivenhain-Hodges Pumped Hydroelectric project ("Lake Hodges Pumped Hydro"), as detailed below.

1) The Olivenhain-Hodges Pumped Hydroelectric Storage Facility – Total Capacity 40 MW

The Olivenhain-Hodges Pumped Hydroelectric Storage Facility ("Lake Hodges Pumped Hydro") is a pumped storage facility owned by the San Diego County Water Authority ("SDCWA"). SDG&E executed a bilateral power purchase agreement ("PPA") with SDCWA on January 29, 2004 and it was approved by the Commission in Decision 04-08-028. The contracted capacity is 40 MW. The facility comprises of two 20 MW units. Unit 1 went on-line in August 2011 and Unit 2 went on line in August 2012.

Decision 04-08-028 concluded that, "[i]t is reasonable and in the public interest to approve the Hodges Agreement" and "[i]t is reasonable that SDG&E recover the energy and related costs through its ERRA [energy resource recovery account] account."[5]

D.13-10-040 (Appendix A, 2) d)) established the following requirements for procurement eligibility to count toward the investor owned utilities' ("IOUs") procurement targets:

1. The project is installed and first becomes operational after January 1, 2010.

2. The project demonstrates its ability to meet one or more of the following purposes: grid optimization, integration of renewable energy, or reduction of greenhouse gas emissions.

3. The project will be operational by no later than the end of 2024.

4. For pumped hydro systems, the system is not more than 50 MW in size.

In addition, D.13-10-040 concluded that "[c]onsistent with the intent of AB 2514 to procure a wide range of storage technologies, it is reasonable to exclude pumped storage projects larger than 50 MW from participating in the Energy Storage Procurement Framework and Design Program" and "[i]t is reasonable to include energy storage procured via bilateral contracts in another proceeding."[6]

[5] D.04-08-028 at 10, Conclusions of Law 1 and 2.
[6] D.13-10-040 at 74, Conclusions of Law 9 and 11.

The Lake Hodges PPA should count towards SDG&E's energy storage procurement targets since the contract qualifies under the requirements established in D.13-10-040 for existing projects and pumped storage facilities. In addition, the Commission previously approved the contract in D.04-08-028.

Further in support of allowing Lake Hodges Pumped Hydro, allocation of targets and mandates promulgated by the CPUC to carry out state policies are typically apportioned by the load share of each utility. The Energy Storage Decision gives SDG&E a higher target percentage share than SCE or PG&E. In addition to the other reasons stated as to why Lake Hodges Pumped Hydro should be allowed to count towards SDG&E's target, even if you took away the capacity of Lake Hodges (165 MW 2020 total minus 40MW Lake Hodges = 125 MWs) SDG&E's remaining storage target would still be higher than SCE and PG&E's load share percentage. For the reasons stated above, Lake Hodges Pumped Hydro should count towards SDG&E's target.

B. Distribution Domain

SDG&E has 6.15 MW of distribution level energy storage capacity as of December 31, 2013 from installed and in-progress projects.

1) Borrego Springs Microgrid Project – Total Capacity 0.57 MW

The Borrego Springs Microgrid Project focused on the design, installation, and operation of a community scale "proof-of-concept" microgrid demonstration. The project was funded with grants from the United States Department of Energy and the California Energy Commission as well as funds from SDG&E and other participating partners. The site of the project is an existing utility circuit with a peak load of 4.6 MW serving over 600 customers in a remote area of SDG&E's service territory.

The project includes the installation, integration and operation of several technologies including advanced energy storage systems. Two types of batteries were installed as part of this project. A 500 kilowatt ("kW")/1,500 kilowatt hour ("kWhr") lithium ion battery system located adjacent to the substation and three 25 kW/50 kWhr lithium polymer batteries located as community energy storage. The project was approved for procurement eligibility toward SDG&E's procurement target in D.13-10-040 (at 28).

2) SDG&E's 2012 GRC Energy Storage Program – Total Capacity 5.58 MW

D.13-05-010 approved initial funding for SDG&E's advanced energy storage program as requested in SDG&E's 2012 GRC Application ("A.")10-12-005. D.13-05-010 also directed SDG&E to establish a one-way balancing account to track capital related energy storage expenses and associated authorized revenues associated with the authorized funds for energy storage projects. On June 24, 2013, SDG&E filed Advice Letter ("AL") 2495-E/2204-G requesting approval of, among other matters, the establishment of the Energy Storage Balancing Account ("ESBA"). At the request of the Energy Division, SDG&E filed a partial supplemental AL 2495-E-A/2204-G-A on October 8, 2013 to clarify tariff language. On November 25, 2013, Energy Division approved the ESBA with an authorized period of January 1, 2012 through November 1, 2015.

The projects under SDG&E's 2012 GRC Energy Storage Program include two types of energy storage systems to assist in addressing intermittency issues created by the variable output of renewable energy resources. One solution will place distributed energy storage systems on circuits with a high penetration of customer

PV systems. Additionally, energy storage systems will be strategically located in load-serving substations to mitigate the impact of multiple circuits with PV. Some energy storage systems will also have islanding capability, as well as the ability to mitigate overloads and therefore defer distribution system capacity or other infrastructure upgrades. Appendix A provides additional details of these systems. SDG&E's 2012 GRC Energy Storage Program was approved for procurement eligibility toward SDG&E's procurement target in D.13-10-040 (at 28).

It should be noted that these SDG&E-owned ESS may also be used for secondary purposes where feasible. SDG&E is committed to utilizing ESS to their full potential and continues to learn how best to utilize them.

C. Customer Domain

SDG&E has 4.66 MW of customer level energy storage capacity as of December 31, 2013 from installed and proposed projects.

1) Self-Generation Incentive Program – Total Capacity 3.66 MW

The Self-Generation Incentive Program ("SGIP") was established in 2001 and provides financial incentives for the installation of clean and efficient distributed generation technologies. SGIP was initially conceived as a peak-load reduction program in response to the energy crisis of 2001 in California. AB 970 directed the Commission to offer financial incentives to electric customers of the major investor-owned utilities for on-site distributed generation technologies to offset their energy needs. In 2011, SGIP was modified changing the purpose of the program from peak load reductions to greenhouse gas (GHG) reductions. In addition, eligible technologies were expanded to include advanced energy storage, wind turbines, and fuel cells among others.

SGIP is recognized as one of the longest running distributed generation incentive programs in the country. The California Center for Sustainable Energy is the program administrator for SDG&E's service territory. As of December 31, 2013, SGIP has 3.66 MW[7] of installed and proposed capacity within the SDG&E service territory. SGIP was approved for eligibility toward SDG&E's procurement target in D.13-10-040 (at 27).

2) Permanent Load Shifting – Total Capacity 1.00 MW

The Permanent Load Shift Program ("PLS") is a statewide program that provides financial incentives to qualifying participants for the installation and operation of Thermal Energy Storage ("TES") systems. The objective of the PLS program is to shift electricity use by offering a one-time upfront incentive, based on a proposed kW shift of capacity to offset initial investments in TES systems. Participants are required to shift energy usage during the summer peak hours as defined by SDG&E to provide operational and resource planning benefits for the utility or California Independent System Operator ("CAISO") systems.

SDG&E's PLS program was approved as part of the 2012-2014 Demand Response application (A.11-03-002). In 2013, SDG&E conducted an RFO for the first cycle of PLS. During this RFO, SDG&E received only one application for a project with a proposed shifting capacity of 1 MW. The project is expected to be in operation by 2015. PLS was approved for eligibility toward SDG&E's procurement target in D.13-10-040 (at 28).

IV. PROPOSED 2014 PROCUREMENT PLAN OVERVIEW

SDG&E's energy storage optimization strategy is designed to allow SDG&E to

[7] This amount reflects the adjusted MW quantity to account for the possibility of projects not being pursued to completion.

meet its energy storage procurement targets established in the Energy Storage Decision while minimizing ratepayer costs and maximizing portfolio value and managing risk. Through this strategy, SDG&E will contribute to the achievement of the market transformation envisioned in AB 2514 and the Energy Storage Decision.

SDG&E is actively engaging parties in the energy storage market to better understand the technical opportunities as well as the limitations, the various business models that are emerging within the industry, and the activities which may better support energy storage.

SDG&E will procure energy storage systems that comply with one or more of the guiding principles established in AB 2514:

- The optimization of the grid, including peak reduction, contribution to reliability needs, or deferment of transmission and distribution upgrade investments;
- The integration of renewable energy, and
- The reduction of greenhouse gas emissions to 80 percent below 1990 levels by 2050, per California's goals.

In order to do so SDG&E will examine energy storage based on various factors including potential benefits, forecasted costs of the various storage applications and how SDG&E's current energy storage portfolio compares to the compliance requirements established in the Energy Storage Decision. By weighing the various factors, SDG&E will establish procurement targets for each procurement period by domain.

Based on existing projects described in Section III, SDG&E is in compliance with the 2014 procurement target for the transmission and customer domains and in compliance for the distribution domain if it elects to transfer between buckets and/or

takes advantage of deferment. Table LK-7 illustrates SDG&E's position without any transfer between transmission and distribution domains.

Table LK-7
SDG&E's 2014 Procurement Target Compliance

	2014 Target	Existing Projects	Pending
Transmission	10.00 MW	40.00 MW	0.00 MW
Distribution	7.00 MW	6.15 MW	0.85 MW
Customer	3.00 MW	4.66 MW	0.00 MW
Total	20.00 MW	50.81 MW	0.85 MW

SDG&E is planning to conduct the following solicitations in the transmission and distribution domains for the 2014 cycle in order to procure any cost-effective, viable storage that may be available. SDG&E has met its 2014 procurement cycle targets, as defined in the storage decision, by invoking the flexibility built into the Energy Storage Decision and is therefore not required to procure storage in the near term but recognizes that there may be opportunities to procure storage now to deliver value and is looking at all timing and quantity options. The quantities in Table LK-8 represent the amounts which SDG&E is interested in procuring but may procure more or less based on the offers received.

In this testimony and elsewhere SDG&E indicates target quantities of additional storage which will be sought. The actual quantity procured may be less or more depending on cost, viability, value, incentives and other factors. SDG&E may also take advantage of timing issues such as tax credits which are available for some applications

now but are due to expire soon.

Table LK-8

SDG&E's 2014 Solicitation Cycle

Domain	Program	Capacity
Transmission	1. Local and Flexible Capacity Requirements – Transmission Connected	10 MW
Distribution	2. Local and Flexible Capacity Requirements – Distribution Connected	2 MW
	3. Distribution Reliability/Power Quality	4 MW
		6 MW
	Total 2014 Solicitation Cycle	**16 MW**

The 2014 solicitation cycle proposal is described in detail in direct testimony of Patrick K. Charles. The following is a summary of this proposal.

A. Transmission Domain

1. Local and Flexible Capacity Requirements (LFCR) – Transmission Connected

SDG&E intends to solicit up to 10 MW of third party owned and operated energy storage capacity. If the third party market fails to materialize or if utility ownership provides better system benefits or reduces costs, then SDG&E may pursue utility owned options. SDG&E intends to require that the energy storage systems meet the requirements to count for Resource Adequacy ("RA") credit consistent with SDG&E's regulatory filings related to RA. Specifically, for the 2014 procurement cycle, SDG&E is seeking energy storage that will qualify as counting towards SDG&E's local capacity requirements ("Local") in the San Diego Local Capacity Requirement (LCR) area. In future procurement

cycles SDG&E may consider procurement of energy storage systems providing system capacity interconnected anywhere within the CAISO control area.

SDG&E will consider offers that may not meet the requirements for system or local RA credit, but would qualify to count towards flexible capacity requirements to the extent such a requirement is defined and adopted by the CPUC.

B. Distribution Domain

1. Local and Flexible Capacity Requirements (LFCR) – Distribution Connected

SDG&E intends to solicit up to 2 MW of third party owned and operated distribution connected energy storage capacity to meet LFCR. If the third party market fails to materialize or if utility ownership provides better system benefits or reduces costs then SDG&E may pursue utility owned options. The requirements will be the same as those described for the LFCR – Transmission Connected program described in Section IV.A.1

2. Distribution Reliability/Power Quality

SDG&E intends to solicit up to 4 MW of utility owned energy storage systems via a competitive Request For Proposal ("RFP") process to 1) address power quality and voltage issues on the distribution system, and 2) potentially enable some measure of distribution capacity deferral.

The direct testimony of Armando Infanzon describes the evaluation protocol for

each of the aforementioned areas of the 2014 solicitation cycle. The direct testimony of Cynthia Fang describes the proposed cost-recovery mechanisms for the 2014 solicitation cycle.

V. SDG&E's CUSTOMER DOMAIN EFFORTS

Within the customer domain, energy storage systems have the potential to assist with integrating rooftop solar, reducing peak demand, providing specific demand response, and offering other benefits for customers. However, SDG&E believes that existing rate structures limit this potential. A market for customer-owned energy storage is starting to develop and offer some services to customers. SDG&E believes that true rate reform, which would both unbundle rates and charge customers for the services they actually receive and give customers an economic incentive to provide grid services, is critical. It is important that customers see transparent benefits and costs associated with customer-sited energy storage systems. This will promote energy storage deployments that produce benefits for energy storage customers and reduce utility infrastructure costs, thereby benefiting all customers.

Furthermore, in addition to the market for customer-owned energy storage, it is conceivable that utility-owned energy storage installed at customers' premises may offer an excellent combination of both customer and system benefits. A utility ownership-model may be especially advantageous to certain customer segments where energy storage may be out of reach because of the costs or if utility ownership provides better system benefits or reduces costs. SDG&E is actively exploring certain options that may be beneficial in these areas and looks forward to working directly with its customers in the coming months to explore these potential solutions.

SDG&E has decided to not issue further Request for Offers or Proposals to procure additional energy storage in the customer domain beyond what is already in motion. This is due to the fact that SDG&E's goal of 3MW in 2014 will be amply satisfied in the requested time frame. However, SDG&E is currently working towards further procurement in additional areas.

1. Other Future Opportunities and Ownership Models

Recognizing that current incentive programs for PLS and SGIP are nearing the end of their current funding, SDG&E is looking forward to opportunities that may exist within its service territory in the coming years, as well as analyzing what business models could carry the industry forward in the most cost-effective manner. SDG&E is actively engaging parties in the energy storage market to better understand the technical opportunities as well as the limitations, the various business models that are emerging within the industry, and the activities which may better support energy storage. As stated previously, SDG&E believes that rate reform is critical for customers to realize the full potential of energy storage and achieve a sustainable mass deployment of customer-side energy storage systems. Until this time, residential customers' only incentive is to install configurations with limited capabilities, focused solely on customer-side benefits.

Absent a rate structure that provides proper pricing signals for customer-side storage that creates incentives for system configurations that are mutually beneficial to the customer and all customers that use the grid, there is need today to explore further a utility-ownership model with the advantages of leveraging storage for both electric grid benefits as well as for customers that have storage. Additionally, SDG&E is aware that there are customers today for which energy storage and its associated benefits still

remain out of reach because of costs or other barriers. Under these circumstances, it may be in the public interest to look for alternative means to supply storage which would likewise also be leveraged for grid benefits. One area identified is that of public entities which typically have less access to capital for large projects and may prefer a lease arrangement for energy storage, for example schools or water districts. Additionally, these are entities which may benefit greatly from the available storage for back-up generation that could be available to them during a power outage. However, additional research is needed and other customer partners may be identified as offering the highest combination of benefits for the customers and the grid. In summary, for a truly sustainable market for customer-sited energy storage, rate reform is necessary.

As SDG&E evaluates future customer domain energy storage opportunities and business model options, it is anticipated that any subsequent requests for Commission approval would be handled through a separate application. The filing of a separate application will allow SDG&E adequate time to better understand the economics and possible business models. Filing separately will also decouple that proceeding from this one in order to take more time to collaborate and work with our customers in order to develop the best possible proposal. SDG&E anticipates that there could be various ways to structure such a program, including utility-owned storage which may include tariffed service, ratemaking or other policy considerations that would be best handled outside of this proceeding. Therefore, SDG&E respectfully requests that the amount of storage that may be procured through any eventual separate application for customer-sited storage be counted in this proceeding.

VI. CONCLUSION

SDG&E is committed to complying with the procurement targets established in the Energy Storage Decision and the policy direction of AB 2514 to achieve market transformation. SDG&E intends to meet the requirements of the Energy Storage Decision and to procure 165 MW of energy storage systems by 2020. By working in conjunction with customers, legislators, regulators, vendors, utilities and other stakeholders, SDG&E seeks to achieve a successful energy storage plan while maintaining/improving safety, reliability, resiliency, and efficiency of the electric delivery system.

This concludes my prepared direct testimony.

VII. STATEMENT OF QUALIFICATIONS

My name is Lee S. Krevat. My business address is 9305 Lightwave Avenue, San Diego, California 92123. I am employed by SDG&E as Director for SDG&E's Smart Grid and Clean Transportation Initiatives. My present responsibilities are to ensure a coordinated strategy, direction and policy across all Smart Grid domains, specifically, Transmission, Distribution, Customer Services and Information Technology. I am also responsible for SDG&E's strategy, direction, policy, and implementation for our clean transportation efforts.

I have been employed by Sempra and/or SDG&E since 1998 and have held various director-level positions including Infrastructure Engineering and Operations, Architecture, Business Partnership, Strategy, Project Delivery and Smart Grid.

I received a Bachelor of Science Degree in Applied Mathematics/Computer Science with university honors from Carnegie Mellon University in 1984.

I have previously testified before this Commission.