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

CHRIS YUNKER

CHAPTER 3

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

MAY 10, 2013

SDGE

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CHAPTER 3

connected…..to the sun

I. OVERVIEW AND PURPOSE

The purpose of my testimony is to present San Diego Gas & Electric Company's ("SDG&E") pricing proposals for the *SunRate*[sm] and *Share the Sun*[sm] pilot programs addressed in this "*connected.....to the sun*"[1] proceeding. Under both programs, a program participant's bill would include the same standard charges that they are currently being charged as a bundled customer. In addition to those standard charges, the program participant's bill would also include line item adjustments associated with the customer's participation in either *connected.....to the sun* program. Specifically, my testimony identifies the pricing components for *SunRate* and *Share the Sun*, and the methodology used to calculate each pricing component.[2]

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[1] As described in the updated prepared testimony of James P. Avery and Dawn Osborne served concurrently herewith in this proceeding, *connected…..to the sun* is the umbrella term under which SDG&E will offer its customers two tariffed options to access solar electricity. The options are "*SunRate*," under which customers may elect to have a portion of their electric commodity costs derived from the portfolio of local solar generating projects under contract to SDG&E, and "*Share the Sun*," which gives customers the opportunity to contract directly with solar providers for electricity to be delivered to the customer by SDG&E. Citations to testimony herein will be to the updated prepared testimony submitted in support of this Application, unless otherwise indicated.

[2] My original prepared direct testimony filed on January 17, 2012 also addressed procurement sourcing and REC treatment for the *connected…..to the sun* programs. This subject matter is now addressed in the updated prepared direct testimony of Hillary Hebert (Ch.4).

II. *SUNRATE* PRICING

As further described in the updated prepared direct testimony of Dawn Osborne, the *SunRate* will allow any bundled customer an option to buy solar energy through a simple, tariff-based rate.[3] SDG&E will allocate up to a maximum of 10MW of solar energy for the initial *SunRate* pilot program from local solar facilities.[4] Customers will have the option to buy solar energy in volumes equal to all or just a portion of their total energy usage, which will be priced based on the price SDG&E pays for solar energy with the necessary adjustments to keep non-participating customers indifferent.

SDG&E proposes that the *SunRate* pricing includes (1) the associated cost of solar energy and (2) adjustments to offset the utility's avoided costs in order to maintain non-participant ratepayer indifference. For the *SunRate* program, avoided costs include SDG&E's average commodity cost, the value of solar energy and capacity produced through the program, and the Power Charge Indifference Adjustment ("PCIA"), which avoids creating a cross subsidy by covering the participant's share of the above market costs of resources that have already been procured by SDG&E on behalf of all customers. Also included in *SunRate* avoided costs are CAISO Grid Management Charges ("GMCs") embedded in the average commodity costs, again, to avoid shifting these costs between customers. This pilot service will offer customers access to pricing advantages over rooftop solar provided by economies of scale and locations with maximum sun exposure, while protecting bundled ratepayers, participants and non-participants alike, from exposure to cross-subsidies.

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3 *See* Updated Prepared Direct Testimony of Dawn Osborne, Ch.2, p.8.

4 The direct testimony of Hillary Hebert describes the process and selection of solar facilities that will support *SunRate* customer subscriptions.

A. Basis for ***SunRate*** pricing

The pricing for *SunRate* includes five components: (1) the cost of local solar, (2) the value of solar energy and capacity, (3) SDG&E's average commodity cost, (4) the PCIA, and (5) CAISO GMCs. The cost of local solar and the value of solar are fixed at the time of customer's application for the customer's selected contract term. The illustrative table below shows the calculation that would underlie a *SunRate* customer's bill.

Pricing Methodology **(Illustrative Values)**		
Cost of Local Solar ($/kWh) (Based on existing SunRate Pool)		$0.085/kWh
Value of Solar Energy and Capacity	**-**	$0.0056/kWh
SunRate	=	**$0.079/kWh**
SDG&E's Average Commodity Cost	**-**	**$0.072/kWh**
PCIA	+	$0.006/kWh
CAISO GMC	+	$0.0007/kWh
Customer Service Adjustment	=	**$0.0067/kWh**
Total	=	**$0.0141/kWh**

Although a *SunRate* customer's pricing consists of five components, a *SunRate* customer's bill would include only three line item adjustments: (1) the *SunRate*, which is the cost of local solar less the solar value adjustment, (2) SDG&E's average commodity cost, and (3) the Customer Service Adjustment ("CSA") which is the PCIA plus CAISO GMCs. Depending upon how total electric commodity costs and CSA compare to the cost of local solar secured through the *SunRate* program, there can be either a premium or discount to the participant's otherwise applicable bill.

B. *SunRate* Billing Calculations

The *SunRate* billing calculations are designed to maintain bundled customer indifference. The line item adjustments on a *SunRate* customer's bill reflect the cost to be served by local solar relative to SDG&E's average bundled portfolio commodity cost.

1. Line Item for *SunRate*

A participating customer's bill will show a line item multiplying the incremental cost for the *SunRate* by the participant's monthly energy consumption and participation level (current RPS percentage to100 percent of energy usage). The line item is made up of two components. The first is the cost of local solar secured for the *SunRate* program, as outlined in the testimony of Hillary Hebert in Chapter 4, pp. 6 - 8. The second is the solar value adjustment which calculates the relative value of energy and capacity for the solar resources supporting the *SunRate* program compared to SDG&E's current portfolio of resources serving all bundled load. The solar value is netted against the cost of local solar. The calculation of the solar value adjustment is described in Section IV below.

2. Line Item for SDG&E's Average Commodity Cost

SDG&E's average commodity cost is credited to the *SunRate* customer. This cost is used as a proxy to reflect SDG&E's avoided commodity costs, which ideally would be reflected in the average commodity rate. However, because of the reasons described below, SDG&E finds that it is necessary to make the following adjustments to the average commodity rate in order to better reflect the avoided cost. Currently there is a disconnect between the timing when ERRA related costs are incurred and the rate implementation timing of SDG&E's ERRA Forecast. Further, balances related to ERRA trigger proceedings can impact commodity rates. SDG&E

has noted the impact of this timing disconnect in ERRA trigger proceedings. Since this can cause the ERRA portion of the commodity rate to differ notably from the costs, SDG&E is substituting the ERRA component of the average commodity rate with an ERRA forecast value net of ERRA Trigger Balances to better approximate avoided costs.

3. Line Item for Customer Service Adjustment

The Customer Service Adjustment consists of the PCIA and GMCs. The PCIA comprises the above market cost of SDG&E's existing procurement portfolio and is calculated annually. This is a cost that is ultimately born by all customers for resources that were procured on their behalf. For Direct Access ("DA") or Community Choice Aggregation ("CCA") customers the PCIA is included in the cost responsibility surcharge line item on their bill. For SDG&E's retail customers the above market costs are blended into SDG&E's average commodity cost. Because *SunRate* customers are now electing to participate in the *SunRate* and are credited the average commodity cost on their bill, the PCIA must be applied to ensure these customers continue to share in the above market costs for resources that were already procured on their behalf. Otherwise, non-participant ratepayers would shoulder those shares of the above market cost of the existing procurement portfolio avoided by customers who have elected to 'green' their resource mix using *SunRate*.

GMCs are also included in the Customer Service Adjustment. GMCs include energy usage charges, energy transmission service charges, and reliability services costs, all of which are allocated to load and resources by the CAISO. These are service costs incurred on behalf of all bundled customers and embedded in the average commodity cost that is credited to participating customers. Since these are costs for services provided to all bundled customers including program participants they are added back so as not to shift costs from participants to non-participants.

Ancillary services are also incurred on behalf of all bundled customers. These costs are included in Load ISO Charges along with all energy costs and are not broken out separately. Given that this is a pilot program SDG&E is not incorporating ancillary service costs at this time. However, SDG&E will review these costs and along with all costs of commodity service once the program participation is established and/or with any expansion of the program. SDG&E intends to incorporate ancillary service costs and any other appropriate cost in the future.

III. *SHARE THE SUN* PRICING

As further described in the updated prepared direct testimony of Dawn Osborne, the *Share the Sun* pilot is a community solar program that will allow customers to purchase solar services (such as the rights to the capacity) produced by a specific solar facility directly from participating solar providers.[5] *Share the Sun* participating solar providers will sell the participating facility's energy to SDG&E and will contract with SDG&E customers to sell the rights to the capacity produced by such projects. SDG&E will credit the customer's monthly bill for the contracted value of the energy produced by the customer's subscribed portion of the solar facility's capacity. SDG&E proposes to contract for a limited quantity of local solar resources to support *Share the Sun* as described in the testimony of Hillary Hebert in Chapter 4, p. 8. This program is intended to provide an additional solar alternative for customers and to expand the potential customer base for solar developers.

A. Basis for *Share the Sun* Pricing

Share the Sun uses the same fundamental pricing structure as *SunRate,* including a solar value adjustment, a credit for SDG&E's average commodity cost, the PCIA, and GMCs . One main difference between the two programs is that the solar energy allocated to *Share the Sun*

[5] *See* Updated Prepared Direct Testimony of Dawn Osborne, Ch.2, p.16.

customers can vary independent of a customer's actual annual energy use, much like the net energy metering arrangement used for traditional rooftop solar. While the subscription levels are based upon a customer's annual usage as described in the testimony of Dawn Osborne in Chapter 2, p.19, the amount of energy customers will receive will depend on each customer's agreement with their respective *Share the Sun* developer/providers.

In terms of the underlying pricing calculations, there are additional differences between *SunRate* and *Share the Sun* The main difference is that the cost of local solar is replaced by the cost of the subscriptions rights in the developer's facility, which is primarily negotiated between the customer and the developer, but includes an underlying SDG&E bill charge and credit for the facility rate established by the solar facility's power purchase agreement between SDG&E and the developer. As described in the testimony of Hillary Hebert in Chapter 4, p. 13, the Re-MAT price is paid by SDG&E for subscribed and unsubscribed portions of a *Share the Sun* facility. Therefore, a *Share the Sun* customer is charged for that price, noted on the bill as the *Share the Sun* Rate. Moreover, because the *Share the Sun* customer has purchased the subscription rights from the developer, that customer is assigned a credit equal to the Facility Rate, or Re-MAT, on their bill. This ultimately results in a lower overall net bill to SDG&E.

Pricing Methodology Illustrative Values		
Re-MAT Fit Starting Price (TOD Adjusted passed on typical solar profile)		$0.104/kWh
Value of Solar Energy and Capacity	-	$0.0056/kWh
***Share the Sun* Rate**	=	$0.0984/kWh
SDG&E's Average Commodity Cost	**-**	**$0.072/kWh**

PCIA	+	$0.006/kWh
CAISO GMC	+	$0.0007/kWh
Customer Service Adjustment	**=**	**$0.0067/kWh**
Total	**=**	**$0.0331/kWh**
Re-MAT FiT Credit **(Rights to this Capacity are Assigned to the Customer from the from Developer)**	**-**	**$0.104/kWh**
Net Adjustment To Customer		**($0.0709/kWh)**

B. *Share the Sun* Billing Calculations

The billing calculations for the *Share the Sun* program are designed to create bundled customer indifference and mitigate cost shifts from the *Share the Sun* program. The bill for *Share the Sun* would show one more line item than the *SunRate*, for a total of four additional line items.

1. Line Item for *Share the Sun* Rate

A participating customer's bill will show a line item multiplying the incremental cost for the *Share the Sun* Rate by the participant's subscription level in the solar facility. The line item is made up of two components. The first is the Re-MAT price as outlined in the testimony of Hillary Hebert in Chapter 4, p. 12. The second is the solar value adjustment which calculates the relative value of energy and capacity of the *Share the Sun* solar resource to SDG&E's portfolio of resources serving SDG&E's bundled load. The calculation of the solar value adjustment is described in Section IV below.

2. Line Item for SDG&E's Average Commodity Cost

As described in Section II.B.2. above, SDG&E's average commodity cost is used as a proxy for SDG&E's avoided commodity cost. In order to better reflect the average commodity cost, SDG&E adjusts the average commodity rate as discussed in Section II.B.2 above.

3. Line Item for Customer Service Adjustment

As noted in Section II.B.3. above, since *Share the Sun* customers are credited the average commodity cost on their bill, the Cost of Service Adjustment, which includes the PCIA and GMCs must be applied to ensure these customers continue to share in the above market costs for resources that were already procured on their behalf and the services that they receive as a bundled customer.

4. Line Item for Re-MAT Credit

The *Share the Sun* customer has acquired subscription rights to a facility's output and is provided with the SDG&E bill credits equal to the solar facility's kWh output assigned to the customer and multiplied by the Re-MAT price of the facility.

IV. BUNDLED CUSTOMER PROTECTIONS – MAINTAINING INDIFFERENCE

The appropriate determination of avoided cost is crucial to maintaining bundled customer indifference to the allocation of solar generation under these programs. This avoided cost is the marginal unit of output avoided by the last increment of generation. This assures that costs of the proposed programs are not shifted to non-participants. Holding non-participants indifferent is critical to creating a structure that will allow solar adoption to grow in a sustainable manner, that is, without market-distorting and unfair cross-subsidies.

In order to build such a sustainable platform, the programs must provide participants the benefits that solar energy provides. Correspondingly, participant costs must not be shifted to bundled customers that do not participate in the program. The *connected.....to the sun* programs avoid cost shifts through two adjustments. First, there is an adjustment to recover the participant's share of any above-market costs associated with the balance of SDG&E's resources that have already been procured to serve them. That is accomplished by applying the PCIA as set forth in the Commission's decision adopting DA reforms (D.11-12-018).

Second, there is an adjustment to account for any differences in the value of the solar energy allocated to the programs and the value of the energy from the balance of SDG&E resources including, for example, any Resource Adequacy ("RA") value that the project provides. This is done to ensure that any incremental value associated with the solar energy from *connected.....to the sun* projects goes to the program participants. The appropriate calculation of the bundled customer indifference adjustments will avoid cross-subsidies among customers and permit long-term, sustainable growth of these programs.

The following sections detail how the indifference amount is calculated for the proposed pilot programs.

A. The PCIA as updated in D. 11-12-018is an appropriate proxy for the indifference amount associated with the procurement of program solar energy in lieu of energy from SDG&E's remaining balance of resources

While neither *connected.....to the sun* program is a DA function, the PCIA derived in the Direct Access context provides the appropriate proxy to ensure that non-participating customers are held indifferent to the commodity costs related to the programs. D. 11-12-018states (pp. 7-8) that:

> The indifference amount is designed to ensure that DA customers that have departed from bundled IOU procurement service remain responsible for paying any IOU costs incurred on their behalf. In other words, remaining bundled customers must be protected from any cost shifting and left economically indifferent as the result of DA customers leaving the system.

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> ….[i]n D.02-11-022, the Commission established a cost responsibility surcharge (CRS) methodology which incorporated an indifference amount. … The indifference principle involves the interaction of three elements;
>
> a) A non-bypassable surcharge which DA customers pay to offset any cost impacts on bundled customers associated with their departure from or return to bundled service;
> b) Switching rules which govern the movement of customers between DA and bundled service; and
> c) Transition Bundled Service (TBS) rates which accommodate customer movement while allowing the utility to adjust its generation portfolio without cost impacts on bundled customers.

As noted in item "a" above, the CRS establishes the indifference amount to recover costs associated with a utility's bundled service when a customer elects to procure commodity from a source other than the utility's balance of resources (*i.e.*, other than the blend of all resources used in SDG&E's portfolio). Therefore, this established methodology is a reasonable method to protect bundled customers from the cost impacts of participant customers choosing to procure solar energy through the proposed pilots, rather than from the utility's existing balance of bundled resources that was procured, in part, on the participant customer's behalf.

Given that SDG&E is proposing a minimum one-year participation and fixed terms along with an early termination fee for the *connected…..to the sun* programs (*see* Section IV.H, *infra*), the items b. and c. in the above quote do not apply to the proposals in this Application. These items were designed to avoid gaming opportunities where a customer might choose to start DA service to take advantage of spot prices when they are below the utility portfolio price and then return to utility service when spot prices increase above the utility portfolio price, concerns not applicable given the terms of the proposed programs.

B. The ratio of on and off peak energy to account for solar energy's value relative to SDG&E's balance of resources is consistent with the calculation of the bundled customers' indifference amount.

The PCIA, as updated in D. 11-12-018, includes a ratio of on-peak and off-peak energy based on SP15 prices, which is used to establish the energy value in SDG&E's balance of resources for the Market Price Benchmark ("MPB") used in the PCIA calculation. It is therefore consistent with the indifference amount calculation to make an adjustment to account for the energy value of solar for *Share the Sun* and *SunRate* relative to the energy in the bundled portfolio. The $/kWh adjustment is determined by calculating the difference of the energy value in SDG&E's portfolio and energy value from the solar projects used to serve either *SunRate* or *Share the Sun* participants using the same SP15 prices and on-peak and off-peak energy ratios.

C. The methodology to determine the RA capacity value in the PCIA is the appropriate adjustment for the difference in RA value between SDG&E's balance of resources and the solar energy used to serve *connected…to the sun*.

The PCIA, as updated in D. 11-12-018, also includes a methodology for establishing a $/MWh value of RA capacity included within SDG&E's balance of resources. The same calculation will be used to establish any incremental difference in RA value associated with the solar energy used to serve *connected.....to the sun* programs and SDG&E's balance of resources. This is done to pass the incremental value that *connected.....to the sun* solar energy provides on to program participants.

D. Differences in Line Losses between SDG&E's portfolio and *connected.....to the sun* Resources

For the pilot program no line loss adjustment is made to account for any difference there may, or may not be, in line losses from program projects and line losses from SDG&E's balance of resources. Additional analysis is needed to determine what, if any, material difference there is in any potential reduction in transmission line losses relative to any potential increase in distribution line losses those same projects may incur. The issue of line losses will be reviewed based on experience under the pilot if and when the *connected.....to the sun* program is expanded in order to determine if a calculable difference in line losses can be identified.

E. Vintaging resources underlying indifference amount calculations is consistent with the PCIA

SDG&E proposes to "vintage" PCIA charges consistent with D.11-12-018. This ensures that participants are responsible for the cost of those resources, and only those resources, that were procured prior to the customer's participation in *connected.....to the sun*. This includes renewable contracts that have been contracted for but will begin deliveries at a future date.

F. Administrative Costs of Pricing Options

Currently SDG&E does not include an incremental administrative charge for participants associated with the pricing options to be made available under *connected…..to the sun.* SDG&E anticipates that there will be incremental administrative costs incurred for this program and will address these costs at a later date once program participation has been established under the pilot and approval for any increase in program size is sought. At that point SDG&E proposes that any incremental administrative costs would be paid for by participating customers. SDG&E proposes the following mechanism in the event it seeks recovery of such incremental administrative costs:

- Monthly charge ($/month) for recovery of administrative costs
- Establishment of a balancing account to track both administrative costs and revenues associated with the monthly fee. The monthly charge would then be adjusted for under/over-collections resulting from differences between administrative costs and collected revenues to ensure that the costs are recovered through participating customers only

In the event there is no participation, consistent with the treatment of the *connected.....to the sun* resources in the event of no enrollment (that is, inclusion into the portfolio as RPS compliance resources), SDG&E proposes that any incremental administrative costs would be paid for by ratepayers in a manner consistent with existing cost treatment.

G. Renewable Integration Costs

At this time, SDG&E does not incorporate any renewable integration costs into the prices for the *connected.....to the sun* pilots. However, SDG&E remains open to reviewing what renewable integration costs would be appropriate to incorporate into the programs in the appropriate Commission proceeding. Moreover, SDG&E will consider the application of such costs with any future expansion of the pilot programs. SDG&E would seek approval to amend this or any other aspect of the program's pricing structure through the advice letter process.

H. Service at end of contract duration

Because the *connected.....to the sun* participant is an SDG&E customer, there are negligible planning cost impacts in the return of that customer to service by the balance of SDG&E's portfolio at the pilot program level of 20 MW (10 MW for *SunRate* and 10 MW for *Share the Sun*). SDG&E remains the customer's Load Serving Entity and plans to meet it requirements utilizing its total portfolio which includes resources procured under *connected.....to the sun*.

I. The Calculation of Early Termination Fees

The early termination fee for *connected.....to the sun* is comprised of the above-market costs associated with the participant's subscription of solar energy plus any administrative costs associated with the participant's subscription. For the pilot program, the above market costs are calculated as the present value of the forecasted difference between the cost of local solar and the sum of the MPBin the PCIA calculation, the solar value adjustment, and green attributes. The forecast to cover any costs uses the following assumptions:

1) The MPB is escalated with Henry Hub natural gas prices;
2) The solar adjustments are set at the value established at the time of the customer's commitment;
3) The renewable premium is set at that year's DOE Adder in the PCIA and fixed over the remaining subscription term; and
4) The discount rate used to calculate the present value is the then applicable SDG&E rate of return.

A table of fixed termination costs by year and contract duration will be provided with each year's vintage. This is done to ease the participation decision by creating greater cost certainty for customers.

This concludes my prepared direct testimony.

V. STATEMENT OF QUALIFICATIONS

My name is Christopher F. Yunker. My business address is 8330 Century Park Court, San Diego, California, 92123.

I have been employed as the Rates & Analysis Manager in the Strategic Pricing & Analysis group of San Diego Gas & Electric Company since 2010. Prior to that I was employed as Strategic Planning Manager from 2009 to 2010 in the same department. Before that I was employed in various positions at SDG&E as a Principal Financial Analyst, Technology Development Advisor, Resource Planner and Sr. Business Analyst. I began work with Sempra Energy in 2002, working as a Financial Analyst with Sempra Connections. Prior to my work with Sempra Energy, I worked for GEA Power Cooling Systems, Inc., as an Application Engineer and Project Development Engineer.

I received a B.S. in Mechanical Engineering from the University of California, San Diego and a Masters in Business Administration from the University of Southern California. I am a Professional Engineer in Mechanical Engineering in the State of California.

I have previously testified before the Commission.