

Application of SAN DIEGO GAS & ELECTRIC  
COMPANY (U 902 E) For Authority To  
Implement Optional Pilot Program To Increase  
Customer Access To Solar Generated Electricity

Application 12-01-008

Exhibit No.: \_\_\_\_\_

**UPDATED PREPARED DIRECT TESTIMONY OF  
JAMES P. AVERY  
CHAPTER 1  
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY**

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

**MAY 10, 2013**



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1 In support of this Application, SDG&E also submits the updated prepared testimony of Dawn  
2 Osborne, Chris Yunker and Hillary Hebert.<sup>3</sup> Ms. Osborne details the benefits and subscription  
3 process under both programs; Mr. Yunker will describe the pricing design methodology; and Ms.  
4 Hebert will describe the management of the programs in the context of SDG&E’s electric  
5 resource portfolio. Below, I will explain the genesis and purpose of SDG&E’s proposal.

6 **A. SDG&E is a Leader in Supporting Solar Power**

7 The State of California promotes solar energy production through a variety of programs,  
8 including the utilities’ 33% Renewable Portfolio Standard (“RPS”) requirement (by 2020), the  
9 California Solar Initiative (“CSI”)<sup>4</sup> and Net Energy Metering (“NEM”). SDG&E welcomes the  
10 state’s encouragement of renewable energy sources, as demonstrated by its leadership in making  
11 a long-term commitment to the integration of solar and wind facilities into its electric portfolio.

12 The following SDG&E actions exemplify this commitment:

- 13 • SDG&E was the first utility to commit to procuring 33% of its energy supply from  
14 renewable resources by 2020, a commitment made before the Commission made such  
15 procurement mandatory.<sup>5</sup>
- 16 • In 2003, SDG&E created its award-winning Sustainable Communities program,  
17 which integrates utility-owned clean energy generation systems within our customers’  
18 facilities and encourages sustainable design.<sup>6</sup> Sustainable Communities was the first

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<sup>3</sup> References to testimony herein will be to this testimony supporting the Application unless otherwise indicated.

<sup>4</sup> CSI was established pursuant to Senate Bill 1 (Statutes of 2006, ch. 132), which the Governor signed on August 21, 2006.

<sup>5</sup> SDG&E made this commitment to the Commission in 2008 in A.06-08-010. See Decision (“D.”) 08-12-058 at 265 and Findings of Fact 29. The Commission made utility 33% RPS procurement by 2020 mandatory in D.11-12-020 (December 1, 2011).

<sup>6</sup> The Commission first approved SDG&E’s Sustainable Communities Program in D.04-12-015.

1 program of its type in the country and currently operates over 35 Photovoltaic (“PV”)  
2 systems totaling over 4 MW.

- 3 • In 2008, SDG&E introduced its Solar Energy Project to bring 100 MW of local solar  
4 energy within the San Diego Region.<sup>7</sup>
- 5 • SDG&E negotiated, signed, and received approval for 27 power purchase agreements  
6 (“PPAs”) with solar developers, six of which were contingent on the construction of a  
7 new factory in San Diego to manufacture solar panels. This new factory will create  
8 over 450 direct jobs and 1,000 indirect jobs for the San Diego region.<sup>8</sup>
- 9 • As the administrator of the New Solar Homes Partnership (“NSHP”), SDG&E has  
10 provided over \$10,000,000 in incentives to encourage the construction of new, energy  
11 efficient solar homes. This partnership offers builders/developers/solar contractors  
12 generous financial incentives for energy-saving photovoltaic installations.<sup>9</sup>
- 13 • To date SDG&E has interconnected over 23,770 PV systems for NEM customers in  
14 its service territory, totaling over 175 MW of solar production.
- 15 • With respect to the NEM program, SDG&E is actively participating in the Residential  
16 Rate Reform OIR (R.12-06-013) to craft a sustainable and cost-based rate design to  
17 accommodate rooftop solar energy usage. To that end, SDG&E is collaborating with  
18 solar stakeholders with the goal of developing a business model and rate structure that  
19 would support long-term growth in the rooftop solar market.

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<sup>7</sup> This project was approved by the Commission in D.10-09-016 (SEP) and the PPA portion was subsequently combined with the Renewable Auction Mechanism (“RAM”) approved by D.10-12-048.

<sup>8</sup> <http://www.sdge.com/newsroom/press-releases/2011-05-18/sdge-signs-new-contracts-soitec-125-megawatts-solar-power-san>

<sup>9</sup> The California Energy Commission developed the NSHP as part of the CSI with the California Public Utilities Commission. Incentives are tracked in SDG&E’s NSHP database.

1 In SDG&E's 2012 General Rate Case Phase 2 application (A.11-10-002), SDG&E stated  
2 its intent to submit to the Commission a program giving customers that cannot install rooftop  
3 solar (such as renters) or cannot afford the investment, an option to access solar power. My  
4 testimony will introduce two options that are geared to achieve that intent.

5 **B. Factors that Limit Adoption of Customer Solar Generation**

6 SDG&E strongly supports the development of solar energy production facilities and  
7 commends our customers that have made the commitment to solar energy, but we recognize that  
8 there are practical limits to effective installation and use of rooftop solar. A 2008 study by the  
9 National Renewable Energy Laboratory found that only 22 to 27% of residential rooftop area is  
10 suitable for hosting an on-site PV system after adjusting for structural, shading, or ownership  
11 issues.<sup>10</sup> SDG&E's experience suggests that certain factors will continue to limit potential  
12 adoption of solar energy:

- 13 • Rooftop solar typically must be installed by the home or building owner;
- 14 • To generate effectively, rooftop solar requires a structure with a flat or south-facing  
15 roof;
- 16 • Reflecting the substantial upfront investment cost of rooftop solar, a  
17 disproportionately high percentage of residential solar users are higher income  
18 customers;
- 19 • Residential rooftop solar leads to significant hidden NEM cross-subsidies that  
20 continue to grow over time and must be borne by non-solar customers, even as the  
21 cost of solar declines;

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<sup>10</sup> [www.nrel.gov/docs/fy09osti/44073.pdf](http://www.nrel.gov/docs/fy09osti/44073.pdf), p.4.

- 1 • Rooftop solar typically has greater installation costs on a per kW basis compared to  
2 larger systems that can take advantage of economies of scale;<sup>11</sup> and
- 3 • Deployment of solar without location considerations can increase interconnection  
4 costs and reduce system benefits.

5 In addition, as detailed in the testimony of Dawn Osborne, experience under “green  
6 pricing” and community solar programs in other parts of the nation and SDG&E’s own research,  
7 shows that many customers want an option to purchase solar power in addition to that provided  
8 to them through SDG&E’s bundled resource portfolio.

9 SDG&E believes that access to solar energy should not be limited to a small subset of our  
10 higher tier customers. We also believe that the hidden level of subsidies provided by NEM to  
11 these customers is an unintended consequence of legislative action post-energy crisis and is  
12 higher than is necessary to encourage the adoption of solar. The cost of these subsidies comes at  
13 the expense of all other customers that do not have meaningful access to solar, or, for whatever  
14 reason, choose not to install solar on their property. This Application proposes a way to make  
15 solar energy available to all customers without hidden subsidies, without regard to income level,  
16 credit rating or home ownership, and to do so at locations on our distribution system that  
17 maximize solar production and potential system benefits while minimizing installation costs.  
18 That is why SDG&E requests approval for the pilot program proposed in this Application.

## 19 **II. SUMMARY OF REQUESTED COMMISSION ACTION**

20 SDG&E proposes this all-customer solar access program as a pilot to confirm our  
21 estimated levels of customer participation and determine the best terms and conditions for

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<sup>11</sup> The cost for a typical residential rooftop system is approximately \$5.85/watt ac based upon systems installed in SDG&E service territory according to 2013 CSI data. Compare this cost to \$2-\$4 per watt (2011 costs) for large utility-sector PV from LBNL report “Tracking the Sun V: An Historical Summary of the Installed Price of Photovoltaics in the United States from 1998 to 2011.”

1 expanding the program on a larger scale. Accordingly, this Application asks the Commission to  
2 approve the following two program elements: (1) “*SunRate<sup>sm</sup>*” a green tariff program permitting  
3 bundled residential and business customers to purchase solar energy from new local<sup>12</sup> solar  
4 projects, and (2) “*Share the Sun<sup>sm</sup>*” a solar provider-based community solar program.

5 **A. *SunRate***

6 SDG&E seeks Commission approval for the following elements of the *SunRate* program:

7 1. For the purpose of providing bundled customers renewable energy through  
8 *SunRate*, authority to procure up to 10 MW<sup>13</sup> of new solar energy from local projects, which may  
9 be expanded subsequently through additional procurement to the extent the initial *SunRate*  
10 offering is anticipated to be successful.

11 2. To the extent that such solar projects are not fully subscribed by customers,  
12 approve the use of the unsubscribed portion of the solar energy to meet RPS Requirements  
13 including any Renewable Auction Mechanism (“RAM”) procurement obligations (California  
14 Public Utilities Code (“P.U. Code”) §§ 399.11 *et seq.*, D.03-06-071, or other applicable law).

15 3. Authority to allocate a portion of SDG&E’s existing RPS procurement to *SunRate*  
16 customers while new generation procured for *SunRate* is procured and constructed.

17 4. Authority to request any shortfall in SDG&E meeting its RPS commitments that  
18 result from the reallocation as a result of the program be carried over to the following portfolio  
19 cycle without associated penalties.

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<sup>12</sup> Local projects could be located within SDG&E’s service territory and possibly in the Imperial Valley, as discussed further in the testimony of Hillary Hebert.

<sup>13</sup> Based on a 25% capacity factor, 10 MW represents approximately 21,900 MWh.



1           5.       Permission to request additional capacity for the *SunRate* program using the  
2 Commission's advice letter process, at SDG&E's discretion, to the extent the initial program  
3 offerings are successful.

4           6.       Permission to request adjustments to the pricing mechanism for the *SunRate*  
5 program using the Commission's advice letter process, at SDG&E's discretion. Reasons for the  
6 request could include ensuring non-participant indifference, reflecting changes in consumer  
7 preference and the market or changes in the regulatory environment.

8           7.       Permission to fully recover all *SunRate* procurement costs in rates over the life of  
9 the relevant power purchase agreements, subject to Commission review of SDG&E's  
10 administration of such agreements.

11           **B.       *Share the Sun*<sup>14</sup>**

12           SDG&E also seeks Commission approval for the following elements of the *Share the Sun*  
13 program:

14           1.       For the purposes of providing bundled renewable energy through the proposed  
15 *Share the Sun* program (as described below), authorize the acquisition of up to 10 MW of solar  
16 energy from new projects located within SDG&E's service territory.

17           2.       To the extent that such solar projects are not fully subscribed by customers,  
18 approve the use of the unsubscribed portion of the solar energy to meet RPS Requirements

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<sup>14</sup> My original prepared testimony requested authorization to offer SDG&E owned land to solar providers. SDG&E intended to seek separate Commission approval for any specific land transfer(s) under this program via separate P.U. Code § 851 filing (See prepared direct testimony of James Avery, January 17, 2012, Section II, p. 7). However, subsequent investigation of P.U. Code § 851 land transfer requirements revealed that the offering of SDG&E owned land would require an environmental review by the Commission as a lead agency under the California Environmental Quality Act. This would actually increase cost, time, and administrative burden for solar providers, rather than expedite access to local land as originally contemplated. Accordingly, SDG&E is rescinding the request to offer its land under the *Share the Sun* pilot program.

1 including any renewable Feed-in-Tariff (“FiT”) procurement obligations (P.U. Code §§ 399.11 *et*  
2 *seq.*), D.03-06-071, or other applicable law).

3 3. Permission to request additional capacity for the *Share the Sun* program using the  
4 Commission’s advice letter process, at SDG&E’s discretion, to the extent the initial program  
5 offerings are successful.

6 4. Permission to request adjustments to the pricing mechanism for the *Share the Sun*  
7 program using the Commission’s advice letter process, at SDG&E’s discretion. Reasons for the  
8 request could include ensuring non-participant indifference, reflecting changes in consumer  
9 preference and the market or changes in the regulatory environment.

10 5. Permission to fully recover all *Share the Sun* procurement costs in rates over the  
11 life of the relevant power purchase agreements, subject to Commission review of SDG&E’s  
12 administration of such agreements.

13 The *SunRate* and *Share the Sun* programs will be detailed below at p. 9 and in the  
14 prepared testimony of Dawn Osborne, Hillary Hebert, and Chris Yunker.

15 **III. WHY *connected.....to the sun* IS NEEDED**

16 SDG&E recognizes that many customers want alternatives to “conventional” energy  
17 sources and access to renewable energy for various reasons, be that to increase our country’s  
18 energy independence, hedge against rising fuel costs, reduce their carbon footprint, make the air  
19 in their communities cleaner or help our region build a bridge to a low carbon future.

20 Unfortunately, not all customers are able to install PV on their homes or business properties.

21 SDG&E’s pilot program will enable all bundled customers the opportunity to have access to

1 solar energy. SDG&E’s own customer research indicates an interest in such a program, and a  
2 willingness to pay to participate in a community solar program that helps the environment.<sup>15</sup>

3 SDG&E’s proposal is a solar energy innovation designed to offer all SDG&E customers  
4 an easy and affordable option to supply their energy needs with locally generated solar power.  
5 The program offers all bundled SDG&E customers the option of replacing some or all of their  
6 energy use with solar energy through either the *SunRate* or *Share the Sun* programs, which they  
7 may elect in lieu of remaining on traditional commodity tariffs.

#### 8 **IV. OVERVIEW OF PROGRAM**

9 This section of my testimony provides a high-level description of the programs submitted  
10 in this application for Commission approval. Details of *Share the Sun* and *SunRate* are  
11 addressed in the prepared testimony of Chris Yunker, Hillary Hebert and Dawn Osborne.

##### 12 **A. *SunRate***

13 SDG&E’s *SunRate* program will allow customers to purchase green energy from local  
14 solar projects under contract to SDG&E. Customers will have the option to purchase volumes  
15 equal to their total energy requirements from local solar projects. SDG&E will initially procure  
16 up to 10 MW of new local solar capacity through the RAM procurement process for this  
17 program. Since customers will likely be ready to participate before such capacity can be built,  
18 SDG&E intends to serve the *SunRate* program with existing RPS capacity in the interim.  
19 Customers can elect any percentage subscription to pay the *SunRate* for up to 100% of their  
20 electricity use. SDG&E also seeks approval to redirect additional capacity in subsequent years  
21 through the Commission’s advice letter process, to the extent SDG&E determines that the initial  
22 *SunRate* offering is successful.

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<sup>15</sup> See testimony of Dawn Osborne, Chapter 2 at Section II.

1           **B.     *Share the Sun***

2           SDG&E’s *Share the Sun* program will allow solar providers to identify and develop their  
3 own project sites and sell solar services to SDG&E customers. The solar providers will provide  
4 proof of such transaction to SDG&E to enable SDG&E to credit the customer’s monthly bill for  
5 the contracted value of the energy produced by the customer’s portion of the solar project.

6 SDG&E will:

- 7           • Sign a PPA with the solar provider to initiate development of the project;
- 8           • Require the solar provider to sign a standard participation agreement to join the *Share*  
9           *the Sun* program, which will include certain rules and restrictions necessary for the  
10           viability of the program;
- 11          • Purchase the power from the project at the Commission authorized renewable FiT  
12           rate in compliance with D.12-05-035;
- 13          • Provide a monthly bill credit to customers for their subscribed energy based on  
14           purchased portion of the project;
- 15          • Retire the Renewable Energy Credits (“RECs”) associated with such energy on behalf  
16           of the customer and not count associated RECs toward SDG&E’s RPS compliance;<sup>16</sup>
- 17          • Count the RECs associated with any unsubscribed energy produced by the project  
18           towards SDG&E’s RPS obligations;
- 19          • Continue to work with the solar industry to ensure the program remains viable and  
20           sustainable; and

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<sup>16</sup> The retirement of RECs on the participant customer’s behalf ensures that their *connected.....to the sun* subscription contributes to the development of additional local solar generation in excess of RPS mandates. Additionally, SDG&E plans to participate in the California Air Resources Board Voluntary Renewable Electricity program, which would recognize these retired customer RECs as voluntary greenhouse gas emission reductions.

- SDG&E may file advice letters seeking additional capacity in subsequent years to the extent SDG&E determines that the initial *Share the Sun* offering is successful.

**V. POLICY OBJECTIVES**

SDG&E’s proposal is designed to achieve the following policy objectives:

- Make solar energy available to all customers, without regard to income level, credit rating or physical location.
- Make strategically sited solar energy available to all customers without the need for unnecessary subsidies.
- Offer options to test customer preference that will help guide the development of future innovative programs based on customer participation and feedback from initial pilot program.

**Objective 1: Make solar energy available to all customers, without regard to income level, credit rating and whether or not they own a home or place of business.**

In SDG&E’s service territory, 75% of rooftop solar energy systems have been installed on the homes of customers in areas with an annual median household income of over \$63,179; customers with this income level represent only 55% of our customer base. Half, or 50%, of solar installations are on the roofs of customers in areas with an annual median household income of over \$84,167; only 29% of our customers have incomes this high. Rooftop solar options in our region simply do not provide access to solar energy for customers at every economic level. SDG&E supports California’s low emission policy goals and also supports the state’s renewable energy goals. To that end, we want to learn from what we are seeing in the market and act now to ensure that a “have” and “have not” economy does not emerge in the growing renewable energy space. This filing aims to ensure that all customers - whether they

1 own or rent a home or place of business, and whether they are able to make a long-term  
2 commitment to a location - can obtain solar energy easily and cost effectively from SDG&E.  
3 SDG&E's pilot program is designed to increase access and options to engage in solar energy by  
4 providing a program that any bundled customer can elect.

5 SDG&E's *connected.....to the sun* benefits:

- 6 • Remove site restrictions and building ownership as a hurdle to solar energy use;
- 7 • Provide access to solar energy projects that take advantage of economies of scale and  
8 optimal site location;
- 9 • Provide another option that reduces or removes the significant upfront capital  
10 requirements of solar installations that are beyond the means of many customers;
- 11 • Let customers buy renewable energy in small increments, thereby allowing customers  
12 to choose their commitment level as well as the flexibility to size their renewable  
13 commitment based on their ever-changing energy demands;
- 14 • Avoids the relocation costs immobility of traditional solar installations by allowing  
15 participants to take their solar energy with them when moving anywhere in SDG&E's  
16 service territory;
- 17 • Contributes to the growth of new local solar projects;
- 18 • Creates a sustainable future for solar development; and
- 19 • Provides a cost-competitive option for customers compared to conventional rooftop  
20 solar installations which are currently the only available option.

21 **Objective 2: Make the Benefits of Strategically Sited Solar Power Available to All**  
22 **Customers In Ways That Maximize Solar Production, and System Benefits, and Lower**  
23 **Installation Costs.**

1           Since California’s Net Energy Metering law was first enacted, SDG&E has found that the  
2 impact of solar installations on our system can vary widely depending on location. Solar  
3 generation sited from a location on our distribution grid that has low load on a sunny cool day,  
4 for example, can create significant system costs. However, that same generation might create a  
5 system benefit if it were located in a more appropriate area. Rooftop solar is located wherever  
6 the participating customer’s house is, without regard to system impacts. In comparison, a larger  
7 solar project that meets the needs of many customers can be located where system benefits will  
8 be maximized and where system costs are minimized, because it can be located where sun  
9 exposure is optimal.

10           SDG&E’s pilot proposal will maximize customer benefits by optimizing PV panel  
11 location. Rather than relying on hidden and unsustainable NEM subsidies that come at the  
12 expense of customers without rooftop solar, SDG&E’s proposal will take advantage of scope,  
13 scale and siting benefits. Customers that do not participate in this program will not be required  
14 to pay for system upgrades to accommodate solar installations sited in a bad location and will not  
15 have to unfairly subsidize such developments. In addition, participating customers will enjoy the  
16 reduced cost and increased production achieved through these increased efficiencies.

17           **Objective 3: Create more options for customers that allow for market feedback to**  
18 **develop future innovative community solar projects based on developer/customer**  
19 **participation.**

20           SDG&E’s *connected.....to the sun* proposal provides a new way of staying connected to  
21 our customers by offering a new product that expands solar access to all customers. Because this  
22 is a new product and few community solar programs exist to date, SDG&E proposes these pilot  
23 programs to test customer preference. If they prove attractive to customers, SDG&E intends to

1 expand the program size and may adjust the program structure or design through advice letter  
2 filings, and may also refine the program's pricing structure or design through a future Rate  
3 Design Window proceeding. By providing a forum to work with the solar industry and other  
4 solar stakeholders through the program's experience, SDG&E hopes to ensure the program:

- 5 • Increases sustainable solar development in our region;
- 6 • Boosts local development by reducing barriers for developers to build local solar  
7 projects;
- 8 • Supports local workforce development and jobs through construction and ongoing  
9 maintenance of PV systems; and
- 10 • Supports local municipalities' greenhouse gas emission goals.

11 SDG&E met with representatives from several solar industry businesses to get feedback  
12 and input on the development of its proposal. Furthermore, the Commission granted SDG&E's  
13 request to conduct five workshops facilitated by the Commission's Energy Division in San  
14 Francisco and in San Diego. The purpose of those workshops was to reconcile and optimize  
15 design and program requirements. The input received through the workshops and other  
16 stakeholder input elicited valuable and constructive input that influenced updates to this program  
17 through updated testimony.

## 18 **VI. CONCLUSION**

19 SDG&E has a proven track record of proposing and implementing innovative programs  
20 that support the sustainable growth of solar energy. Through the proposals set forth in this  
21 Application, SDG&E intends to further California's policy goal of creating a low carbon energy  
22 future by ensuring solar energy is available to all customers, regardless of socioeconomic status,  
23 home or place of business ownership, or location. By providing easy and affordable access to



1 solar energy and more options for all bundled residential and commercial customers, SDG&E  
2 can reduce barriers to entry for customers interested in solar energy without doing so at the  
3 expense of non-participating customers. Through workshops with solar stakeholders, SDG&E  
4 worked to ensure a viable business model for solar providers is in place to enable more customer  
5 choice in this pilot program. SDG&E plans to expand and adjust *connected.....to the sun*  
6 offerings based on customer preference and seek new ideas for future innovative programs that  
7 can increase renewable energy growth in our region.

8

1 **VII. QUALIFICATIONS**

2 My name is James P. Avery. My business address is 8330 Century Park Court, San  
3 Diego, California, 92123. I am employed by SDG&E as Senior Vice President – Power Supply.  
4 I oversee the company’s electric and gas procurement, generation business unit, resource  
5 planning and electric transmission planning operations. I attended Manhattan College, New  
6 York City, New York, graduating with a Bachelor of Engineering Degree in Electrical  
7 Engineering with a major field of study in Electric Power. Prior to that, I attained an Associate’s  
8 Degree in the field of Electrical Engineering from New York City Community College. Prior to  
9 joining SDG&E in 2001, I was a consultant with R.J. Rudden Associates, one of the nation’s  
10 leading management and economic consulting firms specializing in energy and utility matters.  
11 Prior to that, I functioned as the chief executive officer of the electric and gas operations at  
12 Citizens Utilities Company, a multi-service organization that provided electric, gas, telecom,  
13 water and wastewater services in over 20 states across the nation. I am currently on the Board of  
14 Directors of the California Power Exchange. I also served on the Board of Directors of Vermont  
15 Electric Power Company, a transmission-only company serving the state of Vermont, and I held  
16 positions at American Electric Power Service Corporation.

17 I have previously testified before this Commission.