Application: 20-03-

Exhibit No.: SDGE-

Witness: Donald Balfour

PREPARED DIRECT TESTIMONY OF

DONALD BALFOUR

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

MARCH 2, 2020

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PREPARED DIRECT TESTIMONY OF DONALD BALFOUR

I. INTRODUCTION

My direct testimony gives an overview of 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 2020, to be installed no later than year-end, 2024.

This solicitation cycle is the final of four energy storage system ("ESS") applications that SDG&E will pursue in furtherance of its AB 2514 goal. SDG&E is 6 MW short of its AB 2514 target and will look to fill this remaining amount in 2020. On May 31, 2018, the Commission approved 83.5 MW of ESS, which came from SDG&E's 2016 solicitation cycle.[3] The approval of these projects would have resulted in the achievement of the AB 2514 procurement target.[4] However, the developers have since terminated two of the contracts.

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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 the 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] D.18-05-024, *approving* A.17-04-017.

[4] My prepared direct testimony submitted in support of Application ("A.") 18-02-016 for the 2018 solicitation cycle reported as much.

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

Pursuant to the AB 2514 requirement to provide a biennial solicitation cycle update in 2020, my testimony provides a summary of SDG&E's progress towards satisfying its AB 2514 target of 165 MW.

Based on previously-approved storage projects[5] and projects approved in SDG&E's 2016 Preferred Resource application,[6] SDG&E has a 6 MW shortfall in meeting its AB 2514 target. Two previously-approved storage contracts, with capacities of 3 MW and 4 MW each, have been terminated by the developers. Table DB-1 below outlines SDG&E's progress toward AB 2514, by domain: transmission, distribution, and customer.[7]

A. Accounting for Existing Projects

Based on projects and programs approved in the Energy Storage Decision,[8] and the projects approved in SDG&E's 2016 2016 Preferred Resource application (A.17-04-017), SDG&E proposes the following revised table showing SDG&E's progress towards its AB 2514 storage procurement targets:

[5] A.18-02-016, *approved*, D.18-10-036, *Decision Approving AB 2514 Energy Storage Procurement Framework for the 2018 Biennial Procurement Period.*

[6] D.18-05-024 approved certain energy storage projects as counting towards the AB 2514 goal.

[7] 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.

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

Table DB-1
SDG&E's 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	78.85 MW	50.15 MW	23.19 MW	152.19 MW
Less expected offsets from 2018/2019 procurement and installations	0.00 MW	0.00 MW	6.81 MW	6.81 MW
Net Target for 2020[9]	**1.15 MW**	**4.85 MW**	**0.00 MW**	**6.00 MW**

B. Existing Projects Authorized to Count Toward SDG&E's AB2514 Target

As set forth in Table DB-2 and detailed in Attachment A hereto, SDG&E's planned and existing energy storage consists of 78.85 MW in the transmission connected domain, 50.15 MW in the distribution-connected domain, and 30 MW in the customer-connected domain, for a total of 159 MW of eligible procurement.

Table DB-2
SDG&E's Projects Authorized to Count Towards AB2514

Project Name	Location	Domain	MW Capacity	Technology	Status
Lake Hodges Pumped Hydro	Escondido, CA	Transmission	40.00	Pumped Hydro	Operational
Miramar	San Diego, CA	Transmission	30.00	Battery - Li Ion	Construction

[9] D.13-10-040 allowed for flexibility amongst the grid domains, subject to certain requirements. These requirements allow for up to 80% of the MWs to be shifted between transmission and distribution domains.

Fallbrook	Fallbrook, CA	Transmission	8.85	Battery - Li Ion	Construction
Borrego Springs Unit 1	Borrego Springs, CA	Distribution	0.50	Battery - Li Ion	Operational
Borrego Springs Unit 2	Borrego Springs, CA	Distribution	0.025	Battery - Li Ion	Operational
Borrego Springs Unit 3	Borrego Springs, CA	Distribution	0.025	Battery - Li Ion	Operational
Borrego Springs Unit 4	Borrego Springs, CA	Distribution	0.025	Battery - Li Ion	Operational
GRC Energy Storage Program Unit 1	Pala, CA	Distribution	0.50	Battery - Li Ion	Operational
GRC Energy Storage Program Unit 2	San Diego, CA	Distribution	0.025	Battery - Li Ion	Retired
GRC Energy Storage Program Unit 3	Clairemont, CA	Distribution	0.025	Battery - Li Ion	Retired
GRC Energy Storage Program Unit 4	Poway, CA	Distribution	0.025	Battery - Li Ion	Retired
GRC Energy Storage Program Unit 5	Borrego, CA	Distribution	1.00	Battery - Li Ion	Operational
GRC Energy Storage Program Unit 6	San Juan Capistrano, CA	Distribution	1.00	Battery - Li Ion	Operational
GRC Energy Storage Program Unit 7	Pala, CA	Distribution	1.00	Battery - Li Ion	Operational
GRC Energy Storage Program Unit 8	San Juan Capistrano, CA	Distribution	1.00	Battery - Li Ion	Operational
GRC Energy Storage Program Unit 9	San Diego, CA	Distribution	1.00	Battery - Li Ion	Operational
El Cajon	El Cajon, CA	Distribution	7.50	Battery – Li Ion	Operational
Escondido	Escondido, CA	Distribution	30.00	Battery – Li Ion	Operational

Don Lee Storage Project	Escondido, CA	Distribution	6.50	Battery – Li Ion	Development
Customer Installation	Various	Customer	30.00	Various	Installed

C. 2020 Procurement Plan Overview

As shown in Table DB-1, SDG&E has a 6 MW deficit across the grid domains in achieving its AB 2514 target. The Energy Storage Decision allowed for flexibility amongst the grid domains, subject to certain requirements. These requirements allow for up to 80% of the MWs to be shifted between transmission and distribution domains. The Customer domain target is unaffected by the shifting in the grid domains. Therefore, the 6 MW needed to re-achieve its AB 2514 target can be in either the transmission or distribution domains. SDG&E will seek to fill the remaining 6 MW shortfall in 2020, as described in Nuo Tang's testimony.

III. CONCLUSION AND SUMMARY

SDG&E intends to complete its obligation under AB 2514 for 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. Based on the foregoing testimony, SDG&E respectfully requests that the Commission approve the 2020 procurement plan.

IV. WITNESS QUALIFICATIONS

My name is Donald Balfour. My business address is 8690 Balboa Avenue, San Diego, CA 92123. I am employed by SDG&E as the Strategic Program Manager for the Advance Clean Technology department in SDG&E's Clean Transportation, Sustainability and Environmental division. I have been involved in many of the procurements for 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 previously testified before the California Public Utilities Commission.

Attachment A

SDG&E's Planned and Existing Energy Storage

Attachment A

			Capacity by Domain								Status as of March 2, 2020			
Project Name	**Location**	**CPUC or CEC Procurement Track**	**Transmission**	**Distribution**	**Customer**	**Duration of output MWh**	**Ownership (Utility Owned/Third Party/Other)**	**CPUC Decision**	**CPUC Decision Date**	**Approving Document No.**	**On-Line, Cancelled, Retired, Under Development**	**COD Date**	**Intended End Use (s)**	**Technology**
AB 2514 Projects														
Lake Hodges Pumped Hydro	Escondido, CA	CPUC	40.00			Various	Third Party	Bilateral (approval requested in A.04-04-042)	8/19/2004	D.04-08-028	On-Line	Q3 2012	Grid Optimization	Pumped Hydro
Miramar	San Diego, CA	CPUC	30.00			120	Utility Owned	2016 Track IV Preferred Resources Local Capacity Requirements RFO	5/31/2018	D.18-05-024	Under Development	Q4 2020	Reliability	Battery - Li Ion
Fallbrook	Fallbrook, CA	CPUC	8.85			140	Utility Owned	2016 Track IV Preferred Resources Local Capacity Requirements RFO	5/31/2018	D.18-05-024	Under Development	Q3 2021	Reliability	Battery - Li Ion
Borrego Springs Unit 1	Borrego Springs, CA	CPUC		0.5		1.5	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	On-Line	Q3 2012	Power Quality/Islanding	Battery - Li Ion
Borrego Springs Unit 2	Borrego Springs, CA	CPUC		0.025		0.05	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	On-Line	Q2 2013	Power Quality/Islanding	Battery - Li Ion
Borrego Springs Unit 3	Borrego Springs, CA	CPUC		0.025		0.05	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	On-Line	Q2 2013	Power Quality/Islanding	Battery - Li Ion
Borrego Springs Unit 4	Borrego Springs, CA	CPUC		0.025		0.05	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	On-Line	Q2 2013	Power Quality/Islanding	Battery - Li Ion
GRC Energy Storage Program Unit 1	Pala, CA	CPUC		0.5		1.5	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	On-Line	Q3 2012	Power Quality	Battery - Li Ion
GRC Energy Storage Program Unit 2	San Diego, CA	CPUC		0.025		0.072	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	Retired	Q4 2012	Power Quality	Battery - Li Ion
GRC Energy Storage Program Unit 3	Clairemont, CA	CPUC		0.025		0.072	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	Retired	Q4 2012	Power Quality	Battery - Li Ion
GRC Energy Storage Program Unit 4	Poway, CA	CPUC		0.025		0.072	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	Retired	Q4 2012	Power Quality	Battery - Li Ion
GRC Energy Storage Program Unit 5	Borrego, CA	CPUC		1		3	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	On-Line	Q2 2014	Power Quality/Islanding	Battery - Li Ion
GRC Energy Storage Program Unit 6	San Juan Capistrano, CA	CPUC		1		1.5	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	On-Line	Q2 2014	Capacity/Infrastructure Deferral	Battery - Li Ion
GRC Energy Storage Program Unit 7	Pala, CA	CPUC		1		2.3	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	On-Line	Q3 2014	Power Quality	Battery - Li Ion
GRC Energy Storage Program Unit 8	San Juan Capistrano, CA	CPUC		1		1.5	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	On-Line	Q3 2014	Power Quality	Battery - Li Ion
GRC Energy Storage Program Unit 9	San Diego, CA	CPUC		1		3	Utility Owned	SDG&E's 2012 General Rate Case	5/9/2013	D.13-05-010	On-Line	Q3 2014	Power Quality/Islanding	Battery - Li Ion
El Cajon	El Cajon, CA	CPUC		7.5		30	Utility Owned	RESOLUTION E-4791	5/26/2016	E-4791	On-Line	Q1 2017	Reliability	Battery – Li Ion
Escondido	Escondido, CA	CPUC		30		120	Utility Owned	RESOLUTION E-4791	5/26/2016	E-4791	On-Line	Q1 2017	Reliability	Battery – Li Ion
Hybrid Holdings Storage Project	San Juan Capistrano, CA	CPUC		0		0	Third Party	2016 Track IV Preferred Resources Local Capacity Requirements RFO	5/31/2018	D.18-05-024	Cancelled	Q4 2019	Reliability	Battery – Li Ion
Don Lee Storage Project	Escondido, CA	CPUC		6.5		26	Third Party	2016 Track IV Preferred Resources Local Capacity Requirements RFO	5/31/2018	D.18-05-024	Under Development	Q2 2021	Reliability	Battery – Li Ion
Pomerado Storage Project	Poway, CA	CPUC		0		0	Third Party	2016 Track IV Preferred Resources Local Capacity Requirements RFO	5/31/2018	D.18-05-024	Cancelled	Q1 2020	Reliability	Battery – Li Ion
Customer Installation	Various	CPUC			30.00	Various	Third Party			N/A	On-Line	Various	Various	Various
AB2514 Procured by Domain			**78.85**	**50.15**	**30**									
AB 2514 Procurement Total			80.00	55.00	30.00									
Domain MWs Transferred to Meet Target														
AB 2514 Procurement Total			80.00	55.00	30									
Procurement Deficit/Surplus			**-1.15**	**-4.85**	**0.00**									

Other Projects														
Cameron Corners	Campo, CA	CPUC		0.5		2	Utility Owned	2019 Wildfire Mitigation Plan (WMP)	5/30/2019	D.19-05-039	Under Development	Q4 2020	Islanding/Back-up Power	Battery - Flow
Ramona Air Attack Base	Ramona, CA	CPUC		0.5		2	Utility Owned	2019 Wildfire Mitigation Plan (WMP)	5/30/2019	D.19-05-039	Under Development	Q4 2020	Islanding/Back-up Power	TBD
Vanadium Redox Flow (VRF)	Bonita, CA	Demonstration		2		8	Demostration (NEDO)	None	N/A	N/A	On-Line	Q2 2017	Market/Power Quality	Battery - Flow (VRF)
Total Other Procurement			0	3	0									