Application No.: 21-04-
Exhibit No.:
Witness: Stefan Covic

PREPARED DIRECT TESTIMONY OF

STEFAN COVIC

ON BEHALF OF

SAN DIEGO GAS & ELECTRIC COMPANY

PUBLIC VERSION

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

April 15, 2021

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PREPARED DIRECT TESTIMONY OF STEFAN COVIC ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

I. INTRODUCTION

My testimony describes the resources San Diego Gas & Electric Company ("SDG&E") expects to use in calendar year 2022 to provide electric commodity service to its bundled service customers; provides a forecast of the procurement costs that SDG&E expects to record in 2022 to the Energy Resources Recovery Account ("ERRA"), Transition Cost Balancing Account ("TCBA"), Portfolio Allocation Balancing Account ("PABA"), and Local Generation Balancing Account ("LGBA"); provides a 2022 forecast of SDG&E's San Onofre Generating Station ("SONGS") Unit 1 Offsite Spent Fuel Storage Costs; provides a forecast of 2022 total greenhouse gas ("GHG") costs; and provides a 2022 forecast of Tree Mortality Non-Bypassable Charge ("TMNBC") costs. SDG&E witness Ms. Salcido uses my forecast of ERRA, Competition Transition Charge ("CTC") and Local Generation ("LG") in developing 2022 revenue requirements for each element. In addition, my testimony provides information that supports SDG&E witness Ms. Fuhrer's development of the GHG allowance revenue return allocation and the volumetric revenue return for non-residential and residential customers, as well as rates for the Green Tariff Shared Renewables ("GTSR") program and the Power Charge Indifference Adjustment ("PCIA"). SDG&E witness Ms. Miller uses the forecasted costs and volumes provided in my testimony to calculate PCIA costs, in order to discuss PCIA treatment and related issues.

A. Summary of Testimony

In Section II of my testimony, I provide a forecast of the energy requirements that will be required to serve SDG&E's bundled customer load for 2022, as well as forecasts of the supply resources that SDG&E expects to utilize to meet that load in calendar year 2022. The supply

resources for which I provide forecasts include (1) conventional generation resources that are under contract for 2022; (2) generation resources owned by SDG&E; (3) renewable generation resources that are under contract for 2022; and (4) Qualifying Facilities ("QFs") under the Public Utility Regulatory Policies Act ("PURPA") that are under contract for 2022.

In Section III of my testimony, I quantify the costs associated with the resources described in Section II, along with other electric procurement costs that are recorded in ERRA, such as market purchases, California Independent System Operator ("CAISO") charges and portfolio hedging costs. These costs are summarized in Attachment A.

In Section IV of my testimony, I provide a forecast of the 2022 SONGS Unit 1 Offsite Spent Fuel Storage Costs associated with SDG&E's 20% minority ownership interest in SONGS.

In Section V of my testimony, I provide a forecast of the 2022 GHG emissions and associated costs, both direct and indirect, incurred in connection with SDG&E's compliance with California's cap-and-trade program. I also provide a forecast of GHG allowance auction revenues.

In Section VI of my testimony, I provide a forecast of the 2022 TMNBC costs.

In Section VII, I provide a summary of SDG&E's meet-and-confer activities and information exchange with Community Choice Aggregators in SDG&E's service territory.

Lastly in Section VIII, I provide a statement of qualifications.

Finally, my testimony refers to the following attachments:

Attachment A: SDG&E 2022 ERRA and LG Expenses (CONFIDENTIAL)

Attachment B: SDG&E 2022 Generation Portfolio Delivery Volumes (CONFIDENTIAL)

Attachment C: SDG&E 2022 Renewable Resource Detail

Attachment D: SDG&E 2022 CTC & QF Detail (CONFIDENTIAL)

Attachment E: SDG&E GHG Detail (CONFIDENTIAL)

II. 2022 FORECAST OF ENERGY REQUIREMENTS AND SUPPLY RESOURCES

A. Energy Requirements Forecast

As a starting point for my analysis, SDG&E developed 2022 hourly load requirements, which are based on the California Energy Commissions's ("CEC") 2020 California Energy Demand ("CED") forecast for SDG&E. This forecast includes the load departure of Community Choice Aggregators ("CCA") Clean Energy Alliance ("CEA") and San Diego Community Power ("SDCP"). Using this forecast and adjusting for direct access load, I project that the energy requirements for SDG&E's bundled load (ASR) for 2022 will be [redacted]. The 2022 forecast is [redacted] or [redacted] less than SDG&E's forecasted bundled energy (ASR) for 2021 ([redacted]).

B. Supply Resource Forecast

After determining the amount of energy that SDG&E's bundled load customers will require in 2022, I then proceeded to develop a forecast of the supply resources that will be needed to meet that demand. To quantify the generation associated with the supply resources, I used the Plexos production cost model. Inputs to this model include the characteristics of the various generation resources, including heat rate, variable Operating and Maintenance ("O&M") costs, other factors that impact the plant's dispatch, and natural gas and electric market prices. The natural gas and electric market price forecasts were derived using a recent (March 1, 2021) assessment of 2022 market prices. I then ran the model which simulates a least-cost dispatch of the portfolio of SDG&E's resources for every hour of 2022. The supply resources fall into the following five categories.

1. SDG&E-Contracted Conventional Generation

- SDG&E has multiple conventional generation resources under contract in its 2022 resource portfolio. These resources are available under a variety of contractual arrangements, including tolling contracts, fixed energy contracts, and contracts for Resource Adequacy only. The largest of the tolling and fixed energy contracts are: the Carlsbad Energy Center Power Purchase Agreement ("PPA") for the output of a 528 MW simple cycle combustion turbine unit;
- the Pio Pico Energy Center PPA for the output of a 336 MW simple cycle combustion turbine unit;
- the Orange Grove PPA for the output of two 48 MW simple cycle combustion turbine units;
- the El Cajon Energy Center PPA for the output of a 48 MW simple cycle combustion turbine unit;
- the Escondido Energy Center PPA for the output of a 48 MW simple cycle combustion turbine unit; and the Morgan Stanley PPA, which provides firm energy deliveries at the Nevada-Oregon Border ("NOB"). The forecasted generation for these contracts is detailed in Attachment B and is summarized in Table 1 below:

Table 1: Generation (GWh)			
	2022	2021	Difference
Carlsbad Energy Center	[redacted]		
Pio Pico Energy Center			
Orange Grove			
El Cajon Energy Center			
Escondido Energy Center			
Morgan Stanley NOB			
Total			

SDG&E also enters contracts each year to meet its California Public Utilities Commission ("CPUC") Resource Adequacy (RA) requirements.[1] Under its RA contracts, SDG&E is entitled to show this capacity as meeting its RA obligation, but SDG&E does not have rights to the energy or ancillary services from these units. For 2022, SDG&E has been granted approval for contracts providing [redacted] of RA capacity and additional RA contracts in the amount of 90 MW. R.20-05-003 is scheduled to resolve and establish the cost recovery mechanism for these resources . Some of these contracts were executed prior to the official announcement of CCA load departure and were procured to meet load levels assuming no CCA load departure. SDG&E currently has one RA sales contract of 225 MW, and may include additional RA sales transactions in its November ERRA update to maintain SDG&E's RA compliance position considering CCA load departure. In accordance with commission rulings on portfolio optimization, SDG&E may need to adjust these RA sales in its November ERRA update. [2]

[1] California Public Utilities Code Section 380 established the Resource Adequacy program to provide enough resources to the CAISO to ensure the safe and reliable operation of the grid in real time and to provide appropriate incentives for the siting and construction of new resources needed for reliability in the future.

[2] On April 5th, 2021, the commission issued a proposed decision declining to adopt the PCIA working group 3 proposal for resource adequacy (RA).

2. SDG&E-Owned Dispatchable Generation

SDG&E owns several generation facilities, which it uses to meet its bundled customer load, including the following:

- the Palomar Energy Center ("Palomar"), a 575 MW[3] combined cycle power plant;
- the Desert Star Energy Center ("Desert Star"), a 495 MW combined cycle power plant;
- the Miramar Energy Facility ("Miramar I and II"), consisting of two 48 MW simple cycle combustion turbine units;
- the Battery Storage facilities, consisting of Escondido at 30 MW, El Cajon at 7.5 MW, and Top Gun at 30 MW; and
- the Cuyamaca Peak Energy Plant, consisting of a 45 MW simple cycle combustion turbine.

These units are dispatched by the CAISO for generation and ancillary services ("A/S") awards based on economic merit.[4] The forecasted generation for these plants is detailed in Attachment B and is summarized in Table 2 below:

[3] SDG&E expects to perform an upgrade by spring 2021 that will increase the plant's capacity by approximately 20 MW (actual increase to be determined based on performance testing after the upgrade is complete).

[4] SDG&E's dispatch model considered only generation dispatched for energy and not for A/S because the CAISO co-optimizes market awards between energy and A/S based on the opportunity cost of capacity. Thus, the economic benefit (and ERRA contribution) of using energy for generation is equivalent to using capacity for A/S.

	Table 2: Generation (GWh)		
	2022	2021	Difference
Palomar	[redacted]		
Desert Star			
Miramar			
Battery Storage			
Cuyamaca			
Total			

3. Renewable Energy Contracts

The 2022 forecast of renewable energy supply from CPUC-approved contracts is 6,461 GWh, which includes 1,236 GWh of Renewable Energy Credit ("REC") quantities[5] that are delivered to SDG&E in conjunction with existing non-renewable imports. This forecast represents a decrease of 163 GWh from the 2021 forecast (6,624 GWh). The forecasted generation associated with SDG&E's monthly renewable contracts is set forth in Attachment C.

For 2022, SDG&E forecasts it will receive 3,114 GWh of bundled renewable energy under 42 contracts with facilities that generate electricity using wind, solar, biogas, and non-pumped hydro technologies. This number considers forecasted RPS sales for 2022 in the amount of 3,526 GWh. Forecasted sales represent a reduction of renewable energy credits to maintain an equivalent RPS compliance position considering CCA load departure in 2022.[6] These sales volumes are estimates only and do not represent specific current or future agreements with counterparties. Any sales agreements subsequently entered into by SDG&E will be included in the November Update filing. The forecasted generation for projects that are currently on-line and operating is derived from generation profiles based on historical data. The forecasted generation

[5] Renewable Energy Credits represent the green attribute of renewable generation and, while they can be purchased independent of physical delivery of generation from the source, they must accompany a delivery of "tagged" physical power to be imported into California.

[6] Based on R.17-06-026 the amount of RPS sales is subject to change.

for those projects that have recently come online and that are expected to continue operations in 2022[7] is based on historical data of resources that utilize similar renewable technologies.

In addition, SDG&E expects to receive 1,236 GWh of firmed-and-shaped power from three out-of-state wind projects, Rim Rock and Naturener Glacier 1 and 2 (Montana).[8] The RECs are delivered to California independently of the physical delivery of generation by the source wind projects. This is done by tagging equivalent quantities of the physical deliveries of other energy imports that SDG&E has already accounted for in its 2022 forecast. The forecasted energy mix from these renewable resources is shown in Table 3 below:

	Table 3: Generation (GWh)		
	2022	2021	Difference
Solar	3,378	3,318	57
Wind	1,847	1,847	(23)
Wind RECs	1,236	1,236	(0)
Biogas	175	175	(71)
Other	4	4	(0)
RPS Sales	(3,526)	(2,396)	(1,655)
Total	3,114	4,184	(1,692)

4. Competitive Transition Charge (CTC) Contracts

In 2022, SDG&E will have approximately 110 MW of capacity under contract with twoQFs.[9] The two largest CTC contracts account for 106.5 MW or 98% of total capacity. All these CTC contracts are in SDG&E's service area except for the Yuma Cogeneration Associates

[7] SDG&E did not include renewable energy quantities or costs associated with the Sustainable Communities Photovoltaic program because costs for this program are not charged to ERRA.

[8] The firmed-and-shaped wind power from these contracts is delivered to California through the Morgan Stanley power contract described above.

[9] 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 analysis. The twoQFs referenced above deliver net energy to SDG&E and are thus included in SDG&E's model.

("YCA") plant, a 56.5 MW natural gas-fired plant located in Arizona, the output of which is imported into CAISO.

SDG&E's CTC contracts include a combination of must-take and dispatchable resources. For must-take resources, SDG&E is obligated to pay the contract price for all delivered QF generation and schedule it into the CAISO market; SDG&E has no such obligation with dispatchable resources. SDG&E has amendments with Goal Line and YCA, which provide SDG&E with more economic dispatch rights. SDG&E forecasted the plants' dispatch in accordance with these terms. The forecast of CTC energy supply in 2022 is [redacted]. The forecasted generation for these plants is detailed in Attachment D.

III. 2022 FORECAST OF ERRA EXPENSES

To quantify the costs associated with the supply resources described in Section II, the production cost model also tracks the costs of the economic dispatch. Electric procurement expenses incurred by SDG&E to serve its bundled load are also recorded to the ERRA. These expenses include, among other items, costs and revenues for energy and capacity cleared through the CAISO market, power purchase contract costs, generation fuel costs, market energy purchase costs, CAISO charges, brokerage fees, and hedging costs.

I expect that SDG&E will incur $828 million of ERRA costs in 2022,[10] as reflected in Attachment A. This forecast is $156 million less than the $984 million forecasted for 2021.

The above-market costs of all generation resources that are eligible for cost recovery through PCIA rates will be recorded in PABA going forward. SDG&E's 2022 PABA cost

[10] This amount does not include Franchise Fees and Uncollectible ("FF&U"), nor do any of the other figures in my testimony.

forecast is $337.6 million.[11] This compares with a forecast of $328.5 million for 2021 filed in the 2021 ERRA forecast proceeding.

In the remainder of this Section, I will discuss in greater detail the cost forecasts for specific ERRA items.

A. ISO Load Charges

The CAISO supplies and sells to SDG&E the energy and A/S necessary to meet SDG&E's bundled load requirement. Based on forecasted prices for energy and A/S, SDG&E's production cost model forecasts [redacted] of ISO load charges for 2022. This cost includes the indirect GHG costs embedded in the market price of energy. I present GHG quantities and costs in Section V.

B. ISO Supply Revenues

In the CAISO market, all generation from SDG&E's resource portfolio is sold to the CAISO. Based on the market price benchmark for energy, SDG&E forecasts revenues totaling [redacted] for generation sold in 2022.

C. Contracted Energy Purchases

1. Purchased Power Contracts

SDG&E's forecast of total costs for conventional power purchase contracts in 2022 is [redacted]. These costs cover capacity payments and variable generation costs for Orange Grove, Wellhead, El Cajon and other facilities with which SDG&E has smaller contracts. The largest components in this category are Resource Adequacy capacity costs, expected to cost [redacted], and the Morgan Stanley contract, expected to cost [redacted]. This category

[11] In D.07-01-025, the Commission adopted the PCIA methodology for CCA customers. AL 3318-E, effective January1, 2019, established the PABA to record the "above-market" costs and revenues associated with all PCIA eligible resources by vintage subaccounts.

also includes [redacted] of RA sale transactions to maintain SDG&E's RA compliance position considering CCA load departure in 2022.

2. Renewable Energy Contracts

SDG&E's renewable energy contracts usually contain only an energy payment and no capacity payment. In 2022, SDG&E's renewable energy portfolio will include a cost for all the renewable power delivered based on contract prices and the renewable energy credits (RECs) described in Section II under "Renewable Energy Contracts." All costs associated with these contracts are forecasted to be $588 million for 2022 and are booked to ERRA with above market costs booked to PABA. This includes $51 million of REC sales to maintain an equivalent RPS compliance position considering CCA load departure in 2022. Attachment C details the renewable projects by technology type, their costs, and forecasted energy deliveries.

Customers who opt into the Green Tariff Shared Renewables ("GTSR") program, which consists of both a Green Tariff ("GT") component and an Enhanced Community Renewables ("ECR") component, pay a subset of the renewable costs.[12] The estimated GT customer usage in 2022 is 10.2 GWh[13]. The Interim Pool Sales for 2022 are forecast to be zero because forecasted customer usage is lower than the forecasted generation from Midway and Wister solar projects. The estimated GT charges include the cost of local solar[14] of $[redacted]/MWh, Grid Management

[12] Decision 15-01-051 authorizing the GTSR program was approved on January 29, 2015. The GT and ECR components are two separate rate offerings under the GTSR Program accessing different pools of solar resources and with different terms.

[13] GT and ECR usage forecasts were developed using average consumption estimates for each customer class in conjunction with program enrollment targets.

[14] To meet immediate GT customer demand, SDG&E will draw on existing Renewables Portfolio Standard ("RPS") resources that are eligible to serve the GT component of the GTSR Program. The Interim GT Pool is a short-term approach and cost is based on the weighted average cost of contracts for included resources. Simultaneously, SDG&E will engage in procurement for projects built specifically to serve the GT component (GT Dedicated Procurement Projects). When GT Dedicated

Charges ("GMC") of $0.00063/kWh and Western Renewable Energy Generation Information System ("WREGIS") costs of $0.00001/kWh. The estimated total energy procurement cost of GT in 2022 is $475,557. The estimated ECR customer usage in 2022 is 0.00 GWh. The estimated total cost of ECR in 2022 is $0. Additionally, the solar value adjustment was calculated as $[redacted] Wh.

3. Competitive Transition Charge (CTC) Contracts

SDG&E's CTC contracts consist of dispatchable capacity or firm capacity PURPA contracts. These contracts include provisions for both energy and capacity payments. The energy payments for QFs that are under firm capacity PURPA contracts are forecasted using SDG&E's Short-Run Avoided Cost ("SRAC") formula.[15] For the dispatchable contracts, SDG&E pays fuel, variable O&M and capacity payments. These contracts, whether PURPA or dispatchable, are considered CTC contracts,[16] and the ERRA expenses are based on delivered energy multiplied by the market price benchmark ("MPB"). Any costs, including capacity payments, greater than the market price benchmark are booked to the TCBA. For the purposes of ERRA accounting, ERRA expenses for CTC contracts are recorded on Line 5 of Attachment A, "Contract Costs (CTC up to market)," and are forecasted to be [redacted] in 2022. Attachment D details the breakdown of all the units discussed in this section and shows the associated costs, both ERRA and TCBA, and the forecasted energy deliveries. These costs

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Procurement Projects are brought online, the Interim GT Pool will be phased out as allowed by program participation.

[15] The derivation of the SRAC price for QF contracts is posted monthly on an SDG&E website: http://www2.sdge.com/SRAC/.

[16] The CP Kelco contract, however, is not considered a CTC contract. Thus, unlike other CTC contracts, 100% of CP Kelco contract costs are included in ERRA.

include the indirect GHG cost embedded in the market price that flows through the SDG&E SRAC formula. I present GHG quantities and costs in Section IV of my testimony.

D. Generation Fuel

1. Palomar, Desert Star, Miramar and Cuyamaca (Fuel Expenses that are Recovered through ERRA)

In 2022, the ERRA expense for generation fuel purchased by SDG&E for Palomar, Miramar I & II, Desert Star and Cuyamaca is forecasted to be [redacted].[17] These forecasted expenses include in lieu of gas fees for Palomar, which are also recovered in ERRA. These costs are calculated based on SDG&E's forecasted fuel usage for this plant and the applicable tariffs, Schedule GP-SUR[18] and Schedule EG.[19]

E. Local Generation

As previously noted, SDG&E has entered into contracts for generation resources which specifically provide local Resource Adequacy for the SDG&E system. Because these contract costs are allocated to both bundled and unbundled customers, the costs are accounted for in a separate Local Generating Balancing Account. The Escondido Energy Center, Kelco, Grossmont, Pio Pico, Carlsbad Energy Center, El Cajon Energy Storage, Fallbrook Energy Storage, Top Gun Energy Storage, Sentinel Energy Center and Escondido Energy Storage contracts are included in this balancing account and are expected to cost [redacted], net of supply ISO revenue. Attachment A, attached hereto, details the breakdown of local generation expenses.

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[17] Capital and non-fuel operating costs for these plants are recovered in the Non-Fuel Generation Balancing Account ("NGBA") as required by D.05-08-005, Resolution E-3896 and D.07-11-046.

[18] Customer-procured Gas Franchise Fee Surcharge.

[19] Natural Gas Intrastate Transportation Service for Electric Generation Customers.

F. Integrated Resource Planning and Electric Reliability Procurement Tracks

The Integrated Resource Plan (IRP) proceeding, R.16-02-007, issued Decision (D.)19-11-016, requiring 3,300 MW of procurement by all LSEs within the CAISO for purposes of long-term statewide planning. The Commission determined, for the 2017-2018 IRP cycle, that SDG&E is responsible for 292.9 MW of incremental procurement beyond the State's existing portfolio of resources. SDG&E may also be responsible for incremental procurement of LSEs in its service territory that fail to procure, whether by choice or by consequence, their allocation of the total procurement need identified. The Commission ordered cost recovery for this "backstop" procurement through a modified Cost Allocation Mechanism ("CAM") mechanism. As I mentioned earlier in my testimony, the cost allocation issues are expected to be resolved in the Spring of 2021, when a proposed decision for R.20-05-003 may be issued. The decision requires at least 50% of the resources to come online by August 1, 2021, 75% by August 1, 2022, and 100% by August 1, 2023. Contracts for resources to come online in 2021 and 2022 are pending approval of Draft Resolution E-5139. This item is expected on the April 15th CPUC agenda. Additionally, a contract was approved in the Electric Reliability proceeding on 3/18/21 by AL 3689-E which is also awaiting the cost allocation decision. Since the cost allocation mechanism has not been determined, the actual contract expenses have not been included in this ERRA forecast. In D.19-11-016, the Commission indicated that the costs of procurement undertaken by the IOUs on behalf of other LSEs would be allocated through a modified CAM. This "on-behalf-of" procurement is additive to the IOU procurement for its own share of the identified need. Until the Commission adopts the cost recovery for procurement undertaken as a result of the Decision, including an implementation timeline, SDG&E requested the Commission in its Tier Advice Letter AL 3707-E to authorize SDG&E to establish a new memorandum account, the Resource Adequacy Procurement Memorandum Account ("RAPMA"), to track and

record costs related to the procurement of incremental RA capacity required by D.19-11-016 and related administrative costs.

G. CAISO Related Costs

SDG&E forecasts the miscellaneous CAISO costs to be [redacted] in 2022. SDG&E also forecasts the cost of the Federal Energy Regulatory Commission ("FERC") Fees and Western Renewable Energy Generation Information System to be [redacted] in 2022.

H. Hedging Costs & Financial Transactions

SDG&E's resource portfolio has substantial exposure to gas price volatility because of fuel requirements for its gas-fired resources, as well as the gas price-based pricing formula for its QF contracts. To manage this exposure, SDG&E engages in hedging activity, consistent with its CPUC-approved procurement plan,[20] and it will book the resulting hedging costs and any realized gains and losses from hedge transactions to ERRA consistent with its CPUC-approved hedge plan. The estimate of hedging costs for 2022 is [redacted], calculated as the marked-to-market profit/loss of hedges already in place, plus expected broker fees. The profit/loss of these and future hedges placed will rise and fall with market prices. Therefore, the final cost or savings will not be known until the settlement process has been completed for the hedging transactions.

SDG&E may also trade short-term financial power products to hedge its long or short position against potentially volatile CAISO market clearing prices. SDG&E does not include a forecast of net cost or benefit from these power hedges due to the unpredictability of market prices relative to the price of the hedges.

[20] SDG&E's 2014 Long -Term Procurement Plan, Appendix B: Electric and Gas Hedging Strategy.

I. Convergence Bids

SDG&E uses convergence bids[21] to hedge certain operational risks in the day-to-day management of its portfolio. It is not possible to forecast the gains or losses associated with potential convergence bidding activity because of the unpredictable relationship between day-ahead and real-time prices. Therefore, SDG&E did not forecast an ERRA revenue/charge for convergence bids.

J. Congestion Revenue Rights (CRRs)

Market participants, including SDG&E, were allocated CRRs by the CAISO for which they can nominate source and sink P-nodes[22] to match those in their portfolio. If congestion arises between the source and sink P-nodes, the CAISO will pay the market participant holding the CRR the congestion charges to offset the congestion costs incurred. SDG&E expects its CRRs to generate revenues from the CAISO to offset congestion costs incurred within its portfolio. However, expected revenues were not forecast for the 2022 ERRA forecast because SDG&E assumed congestion-free clearing prices to develop forecasts for load requirement costs and generation revenues. A forecast of CRR revenues would have required SDG&E to forecast offsetting market-congestion prices at various P-nodes over the 2022 period. Since there are no

[21] A convergence bid (also known as a virtual bid) is not backed by any physical generation or load and is thus completely financial. Convergence bidding allows market participants to arbitrage expected price differences between the Day-Ahead and Real-Time markets. Using convergence bids, market participants can sell (buy) energy in the Day-Ahead market, with the explicit requirement to buy (sell) that energy back in the Real-Time market, without intending to physically consume or produce energy in Real-Time. Convergence bids that clear the Day-Ahead market will either earn (or lose) the difference between the Day-Ahead and Real-Time market prices at a specified node multiplied by the megawatt volume of their bids.

[22] The source and the sink are the two ends of a path for which congestion may occur. The CRR represents the difference in the Marginal Cost of Congestion component of the Locational Marginal Prices for the Nodal Prices of the source and sink.

forward market prices for congestion, we do not have a strong basis to perform this forecast without introducing complexity and additional uncertainty into the forecast.

Market participants, including SDG&E, are offered the ability to purchase CRRs through an auction process. SDG&E may elect to participate in the annual and monthly auction processes to procure the incremental CRRs. Since the incremental CRRs volumes cannot be forecasted, the incremental CRR costs and revenues also cannot be forecasted.

K. Inter-Scheduling Coordinator Trades (IST)

In the CAISO market, SDG&E may transact ISTs[23] bilaterally with counterparties to hedge long or short positions. Under an IST purchase, SDG&E pays the counterparty the contracted energy price and in return receives payment from the CAISO based on the market clearing price. Under an IST sale, SDG&E receives payment from the counterparty based on the contracted energy price and in return pays the market clearing price to the CAISO. For IST purchases and sales, the payment to, or revenue from, the counterparty is largely offset by the respective credit from, or payment to, the CAISO. Because ISTs are used as a hedge against unknown market prices, SDG&E does not include a forecast of the net cost or benefit from these transactions.

IV. SONGS UNIT 1 OFFSITE SPENT FUEL STORAGE COSTS

A. Background

SONGS Unit 1 ceased operation on November 30, 1992. Defueling was completed on March 6, 1993. On July 18, 2005, SDG&E submitted AL 1709-E, which removed SONGS Unit 1 shutdown O&M expense from the revenue requirement pursuant to D.04-07-022. Southern

[23] ISTs are financial bilateral transactions which allow SDG&E to hedge long or short price positions in the market.

California Edison Company ("SCE"), the majority owner of SONGS, has decommissioned the Unit 1 facility, and as of 2010, most of the Unit 1 structures and equipment have been removed and disposed of, except for areas shared by Units 2 and 3 for which physical decommissioning and dismantlement has only recently begun.

Spent fuel assemblies from SONGS Unit 1 have been stored since 1972 at the General Electric-Hitachi spent fuel storage facility located in Morris, Illinois. There are 270 spent fuel assemblies from SONGS Unit 1 currently in storage at that facility. Because there are no other facilities currently available in the U.S. for the commercial storage of spent nuclear fuel, those 270 assemblies are expected to remain at the Morris facility until they are accepted for ultimate disposal by the U.S. Department of Energy. Pursuant to the terms of the storage contract with General Electric-Hitachi, payments are made monthly by SCE, which in turn bills SDG&E for its 20% ownership share.

B. 2022 Forecast

SDG&E estimates its 2022 SONGS Unit 1 offsite spent fuel storage expense to be $1.09 million, including adjustments for escalation, in accordance with the GE-Hitachi spent fuel storage contract.[24] The storage contract utilizes the Bureau of Labor Standards' labor non-financial corporations and industrial commodities indices to forecast escalation rates, which are included in SCE's billing statement to SDG&E. This estimate is based on a spent fuel storage cost forecast prepared by SCE's Nuclear Fuel Manager utilizing the contract escalation terms.

V. 2022 FORECAST OF GHG COSTS

In this section, I describe the cost forecast for GHG compliance obligations under the California Air Resources Board ("ARB") cap-and-trade program. The cap-and-trade program

[24] SDG&E may recover these costs through ERRA per D.15-12-032.

provides that compliance obligations in the electricity sector are applicable to "first deliverers of electricity."[25] Generally, first deliverers of electricity in 2022 are electricity generators inside California that emit more than 25,000 metric tons ("MT") of GHG, and importers of electricity from outside of California. SDG&E is the first deliverer for its utility-owned generation, for generation it purchases under third-party tolling agreements in California, and for its imports of electricity into California. The cost of allowances and offsets is a direct GHG cost. In Section V.A below, I address direct GHG compliance costs associated with SDG&E utility-owned generation plants, procurement of electricity from third parties under tolling agreements, and electricity imports attributed to SDG&E.

SDG&E customers also face a second type of GHG compliance cost – indirect costs. Indirect costs are costs embedded in market electricity prices, or costs that SDG&E incurs from third parties under contracts. The party selling the power is responsible for the GHG allowance acquisition, but it implicitly charges SDG&E for the cost of acquiring allowances. In Section V.B below, I address indirect GHG costs. In Section V.C, I describe the calculation of both direct and indirect 2022 GHG costs. Finally, in Section V.D, I discuss the 2022 allowance auction revenues and the allocations of those revenues.

A. Direct GHG Emissions

Each first deliverer of electricity within California must surrender to ARB one allowance or offset for each MT of carbon dioxide emissions or its equivalent (CO_2e). Under ARB's first deliverer approach, SDG&E will have a direct compliance obligation for GHG emissions from burning natural gas at facilities in its portfolio, including carbon dioxide, methane, and nitrous

[25] ARB, Article 5: California Cap on Greenhouse Gas Emissions and Market-based Compliance Mechanisms, at 60, Section 95811(b), *available* at https://www.arb.ca.gov/cc/capandtrade/c-t-reg-reader-2013.pdf.

oxide. I forecasted SDG&E's expected direct GHG compliance costs using the same production simulation model results that produced the ERRA expenses discussed above. The amount of fuel needed for each natural gas fired plant is provided as an output based on the expected operation of the plant, including fuel associated with starts. The fuel volume is then multiplied by an emissions factor of 0.05307 MT of CO_2e per MMBtu to calculate direct emissions obligations for each plant.[26] The forecast of GHG emissions from SDG&E facilities in 2022 is included in Table 4 below.

Similarly, the estimated emissions for tolling agreements are estimated by multiplying the forecast of MMBtu of natural gas burned from the production simulation by the emission factor of 0.05307 MT of CO_2e per MMBtu. Table 4 below provides the forecast of GHG emissions from generators that are under tolling agreements with SDG&E in 2022.

In addition, SDG&E imports out-of-state electricity to a delivery point inside California, and it is thus responsible for the GHG emissions attributed to generation of that electricity. There are three categories of GHG emissions associated with imports.

First, there are imports from "specified sources" (*i.e.*, imports where the source of the power is known), which consist of either a specific plant or an asset-controlling supplier.[27] Accordingly, power from SDG&E's Desert Star combined-cycle generation plant in Nevada, for example, is included on the same basis as SDG&E's other utility-owned facilities—multiplying

[26] ARB's Mandatory Reporting Regulations requires use of emission factors from federal regulations - 40 Code of Federal Regulations ("C.F.R.") Section 98. For pipeline natural gas, there are three components – CO2, CH4, and NO2. Using Tables C-1 and C-2 from 40 C.F.R. Subpart C Section 98 we calculate an overall emissions rate of 0.05307 MT/MMBtu. SDG&E's portfolio of GHG emitting resources uses only natural gas, not other fuels.

[27] SDG&E currently does not have any contracts with asset-controlling suppliers such as the Bonneville Power Administration or Powerex. ARB assigns an emissions factor based on the entire portfolio for these suppliers.

the forecast of MMBtu of natural gas burned from the production simulation by the emission factor of 0.05307 MT of CO_2e per MMBtu.

Second, imported power from "unspecified sources" is multiplied by an estimated transmission loss factor of 1.02[28] to estimate the MWh related to unspecified electricity imports. The quantity is multiplied by the ARB default emission rate, which is 0.428 metric tons of CO_2e per MWh.

Third, electricity from out-of-state renewable resources that are not imported was used to offset the emissions of imports under the ARB Renewable Portfolio Standard ("RPS") adjustment in previous ERRA forecasts. In this forecast, SDG&E has been directed to exclude the RPS adjustment from the forecasted GHG emissions. The emissions of imported power are shown in Table 4 below. Monthly emissions for all categories are summarized in Attachment E.

B. Indirect GHG Emissions

In addition to the direct GHG costs described above, the cap-and-trade program results in GHG compliance costs being embedded in the market price of electricity procured in the wholesale market and from third parties. The cost to purchase electricity from the wholesale market, as well as from suppliers under contracts that include market-based prices, will have these embedded costs of compliance with the cap-and-trade program built into the electricity price. The compliance instrument will be procured by the first deliverer, rather than by SDG&E, as purchaser. SDG&E's expected indirect GHG compliance costs are based on an assumption that all power sold by SDG&E-controlled assets are used by SDG&E customers, up to the level

[28] Transmission losses on SDG&E's system are measured at approximately 2% of load requirement.

of the forecasted SDG&E load.[29] If the total CAISO market purchases exceed the MWh from SDG&E-controlled generation, then the assumption is that SDG&E entered into market purchases to cover this difference. To estimate the GHG emissions embedded in these net CAISO market purchases, SDG&E used the ARB's default emissions rate, which is 0.428 MT per MWh.

In addition to market purchases, contracts with some Combined Heat and Power ("CHP") facilities are included as indirect costs. Specific CHP contracts require payments based on a market electricity price (with embedded GHG costs), or a fixed heat rate with the GHG cost based on the contract heat rate; or in other cases, a reimbursement of GHG expenditures incurred by the CHP facility associated with sales to SDG&E. These contracts represent a second source of indirect GHG costs in that the CHP owner acquires GHG compliance instruments.

Contractual GHG costs do not provide a good estimate of actual GHG costs. Accordingly, determining actual GHG costs is difficult because it requires knowledge of confidential counterparty data and the choice of method used to split the GHG emissions between electricity production and useful thermal energy. For simplicity, SDG&E estimates GHG costs associated with CHP on the assumption that the CHP units, on average, are as efficient as unspecified power, assigning a 0.428 MT per MWh emissions rate to all purchases of power from CHP facilities.

Finally, SDG&E forecasts REC sales to maintain an equivalent RPS compliance position considering CCA load departure in 2022. REC sales remove the GHG-free attribute of the

[29] In fact, however, the generation is bid into the CAISO market and dispatched by CAISO to meet statewide needs. The simplifying assumption is used to calculate net CAISO market purchases – all CAISO purchases less all resources that are forecasted to successfully bid into the CAISO market by SDG&E, including imports. However, SDG&E does make an adjustment for expected sales of renewable energy beyond regulatory requirements.

renewable resource generation. To estimate the GHG emissions of the unbundled renewable generation, SDG&E used the ARB's default emissions rate, which is 0.428 MT per MWh. The GHG emissions from indirect sources are summarized on an annual basis in Table 4 below and monthly in Attachment E.

Table 4: 2022 GHG Total Emissions Forecast		
Resource	**Fuel (000 MMBtu)**	**GHG (000 Metric Tons)**
Palomar - UOG	[redacted]	
Desert Star - UOG - Out of State		
Orange Grove - PPA		
Escondido Energy Center - PPA		
Pio Pico - PPA		
Carlsbad Energy Center - PPA		
Miramar - UOG		
Yuma - PPA Out of State		
Fuel-Based		
	Generation (GWh)	
Imports	[redacted]	
RPS Adjustment		
Total Direct Emissions		

Resource	**Generation (GWh)**	
Net Market Purchases	[redacted]	
Unbundled RPS w/REC Sales		
CHP		
Total Indirect Emissions		
Total Forecasted Emissions		

Conversions	
Natural Gas	0.05307 MTons/MMBtu
Market Purchases	0.428 MTons/MWh
Imports	0.428 MTons/MWh

C. 2022 GHG Costs

I calculated a proxy for the 2022 GHG emissions price as $19.06/MT. This figure was derived using a recent (March 1, 2021) assessment of 2022 GHG market prices based on the forward prices on the Intercontinental Exchange ("ICE"), consistent with the period used for

forecasting natural gas and electricity prices associated with the forecast of emissions in Table 4 above. The GHG cost forecast multiplies the expected emissions, both direct and indirect, by the forecasted proxy GHG price resulting in forecasted GHG costs for 2022 of $36.8 million for ERRA.

D. 2022 Allowance Auction Revenues

The ARB allocates cap-and-trade allowances to SDG&E for 2022. SDG&E is required to place all these allowances for sale in ARB's 2022 quarterly auctions. I developed the forecast of allowance revenues by multiplying the total number of allowances allocated to SDG&E for consignment by a forecast price for the allowances.[30]

The total allowances that will be allocated to SDG&E for 2022 is expected to be 6,737,256 MT. SDG&E's Forecast 2022 Allocated Allowances (MT) represents the SDG&E allocation as established in Table 9-4 of the Cap-and-Trade regulation. In actuality, SDG&E's 2022 Allocated Allowances will likely be reduced by SDG&E's portion of California's 2020 Energy Imbalance Market (EIM) Purchases as determined by California Air Resources Board ("CARB") circa September, 2021. Additionally, SDG&E's 2021 allowance allocation was confidential as of November, 2020 and has become public since the last ERRA Forecast filing. This new quantity is reflected in the recorded column within the updated Appendix G template D-1. The allowance price is the same proxy price as used in the calculation of GHG costs, which is $19.06/MT. The allowance auction revenue forecast is the allowances allocated times the allowance price [redacted].

[30] I assumed all allowances are sold in the auction process, which is consistent with the assumption that the market-clearing price is above the price floor.

The available funds for the clean energy and energy efficiency programs are equal to 15 percent of the forecasted 2022 allowance auction revenue amount or $19.2 million.

A portion of the allowance auction revenue is reserved for clean energy and energy efficiency projects initiated by the Solar on Multifamily Affordable Housing ("SOMAH") Program.[31] This program provides financial incentives for installation of solar energy systems on multifamily affordable housing properties, as specified in the statute. For 2022, the funding amount is $12.8 million, which is 10% of the forecasted allocation revenue amount. [32] Any true-ups for allowance revenues set aside for clean energy and energy efficiency projects are addressed in the testimony of SDG&E witness Coreen Salcido

D.18-06-027 (issued on June 22, 2018), adopted three new programs to promote the installation of renewable generation among residential customers in disadvantaged communities ("DACs"): the DAC - Single-family Solar Homes ("DAC-SASH"), the DAC – Green Tariff ("DAC-GT") and the Community Solar Green Tariff ("CSGT").[33] SDG&E shall fund these programs first through available GHG allowance revenues proceeds and if such funds are exhausted, the programs will be funded through public purpose programs ("PPP") funds. The DAC-SASH program funding request is estimated to be $1.03 million. The previously requested

[31] D.17-12-022 Ordering Paragraph ("OP") 4, at 69, states that the IOUs "each shall reserve 10% of the proceeds from the sale of greenhouse gas allowances defined in Public Utilities Code Section 748.5 through its annual Energy Resource Recover Account (ERRA) proceedings for use in the Solar on Multifamily Affordable Housing Program, starting with its ongoing 2018 ERRA forecast proceeding."

[32] D.20-04-012, issued on April 23, 2020, continues authorization of allocation of funds to the SOMAH program through June 30, 2026.

[33] D.18-06-027 at OPs 1, 11 and 12.

and available funding for DAC-GT and CSGT is expected to cover all 2022 program related expenses. Therefore, SDG&E is not requesting any additional funding at this time.[34]

VI. 2022 FORECAST OF TMNBC COSTS

In this section, I describe the cost forecast for tree mortality related procurement costs.[35] The TMNBC costs will be recovered through the PPP charge as addressed in the testimony of SDG&E witness Stacy Fuhrer. The 2022 forecasted costs are $[redacted] million.

VII. MEET-AND-CONFER ACTIVITIES

D.19-06-026 adopted a meet-and-confer requirement whereby: (a) A meeting between load-serving LSEs that anticipate load migration shall occur reasonably in advance of the filing deadline for initial year ahead forecasts; and (b) In each LSE's initial year ahead forecast filing, each LSE shall describe the dates of meetings with other LSEs to discuss load migration, any agreements, and any continued areas of disagreement.[36]

Additionally, In OP 1 of its *Proposed Decision Considering Working Group Proposals on Departing Load Forecast and Presentation of Power Charge Indifference Adjustment Rate on Bills and Tariffs* (filed February 25, 2020), the Commission ordered SDG&E to report in each regulatory filing its meet-and-confer activities and information exchange with Community Choice Aggregators in SDG&E's service territory, if the regulatory filing involves a departing load forecast.[37]

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[34] On February 1, 2021, SDG&E filed AL 3682-E which requested no funding for 2022.

[35] Per D.18-12-003, SDG&E filed Advice Letter 3343-E18 requesting approval to establish TMNBCBA as directed by Resolution E-4770 and Resolution E-4805.

[36] *Decision Adopting Local Capacity Obligations for 2020-2022, Adopting Flexible Capacity Obligations for 2020, and Refining the Resource Adequacy Program at OP 14* (filed in Rulemaking (R.) 17-09-020).

[37] Filed in R.17-06-026.

SDG&E held a meet-and-confer meeting regarding load forecasting on March 16, 2021. SDG&E invited numerous entities to participate in the March 16th meet-and-confer meeting.[38] Attendees to the meeting included representatives for San Diego Community Power and Clean Energy Alliance. The items addressed at the meet-and-confer meeting included: (1) an overview of SDG&E's load forecast process for departing load; (2) an overview of the meet-and-confer requirement; (3) an overview of regulatory proceedings and schedules; (4) an overview of load data to support regulatory filings; and (5) a discussion of future load forecast cycles. The parties continue to exchange information regarding load forecasting through a collaborative effort. The parties have reached agreement on the process by which the non-IOU LSEs are to provide forecast data to SDG&E as well as the templates to be used to submit their data. There have not been any specific areas of disagreement at this point. Information provided by the non-IOU LSEs to SDG&E include monthly energy sales, peak demand and customer forecast data.

This concludes my prepared direct testimony.

[38] SDG&E sent an invite to recipients on the R.17-09-020 and R.19-11-009 distribution lists.

VIII. QUALIFICATIONS

My name is Stefan Covic. My business address is 8315 Century Park Court, San Diego, CA 92123. I am employed by SDG&E and my current title is Senior Resource Planner in the Electric & Fuel Procurement Department. My responsibilities include running computer models that forecast energy needs for both physical and financial operational needs.

I joined SDG&E in April 2019. Prior to joining SDG&E, I worked as an energy analyst at Bear Valley Electric Service, a small IOU in Big Bear Lake, CA. I received a Bachelor of Physics and a Master of Economics degrees from the University of California, Irvine.

I have previously testified before the California Public Utilities Commission.

ATTACHMENT A

(CONFIDENTIAL)

SDG&E 2022 ERRA AND LG EXPENSES

Attachment A

PRIVILEGED AND CONFIDENTIAL PURSUANT TO P.U.C. CODE 583, 454.5(g), GO 66-C and D.06-06-066 as needed

ATTACHMENT A - SDG&E 2022 ERRA and LG EXPENSES

	EXPENSES ($)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2021
2	ISO Load Charges (Energy & A/S Costs)													
3	ISO Supply Revenues													
4	Contract Costs (non-CTC)													
5	Contract Costs (CTC up to mkt)													
6	Generation Fuel													
7	CAISO Misc Costs													
8	Hedging Costs & Financial Transactions													
9	Contract Costs - CHP Costs (AB1613)													
10	Customer Incentives - SPP, DR,20/20													
11	Rewards/Penalties - Palomar Energy Ctr													
12	WREGIS Costs													
13	ISO CRRs Costs													
14	ISO Convergence Bidding Costs													
16	Purchased Tradable Renewable Energy Credits (TRECs)													
17	Sales Tradable Renewable Energy Credits (TRECs)													
18	Net Surplus Compensation Costs (AB920)													
19	Authorized Disallowances													
20	Greenhouse Gas & Carrying Costs													
21	**Total Balancing Account Expenses**													**$ 827,568,097**
22	**PABA Portion of ERRA Expenses**													**$ 337,611,754**

Line 4 Contract Costs (non-CTC)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2021
Lake Hodges													
El Cajon Energy Center Peaker Costs													
Orange Grove Peaker Costs													
Other RA Capacity Costs (RA RFO, DRAM)													
RA Sales													
CFD Revenues													
Morgan Stanley Index Costs													
Renewable Energy	$ 34,571,170	$ 39,315,019	$ 46,459,714	$ 55,083,481	$ 58,399,577	$ 58,115,517	$ 59,813,133	$ 62,506,026	$ 53,104,064	$ 48,275,894	$ 39,002,677	$ 33,325,689	**$ 587,971,961**
Line 4 Total													

Line 6 Generation Fuel													
Palomar													
Desert Star													
Miramar													
Miramar 2													
Cuyamaca													
Line 6 Total													

In Lieu Gas Fees													
Palomar													

Line 8 Hedging Costs & Financial Transactions													
Hedging Costs													
Broker Fees													
Line 8 Total													

LG Expenses													
Carlsbad Energy Center cost													
El Cajon Energy Storage cost													
Top Gun Energy Storage cost													
Fallbrook Storage Cost													
Escondido Energy Center Cost													
Escondido Energy Storage Cost													
Pio Pico cost													
LG CHP cost													
Sentinel Energy Center RA													
Local Generation Revenue													
Total LG Expense													

ATTACHMENT B

(CONFIDENTIAL)

SDG&E 2022 GENERATION PORTFOLIO DELIVERY VOLUMES

Attachment B

PRIVILEGED AND CONFIDENTIAL PURSUANT TO P.U.C. CODE 583, 454.5(g), GO 66-C and D.06-06-066 as needed

ATTACHMENT B - SDG&E 2022 GENERATION PORTFOLIO DELIVERY VOLUMES (GWh)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2022
CTC	[redacted]												
Non-CTC QF													
TOTAL													
Renewable - Bio Gas	14.9	13.4	14.9	14.4	14.9	14.4	14.9	14.9	14.4	14.9	14.4	14.9	**175.2**
Renewable - Other	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	**3.9**
Renewable - Solar	213.4	222.8	252.6	302.4	332.7	364.6	352.9	341.5	299.1	265.6	234.1	196.2	**3,377.7**
Renewable - Wind	110.2	132.5	183.4	235.4	254.1	204.2	109.5	153.4	115.5	117.3	129.6	102.4	**1,847.4**
Renewable - Wind REC	110.3	155.1	134.5	93.6	78.4	91.9	73.7	63.6	100.9	84.5	119.4	130.0	**1,236.0**
Midway-Green Tariff-EcoChoice	3.1	3.1	2.8	3.9	4.9	5.2	3.5	3.8	3.7	3.7	3.3	2.9	**43.7**
Renewable - RPS Sales	(238.9)	(278.9)	(311.4)	(343.3)	(361.6)	(358.3)	(291.7)	(303.9)	(281.3)	(256.1)	(264.7)	(236.1)	**(3,526.3)**
TOTAL NON-CTC RENEWABLE	**213.3**	**248.3**	**277.1**	**306.6**	**323.7**	**322.4**	**263.1**	**273.5**	**252.6**	**230.1**	**236.4**	**210.5**	**3,157.6**
Miramar	[redacted]												
Miramar 2													
Cuyamaca													
Palomar													
Desert Star													
Kelco													
Lake Hodges													
Morgan Stanley													
El Cajon Energy Center													
Orange Grove													
Escondido Energy Center													
Pio Pico													
Carlsbad Energy Center													
El Cajon Energy Storage													
Top Gun Energy Storage													
Escondido Energy Storage													
Fallbrook Energy Storage													
TOTAL GENERATION													

ATTACHMENT C

SDG&E 2022 RENEWABLE RESOURCE DETAIL

Attachment C

ATTACHMENT C - SDG&E 2022 RENEWABLE RESOURCE DETAIL

Power Purchase Deliveries (GWh)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2022
BIO GAS													
MM Prima Deshecha Energy LLC	9.1	8.2	9.1	8.8	9.1	8.8	9.1	9.1	8.8	9.1	8.8	9.1	107.3
MM San Diego LLC- Miramar Landfill	2.2	2.0	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	26.3
BIOGAS FIT	3.5	3.2	3.5	3.4	3.5	3.4	3.5	3.5	3.4	3.5	3.4	3.5	41.6
Subtotal	**14.9**	**13.4**	**14.9**	**14.4**	**14.9**	**14.4**	**14.9**	**14.9**	**14.4**	**14.9**	**14.4**	**14.9**	**175.2**
OTHER													
SMALL HYDRO RAM	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	3.9
Subtotal	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**3.9**
SOLAR													
NRG Borrego Solar	3.9	4.5	5.7	7.4	8.4	8.2	7.1	6.3	6.4	4.3	4.2	3.4	69.7
Sol Orchard	1.9	2.2	2.8	3.5	3.4	4.0	3.5	2.3	2.8	2.5	1.9	1.7	32.6
Solar Energy Project	1.0	1.3	1.8	2.0	1.8	2.2	2.3	2.1	1.7	1.5	1.2	1.1	19.9
SOLAR_PV_FIT	1.0	0.9	0.9	1.1	1.1	1.2	1.2	1.2	1.1	1.1	1.0	0.9	12.8
Arlington Valley Solar	21.8	20.0	21.9	30.3	37.3	40.5	38.1	37.9	33.2	23.8	22.1	18.5	345.2
Calipatria	2.6	2.7	2.7	4.0	4.7	5.2	5.0	4.5	3.7	2.9	2.4	2.4	42.8
Campo Verde	25.0	23.8	24.8	28.1	29.8	31.5	32.5	32.1	29.0	29.6	27.0	23.1	336.3
Catalina_Solar	17.1	20.5	21.4	25.9	27.4	27.1	25.4	25.8	24.3	21.6	17.5	16.2	270.1
Centinela Solar1	20.7	21.8	25.7	30.5	33.6	39.3	37.7	35.8	30.1	26.5	23.5	18.8	344.1
Centinela Solar2	7.4	7.8	9.3	11.0	12.1	14.1	13.6	12.9	10.8	9.5	8.5	6.8	123.9
Desert Green	1.0	1.0	0.9	1.2	1.5	1.6	1.1	1.2	1.2	1.2	1.0	0.9	13.8
Imperial Valley Solar I	27.4	31.0	38.1	46.5	51.5	58.0	54.8	53.1	44.2	38.3	31.8	26.0	500.8
Maricopa West Solar	2.2	3.7	3.9	4.5	6.0	4.8	6.1	6.0	5.1	3.9	2.3	2.0	50.4
TallBear Seville	3.3	3.5	4.1	4.9	5.4	6.3	6.0	5.7	4.8	4.2	3.8	3.0	55.1
SolarGen 2	24.8	26.2	30.9	36.6	40.3	47.1	45.3	43.0	36.1	31.8	28.2	22.6	412.9
Cascade SunEdison	3.2	3.9	4.9	5.7	6.3	6.5	5.3	5.5	5.1	4.2	3.3	2.6	56.5
Csolar IV South	19.2	19.3	22.3	24.5	25.1	27.2	27.3	26.1	24.0	22.8	22.0	18.7	278.4
Csolar IV West	26.8	25.4	26.5	30.1	31.8	33.7	34.8	34.3	31.0	31.6	28.8	24.7	359.3
Wister Solar Project	3.2	3.4	4.0	4.7	5.2	6.1	5.8	5.5	4.7	4.1	3.6	2.9	53.3
Subtotal	**213.4**	**222.8**	**252.6**	**302.4**	**332.7**	**364.6**	**352.9**	**341.5**	**299.1**	**265.6**	**234.1**	**196.2**	**3,377.7**
WIND													
Glacier Wind (TREC)	49.4	80.9	63.3	43.0	37.5	44.7	36.2	31.0	48.3	35.4	48.1	61.2	578.8
Rim Rock (TREC)	60.8	74.2	71.3	50.6	40.9	47.2	37.5	32.6	52.6	49.1	71.4	68.8	657.2
Kumeyaay	15.8	14.5	17.2	17.9	16.4	13.1	5.4	7.4	8.2	11.1	15.4	11.7	154.1
Coram Energy	1.4	1.5	1.3	2.5	3.2	3.3	3.0	3.6	2.1	1.3	1.5	1.5	26.2
Energia Sierra Juarez	30.7	33.8	51.3	56.5	53.1	46.1	17.3	27.6	28.3	28.4	36.3	28.6	438.0
Manzana Wind	31.5	29.0	34.3	35.7	32.9	26.2	10.8	14.8	16.4	22.2	30.9	23.4	308.1
Oak Creek Wind Power	0.3	0.3	0.4	0.8	0.8	0.7	0.6	0.7	0.4	0.3	0.3	0.3	5.8
Ocotillo Express	16.0	31.2	51.4	80.2	101.8	73.3	42.0	62.2	39.5	33.9	22.3	16.9	570.7
Pacific Wind	13.7	20.7	24.0	37.4	40.5	37.1	27.4	32.7	17.5	18.1	21.7	19.0	309.8
San Gorgonio	0.7	1.4	3.5	4.3	5.5	4.4	3.2	4.5	3.3	1.9	1.1	0.9	34.8
Subtotal	**220.4**	**287.5**	**317.9**	**329.0**	**332.5**	**296.1**	**183.2**	**217.0**	**216.4**	**201.8**	**249.0**	**232.4**	**3,083.4**
RPS SALES													
Subtotal	**(238.9)**	**(278.9)**	**(311.4)**	**(343.3)**	**(361.6)**	**(358.3)**	**(291.7)**	**(303.9)**	**(281.3)**	**(256.1)**	**(264.7)**	**(236.1)**	**(3,526.3)**
Total Power Purchase Costs ($000)													
BIO GAS	$ 1,102	$ 996	$ 1,102	$ 1,067	$ 1,102	$ 1,067	$ 1,102	$ 1,102	$ 1,067	$ 1,102	$ 1,067	$ 1,102	$ 12,980
OTHER	$ 27	$ 24	$ 27	$ 26	$ 27	$ 26	$ 27	$ 27	$ 26	$ 27	$ 26	$ 27	$ 317
SOLAR	$ 22,558	$ 24,104	$ 27,035	$ 32,108	$ 34,387	$ 38,463	$ 48,779	$ 47,257	$ 40,558	$ 35,904	$ 24,751	$ 21,066	$ 396,969
WIND	$ 10,401	$ 12,900	$ 18,054	$ 23,539	$ 25,367	$ 20,516	$ 11,554	$ 16,299	$ 11,983	$ 11,892	$ 12,624	$ 9,966	$ 185,094
WIND (REC)	$ 3,944	$ 5,333	$ 4,754	$ 3,318	$ 2,756	$ 3,235	$ 2,578	$ 2,225	$ 3,546	$ 3,061	$ 4,371	$ 4,586	$ 43,707
RPS SALES	$ (3,461)	$ (4,041)	$ (4,513)	$ (4,974)	$ (5,240)	$ (5,191)	$ (4,227)	$ (4,404)	$ (4,076)	$ (3,711)	$ (3,836)	$ (3,422)	$ (51,096)
GTSR INTERIM POOL TRANSFER	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	**$ 34,571**	**$ 39,315**	**$ 46,460**	**$ 55,083**	**$ 58,400**	**$ 58,116**	**$ 59,813**	**$ 62,506**	**$ 53,104**	**$ 48,276**	**$ 39,003**	**$ 33,326**	**$ 587,972**

ATTACHMENT D

(CONFIDENTIAL)

SDG&E 2022 CTC QUALIFYING FACILITY DETAIL

Attachment D

PRIVILEGED AND CONFIDENTIAL PURSUANT TO P.U.C. CODE 583, 454.5(g), GO 66-C and D.06-06-066 as needed

ATTACHMENT D - SDG&E 2022 CTC DETAIL

CTC - Dispatchable (GWh)	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**2022**
Goal Line	[redacted]												
Yuma Cogen Associates													
CTC QF - SRAC Priced (GWh)													
Aggregation of Hydro Units (SO1)	[redacted]												
Subtotal													
ERRA Expenses ($000)													
CTC	[redacted]												
(to Line 5 of Attachment A)													
TCBA Expenses ($000)													
CTC	[redacted]												**$ 11,556**

ATTACHMENT E

(CONFIDENTIAL)

SDG&E GREENHOUSE GAS DETAIL

Attachment E

PRIVILEGED AND CONFIDENTIAL PURSUANT TO P.U.C. CODE 583, 454.5(g), GO 66-C and D.06-06-066 as needed

ATTACHMENT E - SDG&E GREENHOUSE GAS (GHG) DETAIL

2022 Direct Emissions (MT)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2022
California UOG Plants	[redacted]												
California Tolling Generators													
Specified Imports													
Unspecified Imports													
RPS Adjustment													
Total Direct Emissions													
2022 Indirect Emissions (MT)													
Market Purchases													
Unbundled RPS w/REC Sales													
CHP													
Total Indirect Emissions													
2022 Total Forecasted Emissions													1,930,136

ATTACHMENT F

DECLARATION OF STEFAN COVIC

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

DECLARATION OF STEFAN COVIC

A.21-04-___
Application of San Diego Gas & Electric Company (U 902-E)
for Approval of Its 2022 Electric Procurement Revenue Requirement Forecasts and GHG-Related Forecasts

I, Stefan Covic, declare as follows:

1. I am the Senior Resource Planner for San Diego Gas & Electric Company ("SDG&E"). I included my Prepared Direct Testimony ("Testimony") in support of SDG&E's April 15, 2021 Application for Approval of its 2022 Electric Procurement Revenue Requirement Forecasts and GHG-Related Forecasts ("Application"). Additionally, as the Senior Resource Planner, 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 ("Matrix") attached to the Commission's Decision ("D.") 06-06-066 (the Phase I Confidentiality decision). Pursuant to the procedure adopted in D.08-04-023, I am addressing each of the following five features of Ordering Paragraph 2 of D.06-06-066:

- that the material constitutes a particular type of data listed in the Matrix;
- the category or categories in the Matrix the data correspond to;
- that SDG&E 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 Protected 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.[1] As such, the Protected Information is allowed confidential treatment in accordance with the Matrix, as follows:

Location of Protected Information	**Matrix Reference**	**Reason for Confidentiality and Timing**
SC-3	V.C	LSE Total Energy Forecast – Bundled Customer; confidential for the front three years
SC-5 Table 1	IV.F	Forecast of Post-1/1/2003 Bilateral Contracts; confidential for three years
SC-5	VI.A	Utility Bundled Net Open Position for Capacity; confidential for the front three years
SC-7 Table 2	IV.A	Forecast of IOU Generation Resources; confidential for three years
SC-7	V.H	Net capacity and energy forecasts by retail provider; confidential for the front three years
SC-9	IV.B	Forecast of Qualifying Facility Generation; confidential for three years
SC-10	IV.J	Forecast of Wholesale Market Purchases; confidential for the front three years
SC-10	II.A.2 V.C	Utility Electric Price Forecasts; confidential for three years, LSE Total Energy Forecast, confidential for the front three years
SC-10 and SC-11	II.A.2 II.B.1 II.B.3 II.B.4	Utility Electric Price Forecasts; confidential for three years, Generation Cost Forecasts of Utility Retained Generation, confidential for three years, Generation Cost Forecasts of QF Contracts, confidential for three years, Generation Cost Forecasts of Non-QF Bilateral Contracts, confidential for three years

[1] 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 66-D. Accordingly, SDG&E seeks confidential treatment of this data under those provisions, as applicable.

Location of Protected Information	Matrix Reference	Reason for Confidentiality and Timing
SC-10 SC-11 SC-12 SC-26	II.B.4	Generation Cost Forecast of Non-QF Bilateral Contracts; confidential for three years
SC-12	II.B.3	Generation Cost Forecast of QF Contracts; confidential for three years
SC-13	II.B.1	Generation Cost Forecasts of Utility Retained Generation, confidential for three years
SC-11 and SC-12	II.A.2	Utility Electric Price Forecasts; confidential for three years
SC-15 SC-23 Table 4	I.A.4	Long-term Fuel (gas) Buying and Hedging; confidential for three years
SC-23 Table 4 SC-24		GHG emissions forecast: Providing these forecasts to market participants would allow them to know SDG&E's GHG forecasted GHG obligation, thereby compromising SDG&E's contractual bargaining power such that customer costs are likely to rise. Thus, the release of this non-public confidential information will unjustifiably allow market participants to use this information to the disadvantage of SDG&E's customers.
Attachment A - SDG&E 2022 ERRA and LG Expenses	XI	Monthly Procurement Costs; confidential for three years
Attachment B - SDG&E 2022 Generation Portfolio Delivery Volumes • Cuyamaca, Palomar, Desert Star, and Miramar data • QF data • Kelco, Lake Hodges, Wellhead, and Orange Grove data	IV.A IV.E IV.B IV.F	Forecast of IOU Generation Resources; confidential for three years Forecast of Pre-1/1/2003 Bilateral Contracts; confidential for three years Forecast of Qualifying Facility Generation; confidential for three years Forecast of Post-1/1/2003 Bilateral Contracts; confidential for three years

Location of Protected Information	Matrix Reference	Reason for Confidentiality and Timing
Attachment D - SDG&E 2022 CTC Qualifying Facility (QF) Detail • QF data • Long-Term Power Purchase CTC data • CTC QF & Non-CTC QF data • TCBA Expenses data	IV.E IV.B II.B.4 II.B.3	Forecast of Pre-1/1/2003 Bilateral Contracts; confidential for three years Forecast of Qualifying Facility Generation; confidential for three years Generation Cost Forecast of Non-QF Bilateral Contracts; confidential for three years Generation Cost Forecast of QF Contracts; confidential for three years
Attachment E - SDG&E Greenhouse Gas (GHG) Detail	Justification for confidentiality provided in Declaration of Praem Kodiath	GHG emissions forecasts: Providing these forecasts to market participants would allow them to know SDG&E's GHG forecasted GHG obligation, thereby compromising SDG&E's contractual bargaining power such that customer costs are likely to rise. Thus, the release of this non-public confidential information will unjustifiably allow market participants to use this information to the disadvantage of SDG&E's customers.

4. I am not aware of any instances where the Protected Information has been disclosed to the public. To my knowledge, no party, including SDG&E, has publicly revealed any of the Protected Information.

5. SDG&E will comply with the limitations on confidentiality specified in the Matrix for the Protected Information.

6. The Protected Information cannot be provided in a form that is aggregated, partially redacted, or summarized, masked, or otherwise protected in a manner that would allow further disclosure of the data while still protecting confidential information.

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

Executed this 15th day of April, 2021, at San Diego, California.

Stefan Covic
Senior Resource Planner
San Diego Gas & Electric Company

ATTACHMENT G

DECLARATION OF PRAEM KODIATH REGARDING CONFIDENTIALITY OF CERTAIN DATA/DOCUMENTS PURSUANT TO D.16-08-024, *et al.*

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

DECLARATION OF PRAEM KODIATH REGARDING CONFIDENTIALITY OF CERTAIN DATA/DOCUMENTS PURSUANT TO D.16-08-024, *et al.*

I, Praem Kodiath, do declare as follows:

1. I am the Resource Planning Manager in the Energy Supply Department for San Diego Gas & Electric Company ("SDG&E"). I have been delegated authority to sign this declaration by Miguel Romero, Vice President of Energy Supply. I have reviewed Stefan Covic's Prepared Direct Testimony ("Testimony") in support of SDG&E's Application for Approval of its 2022 Electric Procurement Revenue Requirement Forecasts and GHG-Related Forecasts ("Application"). I am personally 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 my personal knowledge and/or information and belief.

2. I hereby provide this Declaration in accordance with Decisions ("D.") 16-08-024, D.17-05-035, and D.17-09-023 to demonstrate that the confidential information ("Protected Information") provided in the Testimony is within the scope of data protected as confidential under applicable law.

3. In accordance with the legal authority described herein, the Protected Information should be protected from public disclosure.

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

Executed this 15th day of April, 2021, in San Diego.

/s/ Praem Kodiath
Praem Kodiath
Resource Planning Manager – Energy Supply

ATTACHMENT A

SDG&E Request for Confidentiality on the following information in its Application for Approval of Its 2022 Electric Procurement Revenue Requirement Forecasts and GHG-Related Forecasts

Location of Protected Information	Legal Authority	Narrative Justification
SC-23 Table 4, and Attachment E - SDG&E Greenhouse Gas (GHG) Detail Application Appendix G, Template D-2: Forecasted Emissions and Costs, and Template D-5: Forecasted Emissions Intensity	D.14-10-033; D.16-08-024; D.17-05-035; D.17-09-023; Public Utilities Code Section 454.5(g).	The information does not expressly fall within any category of the IOU Matrix applicable to electric procurement information, but is market-sensitive information in that providing these GHG emissions forecasts to market participants would allow them to know SDG&E's forecasted GHG obligation, thereby compromising SDG&E's contractual bargaining power such that customer costs are likely to rise. Thus, the release of this non-public confidential information will unjustifiably allow market participants to use this information to the disadvantage of SDG&E's customers.