Application: A.18-02-___

Exhibit: SDGE-

Witness: Don Balfour

DIRECT TESTIMONY OF

DON BALFOUR

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

FEBRUARY 28, 2018

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DIRECT TESTIMONY OF DON BALFOUR

I. INTRODUCTION

My direct testimony gives an overview of the subject application and describes San Diego Gas & Electric Company's ("SDG&E") biennial procurement update for meeting the procurement targets pursuant to Assembly Bill ("AB") 2514.[1] To implement AB 2514, the Commission issued Decision ("D.") 13-10-040 (the "Energy Storage Decision").[2] The Energy Storage Decision sets a goal for SDG&E to procure 165 MW of energy storage by the end of 2021, to be installed no later than year-end, 2024.

This solicitation cycle is the third of four energy storage system ("ESS") solicitation cycles that SDG&E will pursue in furtherance of its AB 2514 goal. SDG&E is on track to meet its AB 2514 target and therefore is not proposing to conduct further Energy Storage procurement within its 2018 solicitation cycle to count towards this target. SDG&E has a pending request for approval of 83.5 MW of ESS stemming from its 2016 procurement cycle, that would be applied toward SDG&E's AB 2514 target.[3]

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[1] Stats 2010, ch. 469, *codified at* Cal. Pub. Util. Code ("P.U. Code") §§ 2835-2839. All statutory citations herein to "sections" are to the P.U. Code unless otherwise indicated. AB 2514 directed the Commission to determine appropriate targets, if any, for each Load Serving Entity as defined by P.U. Code § 380(j) to procure viable and cost-effective energy storage systems and to set dates to achieve any such targets.

[2] *Decision Adopting Energy Storage Procurement Framework and Design Program.*

[3] Application ("A.") 17-04-017.

II. PROGRESS TOWARD SDG&E's AB 2514 PROCUREMENT TARGET

SDG&E's AB 2514 target is separate and apart from SDG&E's AB 2868[4] procurement authorization also sought in this application.[5] D.17-04-039 ("Track 2 Decision")[6] directed AB 2868 procurement to be consolidated within SDG&E's biennial solicitation energy storage filings pursuant to AB 2514. Pursuant to the AB 2514 requirement to provide a biennial solicitation cycle update in 2018, my testimony provides a summary of SDG&E's progress towards its AB 2514 target of 165 MW.

The Energy Storage Decision established the following initial schedule for SDG&E's procurement targets 2014 – 2020:

Table DB – 1
SDG&E's Procurement Schedule Based on Energy Storage Decision

Domain	2014	2016	2018	2020	Total
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**

Based on previously-approved storage projects, projects procured since its 2016 biennial solicitation update,[7] and projects pending approval in SDG&E's Preferred Resource application,[8] SDG&E will meet its AB 2514 target by 2020. Table DB-2 below outlines SDG&E's progress

[4] Stats. 2016, ch.681, *codified at* P.U. Code §§ 2838.2 and 2838.3.

[5] The testimony of Stephen T Johnston discusses the AB 2868 investment framework prosed in this application, including proposed storage procurement in that context. References to "testimony" herein are to the prepared direct testimony submitted in support of this application.

[6] *Decision on Track 2 Energy Storage Issues* (May 8, 2017).

[7] A.16-03-003, *approved*, D.16-09-007, *Decision Approving Storage Procurement Framework for the 2016 Biennial Procurement Period*.

[8] A.17-04-017 (submitted for Commission approval with reply briefs January 19, 2018).

toward AB 2514, by domain: transmission, distribution and customer.[9] The Energy Storage Decision allows for flexibility amongst the gird domains, subject to certain requirements. These requirements would allow for up to 80% of the MWs to be shifted between the transmission and distribution domains. The Customer domain target is unaffected by the shifting in the grid domains.

A. Accounting for Existing Projects, New Projects Procured Through the 2016 Procurement Cycle

Based on projects and programs approved in the Energy Storage Decision,[10] and the new generic projects proposed for inclusion by SDG&E in this testimony, SDG&E proposes the following revised table for SDG&E's storage procurement targets:

Table DB – 2
SDG&E's 2018-2020 Proposed Procurement Table – All Domains

Procurement Targets and Current Progress	Transmission	Distribution	Customer	Total
Established Target	80.00 MW	55.00 MW	30.00 MW	165.00 MW
Less Existing Projects as authorized	40.00 MW	43.65 MW	16.96 MW	100.61 MW
Less expected offsets from the 2016/2017 procurement and installations	70.00 MW	13.50 MW	6.95 MW	90.45 MW
Net Target for 2020 and remaining cycles	**0.00 MW**	**0.00 MW**	**6.09 MW**	**6.09 MW**

B. Existing Projects Authorized to Count Toward SDG&E's AB 2514 Target

As set forth in Table DB-3 below, the Commission authorized SDG&E in 2016 to count 100.61 MW of both existing storage projects towards SDG&E 165 MW target.[11] The authorization included: 1) SDG&E's Lake Hodges Pumped Hydro project, 2) energy storage

[9] These are the domains defined in D.18-01-003, *Decision on Multiple-Use Application Issues*, Table 1 at 10 and ordering paragraph 1 at 28.

[10] D.13-10-040, Appendix A at 2 and 3-5 (Adjustments to Targets).

[11] D.14-10-045 at Attachment A.

deployed in SDG&E's Borrego Spring Microgrid project, 3) energy storage systems deployed as part of SDG&E's 2012 General Rate Case ("GRC"), and 4) Expedited Energy Storage Projects procured in response to Resolution E-4798. The remaining quantities come from customer-owned energy storage, which includes but is not limited to, programs such as the Self-Generation Incentive Program ("SGIP") and Permanent Load Shifting ("PLS") program, which are approved for procurement eligibility in the Energy Storage Decision.

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

Table DB – 3
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 2. SDG&E's 2012 GRC Energy Storage Program 3. Expedited Energy Storage Projects	0.57 MW 5.58 MW 37.5 MW
	Total Distribution Domain	**43.65 MW**
Customer	Approved Interconnections through 2016	16.96 MW
	Total Customer Domain	**16.96 MW**
	Total Capacity Authorized in the 2016 Cycle	**100.61 MW**
	Total AB2514 Target Remaining	**64.39 MW**

C. Pending Projects / Programs from the 2016 Procurement Cycle to be Counted Toward SDG&E's AB 2514 Procurement Target

The following describes pending projects or programs[12] that SDG&E intends to count towards its remaining 64.39 MW storage procurement target. SDG&E's energy storage procurement strategy is designed to allow SDG&E to meet its energy storage procurement

[12] To be clear, "existing" and "pending" do not refer to projects introduced in the application, but to projects approved or applied-for prior to this application.

targets established in the Energy Storage Decision while minimizing ratepayer costs, maximizing portfolio value and managing risk.

On March 1, 2016, SDG&E filed an application (A.16-03-003) containing procurement proposals for its 2016 storage procurement cycle. The application was approved, with modifications, on September 15, 2016.[13] This 2016 application proposed both utility-owned and third-party storage in two solicitations:

1. **2016 Distribution Reliability/Power Quality Request for Proposals ("RFP")**: soliciting up to 3 MW of utility-owned energy storage systems via a competitive RFP. The RFP assessed whether energy storage installed on SDG&E-owned property adjacent to existing substation property might resolve overload conditions at a lower cost than the substation redesign and expansion.[14]

2. **2016 Preferred Resources Local Capacity Requirement Request for Offers ("RFO")**: soliciting up to 140 MW from five different product types including energy storage in any of the three grid domains (transmission, distribution, or customer).[15]

In total, SDG&E solicited up to 143 MW in the 2016 procurement cycle. SDG&E expects to hit its 165 MW target by 2020 with these consequent new projects resulting from the solicitations.

1. Transmission domain

As part of the 2016 Preferred Resources Local Capacity Reliability RFO, SDG&E executed two utility owned lithium-ion energy storage resources with a combined capacity of 70 MW (30 MW and 40 MW) shown in Table DB-4. The energy storage resources are anticipated to be online in December 2019 and March 2021, respectively. Capacity from these projects will

[13] D.16-09-007.

[14] Post-Solicitation report was provided to the Commission given that no procurement action was taken as cost of traditional solution was more economical for the ratepayer.

[15] The results of this solicitation were submitted in A.17-04-017 and is pending Commission approval.

count towards both SDG&E's Local Capacity Reliability needs and also count towards the AB 2514 energy storage targets.[16]

2. Distribution domain

In addition, because of its 2016 Preferred Resources Local Capacity Reliability RFO, SDG&E executed three third-party energy storage resources totaling 13.5 MW shown in Table DB-4. The three resources are owned separately by Powin Energy, Enel Green Power North America, and Advanced Microgrid Solutions and being constructed in Escondido, Poway and San Juan Capistrano, respectively. Capacity from these projects will count towards both SDG&E's Local Capacity Reliability needs and count towards the AB 2514 energy storage targets.[17]

3. Customer domain

While these customer-sided programs continue to drive growth in the behind-the-meter storage sector, not all energy storage systems being installed by SDG&E's customers is incentivized by SGIP. Between 2016 and 2017 an additional 6.95 MW of both SGIP funded and non-SGIP funded energy storage systems were installed. In these projects meet the eligibility criteria, and SDG&E's updated Customer Domain figures in Table DB-4 (below) assumes these projects count towards the Customer Domain targets.

Table DB-4 provides an overview of new projects procured in the 2016 cycle.

[16] The contracts resulting from this RFO have been submitted to the Commission for approval in A.17-04-017, which has been submitted for Commission decision.

[17] The contracts resulting from this RFO have been submitted to the Commission for approval in A.17-04-017, which has been submitted for Commission decision.

Table DB – 4
New 2016 Cycle Projects by Domain

Domain	New Projects from the 2016 Cycle	Capacity
Transmission	1. Contracts executed April 2017	70.00 MW
	Total Transmission Domain	**70.00 MW**
Distribution	1. Contracts executed April 2017	13.5 MW
	Total Distribution Domain	**13.5 MW**
Customer	1. New Interconnections since 2016	6.95 MW
	Total Customer Domain	**6.95 MW**
	Total New Incremental Capacity from the 2016 Energy Storage Cycle	**90.45 MW**

D. 2018 Procurement Plan Overview

As SDG&E is already on track to meet its AB 2514 target, SDG&E is not proposing to conduct further procurement within its 2018 solicitation cycle towards its AB 2514 target. However, there are other Commission mandates in which energy storage is an eligible resource. Therefore, there are solicitations in 2018 under such mandates in which energy storage resources may be procured.[18] However, given that SDG&E has exceeded the target for the transmission domain by 20 MW and the distribution domain by 2.15 MW, while the customer domain has a remaining 6.09 MW to be installed, SDG&E will not be proposing additional solicitations in this plan as customer domain is not procured by the utility.

III. CONCLUSION

SDG&E intends to complete its procurement obligation under AB 2514 of 165 MW of energy storage systems by 2020 and implementation by 2024, by working in conjunction with customers, legislators, regulators, vendors, utilities and other stakeholders. SDG&E is proposing

[18] The testimony of Jennifer W. Summers provides more detail on the status of SDG&E's overall 2018 procurement as it relates to energy storage.

programs and investments under AB 2868 to accelerate the widespread deployment of distributed energy storage systems above and beyond AB 2514's procurement targets. Based on mythe foregoing testimony, SDG&E respectfully requests that the Commission approve the 2018 procurement plan and find that it is prudent in the procurement of energy storage assets.

This concludes my prepared direct testimony.

IV. STATEMENT OF QUALIFICATIONS

My name is Don Balfour. My business address is 8330 Century Park Ct., San Diego, CA 92123. I am employed by SDG&E as the Strategic Program Manager for the Growth and Technology Integration department in SDG&E's Asset Management division. I am responsible for ensuring a coordinated strategy and direction across all advanced technology domains, specifically, Transmission, Distribution, Customer Services and Information Technology. I have been involved in many of the procurements of energy storage at SDG&E. I joined SDG&E in 2008. Prior to SDG&E, I was employed by Snap Wireless for five years as the Associate Vice President. I received a Bachelor of Arts degree in Economics from the University of San Diego in 2001. I received a Master of Business Administration degree with emphasis in Finance from the University of San Diego in 2008.

I have not previously testified before the California Public Utilities Commission.