

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

Application of San Diego Gas & Electric Company
(U 902-E) for Approval of SB 350 Transportation
Electrification Proposals.

Application 17-01-020
(Filed January 20, 2017)

And Related Matters.

Application 17-01-021
Application 17-01-022

**PREPARED REBUTTAL TESTIMONY OF
CYNTHIA FANG
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY**

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

September 5, 2017



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**PREPARED REBUTTAL TESTIMONY OF
CYNTHIA FANG**

I. OVERVIEW AND PURPOSE

The purpose of my rebuttal testimony is to respond to the prepared direct testimony submitted by intervening parties in San Diego Gas & Electric Company’s (“SDG&E”) Application for Approval of SB350 Transportation Electrification Proposals (A.17-01-020). Specifically, I will respond to the portion of direct testimony related to the proposed Residential, Commercial, and Public Grid Integrated Rates (“GIRs”), and cost recovery.

I will address the recommendations and concerns presented by the following parties:

- Office of Ratepayer Advocates (“ORA”);
- The Utility Reform Network (“TURN”);
- ChargePoint;
- San Diego Airport Parking (“SDAP”);
- Natural Resources Defense Council, Sierra Club, Plug In America, Union of Concerned Scientists, The Greenling Institute, Alliance of Automobile Manufacturers, and Coalition of California Utility Employees (“Joint Parties (Fast Charging)”);
- Natural Resources Defense Council, Sierra Club, Plug In America, The Greenling Institute, Environmental Defense Fund, and Coalition of California Utility Employees (“Joint Parties (Commercial)”);
- Natural Resources Defense Council, Sierra Club, Plug In America, The Greenling Institute, Alliance of Automobile Manufacturers, Coalition of California Utility Employees, Environmental Defense Fund, Greenlots, Siemens, and Electric Motor Werks, Inc. (“Joint Parties (Residential)”);

My rebuttal testimony is organized as follows:

- Section II – Response to Discussion of Rate Design
- Section III – Desire of Guaranteed Savings with EV Purchase
- Section IV – TURN’s Issues with Bill Calculator

- Section V – Cost Recovery
- Section VI – Rate Impacts
- Section VII – Conclusion
- Section VIII – Statement of Qualifications

II. RESPONSE TO DISCUSSION OF RATE DESIGN

Through their direct testimony, a number of parties expressed concerns regarding SDG&E’s proposal that the residential GIR be mandatory for participants.¹ Additionally, parties indicated that they felt the proposed residential GIR was too complex,² that the associated Grid Integration Charge (“GIC”) was too high or not reflective of cost-causation,³ or that a TOU rate should be offered in place of one or all of the proposed GIRs.⁴ In light of these concerns and after careful consideration, SDG&E proposes to withdraw its proposed mandatory Residential GIR, and modify its proposed mandatory Commercial GIR.

A. SDG&E’s New Proposed Residential EV-Only GIR

Given its withdrawal of the original residential GIR, SDG&E now proposes to offer a Residential Electric Vehicle (“EV”)-Only GIR, in place of the whole-house residential GIR originally proposed. This Residential EV-Only GIR will be applicable only to separately metered residential EV charging usage, and will consist of (1) an Hourly Base Rate, which includes the CAISO Day-ahead hourly price, and (2) System and Circuit Hourly Dynamic

¹ SDAP Testimony at 5:3-6; ORA Testimony at 2-15 – 2-16; ChargePoint Testimony at 20:4-13; TURN Testimony (Marcus) at 9; Joint Parties Testimony (Residential) at 21:3-9.

² ORA Testimony at 2-1; ChargePoint Testimony at 22:22-23; Joint Parties Testimony (Residential) at 15:22-24.

³ ORA Testimony at 2-1; ChargePoint Testimony at 19:20 – 20:3; TURN Testimony (Marcus) at 20; Joint Parties Testimony (Commercial) at 6:26-29; Joint Parties Testimony (Residential) at 17:15 – 18:1 and 19:5-10.

⁴ ORA Testimony at 2-1; ChargePoint Testimony at 19:17-18; Joint Parties Testimony (Fast Charging) at 5:11-15. Because Joint Parties Testimony – Fast Charging does not have page numbers, the citation is to the PDF page numbers.

1 Adders. Diagram CF-1, below, provides the proposed illustrative Residential EV-Only GIR.
2 The new Residential EV-only GIR includes a two-period hourly base rate, differentiating the
3 super-off peak from all other hours,⁵ similar to the current Residential EV TOU rate options,
4 which includes a super off-peak period. The Residential EV-Only rate will not include a GIC,
5 with the recovery of distribution costs originally recovered through the GIC now recovered
6 through the Hourly Base Rate, as recommended by ORA,⁶ resulting in higher hourly energy
7 rates. In addition, SDG&E proposes that this new residential EV-Only GIR be optionally
8 available to participants, and as such, the following rate options would be available to the
9 modified Residential Charging Program participants:

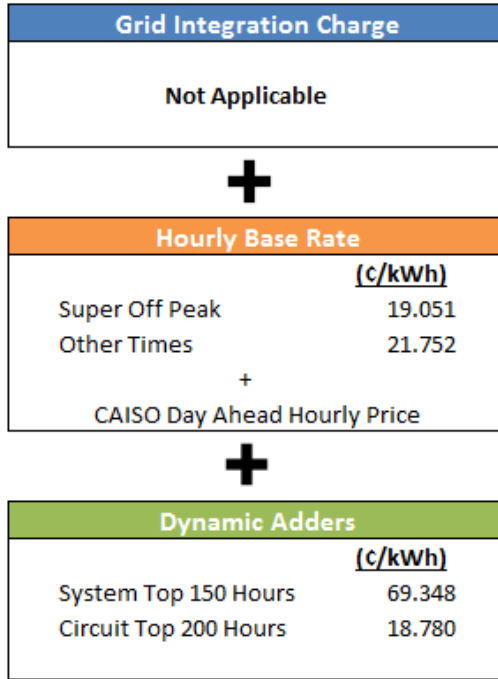
- 10 1. For separately metered EV charging, the Residential EV-only GIR and for their
11 home, any applicable residential rate option;
- 12 2. For separately metered EV charging, Schedule EV-TOU (SDG&E's existing
13 residential EV schedule for separately metered EV charging) and for their home,
14 any applicable residential rate option; and
- 15 3. For combined EV charging and home service, Schedule EV-TOU-2 (SDG&E's
16 existing residential whole-house EV schedule).

⁵ The super off-peak Hourly Base Rate does not include recovery of the Generation Capacity costs not recovered in the C-CPP hourly adder. These will be recovered only through the base rate during all other hours.

⁶ ORA Testimony at 2-10.

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Diagram CF- 1: Residential EV-Only GIR



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3 **B. SDG&E’s Modified Commercial EV-Only GIR**

4 SDG&E also proposes a modified version of its originally proposed Commercial GIR.

5 The Commercial GIR will now be replaced with a Commercial EV-Only GIR.

6 This Commercial EV-Only GIR will be applicable only to commercial EV charging
7 usage, and will consist of: (1) an Hourly Base Rate, which includes the CAISO Day-ahead

8 hourly price: and (2) System and Circuit Hourly Dynamic Adders. Diagram CF-2, below,

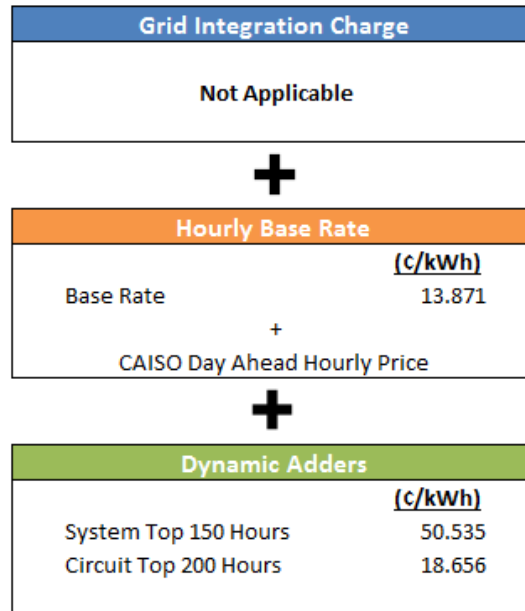
9 illustrates the structure of the Commercial EV-Only GIR. Because the Commercial EV-Only

10 GIR will not include a GIC, recovery of distribution costs originally recovered through the GIC

11 are now recovered through the Hourly Base Rate, resulting in a higher hourly energy rate.

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Diagram CF-2: Commercial EV-Only GIR



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As presented in the Direct Testimony of Randy Schimka, SDG&E’s proposed Fleet Delivery Services priority review project requires a new separately metered electric service and associated charging infrastructure.⁷ Because this project contemplates a separately-metered service, the Commercial EV-only GIR is appropriately mandatory for participants in this project.

C. Withdrawal of Proposal to Make GIR Available to All Customers

SDG&E had originally proposed to make its GIRs available to all applicable customers, (i.e., Residential GIR for Residential customers, Commercial GIR for Commercial customers) whether or not they were participating in the program.⁸ Given Parties’ concerns,⁹ SDG&E also withdraws its proposal to make the GIRs available more broadly, and limits the applicability of the Residential and Commercial EV-Only GIRs to the modified Residential Charging Program and Fleet Delivery Services priority review project.

⁷ SDG&E Direct Testimony (R. Schimka) at 50, Figures 3-5 and 3-6.

⁸ SDG&E Direct Testimony (C. Fang) at 4:11-13.

⁹ ORA Testimony at 2-14 - 2-15; TURN Testimony (Marcus) at 8.

1 **D. Switching to Optional Also Addresses Other Issues Raised by Parties**

2 SDG&E feels that withdrawing the requirement that the residential GIR be mandatory for
3 participants, and limiting the Residential and Commercial EV-Only GIRs to program participants
4 addresses other rate-design concerns raised by parties. ORA expressed concerns that including
5 the CAISO day-ahead hourly rate in the hourly base rate is “highly experimental with uncertain
6 outcomes that could hinder customers’ acceptance and responsiveness.”¹⁰ By withdrawing the
7 requirement that residential participants must take service on the GIR, SDG&E feels that
8 concerns about including CAISO pricing are addressed. With the move to an optional residential
9 rate, residential participants who are able to respond to a rate that includes hourly price signals
10 and the variable CAISO day-ahead price can select the EV-Only GIR, while others are able to
11 select from any of SDG&E’s existing rate schedules, subject to applicability rules.

12 TURN expressed concerns that SDG&E’s proposed residential GIR, available to all
13 customers, would create a “massive uneconomic bypass of the baseline system.”¹¹ One
14 recommendation that TURN makes for addressing this issue is to utilize submetering in order to
15 separate EV charging from household usage.¹² Replacing the whole-house GIR with an EV-
16 Only GIR, in addition to limiting GIR applicability to program participants, as SDG&E has
17 proposed above, should address TURN’s concerns on this topic.

18 **III. DESIRE FOR GUARANTEED SAVINGS WITH EV PURCHASE**

19 A number of parties recommend that SDG&E modify its proposed rate design to ensure
20 that customers who purchase EVs realize fuel savings.¹³ Guaranteeing bill savings for

¹⁰ ORA Testimony at 2-11.

¹¹ TURN Testimony (Marcus) at 1.

¹² *Id.* at 3.

¹³ ChargePoint Testimony at 8:7-9; SDAP Testimony at 5:3-11 and 17:8; Joint Parties Testimony (Fast Charging) at 7:5-9.

1 participants requires that non-participants pay for those guaranteed savings. The California
2 Public Utilities Commission (“Commission”) needs to decide whether guaranteeing bill savings
3 for customers participating in these programs is appropriate. If the Commission does determine
4 that the guarantee of bill savings is appropriate, SDG&E recommends that these savings be
5 provided through direct and transparent incentives, rather than artificial reductions to the rates.
6 Providing incentives through rate design dampens and distorts price signals, thus eliminating the
7 price incentives to encourage grid-integrated EV charging. The combination of proper rate
8 design and direct, transparent incentives will allow rates to provide the appropriate price signals
9 for incenting grid integrated charging of EVs, while still supporting transportation electrification
10 goals.

11 Guaranteed bill savings are beyond the intent of SB350. As noted by the Joint Parties –
12 Fast Charging¹⁴, Public Utilities Code §740.12(a)(1) specifies the following (emphasis added):

13 *(G) Deploying electric vehicles should assist in grid management,*
14 *integrating generation from eligible renewable energy resources, and*
15 *reducing fuel costs for vehicle drivers who charge in a manner consistent*
16 *with electrical grid conditions*

17 *(H) Deploying electric vehicle charging infrastructure should facilitate*
18 *increased sales of electric vehicles by making charging easily accessible*
19 *and should provide the opportunity to access electricity as a fuel that is*
20 *cleaner and less costly than gasoline or other fossil fuels in public and*
21 *private locations.*

22
23 SDG&E’s proposed GIRs provide customers with the ability to realize cost savings, when they
24 charge in a manner that is consistent with electrical grid conditions. SDG&E’s proposed GIRs
25 reduce the number of high-cost hours experienced within a year down to about 4% annually,
26 compared to over 20% seen by residential customers on existing EV TOU rate schedules and

¹⁴ Joint Parties Testimony (Fast Charging) at 6:16-24.

1 about 15% seen by Commercial customers on the current standard C&I rate, Schedule AL-TOU.
2 If customers respond to the price signals provided to them through the hourly base rate, the
3 CAISO day-ahead hourly pricing, and the hourly dynamic adders, they will be able to take
4 advantage of the greater number of low-cost hours when charging their EVs.

5 **IV. TURN'S ISSUES WITH BILL CALCULATOR**

6 TURN expresses concerns regarding the accuracy of SDG&E's "proposed bill
7 calculator."¹⁵ TURN misunderstands the purpose of the referenced "bill calculator." SDG&E
8 did not propose a bill calculator as a part of this proceeding. What TURN identifies as the
9 "proposed bill calculator" was provided by SDG&E in response to a data request from TURN,
10 which requested a "sample bill/calculation" to better understand how the GIR would work
11 relative to existing rate options. This "sample bill/calculation" was created and provided solely
12 for the purposes of responding to TURN's data request and was not intended to be used as a
13 "proposed bill calculator" for purposes of communications with customers.

14 **V. COST RECOVERY**

15 TURN disagrees with SDG&E's proposal to recover all costs associated with this
16 application through the distribution rate component, and instead recommends that costs
17 associated with distribution hardware be recovered through the distribution rate component,
18 while all other costs be recovered through the Public Purpose Programs ("PPP") component.¹⁶
19 Given that SDG&E's proposed programs are intended to satisfy the requirements of SB350, it is
20 appropriate to recover these program costs through the distribution rate component. If additional
21 incentives are deemed appropriate and necessary by the Commission, SDG&E would

¹⁵ TURN Testimony (Marcus) at 4.

¹⁶ TURN Testimony (Jones) at 3:13-17 and 4:3-8.

1 recommend that the costs associated with those direct and transparent incentives be recovered
2 through the PPP rate component.

3 **VI. RATE IMPACTS**

4 Table CF-1 below presents the illustrative class average electric rate impacts for 2019
5 through 2022 of the proposed updated revenue requirements for the modified Residential
6 Charging Program, as presented in the Rebuttal Testimony of Michael A. Calabrese. These
7 illustrative rates have been updated to reflect current effective rates from September 1, 2017.
8 The first year of proposed revenue requirement impacts are anticipated to have an annual bill
9 impact of approximately -\$4.32 in 2019 for a typical residential customer using 500 kWh per
10 month in both the Inland and Coastal climate zones, as compared to current rates. On a
11 percentage basis, this equates to a decrease of 0.3% for a typical residential customer in both the
12 Inland and Coastal climate zones. The year 2022 proposed revenue requirement impacts are
13 anticipated to have an annual bill impact of approximately \$12.12 for a typical residential
14 customer using 500 kWh per month in both the Inland and Coastal climate zones, as compared to
15 current rates. On a percentage basis, this equates to an increase of 0.8% for a typical residential
16 customer in both the Inland and Coastal climate zones.

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Table CF - 1: Rate Impacts of Modified Residential Charging Program

	Current 9/1/17 (¢/kWh)	2019			2020			2021			2022		
		Proposed Rate (¢/kWh)	Change from Current (¢/kWh)	Change from Current (%)	Proposed Rate (¢/kWh)	Change from Current (¢/kWh)	Change from Current (%)	Propose d Rate (¢/kWh)	Change from Current (¢/kWh)	Change from Current (%)	Proposed Rate (¢/kWh)	Change from Current (¢/kWh)	Change from Current (%)
Residential	24.990	24.914	(0.076)	-0.30%	25.110	0.120	0.48%	25.150	0.160	0.64%	25.204	0.214	0.86%
Small Comm.	23.928	23.854	(0.074)	-0.31%	24.044	0.116	0.48%	24.083	0.155	0.65%	24.135	0.207	0.87%
Med & Lg C&I	19.850	19.809	(0.041)	-0.21%	19.917	0.067	0.34%	19.940	0.090	0.45%	19.969	0.119	0.60%
Agriculture	17.735	17.688	(0.047)	-0.27%	17.810	0.075	0.42%	17.835	0.100	0.56%	17.869	0.134	0.76%
Lighting	19.917	19.875	(0.042)	-0.21%	19.984	0.067	0.34%	20.006	0.089	0.45%	20.036	0.119	0.60%
System Total	22.122	22.064	(0.058)	-0.26%	22.213	0.091	0.41%	22.244	0.122	0.55%	22.285	0.163	0.74%

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3 Table CF-2 below presents the illustrative class average electric rate impacts for 2019
4 through 2022 of the revenue requirement of the Illustrative Case presented in the Rebuttal
5 Testimony of Mr. Calabrese. These illustrative rates have been updated to reflect current
6 effective rates from September 1, 2017. The first year of illustrative revenue requirement
7 impacts would have an annual bill impact of approximately -\$4.32 in 2019 for a typical
8 residential customer using 500 kWh per month in both the Inland and Coastal climate zones, as
9 compared to current rates. On a percentage basis, this equates to an illustrative decrease of 0.3%
10 for a typical residential customer in both the Inland and Coastal climate zones. The year 2022
11 illustrative revenue requirement impacts would have an annual bill impact of approximately
12 \$12.78 for a typical residential customer using 500 kWh per month in both the Inland and
13 Coastal climate zones, as compared to current rates. On a percentage basis, this equates to an
14 increase of 0.8% for a typical residential customer in both the Inland and Coastal climate zones.

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Table CF - 2: Rate Impacts of Illustrative Case

	Current 9/1/17 (¢/kWh)	2019			2020			2021			2022		
		Proposed Rate (¢/kWh)	Change from Current (¢/kWh)	Change from Current (%)	Proposed Rate (¢/kWh)	Change from Current (¢/kWh)	Change from Current (%)	Propose d Rate (¢/kWh)	Change from Current (¢/kWh)	Change from Current (%)	Proposed Rate (¢/kWh)	Change from Current (¢/kWh)	Change from Current (%)
Residential	24.990	24.914	(0.076)	-0.30%	25.137	0.147	0.59%	25.170	0.180	0.72%	25.215	0.225	0.90%
Small Comm.	23.928	23.854	(0.074)	-0.31%	24.070	0.142	0.59%	24.102	0.174	0.73%	24.146	0.218	0.91%
Med & Lg C&I	19.850	19.809	(0.041)	-0.21%	19.932	0.082	0.41%	19.951	0.101	0.51%	19.976	0.126	0.63%
Agriculture	17.735	17.688	(0.047)	-0.27%	17.827	0.092	0.52%	17.848	0.113	0.64%	17.876	0.141	0.80%
Lighting	19.917	19.875	(0.042)	-0.21%	19.999	0.082	0.41%	20.017	0.100	0.50%	20.043	0.126	0.63%
System Total	22.122	22.064	(0.058)	-0.26%	22.234	0.112	0.51%	22.259	0.137	0.62%	22.294	0.172	0.78%

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3 VII. CONCLUSION

4 SDG&E proposes the following modifications to its original proposal:

- 5 • Withdrawal of its original proposed Residential GIR;
- 6 • Proposal of new Residential EV-Only GIR that would now be optionally available
- 7 only to the modified Residential Charging Program participants;
- 8 • Modification of its proposed Commercial GIR that would now be available only
- 9 to Fleet Delivery Services project participants on a mandatory basis;
- 10 • Elimination of the requirement that all residential participants take service on one
- 11 whole-house residential GIR; and
- 12 • Withdrawal of proposal to make GIRs available to all applicable customers.

13 This concludes my rebuttal testimony.

1 **VIII. STATEMENT OF QUALIFICATIONS**

2 My name is Cynthia Fang and my business address is 8330 Century Park Court, San
3 Diego, California 92123. I am the Manager of Customer Pricing at SDG&E. My primary
4 responsibilities include the development of cost-of-service studies, determination of revenue
5 allocation and electric rate design methods, analysis of ratemaking theories, preparation of
6 various regulatory filings, and overseeing the electric load analysis, electric demand forecasting
7 and electric rate strategy for SDG&E. I began work at SDG&E in May 2006 as a Regulatory
8 Economic Advisor and have held positions of increasing responsibility in the Electric Rate
9 Design group. Prior to joining SDG&E, I was employed by the Minnesota Department of
10 Commerce, Energy Division, as a Public Utilities Rates Analyst from 2003 through May 2006.

11 In 1993, I graduated from the University of California at Berkeley with a Bachelor of
12 Science in Political Economics of Natural Resources. I also attended the University of
13 Minnesota where I completed all coursework required for a Ph.D. in Applied Economics.

14 I have previously submitted testimony before the Commission and the FERC regarding
15 SDG&E's electric rate design and other regulatory proceedings. In addition, I have previously
16 submitted testimony and testified before the Minnesota Public Utilities Commission on
17 numerous rate and policy issues applicable to electric and natural gas utilities.