

Proceeding No.: A.09-10-003  
Exhibit No.: \_\_\_\_\_  
Witness: Tony Choi

**AMENDED DIRECT TESTIMONY OF**  
**TONY CHOI**  
**SAN DIEGO GAS & ELECTRIC COMPANY**

***\*\*Public Version\*\****

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA  
December 18, 2009**



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1 **DIRECT TESTIMONY**  
2 **OF**  
3 **TONY CHOI**  
4 **ON BEHALF OF SDG&E**  
5

6  
7 **I. INTRODUCTION**  
8

9 My testimony describes the resources San Diego Gas & Electric Company  
10 (“SDG&E”) expects to use in calendar year 2010 to provide electric commodity service  
11 to its bundled service customers and the procurement costs that SDG&E expects to  
12 record in 2010 to the Energy Resource Recovery Account (“ERRA”). A summary of the  
13 proposed total 2010 ERRA revenue requirement is contained in the direct testimony of  
14 Yvonne M. Le Mieux.

15 Section II of my testimony describes the supply resources that SDG&E forecasts  
16 will be utilized to meet SDG&E’s bundled customer load in calendar year 2010. These  
17 resources include SDG&E continuing obligations under various long-term power  
18 purchase contracts (including Public Utility Regulatory Policies Act [“PURPA”]  
19 contracts), the San Onofre Nuclear Generating Station (“SONGS”), contracts with  
20 renewable generators, SDG&E-owned generation and anticipated short-term market  
21 purchases. Section III of my testimony quantifies the costs associated with the resources  
22 described in Section II along with other electric procurement costs that are recorded in  
23 ERRA, such as CAISO charges and hedging costs for SDG&E resources. My statement  
24 of qualifications is found at the end of my testimony.

25 My testimony makes reference to the following, which are attachments located at  
26 the end of the testimony: Attachment A: 2010 ERRA Expense Forecast (11/04/09  
27 update); Attachment B: Forecast Volumes by Resource Type for 2010; Attachment C:  
28 Detail of Long Term CTC and Qualifying Facility Contract Expense Forecast (11/4/09  
29 update); and Attachment D: Detail of Renewable Expense Forecast.

30 //  
31 //  
32 //

1 **II. 2010 FORECAST OF LOAD AND SUPPLY RESOURCES**

2  
3 On January 1, 2003, SDG&E resumed procurement of its Residual Net Short  
4 (“RNS”) position and assumed operational control of various California Department of  
5 Water Resources (“CDWR”) long-term contracts, which SDG&E dispatches along with  
6 its own supply resources as a single, integrated portfolio. The CDWR contracts allocated  
7 to SDG&E include bilateral “must take” contracts, as-available wind resource contracts  
8 and dispatchable resource contracts. Costs for these contracts are captured through  
9 CDWR’s retail remittance rate. SDG&E’s resource portfolio includes a diverse mix of  
10 resources, including nuclear, renewables, Qualifying Facilities (“QFs”) and dispatchable  
11 generation. Most of SDG&E’s portfolio costs are captured through ERRA.

12 The results contained in this application were developed using the production cost  
13 model ProSym from Global Energy Decisions, a Ventyx Company. SDG&E and CDWR  
14 resources were modeled in ProSym, which dispatched them to serve SDG&E’s forecasted  
15 bundled load using a forecast of 2010 natural gas and electric prices.<sup>1</sup> The price forecasts  
16 were based on a recent (September 1, 2009) assessment of 2010 market prices based on  
17 the average of forward prices over a 22-day period.

18 Under MRTU, SDG&E’s bundled load requirement (energy and ancillary services  
19 [“A/S”]) is purchased directly from the CAISO in the Day-Ahead Market and Real-Time  
20 Market (“DAM” and “RTM”). Similarly, the output from SDG&E’s portfolio of  
21 resources is sold directly to CAISO in the DAM and RTM. SDG&E’s ERRA forecast for  
22 2010 addresses this new market structure by separating the expected purchase cost of  
23 energy and A/S for its bundled load from the expected sales revenue of energy and A/S  
24 from its resource portfolio.

25  
26 **LOAD FORECAST**

27 The forecast of SDG&E’s 2010 bundled load requirement was derived from the  
28 California Energy Commission’s (“CEC’s”) statewide forecast published in September  
29 2009. Using the CEC’s forecast and adjusting for direct access load, SDG&E projected

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<sup>1</sup> SDG&E’s forecast model is based on the current CAISO zonal market prices. SDG&E will update the model as needed for nodal prices once SDG&E has gained experience following successful implementation of MRTU by the CAISO.

1 that its bundled load for 2010 will be [REDACTED]. This forecast is [REDACTED]  
2 less than SDG&E's forecasted bundled load for 2009 ([REDACTED]). SDG&E's A/S  
3 obligations were forecasted to be 6% of load for operating reserves and 2.5% of load for  
4 regulation capacity based on the CAISO's historical levels of procurement for these  
5 products.

## 7 **SUPPLY RESOURCE FORECAST**

### 8 **SONGS**

9 SDG&E has a 20% ownership interest in SONGS Units 2 & 3 for a combined  
10 capacity of 449 MW. SONGS generates around the clock and SDG&E sells this output  
11 into the CAISO market as baseload energy. The forecasted supply of SONGS energy for  
12 2010 is [REDACTED] both units, a decrease of [REDACTED] from the forecast for 2009  
13 ([REDACTED]). The decline in expected generation is due to the steam generator  
14 replacement projects that will reduce the availability of both units in 2010.

### 16 **PORTLAND GENERAL ELECTRIC BOARDMAN**

17 SDG&E has a long-term power purchase agreement with Portland General  
18 Electric ("PGE") for 15% of the output of the Boardman coal-fired power plant.  
19 SDG&E's current share of plant output is nominally 88 MW at the plant and 86 MW  
20 after transmission losses delivered to the CAISO grid at Malin. Based on its variable cost  
21 of delivery to CAISO of about \$16/MWh, the forecast supply of Boardman energy for  
22 2010 is [REDACTED], an increase of [REDACTED] from the forecast for 2009 ([REDACTED]).

23 This contract contains curtailment provisions whereby SDG&E can reduce its  
24 schedule on an hourly basis. The implementation of MRTU allows SDG&E to bid in  
25 Boardman energy into the CAISO market at a price to ensure that it receives revenues  
26 sufficient to offset its delivery cost. While the relatively low energy price suggests that  
27 the contract will be fully scheduled for most available hours, economic bids may result in  
28 the amount of energy supplied by Boardman to the CAISO being lower than forecast.

1 **QUALIFYING FACILITIES**

2 In 2010, SDG&E will have about 227 MW of capacity under contract with 12  
3 QFs.<sup>2</sup> The five largest QF contracts account for 213 MW or 93% of total QF capacity.  
4 All QFs are located in the SDG&E service area except for the Yuma Cogeneration  
5 Associates plant (“YCA”), a 56.5 MW natural gas-fired plant in Arizona whose output is  
6 imported into the CAISO.

7 QF contracts are must-take resources. SDG&E is obligated to pay the contract  
8 price for all delivered QF generation and schedule it into the CAISO market, with the  
9 exception of limited price replacement rights in the YCA and Goal Line contracts. To the  
10 extent allowed in these contracts, SDG&E exercises these rights during low-priced hours  
11 to maximize rate-payer savings. Typically, these plants will choose to shut down during  
12 these hours to avoid operating at a loss. Accounting for these economic curtailments and  
13 forecast availability, the forecast of QF energy supply in 2010 is [REDACTED], about  
14 unchanged from the forecasted amount for 2009 ([REDACTED]).

15  
16 **RENEWABLE ENERGY CONTRACTS**

17 SDG&E procures renewable energy through competitive solicitations and  
18 bilateral agreements to meet the Renewable Portfolio Standard<sup>3</sup> established by Senate  
19 Bill (“SB1078”). The forecast of renewable energy supply from Commission-approved  
20 contracts for 2010 is 1,841 GWh, which includes a new contract for geothermal energy  
21 that is expected to be closed by 2010. The 1,841 GWh forecast is an increase of 513  
22 GWh from the forecast for 2009 (1,328 GWh).

23 In addition to the renewable energy included in the forecast, SDG&E also expects  
24 to receive the following in 2010 towards meeting its RPS target:

- 25 • 35 GWh of renewable energy under existing QF agreements. The quantity and  
26 ERRRA cost associated with these contracts was included under QFs for the  
27 purposes of this testimony.

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<sup>2</sup> The actual number of active QF contracts is over 50, but many of these QF resources only serve on-site load and do not deliver net energy to SDG&E. As a result, these are not included in the production cost model run. The 12 QFs referenced above deliver net energy to SDG&E and are modeled in ProSym.

<sup>3</sup> Some renewable resources have QF contracts and also qualify to meet the Renewable Portfolio Standard. Those resources are reported in the QF sections of this testimony.

- 635 GWh of CPUC-approved renewable energy credits from the Glacier Wind contracts. The renewable energy credits are delivered using existing physical imports of energy that SDG&E has already accounted for in its 2010 forecast. However, their costs are incremental to ERRA and were included in the ERRA forecast.

SDG&E did not include renewable energy quantities or costs under contract from a large solar project in its 2010 forecast. Based on current information, energy deliveries from this contract during 2010 appear unlikely. SDG&E also did not include renewable energy quantities or costs associated with the Sustainable Communities PV program because costs for this program are not charged to ERRA.

SDG&E continues to pursue new renewable energy resources to add to its portfolio for 2010, which will increase ERRA-related quantities and costs. A detailed table of the renewable contracts discussed above is provided in Attachment D.

#### **SDG&E-OWNED DISPATCHABLE GENERATION**

SDG&E owns the following power plants: the 560 MW Palomar Energy Center (“Palomar”) combined cycle power plant that commenced commercial operation in April 2006, the 48 MW Miramar Energy Facility (“MEF I”) peaking combustion turbine that commenced commercial operation in July 2005 and the second 48 MW Miramar peaker (“MEF II”) that commenced commercial operation in August 2009. These units are dispatched for generation and A/S awards based on economic merit and SDG&E’s requirements. For the 2010 forecast, SDG&E’s dispatch model considered only generation dispatched for energy rather than for A/S. The rationale for this approach is that the CAISO co-optimizes market awards between energy and A/S based on the opportunity cost of capacity; therefore, the economic benefit (and ERRA contribution) of using capacity for generation is equivalent to using capacity for A/S.

The forecasted amount of Palomar generation in 2010 is [REDACTED], a decrease of [REDACTED] from the forecast for 2009 ([REDACTED]). The forecast of MEF I generation in 2010 is [REDACTED], a decrease of [REDACTED] from the forecast for 2009 ([REDACTED]). The forecast of MEF II generation in 2010 is [REDACTED]. The declines in expected generation from Palomar and MEF I are due to lower implied heat rates implied by the forward

1 prices used for 2010, which results in lower forecasted generation and higher forecasted  
2 market purchases.

#### 4 **SDG&E-CONTRACTED GENERATION**

5 SDG&E will have a number of generation units under contract in its resource  
6 portfolio in 2010. The PPA for Otay Mesa Energy Center (“OMEC”), a combined-cycle  
7 plant, is expected to provide a significant quantity of generation to the CAISO market.  
8 The primary benefit of the other contracts will be to offset SDG&E’s load requirements  
9 from a capacity standpoint. The larger of these contracts are described below:

10 The OMEC tolling agreement between SDG&E and Calpine is expected to begin  
11 in October 2009. OMEC is an air-cooled 2x1 combined cycled plant that should provide  
12 up to approximately [REDACTED] of efficient, gas fired generation. The forecast generation  
13 from OMEC in 2010 is [REDACTED], comparable to SDG&E’s Palomar unit.

14 The Orange Grove contract is expected to provide [REDACTED] of peaking capacity,  
15 with a forecasted output of about [REDACTED] of generation during 2010.

16 The Wellhead contract was modeled to provide [REDACTED] of peaking capacity  
17 beginning in July 2010. Its relatively high generation cost and startup fuel requirement  
18 [REDACTED]. However, if market price  
19 volatility exceeds modeled assumptions, this unit could be dispatched more frequently  
20 than SDG&E’s forecast.

21 SDG&E’s 2010 portfolio assumes a contract extension with [REDACTED]  
22 [REDACTED] for the [REDACTED]. This extension would avert the loss of  
23 this capacity from the existing PPA which will expire at the end of 2009.

24 In 2009, [REDACTED], and as such these units were  
25 dispatched [REDACTED].  
26 However, the CAISO did start up and carry [REDACTED] units frequently to support grid  
27 requirements under Must-Offer or Exceptional Dispatches, which are not charged directly  
28 to ERRRA. SDG&E was then able to schedule generation from these units without  
29 incurring ERRRA-related startup and carrying costs. Assuming a similar level of CAISO  
30 initiated dispatches, the forecast generation from these units is [REDACTED], a decrease of



1 [REDACTED] from the forecast for 2009 ([REDACTED]) due to the lower forecast of market heat  
2 rates.

#### 4 **MARKET PURCHASES AND SURPLUS SALES**

5 Under MRTU, quantities purchased from the CAISO for SDG&E's load are based  
6 on load schedules and economic bids. Quantities sold to the CAISO from SDG&E's  
7 resource portfolio are based on completely separate generation schedules and economic  
8 bids. Therefore, there is no requirement that load and generation quantities that clear the  
9 market must balance.

10 If in any hour, the quantity of SDG&E's bundled load requirements purchased  
11 from the CAISO is greater than SDG&E-controlled generation sold to the CAISO, the  
12 difference may be viewed as equivalent to a market purchase. If in any hour, the quantity  
13 of SDG&E's bundled load requirements purchased from the CAISO is less than SDG&E-  
14 controlled generation sold to the CAISO, the difference may be viewed as equivalent to a  
15 market sale.

16 SDG&E forecasts that the quantity of equivalent market purchases will be [REDACTED]  
17 [REDACTED] in 2010, a decrease of [REDACTED] from the forecast for 2009 ([REDACTED]) due to the  
18 lower load forecast and an increase in generation from SDG&E's resource portfolio  
19 attributable to new generation from the low-cost OMEC combined-cycle unit. Likewise,  
20 the lower load forecast and higher SDG&E generation caused the forecasted quantity of  
21 equivalent market sales to increase in 2010 ([REDACTED]) from 2009 ([REDACTED]).

#### 23 **CDWR ALLOCATION**

24 CDWR contracts will supply an estimated [REDACTED] of energy to the CAISO in  
25 2010, a decrease of [REDACTED] from 2009's expected CDWR energy volumes ([REDACTED]  
26 [REDACTED]). SDG&E's resource portfolio will supply an estimated [REDACTED] of energy to  
27 the CAISO in 2010, an increase of [REDACTED] from 2009's expected energy volumes  
28 ([REDACTED]). For 2010, CDWR share of load is projected to be [REDACTED], less than the [REDACTED]  
29 projected for 2009. This decrease is the result of lower generation from CDWR's gas-  
30 fired generation contracts due to lower forecast of market heat rates.

1 **III. 2010 FORECAST OF ERRA EXPENSES**

2 Electric procurement expenses incurred by SDG&E to serve bundled load are  
3 recorded to the ERRA. These expenses include but are not limited to costs and revenues  
4 for energy and capacity cleared through the MRTU markets, power purchase contract  
5 costs, generation fuel costs, market energy purchase costs, CAISO charges, brokerage  
6 fees and hedging costs. Deviations between forecast and actual costs for any of these  
7 items will create variances between forecast and actual ERRA costs.

8 Expenses associated with CDWR resources, including contract costs, gas tolling  
9 expenses and gas hedging expenses, are recovered by CDWR through its retail remittance  
10 rate and not recorded as an ERRA expense. The ERRA balance may be impacted by  
11 CDWR resources. For example, lower-than-forecast generation from CDWR contracts  
12 would require additional supply from SDG&E's portfolio that is paid by ERRA funds.

13 SDG&E expects to incur \$839 million of ERRA costs in 2010, before FF&U  
14 costs (see Attachment A). This forecast is \$25 million less than the \$864 million forecast  
15 for 2009. The key drivers behind the decrease are lower costs for fuel and market  
16 purchases, higher market sales and lower hedging costs. These savings are offset by  
17 higher costs for capacity and renewable energy.

18 The remainder of this testimony will discuss the cost of specific ERRA items in  
19 more detail.

20  
21 **LOAD**

22 Under MRTU the CAISO supplies and sells all energy and A/S to SDG&E as  
23 required to meet its bundled load requirement. Based on expected prices for energy and  
24 A/S, SDG&E expects to incur charges totaling [REDACTED] for load requirements in  
25 2010 from the CAISO.

26  
27 **SUPPLY ISO REVENUES**

28 Under MRTU all generation from SDG&E's resource portfolio is sold to the  
29 CAISO. Based on expected prices for energy, SDG&E expects to receive revenues  
30 totaling [REDACTED] for generation produced in 2010. These revenues are largely offset

1 by costs incurred for generation fuel & variable O&M, contracted energy purchases and  
2 generation capacity. These costs are described in more detail below.

3  
4 **GENERATION FUEL & VARIABLE O&M**

5 SONGS:

6 Only SONGS nuclear fuel expense and fuel carrying charges are booked to  
7 ERRA. Other SONGS costs, such as O&M and capital addition, are recorded in the Non-  
8 fuel Generation Balancing Account (NGBA). The projected ERRA expense for SONGS  
9 nuclear fuel and carrying charge expenses for 2010 is [REDACTED].

10  
11 PALOMAR & MIRAMAR (fuel expenses for the Palomar and Miramar plants  
12 that are recovered through ERRA):

13 Fuel for Sunrise and CalPeak is purchased by CDWR and recovered in the retail  
14 remittance rate. For Palomar and Miramar, which are owned by SDG&E, D.05-08-005  
15 and Resolution E-3896 require that capital and non-fuel operating costs be recovered  
16 through the NGBA and fuel costs are recovered as an ERRA expense. In 2010, the  
17 ERRA expense for generation fuel purchased by SDG&E bundled load is forecast to be  
18 [REDACTED].

19  
20 **CONTRACTED ENERGY PURCHASES**

21 PGE BOARDMAN CONTRACT:

22 The costs incurred under the PGE Boardman long term power purchase contract  
23 include energy, capacity, transmission losses, transmission capacity from the plant to the  
24 CAISO and SDG&E's share of any capital additions to the unit. The contract energy  
25 payment is based on an energy price ([REDACTED]) which is applied to  
26 SDG&E's share of the plant output. However, the high capacity payment for this  
27 contract causes this contract to be a CTC contract; therefore the expense recorded to the  
28 ERRA is determined by multiplying the forecast energy production by the proposed  
29 market benchmark price of \$58.54/MWh. The 2010 ERRA expense for this contract is  
30 projected to be [REDACTED].

1           QUALIFYING FACILITIES:

2           All QFs are under contract with SDG&E through as-available capacity or firm  
3 capacity PURPA contracts. These contracts include provisions for both energy and  
4 capacity payments. The energy payment is determined using the SDG&E Short-Run  
5 Avoided Cost (“SRAC”) formula<sup>4</sup>. All QF contracts are CTC contracts due to their high  
6 capacity payments. Like the PGE Boardman contract, the ERRA expenses for CTC QF  
7 contracts are based on delivered energy multiplied by the market benchmark price. Any  
8 costs, including capacity payments, greater than the market benchmark price are booked  
9 to the TCBA. For the purposes of ERRA accounting, ERRA expenses for CTC QF  
10 contracts are recorded on Line 7, “Qualifying Facilities (Up To Market),” and are  
11 forecast to be ██████████ in 2010. Any gas hedging costs incurred to mitigate SRAC-  
12 priced QF contracts would also be recovered in ERRA, but those expenses are captured  
13 in Line 14, “URG Hedging Costs.” Attachment C details the breakdown of all the units  
14 discussed in this section and shows the associated costs, both ERRA and TCBA, and the  
15 forecast energy deliveries.

16  
17           RENEWABLE ENERGY CONTRACTS:

18           SDG&E’s renewable energy contracts, for the most part, have provisions for an  
19 energy payment only and no capacity payment. There are some slight differences  
20 between renewable contracts regarding energy payments based on schedules or metered  
21 energy, and treatment of CAISO imbalance charges, depending on the type of resource.  
22 In 2010 SDG&E’s renewable energy portfolio will include a cost for the renewable  
23 energy credits from the Glacier contract and the renewable resources described in Section  
24 II under “Renewable Energy Contracts.” None of these renewable energy contracts in the  
25 SDG&E portfolio are CTC contracts. All costs associated with these contracts are  
26 booked as an ERRA expense and are forecast to be \$162 million for 2010. Attachment D  
27 details the renewable projects by fuel type, their costs and forecast energy deliveries.

28  

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<sup>4</sup> The derivation of the SRAC price for QF contracts is posted monthly on an SDG&E website (URL: <http://www2.sdge.com/SRAC/>).

1           OTHER PURCHASED POWER CONTRACTS:

2           SDG&E’s forecast of total costs for non-renewable power purchase contracts in  
3 2010 is [REDACTED]. These costs cover capacity payments and generation costs for  
4 OMEC, [REDACTED] and several peakers. The largest component of this category is the  
5 generation cost for the OMEC unit, which is expected to be [REDACTED]. The remainder  
6 of costs, [REDACTED], primarily covers capacity payments for these units.

7  
8           INTER-SCHEDULING COORDINATOR TRADES (“ISTS”):

9           Under MRTU, SDG&E may transact ISTs bilaterally with counterparties to hedge  
10 long or short positions. Under an IST purchase, SDG&E would pay the counterparty the  
11 contracted energy price and in return receive payment from the CAISO based on the  
12 MRTU market clearing price. Under an IST sale, SDG&E would receive payment from  
13 the counterparty based on the contracted energy price and in return pay to CAISO the  
14 MRTU market clearing price. For either an IST purchase or sale, the payment to or  
15 revenue from the counterparty would be largely offset by the respective credit from or  
16 payment to the CAISO. Because ISTs are used as a hedge against unknown MRTU  
17 prices, SDG&E does not include a forecast of net cost or benefit from these transactions.

18  
19           **CAISO RELATED COSTS**

20           SDG&E forecasts CAISO charges that are allocated to load and resources, which  
21 include neutrality costs, load uplift charges, unaccounted-for energy (“UFE”) and  
22 allocated Reliability Must-Run (“RMR”) costs. The forecast of these charges is based on  
23 historical data and assumptions on RMR contracts that the CAISO may renew in 2010.  
24 Additional CAISO charges that SDG&E will incur include charges for transmission  
25 losses on QFs, SDG&E generation and any imports, and CAISO grid management  
26 charges (“GMCs”). SDG&E’s forecast of these CAISO costs is expected to be [REDACTED]  
27 [REDACTED] in 2010. The detail for “CAISO Related Costs” is included in Attachment A.

28  
29           **URG HEDGING COSTS**

30           SDG&E’s resource portfolio has substantial exposure to gas price volatility as a  
31 result of fuel requirements for its gas-fired resources as well as the gas price-based

1 pricing formula for its QF contracts. To manage this exposure, SDG&E expects to  
2 continue its hedging activity with the resulting hedging costs and any realized gains and  
3 losses from hedge transactions booked to ERRA. The current estimate of hedging costs  
4 for 2010 is [REDACTED], calculated as the marked-to-market profit/loss of hedges already in  
5 place plus expected broker fees. The profit/loss of these and future hedges placed will  
6 rise and fall with market prices. Therefore the final cost or savings will not be known  
7 until the settlement process has been completed for the hedge transactions.

8 SDG&E may also trade financial power products to hedge its long or short  
9 position against potentially volatile MRTU market clearing prices. Similar to ISTs  
10 described above, SDG&E does not include a forecast of net cost or benefit from these  
11 power hedges due to the unpredictability of market prices relative to the price of the  
12 hedges.

#### 13 14 **CONGESTION REVENUE RIGHTS**

15 Under MRTU, the CAISO day-ahead market establishes a market clearing price at  
16 each pricing node (Pnode) that may include a congestion charge. If congestion occurs  
17 where a generator is located, the market clearing price will be lower at that Pnode than if  
18 no congestion occurred, and the CAISO will consequently pay a lower price for energy  
19 received there. If congestion occurs where a load is located, the market clearing price  
20 will be higher at that Pnode than if no congestion occurred, and the CAISO will  
21 consequently charge a higher price for load served there.

22 Market participants, including SDG&E, were allocated Congestion Revenue  
23 Rights (CRRs) for which they can nominate source and sink Pnodes to match those in  
24 their portfolio. If congestion arises between the source and sink Pnode, the CAISO will  
25 pay the market participant holding the CRR the congestion charges to offset the  
26 congestion cost incurred. SDG&E expects its CRRs to generate revenues from the  
27 CAISO to offset congestion costs incurred within its portfolio. However, expected  
28 revenues were not forecast for the 2010 ERRA forecast because SDG&E assumed  
29 congestion-free clearing prices to develop forecasts for load requirement costs and  
30 generation revenues. A forecast of CRR revenues would have necessitated an offsetting

1 forecast of market congestion prices at various Pnodes over the 2010 period, which  
2 would have introduced complexity and additional uncertainty into the forecast.

3

4 This concludes my direct testimony.

1 **IV. QUALIFICATIONS**

2 My name is Tony Choi. My business address is 8315 Century Park Court, San  
3 Diego, California, 92123-1548. I am currently employed by SDG&E as Transaction  
4 Scheduling Manager. My responsibilities include overseeing a staff of schedulers  
5 involved in dispatching the SDG&E bundled load portfolio of supply assets for the  
6 benefit of retail electric customers. This includes operational administration of CDWR  
7 contracts, transacting in the real-time wholesale market and managing scheduling  
8 activities in compliance with CAISO requirements. I assumed my current position in  
9 March 2007.

10 I previously managed the Electric Power and Generation Fuel trading desks for  
11 SDG&E, primarily managing day-ahead and forward dispatch and procurement of energy  
12 in compliance with least-cost dispatch. Prior to joining SDG&E in 2002, my experience  
13 included two years as a power plant engineer, four years as an energy trader and three  
14 years as a wholesale energy transaction structurer.

15 I hold a Bachelors degree in Chemical Engineering and a Masters degree in  
16 Business Administration from the University of California. I have previously testified  
17 before the CPUC.



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

**DECLARATION  
OF TONY CHOI**

**A.09-10-003**

Application of SDG&E for Adoption of its 2010 Energy Resource Recovery Account  
(ERRA) Forecast Revenue Requirement and Review of its Power Procurement Balancing  
Account

I, Tony Choi , declare as follows:

1. I am the Market Operations Manager for San Diego Gas & Electric Company (“SDG&E”). I have included my Amended Prepared Direct Testimony (“Testimony”) in support of SDG&E’s October 1, 2009 Application for Adoption of its 2010 Energy Resources Recovery Account (ERRA) Forecast Revenue Requirement and Review of its Power Procurement Balancing Account. Additionally, as Market Operations Manager, I am thoroughly familiar with the facts and representations in this declaration and if called upon to testify I could and would testify to the following based upon personal knowledge.

2. I am providing this Declaration to demonstrate that the confidential information (“Protected Information”) in support of the referenced Application falls within the scope of data provided confidential treatment in the IOU Matrix attached to D.06-06-066 (the Phase I Confidentiality decision). Pursuant to the procedure set forth in the August 22, 2006 Ruling of AU Thomas I am addressing each of the following five features of Ordering Paragraph 2 in D,06-06-066:

- That the material constitutes a particular type of data listed in the Matrix,
- Which category or categories in the Matrix the data correspond to,
- That it is complying with the limitations on confidentiality specified in the Matrix for

that type of data,

- That the information is not already public, and
- That the data cannot be aggregated, redacted, summarized, masked or otherwise protected in a way that allows partial disclosure.

3. The confidential information contained in my Testimony constitutes material, market sensitive, electric procurement-related information that is within the scope of Section 454,5(g) of the Public Utilities Code.<sup>1</sup> As such, the Protected Information provided is allowed confidential treatment in accordance with Appendix I — IOU Matrix in D.06-06-066.

Testimony. Specifically:

- Page TC-3: redacted items on lines 1 through 2 are protected under V.C with front three years of forecast data confidential; redacted items on lines 12 through 13 are protected under Matrix category IV.A and are confidential for three years; redacted items on line 22 are protected under IV.E and is confidential for three years or until one year following expiration.
- Page TC-4: redacted items on lines 13 through 14 are protected under IV.B and are confidential for three years.
- Page TC-5: redacted items on lines 27 through 30 are protected under IV.A and are confidential for three years.
- Page TC-6: redacted items on lines 12 through 30 are protected under IV.F and are confidential for three years or until one year following expiration.
- Page TC-7: redacted items on lines 1 are protected under IV.F and are confidential for three years or until one year following expiration; redacted items on lines 16 through 21 are protected under IV.J and IV.K and front three years of forecast data are confidential; redacted items on lines 24 through 28 are protected under V.C and front three years of forecast data are confidential.
- Page TC-8: redacted items on lines 24 and 30 are protected under II.B.1 and are confidential for three years.

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<sup>1</sup> In addition to the details addressed herein, SDG&E believes that the information being furnished in my Testimony is governed by Public Utilities Code Section 583 and General Order O6~C. Accordingly, SDG&E seeks confidential treatment of such data under those provisions as applicable.

- Page TC-9: redacted items on lines 9 and 18 are protected under II.B.1 and are confidential for three years; redacted items on lines 25 and 30 are protected under II.B.4 and are confidential for three years.
- Page TC-10: redacted item on line 11 is protected under II.B.3 and are confidential for three years.
- Page TC-11: redacted items on lines 3 through 6 and line 26 are protected under II.B.4 and are confidential for three years.
- Page TC-12: redacted item on line 4 is protected under II.B.4 and is confidential for three years.

Attachments:

Attachment A, spreadsheet “SDG&E 2010 ERRRA Expenses” is confidential and generally protected under Item XI and is confidential for three years. Specifically, lines 2 through 4 are protected under IV.J and front three years of forecast data are confidential; line 5 is protected under IV.K and front three years of forecast data are confidential; line 6 is protected under II.B.4 and is confidential for three years; line 7 is protected under II.B.3 and is confidential for three years; line 8 is protected under II.B.1 and is confidential for three years.

Attachment B, spreadsheet “SDG&E 2010 URG Delivery Volumes” is confidential and generally protected under Item IV and is confidential for three years. Specifically, SONGS, Palomar and Miramar data are protected under IV.A and are confidential for three years; PGE Boardman data are protected under IV.E and are confidential for three years or until one year following expiration; QF data are protected under IV.B and are confidential for three years; Otay Mesa, Celerity, Kelco, Wellhead, Orange Grove and Other Long-Term Purchased Power data are protected under IV.F and are confidential for three years or until one year following expiration; Market Purchase data are protected under IV.J and front three years of forecast of aggregate purchases are confidential; Energy Sales data are protected under IV.K and front three years of forecast of aggregate purchases are confidential ; Load Requirement data are protected under

V.C and front three years of forecast data are confidential.

Attachment C, spreadsheet “SDG&E 2010 Long-Term Power Purchase, CTC and Qualifying Facility Detail” is confidential and generally protected under IV.B and IV.E and are confidential for three years. Specifically, PGE Boardman data are protected under IV.E and are confidential for three years or until one year following expiration; individual QF data are protected under IV.B and are confidential for three years; Long Term Power Purchase CTC data are protected under II.B.4 and are confidential for three years and are confidential for three years; CTC QF & Non CTC QF data are protected under II.B.3 and are confidential for three years; TCBA Expenses data are protected under II.B.3 and II.B.4 and are confidential for three years.

Attachment D, spreadsheet “SDG&E 2010 Renewable Resource Detail” has no redactions.

4. I am not aware of any instances where the Protected Information has been disclosed to the public.
5. I will comply with the limitations on confidentiality specified in the Matrix for the type of data that is provided herewith.
6. The Protected Information cannot be provided in a form that is aggregated, partially redacted, or summarized and continue to provide the level of support to the Application as intended; however, SDG&E is certainly willing to work with the Commission regarding possible aggregations if the Commission seeks to make any of the confidential information provided in the Testimony public.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this 16th day of December, 2009, in San Diego, California.



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Tony Choi  
Market Operations Manager  
San Diego Gas & Electric Company

# Attachment A



# Attachment B



PUBLIC VERSION

ATTACHMENT B - SDG&E 2010 URG DELIVERY VOLUMES

URG Deliveries (GWh)	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	2010
SONGS 2													
SONGS 3													
<b>TOTAL SONGS</b>													
PGE (Boardman)													
CTC QF													
Non-CTC QF													
<b>TOTAL QF</b>													
Renewable - Bio Gas	16	15	17	16	17	16	19	19	18	17	16	17	201
Renewable - Bio Mass	37	34	37	36	38	36	41	57	56	52	50	51	525
Renewable - Other	19	17	19	19	19	18	21	21	21	19	19	19	231
Renewable - Wind	27	30	43	109	115	109	38	33	34	121	111	112	883
<b>TOTAL NON-QF RENEWABLE</b>	100	95	115	180	188	180	119	130	129	209	196	199	1,841
Miramar													
Miramar 2													
Palomar													
Otay Mesa Energy Center													
Other Long-Term Purchased Power													
Celerity													
Kelco													
Wellhead													
Orange Grove													
<b>TOTAL GENERATION</b>													
On-Peak Market Purchase													
Off-Peak Market Purchase													
<b>TOTAL Market Purchase</b>													
<b>TOTAL URG DELIVERIES</b>													
Surplus Energy Sold													
<b>LOAD REQUIREMENT (GWh)</b>													

Note: Load Requirement is SDG&E bundled load including load served by CDWR contract energy and transmission losses.

# Attachment C



# Attachment D

ATTACHMENT D - SDG&E 2010 RENEWABLE RESOURCE DETAIL

URG Deliveries (GWh)	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	2010
<b>BIO GAS</b>													
GRS Sycamore Landfill Plant	1.6	1.4	1.6	1.5	1.5	1.6	1.7	1.7	1.6	1.6	1.6	1.5	18.7
MM Prima Deshecha Energy LLC	3.9	3.5	3.9	3.7	3.9	3.7	4.4	4.4	4.3	3.9	3.8	3.8	47.2
MM San Diego LLC - Miramar Landfill	2.2	2.0	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.2	25.9
MM San Diego LLC - North City Bio Plant	0.6	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.6	7.3
Covanta Olay 1	1.0	0.9	0.9	1.0	0.9	1.0	1.1	1.2	1.2	1.0	1.0	1.0	12.2
Covanta Olay 3	2.0	1.8	2.0	2.0	2.0	2.0	2.1	2.2	2.0	2.1	1.9	2.1	24.0
San Diego MWD	1.7	1.5	1.7	1.6	1.7	1.7	2.3	2.6	2.2	1.9	1.5	1.8	22.3
GRS Coyote Canyon	3.6	3.3	3.7	3.4	3.7	3.4	4.1	4.0	4.0	3.6	3.5	3.6	43.7
Subtotal	16.5	14.9	16.6	15.8	16.6	15.9	18.6	19.1	18.2	16.9	15.9	16.6	201.3
<b>BIO MASS</b>													
Covanta Delano	29.7	26.9	29.3	29.2	30.0	29.2	33.0	34.0	33.8	29.9	29.2	29.3	363.4
Blue Lake	7.5	6.7	7.5	7.1	7.5	7.2	8.1	8.2	7.9	7.5	7.1	7.6	89.9
Bull Moose	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.9	14.4	14.2	13.8	14.1	71.4
Subtotal	37.2	33.6	36.8	36.3	37.5	36.4	41.1	57.1	56.1	51.7	50.1	51.0	524.7
<b>OTHER</b>													
New Geothermal Contract	17.7	16.0	17.6	17.4	17.6	17.1	18.5	18.6	18.0	17.8	17.0	17.9	211.2
Rancho Penasquitos	1.4	1.3	1.3	1.6	1.3	1.4	2.6	2.4	3.0	1.3	1.5	1.2	20.2
Subtotal	19.1	17.3	18.9	19.0	18.9	18.5	21.2	21.0	21.0	19.1	18.5	19.1	231.4
<b>WIND</b>													
Glacier Wind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kumeyaay	14.2	14.5	14.7	15.2	10.4	9.2	6.0	6.2	9.9	14.4	12.1	10.6	137.3
Oasis Power Partners	9.0	9.9	17.3	20.4	25.4	24.7	21.6	16.1	13.7	14.5	11.8	11.9	196.3
PacifiCorp	0.0	0.0	0.0	60.8	65.6	60.8	0.0	0.0	0.0	83.2	83.2	86.4	440.0
PPM Energy	3.3	4.1	8.4	10.0	11.1	11.5	8.3	8.1	8.1	7.1	3.5	2.4	85.8
WTE Monectio	0.9	1.1	2.7	2.5	3.0	3.2	2.5	2.4	2.1	1.9	0.8	0.6	23.7
Subtotal	27.4	29.6	43.1	108.8	115.5	109.3	38.4	32.8	33.8	121.1	111.4	112.0	883.1
<b>Total Power Purchase Costs (K\$)</b>													
BIO GAS	\$ 1,029.3	\$ 929.3	\$ 1,029.5	\$ 996.1	\$ 1,023.5	\$ 999.3	\$ 1,179.3	\$ 1,219.7	\$ 1,152.4	\$ 1,059.8	\$ 993.6	\$ 1,049.1	\$ 12,660.9
BIO MASS	\$ 3,721.7	\$ 3,360.3	\$ 3,697.8	\$ 3,615.6	\$ 3,744.4	\$ 3,629.1	\$ 3,998.1	\$ 5,229.6	\$ 5,122.1	\$ 4,839.8	\$ 4,683.9	\$ 4,794.6	\$ 50,437.1
OTHER	\$ 2,119.5	\$ 1,913.3	\$ 2,095.7	\$ 2,095.2	\$ 2,044.1	\$ 2,044.1	\$ 2,296.8	\$ 2,291.3	\$ 2,265.6	\$ 2,118.5	\$ 2,047.1	\$ 2,120.4	\$ 25,503.1
WIND	\$ 2,756.3	\$ 2,705.9	\$ 3,377.3	\$ 7,934.8	\$ 8,318.1	\$ 7,962.4	\$ 2,703.5	\$ 2,324.6	\$ 2,550.8	\$ 10,427.4	\$ 10,759.7	\$ 12,058.0	\$ 73,878.8
Subtotal	\$ 9,626.7	\$ 8,908.8	\$ 10,200.3	\$ 14,641.7	\$ 15,181.8	\$ 14,635.0	\$ 10,177.6	\$ 11,065.1	\$ 11,091.0	\$ 18,445.5	\$ 18,484.2	\$ 20,022.1	\$ 162,479.9