Application of SAN DIEGO GAS & ELECTRIC COMPANY (U 902 E) For Authority To Update Marginal Costs, Cost Allocation, And Electric Rate Design.

Application: 15-04-012
Exhibit No.: SDG&E-16

PREPARED REBUTTAL TESTIMONY OF

JEFFREY J. SHAUGHNESSY

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

CHAPTER 6

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

August 30, 2016

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PREPARED REBUTTAL TESTIMONY OF

JEFFREY J. SHAUGHNESSY

(CHAPTER 6)

I. OVERVIEW

The purpose of my testimony is to reply to the opening testimony of the Office of Ratepayer Advocates ("ORA") and Utility Consumers Action Network ("UCAN") regarding marginal commodity costs and allocation, specifically: (1) marginal generation capacity costs ("MGCC") and (2) MGCC allocation. For all of the reasons discussed below, the California Public Utilities Commission ("Commission") should adopt San Diego Gas & Electric Company's ("SDG&E's") marginal commodity cost and allocation proposals, presented in my prepared direct testimony with the updated results presented in this prepared rebuttal testimony.

My rebuttal testimony reaches the following conclusions:

- SDG&E generally agrees with ORA and UCAN's theoretical position that MGCC should be based on an advanced combustion turbine ("CT"), but objects to ORA and UCAN's use of questionable cost data; and
- MGCC allocation to the top 100 hours is a better representation for capacity allocation than using over 2,500 hours.

My rebuttal testimony also provides updated Commodity Revenue Allocation, Equal Percent of Marginal Costs ("EPMC") Commodity rates and Ongoing Competition Transition Charge ("CTC") Revenue Allocation based on: (1) the updated sales forecast presented in the Chapter 4 Rebuttal Testimony of SDG&E witness Schiermeyer, (2) the

proposal to include May as a winter month in the Chapter 1 Rebuttal Testimony of SDG&E witness Fang and (3) SDG&E's current effective revenues as of August 1, 2016.

My rebuttal testimony contains the following attachments:

- Attachment A – Updated Commodity Marginal Costs.
- Attachment B – Updated Commodity Revenue Allocations.
- Attachment C – Updated CTC Revenue Allocations.

II. MARGINAL GENERATION CAPACITY COSTS

ORA and UCAN argue that the cost of an advanced CT should be used instead of a conventional CT[1] when determining MGCC. While SDG&E does not dispute ORA and UCAN's theoretical position, based on the stated limits of advanced CT costs in the data source, *California Energy Commission, Estimated Cost of Renewable and Fossil Generation in California (2015*), their advanced CT data should not be relied on for the purpose of MGCC in this proceeding. On page 3-8 of their testimony, ORA recognizes this issue when it states:

> *However, the CEC report also states in its description of CT plant instant costs, "The advanced CT case cost is based on very limited data for a different advanced gas turbine type."*

But, an even more important quote is from the California Energy Commission ("CEC") report itself on page B-15:

> *The advanced CT case cost is based on very limited data for a different advanced gas turbine type. <u>The significantly lower cost for the advanced CT case seems to overstate the potential</u>*

[1] ORA Direct Testimony June 3, 2016 (Gutierrez) at page 3-6 and UCAN Direct Testimony July 5, 2016 (Jones) at page 3.

for economy of scale reduction in cost, particularly since the LMS100 technology requires an increase in auxiliary equipment costs. Therefore, there is a low level of confidence with the advanced CT costs. [Emphasis added]

For this reason, the advanced CT cost estimate, in which the CEC itself has little confidence, should not be used.

Regarding UCAN's use of the Operations & Maintenance ("O&M") cost estimate from SDG&E's 2012 General Rate Case ("GRC") Phase 2,[2] there is an obvious mismatch in data sources and technologies. The O&M numbers in the CEC report are for the same technology as the installed costs in the report and, therefore, reflect a more accurate representation of the O&M numbers for the respective installed cost numbers. Using the installed cost from the CEC data and O&M costs from SDG&E's 2012 GRC Phase 2 and for a different technology is a clear case of cherry-picking. SDG&E recommends using the conventional CT costs for the MGCC determination, but if the advanced CT costs in the CEC report are used, then the O&M costs also should be for the advanced CT in the CEC report.

III. MARGINAL GENERATION CAPACITY COST ALLOCATION

ORA proposes to allocate capacity to 30% of the hours in a year (2,582 hours) instead of SDG&E's proposed top 100 hours.[3] The total number of hours was based on hours where a relative loss of load event occurred in ORA's modeling; however, it is highly unlikely that there will be a loss of load in that many different hours.

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[2] UCAN Direct Testimony July 5, 2016 (Jones) at page 10.
[3] ORA Direct Testimony June 3, 2016 (Gutierrez) at page 3-18.

If ORA had used top 100 hours of their Loss of Load Expectation ("LOLE") analysis, the results would be very similar to SDG&E's for SDG&E's time-of-use ("TOU") proposal, as seen in Table 1.

Table 1: SDG&E versus ORA[4] MGCC Allocation to Hours

SDG&E TOU Proposal			
	SDG&E *Top 100* Hours	**ORA** *Top 100* Hours	**ORA** *Top 2,582* Hours
Summer			
On-Peak	77%	75%	60%
Off-Peak	23%	24%	27%
Super Off-Peak	0%	0%	1%
Winter			
On-Peak	0%	1%	12%
Off-Peak	0%	0%	0%
Super Off-Peak	0%	0%	0%

More importantly, the hours in which there may be a loss of load are very sensitive to input assumptions, as addressed in the Chapter 3 Rebuttal Testimony of SDG&E witness Anderson. Correcting the data inputs, Mr. Anderson finds the loss of load probability from the ORA modeling results in the LOLE even more concentrated in the on-peak period than SDG&E's MGCC allocation to the highest 100 hours in the LOLE analysis.

IV. UPDATES FROM DIRECT TESTIMONY

My rebuttal testimony also provides updated Commodity Revenue Allocation, EPMC Commodity rates and CTC Revenue Allocation based on the updated sales forecast presented in the Chapter 4 Rebuttal Testimony of SDG&E witness Schiermeyer, the proposal to include May as a winter month in the Chapter 1 Rebuttal Testimony of SDG&E witness Fang and SDG&E's current effective revenues as of August 1, 2016. In addition to the sales update reflected in the CTC allocation, SDG&E is updating the 3-year period used

[4] ORA Workpaper "Errata on 6_20_2016 ORA Testimony Chapter 3 Marginal Generation (Commodity) Capacity Costs Allocation (SDG&E Workpaper).xlsx."

in the calculation of the top 100 hours. In direct testimony, the most-recent three years of available data was 2009-2011. SDG&E has since responded to data requests from ORA[5] and the California Farm Bureau Federation ("Farm Bureau")[6] providing updated information for 2012 and 2013. SDG&E is taking this opportunity to update the CTC allocation with the new, most-recent three years of available data, 2011-2013.

V. CONCLUSION

The Commission should find that SDG&E's proposed marginal commodity costs and resulting allocation are reasonable without modification. The Commission also should find that SDG&E's update to the CTC allocation is reasonable.

This concludes my prepared rebuttal testimony.

[5] ORA Data Request 3 Response #3.
[6] Farm Bureau Data Request 6 Response #4.

ATTACHMENT A

COMMODITY MARGINAL COSTS

ATTACHMENT A

SAN DIEGO GAS & ELECTRIC COMPANY
2016 GENERAL RATE CASE (GRC) PHASE 2 - APPLICATION 15-04-012
ELECTRIC COMMODITY MARGINAL COSTS AND EPMC RATES & REVENUES, PROPOSED TOU - CHAPTER 6 (SHAUGHNESSY)

Line No.	Description (A)	Unit (B)	Marginal Energy Rate w/ losses (C)	Marginal Capacity Rate w/ losses (D)	Marginal Energy Rate Revenue (E)	Marginal Capacity Rate Revenue (F)	Total Marginal Rate Revenue (G)	EPMC Energy Rate (H)	EPMC Capacity Rate (I)	EPMC Energy Rate Revenue (J)	EPMC Capacity Rate Revenue (K)	Total EPMC Rate Revenue (L)	Line No.
1	**RESIDENTIAL**				$325,943,373	$193,530,976	$519,474,349			$465,820,071	$276,583,665	$742,403,736	1
2	*Secondary*												2
3	**Summer**												3
4	On-Peak Demand	$/kW	0.00	8.63				0.00	12.33				4
5	On-Peak Energy	$/kWh	0.05841	0.00000				0.08347	0.00000				5
6	Off-Peak Energy	$/kWh	0.04849	0.02924				0.06930	0.04179				6
7	Super Off-Peak Energy	$/kWh	0.03963	0.00000				0.05663	0.00000				7
8													8
9	**Winter**												9
10	On-Peak Demand	$/kW	0.00	0.00				0.00	0.00				10
11	On-Peak Energy	$/kWh	0.05275	0.00000				0.07539	0.00000				11
12	Off-Peak Energy	$/kWh	0.04649	0.00000				0.06645	0.00000				12
13	Super Off-Peak Energy	$/kWh	0.03997	0.00000				0.05712	0.00000				13
14													14
15	**SMALL COMMERCIAL**				$104,051,509	$43,618,323	$147,669,832			$148,704,608	$62,336,872	$211,041,479	15
16	*Secondary*												16
17	**Summer**												17
18	On-Peak Demand	$/kW	0.00	7.81				0.00	11.17				18
19	On-Peak Energy	$/kWh	0.05841	0.00000				0.08347	0.00000				19
20	Off-Peak Energy	$/kWh	0.04849	0.02516				0.06930	0.03596				20
21	Super Off-Peak Energy	$/kWh	0.03963	0.00000				0.05663	0.00000				21
22													22
23	**Winter**												23
24	On-Peak Demand	$/kW	0.00	0.00				0.00	0.00				24
25	On-Peak Energy	$/kWh	0.05275	0.00000				0.07539	0.00000				25
26	Off-Peak Energy	$/kWh	0.04649	0.00000				0.06645	0.00000				26
27	Super Off-Peak Energy	$/kWh	0.03997	0.00000				0.05712	0.00000				27
28													28
29	*Primary*												29
30	**Summer**												30
31	On-Peak Demand	$/kW	0.00	7.78				0.00	11.11				31
32	On-Peak Energy	$/kWh	0.05812	0.00000				0.08307	0.00000				32
33	Off-Peak Energy	$/kWh	0.04827	0.02505				0.06898	0.03579				33
34	Super Off-Peak Energy	$/kWh	0.03950	0.00000				0.05646	0.00000				34
35													35
36	**Winter**												36
37	On-Peak Demand	$/kW	0.00	0.00				0.00	0.00				37
38	On-Peak Energy	$/kWh	0.05251	0.00000				0.07504	0.00000				38
39	Off-Peak Energy	$/kWh	0.04630	0.00000				0.06617	0.00000				39
40	Super Off-Peak Energy	$/kWh	0.03985	0.00000				0.05695	0.00000				40

ATTACHMENT A

SAN DIEGO GAS & ELECTRIC COMPANY
2016 GENERAL RATE CASE (GRC) PHASE 2 - APPLICATION 15-04-012
ELECTRIC COMMODITY MARGINAL COSTS AND EPMC RATES & REVENUES, PROPOSED TOU - CHAPTER 6 (SHAUGHNESSY)

Line No.	Description (A)	Unit (B)	Marginal Energy Rate w/ losses (C)	Marginal Capacity Rate w/ losses (D)	Marginal Energy Rate Revenue (E)	Marginal Capacity Rate Revenue (F)	Total Marginal Rate Revenue (G)	EPMC Energy Rate (H)	EPMC Capacity Rate (I)	EPMC Energy Rate Revenue (J)	EPMC Capacity Rate Revenue (K)	Total EPMC Rate Revenue (L)	Line No.
1	**MEDIUM & LARGE COMMERCIAL/INDUSTRIAL**				$309,737,034	$121,552,096	$431,289,130			$442,658,876	$173,715,469	$616,374,345	1
2	*Secondary*												2
3	**Summer**												3
4	On-Peak Demand	$/kW	0.00	11.79				0.00	16.85				4
5	On-Peak Energy	$/kWh	0.05841	0.00000				0.08347	0.00000				5
6	Off-Peak Energy	$/kWh	0.04849	0.02191				0.06930	0.03131				6
7	Super Off-Peak Energy	$/kWh	0.03963	0.00000				0.05663	0.00000				7
8													8
9	**Winter**												9
10	On-Peak Demand	$/kW	0.00	0.00				0.00	0.00				10
11	On-Peak Energy	$/kWh	0.05275	0.00000				0.07539	0.00000				11
12	Off-Peak Energy	$/kWh	0.04649	0.00000				0.06645	0.00000				12
13	Super Off-Peak Energy	$/kWh	0.03997	0.00000				0.05712	0.00000				13
14													14
15	*Primary*												15
16	**Summer**												16
17	On-Peak Demand	$/kW	0.00	11.74				0.00	16.77				17
18	On-Peak Energy	$/kWh	0.05812	0.00000				0.08307	0.00000				18
19	Off-Peak Energy	$/kWh	0.04827	0.02181				0.06898	0.03117				19
20	Super Off-Peak Energy	$/kWh	0.03950	0.00000				0.05646	0.00000				20
21													21
22	**Winter**												22
23	On-Peak Demand	$/kW	0.00	0.00				0.00	0.00				23
24	On-Peak Energy	$/kWh	0.05251	0.00000				0.07504	0.00000				24
25	Off-Peak Energy	$/kWh	0.04630	0.00000				0.06617	0.00000				25
26	Super Off-Peak Energy	$/kWh	0.03985	0.00000				0.05695	0.00000				26
27													27
28	*Transmission*												28
29	**Summer**												29
30	On-Peak Demand	$/kW	0.00	11.23				0.00	16.05				30
31	On-Peak Energy	$/kWh	0.05563	0.00000				0.07951	0.00000				31
32	Off-Peak Energy	$/kWh	0.04621	0.02088				0.06605	0.02984				32
33	Super Off-Peak Energy	$/kWh	0.03792	0.00000				0.05419	0.00000				33
34													34
35	**Winter**												35
36	On-Peak Demand	$/kW	0.00	0.00				0.00	0.00				36
37	On-Peak Energy	$/kWh	0.05030	0.00000				0.07188	0.00000				37
38	Off-Peak Energy	$/kWh	0.04440	0.00000				0.06345	0.00000				38
39	Super Off-Peak Energy	$/kWh	0.03825	0.00000				0.05466	0.00000				39

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Line No.	Description (A)	Unit (B)	Marginal Energy Rate w/ losses (C)	Marginal Capacity Rate w/ losses (D)	Marginal Energy Rate Revenue (E)	Marginal Capacity Rate Revenue (F)	Total Marginal Rate Revenue (G)	EPMC Energy Rate (H)	EPMC Capacity Rate (I)	EPMC Energy Rate Revenue (J)	EPMC Capacity Rate Revenue (K)	Total EPMC Rate Revenue (L)	Line No.
1	**AGRICULTURE**				$12,923,717	$4,241,400	$17,165,117			$18,469,854	$6,061,572	$24,531,426	1
2	*Secondary*												2
3	**Summer**												3
4	On-Peak Demand	$/kW	0.00	6.78				0.00	9.68				4
5	On-Peak Energy	$/kWh	0.05841	0.00000				0.08347	0.00000				5
6	Off-Peak Energy	$/kWh	0.04849	0.01608				0.06930	0.02298				6
7	Super Off-Peak Energy	$/kWh	0.03963	0.00000				0.05663	0.00000				7
8													8
9	**Winter**												9
10	On-Peak Demand	$/kW	0.00	0.00				0.00	0.00				10
11	On-Peak Energy	$/kWh	0.05275	0.00000				0.07539	0.00000				11
12	Off-Peak Energy	$/kWh	0.04649	0.00000				0.06645	0.00000				12
13	Super Off-Peak Energy	$/kWh	0.03997	0.00000				0.05712	0.00000				13
14													14
15	*Primary*												15
16	**Summer**												16
17	On-Peak Demand	$/kW	0.00	6.74				0.00	9.64				17
18	On-Peak Energy	$/kWh	0.05812	0.00000				0.08307	0.00000				18
19	Off-Peak Energy	$/kWh	0.04827	0.01600				0.06898	0.02287				19
20	Super Off-Peak Energy	$/kWh	0.03950	0.00000				0.05646	0.00000				20
21													21
22	**Winter**												22
23	On-Peak Demand	$/kW	0.00	0.00				0.00	0.00				23
24	On-Peak Energy	$/kWh	0.05251	0.00000				0.07504	0.00000				24
25	Off-Peak Energy	$/kWh	0.04630	0.00000				0.06617	0.00000				25
26	Super Off-Peak Energy	$/kWh	0.03985	0.00000				0.05695	0.00000				26
27													27
28	**LIGHTING**				$3,950,348	$1,269,403	$5,219,751			$5,645,617	$1,814,160	$7,459,777	28
29	*Secondary*												29
30	**Summer**												30
31	On-Peak Demand	$/kW	0.00	11.20				0.00	16.01				31
32	On-Peak Energy	$/kWh	0.05841	0.00000				0.08347	0.00000				32
33	Off-Peak Energy	$/kWh	0.04849	0.01222				0.06930	0.01746				33
34	Super Off-Peak Energy	$/kWh	0.03963	0.00000				0.05663	0.00000				34
35													35
36	**Winter**												36
37	On-Peak Demand	$/kW	0.00	0.00				0.00	0.00				37
38	On-Peak Energy	$/kWh	0.05275	0.00000				0.07539	0.00000				38
39	Off-Peak Energy	$/kWh	0.04649	0.00000				0.06645	0.00000				39
40	Super Off-Peak Energy	$/kWh	0.03997	0.00000				0.05712	0.00000				40
41													41
42	**TOTAL RATE REVENUE SUMMARY**												42
43													43
44	**RESIDENTIAL**				$325,943,373	$193,530,976	$519,474,349			$465,820,071	$276,583,665	$742,403,736	44
45	**SMALL COMMERCIAL**				$104,051,509	$43,618,323	$147,669,832			$148,704,608	$62,336,872	$211,041,479	45
46	**MEDIUM/LARGE C&I**				$309,737,034	$121,552,096	$431,289,130			$442,658,876	$173,715,469	$616,374,345	46
47	**AGRICULTURAL**				$12,923,717	$4,241,400	$17,165,117			$18,469,854	$6,061,572	$24,531,426	47
48	**LIGHTING**				$3,950,348	$1,269,403	$5,219,751			$5,645,617	$1,814,160	$7,459,777	48
49	**TOTAL**				$756,605,981	$364,212,197	$1,120,818,179			$1,081,299,026	$520,511,738	$1,601,810,764	49

ATTACHMENT B

COMMODITY REVENUE ALLOCATIONS

ATTACHMENT B.1

SAN DIEGO GAS & ELECTRIC COMPANY
2016 GENERAL RATE CASE (GRC) PHASE 2 - APPLICATION 15-04-012
ELECTRIC COMMODITY REVENUE ALLOCATION - CHAPTER 6 (SHAUGHNESSY)

Commodity Marginal Cost Allocation by Customer Class

		PROPOSED GRC P2 (PROPOSED TOU)				
		MARGINAL ENERGY COSTS		MARGINAL CAPACITY COSTS		
Line No.	Customer Class (A)	% Allocation (B)	$ Allocation (C)	% Allocation (D)	$ Allocation (E)	Line No.
1	RESIDENTIAL	43.08%	$325,943,373	53.14%	$193,530,976	1
2	SMALL COMMERCIAL	13.75%	$104,051,509	11.98%	$43,618,323	2
3	MEDIUM/LARGE C&I	40.94%	$309,737,034	33.37%	$121,552,096	3
4	AGRICULTURAL	1.71%	$12,923,717	1.16%	$4,241,400	4
5	LIGHTING	0.52%	$3,950,348	0.35%	$1,269,403	5
6	TOTAL	100.00%	$756,605,981	100.00%	$364,212,197	6

ATTACHMENT B.2

SAN DIEGO GAS & ELECTRIC COMPANY
2016 GENERAL RATE CASE (GRC) PHASE 2 - APPLICATION 15-04-012
ELECTRIC COMMODITY REVENUE ALLOCATION - CHAPTER 6 (SHAUGHNESSY)

Commodity Allocation by Customer Class

Line No.	Customer Class (A)	CURRENT (8/1/2016) % Allocation (B)	CURRENT (8/1/2016) $ Allocation (C)	PROPOSED GRC P2 (PROPOSED TOU) % Allocation (D)	PROPOSED GRC P2 (PROPOSED TOU) $ Allocation (E)	$ Change (F)	% Change (G)	Line No.
1	**RESIDENTIAL**	45.69%	$731,829,343	46.35%	$742,403,736	$10,574,393	1.44%	1
2	**SMALL COMMERCIAL**	11.34%	$181,589,939	13.18%	$211,041,479	$29,451,540	16.22%	2
3	**MEDIUM/LARGE C&I**	41.02%	$657,089,523	38.48%	$616,374,345	-$40,715,178	-6.20%	3
4	**AGRICULTURAL**	1.53%	$24,507,408	1.53%	$24,531,426	$24,018	0.10%	4
5	**LIGHTING**	0.42%	$6,794,551	0.47%	$7,459,777	$665,226	9.79%	5
6	**TOTAL**	100.00%	$1,601,810,764	100.00%	$1,601,810,764	$0	0.00%	6

ATTACHMENT C

CTC REVENUE ALLOCATIONS

ATTACHMENT C

SAN DIEGO GAS & ELECTRIC COMPANY
2016 GENERAL RATE CASE (GRC) PHASE 2 - APPLICATION 15-04-012
CTC REVENUE ALLOCATION - CHAPTER 6 (SHAUGHNESSY)

CTC Allocation by Customer Class

Line No.	Customer Class (A)	CURRENT (8/1/2016) % Allocation (B)	CURRENT (8/1/2016) $ Allocation (C)	PROPOSED GRC P2 % Allocation (D)	PROPOSED GRC P2 $ Allocation (E)	$ Change (F)	% Change (G)	Line No.
1	**RESIDENTIAL**	40.89%	$13,410,954	38.55%	$12,644,627	-$766,327	-5.71%	1
2	**SMALL COMMERCIAL**	11.61%	$3,808,299	12.56%	$4,121,004	$312,705	8.21%	2
3	**MEDIUM/LARGE C&I**	46.48%	$15,243,319	47.79%	$15,673,653	$430,334	2.82%	3
4	**AGRICULTURAL**	1.02%	$335,233	1.06%	$348,273	$13,040	3.89%	4
5	**LIGHTING**	0.00%	$0	0.03%	$10,248	$10,248	NA	5
6	**TOTAL**	100.00%	$32,797,805	100.00%	$32,797,805	$0	0.00%	6