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-___
Exhibit No.: _____

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

JANUARY 17, 2012

TABLE OF CONTENTS

PREPARED DIRECT TESTIMONY OF

JAMES P. AVERY

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

CHAPTER 1

Connected…..to the sun.

I. INTRODUCTION

My testimony introduces San Diego Gas and Electric's ("SDG&E's") "*connected…..to the sun*" customer options.

Today, the customer has a choice to purchase their energy requirements from the utility, or to self-generate. When the utility provides the electricity, the customer receives a blend of resources from SDG&E's total procurement portfolio, including a proportionate amount of renewable generation, and the price the customer pays reflects this total portfolio blend. When it comes to self generation, not all customers have the ability to self-generate. This is due to a variety of reasons, including, but not limited to, the fact that the customer may rent, or be located where their premises are not suitable for self generation.

Connected…..to the sun[1] aims to provide all SDG&E customers with the opportunity to purchase solar-generated electricity. In support of this Application, SDG&E also submits the prepared testimony of Dawn Osborne and Chris Yunker.[2] Ms. Osborne details the benefits and subscription process under both programs; Mr. Yunker will describe the pricing and management

---

[1] SDG&E's overarching proposal is termed *"connected.....to the sun",* and consists of two optional programs referred to as *"SunRate"* and *"Share the Sun."*

[2] References to testimony herein will be to this testimony supporting the application unless otherwise indicated.

of the programs in the context of SDG&E's electric resource portfolio. Below, I will explain the genesis and purpose of SDG&E's proposal.

A. SDG&E is a leader in supporting solar power

The State of California is promoting solar energy production through a variety of programs, including the utilities 33% Renewable Portfolio Standard ("RPS") requirement by 2020, the California Solar Initiative ("CSI")[3] and Net Energy Metering ("NEM"). SDG&E welcomes the state's encouragement of renewable energy sources, as demonstrated by its leadership in making a long-term commitment to the integration of solar and wind facilities into its electric portfolio. The following SDG&E actions exemplify this commitment:

- SDG&E was the first utility to commit to procuring 33% of its energy supply from renewable resources by 2020, a commitment made before the Commission made such procurement mandatory.[4]
- In 2003, SDG&E created its award-winning Sustainable Communities program, which integrates utility-owned clean energy generation systems within our customer's facilities and encourages sustainable design.[5] Sustainable Communities was the first program of its type in the country and currently operates 27 Photovoltaic ("PV") systems totaling 3.4 MW.

[3] CSI began in 2005 pursuant to Senate Bill 1 (Statutes of 2006, ch. 132), which the Governor signed on August 21, 2006.

[4] SDG&E made this commitment to the Commission in 2008 in A.06-08-010. See D.08-12-058 at 265 and Findings of Fact 29. Later the Commission made utility 33% RPS procurement by 2020 mandatory in R.11-05-005.

[5] The Commission first approved SDG&E's Sustainable Communities Program in D.04-12-015.

- In 2008, SDG&E introduced its Solar Energy Project to bring 100 MW of local solar energy within the San Diego Region.[6]
- SDG&E negotiated, signed, and received approval for 5 power purchase agreements with solar developers that are contingent on the construction of a new factory in San Diego to manufacture solar panels. This new factory will create over 450 new jobs and 1000 indirect jobs for the San Diego region.[7]
- As the administrator of the New Solar Homes Partnership ("NSHP"), SDG&E has provided over $7,055,819 in incentives to encourage the construction of new, energy efficient solar homes. This partnership offers builders/developers/solar contractors generous financial incentives for energy-saving photovoltaic installations.[8]
- To date SDG&E has interconnected over 15,000 PV systems for NEM customers in its service territory totaling over 125 MW of solar production.
- With respect to the NEM program, SDG&E recently proposed a Network Use Charge in Phase 2 of its General Rate Case application (A.11-10-002) to craft a more sustainable and fair rate design to accommodate rooftop solar energy usage and to ensure that there is a fair and sustainable market for solar power for San Diego in the long term.

In A.11-10-002 SDG&E stated its intent to submit to the Commission a program giving customers that cannot install rooftop solar (such as renters) or cannot afford the investment, an

---

[6] This project was approved by the Commission in D.10-09-016 (SEP) and the PPA portion may be combined with the Renewable Auction Mechanism approved by D.10-12-048 (RAM).

[7] www.soitec.com/en/news/press-releases/soitec-purchases-manufacturing-facility-san-diego-produce-cpv-modules-renewable-energy-market-820.

[8] 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.

option to access solar power. To that end, my testimony will introduce two options that are geared to achieve that intent.

B. Factors that limit adoption of customer solar generation

SDG&E strongly supports the development of solar energy production facilities and commends our customers that have made the commitment to solar energy, but we recognize that there are practical limits to effective installation and use of rooftop solar. A 2008 study by the National Renewable Energy Laboratory found that only 22 to 27% of residential rooftop area is suitable for hosting an on-site photovoltaic ("PV") system after adjusting for structural, shading, or ownership issues.[9] SDG&E's experience to date suggests that a number of facts will continue to limit solar energy development:

- Rooftop solar typically must be installed by the home or building owner;
- To generate effectively, rooftop solar requires a structure with a flat or south-facing roof;
- Reflecting the substantial upfront investment cost of rooftop solar, a disproportionately high percentage of residential solar users are higher income-customers;
- Residential rooftop solar leads to significant hidden NEM cross-subsidies that continue to grow over time and must be borne by non-solar customers, even as the cost of solar declines;
- Rooftop solar typically has greater installation costs compared to larger systems that can take advantage of economies of scale;[10] and

[9] www.nrel.gov/docs/fy09osti/44073.pdf, p.4.

[10] Cost for typical residential rooftop system is approximately $7.65/watt ac1 based upon systems installed in SDG&E service territory 2011 according to CSI data, compared to $3-$4 per watt 2010

- Deployment of solar without location considerations can increase interconnection costs and reduce system benefits.

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

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

II. SUMMARY OF REQUESTED COMMISSION ACTION

SDG&E proposes this all-customer solar access program as a pilot to confirm our estimated levels of customer participation and determine the best terms and conditions for expanding the program on a larger scale. Accordingly, this Application asks the Commission to approve the following two program elements: (1) green tariff program entitled "*SunRate*"

---

costs for large utility-sector PV from LBNL report "Tracking the Sun IV: An Historical Summary of the Installed Cost of Photovoltaic's in the United States from 1998 to 2010."

permitting bundled residential customers to purchase solar energy from solar projects located in SDG&E's service territory, and (2) developer/provider program entitled "*Share the Sun*".

A. *SunRate*

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

1. For the purposes of providing bundled customers renewable energy through the *SunRate*, authority to allocate up to 10 MW[11] per year of solar energy from projects located within SDG&E's service territory originally contracted and approved by the Commission to meet the requirement to procure Eligible Renewable Energy Resources pursuant to the California Renewable Portfolio Standard ("RPS") (Public Utilities Code §§ 399.11 *et seq*.), Decision ("D.") 03-06-071, or other applicable law.

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

3. Permission to redirect annually through an Advice Letter an additional 10MW per year in subsequent years to the extent the initial *SunRate* offering is fully subscribed.

B. *Share the Sun*

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

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

[11] Based on a 25% capacity factor, 10 MW represents approximately 21,900 MWh.

including any renewable FiT procurement obligations (P. U. Code §§ 399.11 *et seq*.), D.03-06-071, or other applicable law).

3. Request Commission-hosted workshops with stakeholders to finalize program design and requirements.

4. Authorize SDG&E to offer company owned land to developers. SDG&E will seek separate Commission approval for any specific land transfer(s) under this program via separate P.U. Code § 851 filing.

5. Permission to redirect through an annual advice letter application an additional 10MW per year in subsequent years to the extent the initial *Share the Sun* offering is fully subscribed.

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

SDG&E recognizes that many customers want alternatives to "conventional" energy sources and access to renewable energy for various reason, be that to increase our country's energy independence, hedge against rising fuel costs, reduce their carbon footprint, make the air in their communities cleaner or help our region build a bridge to a low carbon future. Unfortunately, not all customers are able to install PV on their homes or business properties. SDG&E's pilot program will enable all bundled customers the opportunity to have access to solar energy. SDG&E's own customer research indicates an interest in such a program, and a willingness to pay to participate in a community solar program that helps the environment.[12]

SDG&E's proposal is a solar energy innovation designed to offer all SDG&E customers an easy and affordable option to supply their energy needs with locally generated solar power. The program offers customers two options. If they choose, all bundled SDG&E customers will

[12] *See* testimony of Dawn Osborne, Chapter 2 at Section II.

have the option to choose to purchase solar energy through either the SunRate of Share the Sun option.

IV. OVERVIEW OF PROGRAM

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

A. *SunRate*

SDG&E's *SunRate* program will allow customers to purchase green energy from local solar projects under contract to SDG&E. Customers will have the option to purchase volumes equal to their total energy requirements from local solar projects. SDG&E will initially reallocate up to 10 MW of local solar capacity from its existing portfolio for this program. Customers can subscribe to pay the *SunRate* for either 50%, 75% or 100% of their electricity use. SDG&E also seeks approval to redirect through an annual advice letter an additional 10MW per year in subsequent years to the extent the initial *SunRate* offering is successful.

B. *Share the Sun*

SDG&E's *Share the Sun* program will allow solar providers to construct and sell the rights to the capacity of their solar facilities to SDG&E customers. Under this program, solar providers can:

- Build solar projects on SDG&E land, and/or
- Identify and develop their own project sites.

Solar providers participating in the program will contract with SDG&E customers to sell the rights to the capacity produced by such projects. The solar providers will provide proof of such transaction to SDG&E to enable SDG&E to credit the customer's monthly bill for the

contracted value of the energy produced by the customer's portion of the solar project. SDG&E will:

- Sign a PPA with the solar provider to initiate development of the project;
- Require the solar provider to sign a standard participation agreement to join the *Share the Sun* program, which will include certain rules and restrictions necessary for the viability of the program;
- Purchase the power from the project at the Commission authorized renewable Feed-in Tariff ("FiT") rate in compliance with SB32;[13]
- Provide a monthly bill credit to customers for their subscribed energy based on purchased portion of the project;
- SDG&E will retire the Renewable Energy Credits ("RECs") associated with such energy on behalf of the customer and shall not count them toward SDG&E's RPS compliance;
- Procure all unsubscribed solar energy from solar providers. The RECs will count towards SDG&E's RPS if needed or will be counted above SDG&E's RPS requirement;
- Continue to work with the solar industry to ensure the program remains viable, and sustainable; and
- SDG&E may file an annual Advice Letter to seek an additional 10MW per year in subsequent years to the extent the initial *Share the Sun* offering is successful.

[13] The price for the FiT is pending before the Commission in R.11-05-005. "The current FiT price is set at the Market Price Referent, but the Commission has indicated that the current FiT price will be revised in the first quarter of 2012. It is this revised price that SDG&E expects to apply to the *Share the Sun* program."

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 worthiness or physical location. Make solar energy sited on our distribution system 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

In SDG&E's service territory, 80% of rooftop solar energy systems have been installed on the homes of customers with an annual income of over $78,000; customers with this income level represent only 54% of our customer base. Forty five percent of solar installations are on the roofs of customers with an annual income of over $108,000; only 19% of our customer's have incomes this high. Rooftop solar installation options in our region clearly 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 ensure that we 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. The goal for making this filing is to ensure that all customers - whether they own or rent a home or place of business, whether they are able to make a long-term commitment, and without regard to where and how long they plan to live or conduct business - can obtain solar energy easily and

cost effectively from SDG&E. SDG&E's pilot program is designed to increase access and options to engage in solar energy by providing a program that any bundled customer can elect.

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

- Remove site restrictions and building ownership as a hurdle to solar energy use;
- Provide access to solar energy projects that take advantage of economies of scale and optimal site location;
- Provide another option that reduces or removes the significant upfront capital requirements of solar installations that are beyond the means of many customers;
- Let customers buy renewable energy in small increments, thereby allowing customers to choose their commitment level as well as the flexibility to size their renewable commitment based on their ever-changing energy demands;
- Avoids the relocation costs immobility of traditional solar installations by allowing participants to take their solar energy with them when moving anywhere in SDG&E's service territory;
- Creates a sustainable future for solar development; and
- Provides a cost competitive option for customers over conventional roof solar top installations currently being deployed as the only option currently available.

Objective 2: Make the Benefits of Solar Power Sited at Locations on the SDG&E Distribution System Available to All Customers In Ways That Maximize Solar Production, Potential System Benefits and Lower Installation Costs.

Since California's Net Energy Metering law was first enacted, SDG&E has found that the impact of solar installations on our system can vary widely depending on location. Solar generation sited from a location on our distribution grid that has low load on a sunny cool day,

for example, can create significant system costs. However, that same generation might create a system benefit if it were located in a more appropriate area. Rooftop solar is located wherever the participating customer's house is, without regard to system impacts. In comparison, a larger solar project that meets the needs of many customers can be located where system benefits will be maximized and where system costs are minimized, because it can be located where sun exposure is the greatest, south-facing, and without obstructions.

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

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

SDG&E's *connected…..to the sun* proposal provides a new way of staying connected to our customers by offering a new product that expands access to solar for all customers. Since this is a new product and only a handful of community solar programs exist to date, SDG&E is proposing an initial pilot program to test customer preference. If it proves attractive to customers, SDG&E intends to expand the program size through annual advice filings, and may refine the program structure/design through a future Rate Design Window proceeding. By providing a

forum to work with the solar industry and other solar stakeholders through the proposed workshops, SDG&E hopes to ensure the program:

- Increases sustainable solar development in our region;
- Boosts local development by reducing barriers for developers to build local solar projects;
- Supports local workforce development and jobs through construction and ongoing maintenance of PV systems; and
- Supports local municipalities' green house gas emission goals.

SDG&E has met with representatives from several solar industry businesses to get feedback and input on the development of its proposal. As a result of those meetings, SDG&E is proposing a series of workshops on the *Share the Sun* program in San Diego, with Commission oversight. The purpose of these workshops is to reconcile and optimize design and program requirements as described further in Dawn Osborne's testimony. SDG&E is proposing to conduct these workshops during the Commission's consideration of this Application process, to ensure transparency and openness for all interested parties. It is expected that through the workshops, consumer demand forecasts for different types of energy products will be developed and future programs may emerge.

VI. CONCLUSION

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

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

VII. QUALIFICATIONS

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