



**SAN DIEGO GAS & ELECTRIC COMPANY
2012 LONG-TERM PROCUREMENT PLAN**

PUBLIC VERSION
REDACTED INFORMATION
IS HIGHLIGHTED IN BLACK

TABLE OF CONTENTS

I. INTRODUCTION	1
II. PROCUREMENT IMPLEMENTATION PLAN	1
A. SDG&E Procurement Process	1
1. SDG&E Procurement Organizational Structure	1
2. Overview of SDG&E Procurement Process	2
3. Description of Procurement Products	12
4. Overview of Energy Market Products	15
5. SDG&E Procurement Contracting Methods and Practices	33
6. SDG&E Use of the PRG Process and Consultation with PRG	48
B. Risk Management Policy and Strategy	53
1. Current Risk Management Practices – SDG&E’s Hedge Plan	54
2. Portfolio Risk Assessment	55
3. Customer Risk Tolerance	55
4. VaR-to-Expiration.....	55
5. Risk Management Products	58
6. Risk Management Product Selection Considerations.....	61
7. Credit Requirements	61
III. LONG-TERM PROCUREMENT RESOURCE PLAN	65
A. Introduction to Resource Planning and Planning Approach.....	65
B. Load Forecast	66
C. Supply Forecast for Existing Resources	67
D. Need Determinations	68
E. Bundled Customer System Capacity Need.....	68
F. Bundled Customer Local Capacity Need	68
G. Need for New Generation in Service Area	69
H. Resource to Fill Identified Need	69
IV. PROCUREMENT STRATEGY BY RESOURCE TYPE	70
A. Introduction to Resource Acquisition Strategy	70
B. Energy Efficiency	70
C. Demand Response	71
D. Self-Service Load.....	72

E. Renewable Energy Procurement	72
F. Qualifying Facilities and Combined Heat and Power Generation	72
G. Other Generation Supply Resources	72
V. EVALUATION OF RESOURCE PLAN	73
VI. COST RECOVERY ISSUES.....	75
A. Existing Recovery Mechanisms for Procurement Costs	75
1. ERRA Balancing Account	75
2. CDWR Gas Cost Recovery.....	76
3. NGBA Balancing Account	76
B. Current Commission Guidance Related to Debt Equivalence	76
C. Current Commission Guidance Related to FIN 46(R).....	77
Appendix A: Energy and Capacity Tables	A1
Appendix B: Electricity and Gas Hedging Strategy.....	B1
Appendix C: Gas Supply Plan	C1
Appendix D: Congestion Revenue Rights.....	D1
Appendix E: Convergence Bidding	E1
Appendix F: Green House Gas/AB 32 Compliance Plan.....	F1
Appendix G: SDG&E’s Request For Offer Evaluation Methodology Offer Processing And Evaluation	G1
Appendix H: SDG&E’s Consultation Processes with its Independent Evaluator	H1
Appendix I: Glossary of Terms.....	I1
Appendix J: Acronyms Glossary	J1
Appendix K: Electric & Fuel Procurement Organization Chart.....	K1

I. INTRODUCTION

San Diego Gas & Electric Company (SDG&E) submitted its draft Long Term Procurement Plan (LTPP or the Plan) to the California Public Utilities Commission on March 25, 2011. The Plan was approved in Decision (D.) 11-_____, which directed SDG&E to make certain revisions to the Plan and to submit a conformed version of the Plan via an advice letter compliance filing. SDG&E's compliance filing, Advice Letter ___ was approved by the Commission in Resolution ___, issued on _____. The LTPP approved in Resolution _____ constitutes SDG&E's conformed LTPP and supersedes and replaces SDG&E's draft LTPP. Updates to the Plan that result from future Commission decisions will be undertaken through the Commission's advice letter process. Advice letter updates will include redlined pages of the conformed LTPP, as well as clean replacement pages.^{1/} A glossary of acronyms used in the LTPP is set forth in Appendix I; a glossary of terms used is set forth in Appendix J.

II. PROCUREMENT IMPLEMENTATION PLAN

A. SDG&E Procurement Process

The following section describes the organizational structure of SDG&E's procurement function and sets forth an overview of the process and information flow underlying procurement and least-cost dispatch decisions at SDG&E. As discussed below, the process is comprised of three stages: Planning, Procurement and Dispatch.

1. SDG&E Procurement Organizational Structure

SDG&E's procurement function consists of four main functional areas:

- (1) Short-term procurement functions that includes three areas: (a) electric and fuel trading and gas scheduling functions; (b) operational functions including pre-scheduling, transaction scheduling and dispatch functions; and (c) market and policy analysis, including compliance with annual and monthly Resource Adequacy (RA) requirements;
- (2) Medium and long-term procurement functions that includes procurement of all mid-to-long term procurement of both conventional and renewable resources including RA related resources;

^{1/} D.07-12-052, *mimeo*, p. 181.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

(3) settlement functions; and

(4) risk analysis.

A diagram showing the structure of the procurement department is set forth in Appendix K.

2. Overview of SDG&E Procurement Process

a. Planning Process

The description of the planning process set forth herein generally applies to both short-term and long-term procurement of resources. The short-term procurement process is described in this Section and Appendix C. Longer-term procurement is based on determined need (see Sections III and IV) and typically occurs through a Request for Offers (RFOs) process, discussed in Section II.A.5.b below.

Long-term planning looks out over a ten year planning horizon. The long-term planning process seeks to implement the State's loading order and to integrate the various resource options available to serve SDG&E's bundled customer needs. SDG&E maintains a production costing model to obtain a long-term (multi-year) forward view of its resource portfolio parameters, such as the short positions, gas burns and need for resource/infrastructure addition. Long-term assumptions and positions are described in Sections III and IV.

With respect to short-term planning (*i.e.*, one year or less), SDG&E uses GenTrader (a least-cost dispatch model developed by Power Costs Inc. or PCI) to provide short-term guidance on dispatch and transaction decisions to economically serve the net short position. Basic inputs into the model include:

- SDG&E portfolio resources, including California Department of Water Resources (CDWR) contracts, modeled with all constraints and operational parameters;
- gas price forecast;
- electric price forecast;
- load forecasts; and
- other market data.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

The planning model is used by SDG&E on a weekly basis to create a 12-day least-cost dispatch forecast that includes a plan for unit commitments and market transactions.^{2/} Outputs from the model used for decision-making in the transaction stage include:

- forecasted usage of dispatchable units;
- forecasted gas burns; and
- forecasted economic power purchases and sales.

All modeling assumptions are updated to capture the most current information. Changes in the model inputs can occur both daily and hourly, and the model will be re-run if significant differences arise intra-day, creating an updated outlook.

SDG&E meets its load obligations in a least-cost dispatch manner that begins with planning for must-take generation, including renewable energy, firm contracts and generation from the San Onofre Nuclear Generating Station (SONGS). The load that is not filled by must-take energy is met through a combination of dispatchable units and market purchases.

It is important to note that actual least-cost dispatch may vary, sometimes significantly, from the model output due to the dynamic nature of certain inputs to the model, such as demand and prices, as well as the inability of the model to capture all constraints. Also, it must be recognized that real time dispatch takes into account all market- and operational-related factors, whereas models take into account only those factors that are known at the time the plan is developed. SDG&E's procurement team meets as needed to review model inputs and forecast, and to evaluate the need for changes in model parameters in order to continually improve results.

b. Procurement Process

SDG&E's procurement processes are described herein. Short-term processes are described in Sections II A.3 and 4 and Appendices C, D, E and F. SDG&E's long-term procurement practices are described in Section II.A.5, 6 and 7, Section IV and Appendices G and H.

^{2/} SDG&E also uses GenManager, another product procured as part of a package from PCI, to assist with bid optimization as preparation for submittal of bids into the CAISO's new Market.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

c. Dispatch Process

On April 1, 2009, the California Independent System Operator (CAISO) implemented a new market structure, the Market Redesign and Technology Upgrade (MRTU or the Market), which significantly altered management and scheduling of generation supply and bundled customer demand. The two primary elements of the Market are: 1) a nodal model of the CAISO grid that provides the CAISO with enhanced tools to manage congestion on its grid; and 2) an Integrated Forward Market (IFM) that includes a Day-Ahead Market (DAM) which produces binding day-ahead awards for energy and capacity. An overview of the Market structure is provided below:

(i) Day-Ahead Market

The CAISO Market structure impacted SDG&E's least-cost dispatch (LCD) process in several ways. The most significant change of the Market was the creation of the IFM which includes the DAM. The DAM competitively matches load requirements with resources on a system-wide basis. As part of the DAM, SDG&E submits schedules and bids for both demand and supply (generation and system) resources. The CAISO receives such schedules and bids from all market participants to construct a supply/demand curve across the CAISO system. The CAISO then clears the market at the marginal price, subject to congestion, transmission losses and certain adjustments to address operations and market power mitigation. In effect, the IFM DAM 1) replaced the need for SDG&E to balance its bundled demand with schedules from its own portfolio of resources and market transactions; 2)

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

obviated the reliance on individual market participants including SDG&E to efficiently dispatch resources among themselves through bilateral transactions; and 3) established a transparent DAM clearing price for each hour and for each electrically or commercially significant point on the CAISO system.

The CAISO IFM process runs on a full transmission network model that now reflects congestion points, transmission outages and other operating contingencies, versus the much simpler zonal model that existed pre-Market. As a result, under the Market, the DAM (as well as the hour-ahead and real-time markets) more explicitly addresses the cost of re-dispatching resources to avoid infeasible schedules and eliminates the need for SDG&E to consider intra-zonal congestion costs in its least-cost dispatch process.

The IFM DAM also introduced an improved process by which the CAISO procures ancillary services (AS). In the new Market, the IFM process now co-optimizes the allocation of available capacity between generation and reservation for AS requirements, based on prices submitted for each of these services in the resource bids. The resulting allocation of awards between generation and AS across the system should be more efficient because it is based on energy and capacity bids that more accurately reflect the economic trade-off between generation and reserves.

Another significant new Market feature is that day-ahead awards on resources and load are financially binding obligations. Deviations between these awards and actual energy delivery (or load consumption) trigger settlement charges with the CAISO at real-time prices.

The IFM DAM process has also increased the uncertainty of fuel quantities to be procured to support generation awards. As part of implementation of the new Market, day-ahead generation awards for most dispatchable resources are not known until approximately 1:00 p.m., well after the majority of next-day natural gas volumes have traded. Due to this information lag, natural gas traders must rely on less precise forecasts of fuel requirements that may or may not correspond to actual requirements. When actual results deviate sufficiently from forecasted fuel quantities, the natural gas

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

desk must trade and/or schedule gas supplies in later scheduling cycles or on weekends to avoid pipeline penalties. Activity in these later scheduling cycles typically adds to the overall cost of fuel supply due to limited or no market liquidity for gas transactions and a higher risk of pipeline schedule cuts.

(ii) Intraday Market (Hour-Ahead Scheduling Process and Real-Time Market)

With respect to the intraday market, the creation of the Hour Ahead Scheduling Process (HASP) market at intertie points imposed a significant change to SDG&E's least-cost dispatch process. Like the DAM, the HASP market establishes financially binding awards for hour-ahead self-schedules and awarded bids, but only at intertie scheduling points. The HASP market enables SDG&E to submit cost-based bids for its dispatchable imported resources so that the day-ahead award can be economically incremented and decremented. Essentially, SDG&E can sell additional energy or buy back the day-ahead delivery obligation depending on whether the HASP price is above or below SDG&E's bid. No HASP market was implemented for resources or load within the CAISO system; the CAISO instead publishes advisory HASP prices and awards for these resources and loads, but they are not financially binding.

With respect to the real-time market, financially binding DAM awards for all cleared load and supply simplify intraday market activity because all HASP and real-time market awards are incremental or decremental to the day-ahead awarded quantity. For example, if the DAM clears 3,000 MW of load but the hour-ahead load forecast is for 3,100 MW, the hour-ahead LCD response is limited to only the incremental 100 MW of load because the first 3,000 MW has already been purchased and settled at the day-ahead price. Likewise, if a supply unit is awarded 200 MW day-ahead but its self-schedule is

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

revised upward to 250 MW, only the incremental 50 MW is sold in the real-time market with the first 200 MW having already been awarded and settled in the DAM. In either case, incremental or decremental quantities of load or supply are settled at the real-time price, which the CAISO publishes for each 5-minute interval at each price node.

Another characteristic of the new Market affecting LCD is the use of self-schedules on SDG&E's resources. Self-schedules are essentially price-taker bids submitted into the day-ahead or real-time market. The CAISO uses generator/supply self-schedules to establish a floor on the unit's dispatch awards in the real-time market. Therefore, hour-ahead self-schedules, if greater than the day-ahead award, cause the incremental portion of the supply to be a price-taker at the real-time price. This rule also applies to resources that participate in the CAISO's Participating Intermittent Resource Program (PIRP).^{3/} For SDG&E, this includes wind self-schedules that are submitted hour-ahead. Also, as noted earlier, the CAISO does not accept hour-ahead self-schedules or changes for load, and as a result, incremental or decremental changes to the DAM load award are settled at the real-time price.

(iii) New Market Impacts on Least-Cost Dispatch

Exceptional Dispatch (ED) is a form of dispatch under the Market on which the CAISO relies on to meet reliability requirements that cannot be resolved through market processes. The CAISO orders EDs to address local generation requirements, system capacity needs, transmission outages, software limitations and other operational issues. Because EDs are reliability-driven, they are outside the scope of LCD and likely to be uneconomic relative to market prices or other resources. However, all CAISO resources are obligated to comply with these dispatches.

^{3/} PIRP was instituted by the CAISO as a mean of minimizing monthly imbalances resulting from intermittent resources such as wind and solar. As part of this program, intermittent resources voluntarily agree to schedule their resources on a hourly basis in accordance with the results of the CAISO wind forecasting model. In exchange, the CAISO waives imbalance charges for these resources. For resources for which SDG&E is the Scheduling Coordinator, SDG&E submits self schedules for participating PIRP resources in accordance with the hourly MW forecast results from the CAISO's model. For intermittent resources for which SDG&E has a PPA but is not the SC, it uses inter-SC trades to match schedules with the counterparty.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Residual Unit Commitment (RUC) is a market award for capacity that the CAISO issues to ensure that sufficient capacity is committed to meet system load. Although RUC results from the market process, it is required to manage grid reliability and is outside the scope of LCD. Non-use limited RA resources are obligated to provide RUC capacity if awarded, which requires that they be committed even though it may be uneconomical relative to market prices.

Unit testing and maintenance, require generators to run at pre-defined load points to achieve an objective. During these periods, generation is considered must take and cannot be dispatched according to LCD economics.

Constrained pipeline operations may impact least-cost dispatch. For example, the Sunrise Power Facility is constrained from responding to the real-time dispatch requirements because of limited gas balancing rights on the Kern River pipeline. In addition, Operational Flow Orders (OFOs) declared by Southern California Gas Company (SoCalGas) can impact dispatch decisions. Under a high-inventory OFO, if a resource failed to consume 90% of the delivered natural gas quantity, the pipeline will assess penalties. This may constrain resources from decreasing generation in response to lower prices. SDG&E evaluates the potential loss of revenue from reducing generation relative to the expected penalty when making a decision as to whether to decrease generation.

SDG&E's portfolio contains several use-limited resources, which are resources that are only available for a limited number of hours per period. To efficiently allocate dispatches on these units, SDG&E plans their use over a monthly or annual time horizon depending on the limit. SDG&E manages these resources to assure availability over summer peak load periods. Use-limited resources include Demand Response (DR) programs that can only be triggered during certain months for limited hours each month.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

(iv) The Market Transaction Process and Strategy

SDG&E considers many different factors when developing buying and selling decisions, including (1) market prices (both spot and forward) for power and gas; (2) weather (local and nationwide); (3) availability of resources; (4) counterparty credit; and (5) risk and trading limits, when and if applicable. As a tool to assist in forecasting daily demand, SDG&E utilizes Advanced Artificial Neural-Network Short-Term Load Forecaster (ANNSTLF), a computer program developed by Pattern Recognition Technologies, Inc. for the Electric Power Research Institute (EPRI). This application analyzes relationships between historical system load and weather data, and develops an hourly forecast of future loads using forecasts of temperature and humidity. The program is updated daily and hourly as actual load and weather data are recorded, and updated temperature and humidity forecasts are made available by SDG&E's weather forecasting service provider. SDG&E monitors the performance of its forecasting application on an hourly basis and may make corrective adjustments to its results, if warranted, to account for changing load patterns.

The direct access (DA) load forecast is a 7-day forecast is based on the current DA accounts in the SDG&E billing system and the historic load for those accounts. System transmission losses are calculated as a percentage estimate of the system load forecast based on historical data.

For a given delivery day, the short-term bundled load forecast is first made a week in advance as an input to SDG&E's short-term least-cost dispatch model (as noted, in preparation for the new Market, SDG&E procured the GenTrader model from PCI to provide bi-weekly and weekly forecasts for dispatch of its supply portfolio). The model output provides SDG&E with a general direction of how its supply portfolio could be optimally dispatched to meet the forecasted load. The bundled load forecast is then updated on the pre-scheduling day prior to the delivery day to refine the day-ahead least-cost model that is then used to make decisions on unit commitments and market transactions.

Starting at approximately 5:30 a.m. each day, information to run the GenTrader model is updated. In addition, traders begin phone conversations with the market to execute trades (both

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

physical and financial) and place orders on Exchanges (e.g., ICE) and through brokers and other means. Under the new Market, the CAISO clears each resource and load schedule/bid against the day-ahead clearing price and there is no requirement for an individual market participant to balance its resource and load schedules. Therefore, these trades are transacted not to meet net short positions, but rather as hedges against fluctuations in the CAISO DAM Locational Marginal Prices (LMPs) (trades at intertie points outside the CAISO are still for physical energy). Executed trades are entered in the Allegro system, transmission “tags” are created for physical imports and Inter-SC trades (ISTs) are submitted to the CAISO. SDG&E’s traders also transact to procure physical natural gas for delivery the next day, through ICE, brokers and instant messaging (IM), in order to meet the expected needs for SDG&E utility-owned generation (UOG) and tolled generation facilities the next day. Sales of natural gas may also be transacted to manage OFOs on the SoCal and SDG&E systems. A further discussion of SDG&E’s fuel procurement activities appears later in this Plan.

The PCI application is also used to generate bids and schedules for energy and AS. SDG&E utilizes two scheduling methods, economic bidding and self-scheduling, to schedule energy and AS on its resources. AS products include Regulation, Spin and Non-Spin, and can be provided by dispatchable resources. Economic bidding is applied to AS products to capture the value of opportunity cost when the capacity could otherwise be used for energy instead of AS. Self-provision is used to directly schedule AS if the likelihood of energy dispatch is low due to factors including generation price and operational constraints limits. Self-provided AS allows SDG&E to avoid a portion of the CAISO ancillary service charge, and therefore, the value of the avoided charges is included as a credit in the variable cost analysis for the dispatch

In accordance with the Market rules, SDG&E must submit Day-Ahead bids and schedules for both supply and demand by 10:00 a.m. on the day prior to the actual trade date. For supply resources, SDG&E may either bid a quantity and price for each resource or submit a quantity as a self-schedule (willing to supply at any price). Demand is handled similarly, where SDG&E can either bid a quantity of

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

demand it is willing to procure in the DAM at a price or various levels of price, or it can elect to self-schedule all or a portion of its load supplied in the DAM (price taker). SDG&E can also submit a combination of self schedule and price bids for demand in the DAM. The CAISO posts the results of its IFM by 1:00 PM each day and all results for supply and demand in the DAM are financially binding. In addition, SDG&E cannot update its demand forecast in the Real Time Market (RTM). Any deviations between the demand quantity settled in the DAM and actual demand are settled at the RTM price.

Real-time demand and generation quantities (relative to day-ahead cleared awards) are continuously evaluated and incremental generation self-schedules and market transactions can be submitted up to the HASP deadline to support least-cost dispatch. Information to support such actions include an updated load forecast, updated prices for generation and market trades and updated availability of generation capacity to account for day-ahead commitments and outages. SDG&E updates spreadsheets and the PCI model with this information to assess its real-time requirements and make the “generate or buy” decision. Any residual long or short position is settled in the CAISO imbalance market.

Under the new Market, SDG&E primarily trades over-the-counter products (typically traded on ICE or through voice brokers) rather than ISTs, since over-the-counter products have lower transaction costs and higher market liquidity. SDG&E may also utilize market financial transactions for the same purpose in real-time. These transactions are made with the goal of locking in fixed prices consistent with least-cost dispatch and to reduce exposure to DAM or RTM prices. A description of the type of products used for this purpose is described in more detail in Section II.A.3 and II.A.4.

The SDG&E procurement process uses various markets (which now includes the CAISO DAM under the new Market), market products and internal strategies to achieve least-cost dispatch. However, various constraints may impose additional requirements that force SDG&E to make procurement decisions that are not tied to least-cost dispatch. Such constraints are

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

generally related to operational limitations, operational contingencies and reliability considerations and include:

(1) Commission guidance to obtain no more than 5% of need in spot markets without justification. As part of the new Market, all of SDG&E's demand needs are met through the CAISO, and as such SDG&E will typically seek to hedge its physical price exposure in the CAISO DAM by bilaterally procuring in the market a combination of physical and/or financial products. SDG&E will limit the amount of its demand met with purchase of bilaterally (outside the CAISO market) transacted physical resources and/or financial transactions to 5%

(2) D.04-07-028, which ordered the IOUs to account for anticipated intra-zonal congestion when creating schedules and mitigated any forecasted congestion, thereby limiting access to remote markets and resources. As part of the new Market, the CAISO markets now account for intrazonal congestion in determining generation awards. Congestion produces power flow constraints that cause generation dispatches that deviate from, and result in higher costs than, and unconstrained transmission system. SDG&E participates in the CAISO Congestion Revenue Rights (CRR) market to mitigate the cost of day-ahead congestion for SDG&E customers.

SDG&E's day-to-day dispatch activities are generally distinct from transactions related to longer-term risk management objectives. The strategies related to transactions are described in Section II B, "Risk Management Policy and Strategy" of this LTPP.

3. Description of Procurement Products

Table 1 below sets forth the physical and financial products SDG&E intends to utilize in its procurement activities. SDG&E may, from time-to-time, file advice letters requesting approval to add specific products to this list. New products may become available as the CAISO Market further develops or as a result of new legislation. Changes in regulatory policies may also result in availability of new products such as, for example, the emergence of Renewable Energy Credit (REC) markets for compliance with the Renewable Portfolio Standard (RPS) Program.

Table 1 (a) Electric Procurement Products	
Transaction	Description
Real-time Energy	Hour-ahead and intra-day energy.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Table 1 (a) Electric Procurement Products	
Transaction	Description
Spot Energy	Day-ahead and intra-day energy.
Forward Energy	Intra-month and forward energy and demand side usage reduction.
Capacity	Right to purchase energy or load reductions at an incremental energy charge at specified rate if exercised.
On-Site Energy or Capacity	Energy or capacity products self-generated on the customer side of the meter.
Tolling Agreement	Purchase Agreement for capacity and energy products where buyer provides the fuel and seller converts the fuel to energy in return for a pre-established tolling charge and guaranteed heat rate from plant.
Peak for Off-Peak Exchange	Trade where x peak MWh < y off-peak MWh.
Seasonal Exchange	Trade peak energy in Summer period for peak energy in Winter period.
Electricity Transmission Products	Transmission, transmission rights or locational spreads, arranged through CAISO and with non-CAISO transmission owners.
Ancillary Services (AS)	Services include replacement reserve, regulation up, regulation down, spinning-reserve and non-spinning reserve.
Day-Ahead and Hourly Financial Products	Day-Ahead or Real Time financial products procured as hedges against the CAISO DAM and RTM prices.
Inter-Scheduling Coordinator Trade (IST)	Product established by CAISO as a settlement service.
Congestion Revenue Rights (CRRs)	Products that provide insurance and financial protection against the costs of congestion experienced in the transmission system.
CRR Locational and Non-Locational Swaps	Trading of CRRs typically with the intent of monetizing value of excess CRRs.
Convergence Bidding	CAISO Tariff Product that allows market participants the ability off offset risk between the DAM and RTM.
Multi-Stage Generation (MSG)	MSG is a CAISO tariff product that allows SDG&E to better reflect the operational characteristics of power plants, particularly combined cycle power plants, for bidding and scheduling purposes.
Proxy Demand Response (PDR)	CAISO tariff product that enables DR resources to participate in the CAISO market.
Resource Adequacy (RA) Products	Monthly and annual system and local RA products to satisfy planning reserves in order to meet Commission RA Requirements (RAR).
RA Import Counting Rights	Trade of CAISO intertie capacity used for forecast imports of RA products to be used to meet RA requirements.
Greenhouse Gas (GHG) Products	Products associated with the purchase and trading GHG attributes.
Tradable Renewable Energy Credits (TREC)	Product associated with production of renewable energy that may be used, with certain limitations, to satisfy requirements existing under the RPS program.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Table 1 (a) Electric Procurement Products	
Transaction	Description
Emissions Reduction Credits (ERCs)	Trade to meet environmental compliance for owned generation or new "in-basin" fossil generation. Product is local in nature.
SO ₂ Allowances	Trade to meet environmental compliance for owned generation or new "in-basin" fossil generation. Product is traded/transacted homogenously in the U.S.

Table 1 (b) Gas Procurement Products	
Transaction	Description
Physical Gas	Buy or sell physical natural gas on a daily, weekly, monthly, multi-month, annual or multi-year basis at an index or fixed price.
Natural Gas Transportation	Contract for purchase of interstate or intrastate ^{4/} natural gas pipeline capacity to transport natural gas for a specified term from specified receipt point(s). Deliver at specified delivery point(s) on each day such quantity of natural gas, if any, up to the maximum receipt quantity for each such receipt point and up to the maximum delivery quantity for each delivery point all as specified in the contract, less any requisite fuel and loss reimbursement, not to exceed the physical capacity of such point at a designated rate. The levels of service for natural gas transportation may range from firm down to interruptible. The purchase of natural gas pipeline capacity can be achieved directly with the natural gas pipelines or through capacity release transactions pursuant to the natural gas pipeline's applicable tariff.
Capacity Release	The purchase or sale of natural gas pipeline capacity through a party's release of a specific quantity of natural gas pipeline capacity on a specific natural gas pipeline from specified receipt points to specified delivery points, for a designated term and rate, pursuant to the natural gas pipeline's applicable tariff. The release of natural gas pipeline capacity can be on a permanent or temporary basis and such release may contain special provisions. In the case of Canadian pipelines, this activity may be accomplished as an assignment of capacity pursuant to the applicable tariff.
Natural Gas Pipeline Imbalance Trading	Allows parties to manage the difference between the scheduled quantity and measured quantity at the receipt and/or delivery points of the natural gas pipeline through purchases or sales of natural gas or by trading imbalance positions pursuant to the natural gas pipeline's applicable tariff.
Gas Park and Loan	Pursuant to a natural gas pipeline's Federal Energy Regulatory Commission (FERC) Gas Tariff or other applicable tariff, the natural gas pipeline agrees on an interruptible service level to receive and park natural gas tendered for SDG&E's account at an agreed upon point, up to the maximum quantity specified subject to a mutually agreeable withdrawal schedule at a specific rate. The natural gas pipeline agrees on an interruptible service level to loan natural gas to SDG&E at an agreed upon point, up to the maximum loan quantity specified plus any requisite fuel and loss reimbursement subject to a mutually agreeable repayment schedule at a specific rate, all pursuant to the natural gas pipeline's applicable tariff.

^{4/} Receipt point firm access rights (FARs) provide SDG&E and SoCalGas customers delivery of gas into the system from the interstate pipeline and delivery supplies off system to PG&E. The FAR Tariff can be accessed on SoCal Gas's website at: <http://www.socalgas.com/business/firmaccess/##tariffs>.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Gas Storage	Buyer reserves gas storage capacity for a defined price. Capacity storage procured with defined injection and withdrawal rights. Can be procured either short-term (monthly capacity rights or annual capacity rights up to 3 years) or long-term (annual capacity rights up to 10 years). Storage may have some inherent hedge characteristics as it can mitigate price risk on either short-term (weekly) or long-term (seasonal) basis.
Physical Option – Call or Put	Right to purchase (call) or sell (put) energy in the future at pre-set price (price may be pegged to an index).
Physical Swap	Over the counter agreement between two parties specifying the exchange of payments based on a given commodity or formula.
Financial Option – Call or Put	Right to purchase (call) or sell (put) the future financial energy cash flows at pre-set price (price may be pegged to an index).
Financial Swap or Future	Exchange of cash-flows between a floating price index and a fixed negotiated price. Can be long or short-term transactions. Typically between 2 parties under an ISDA agreement, but can be “ICE Cleared.” ICE Cleared deals allow parties to make or receive payments through a clearing house.
Financial Spread	Spread is the difference between two prices, amounts or numbers such as the bid/ask prices in commodity trading. In the futures and options markets, a spread is the simultaneous purchase and sale of two different contracts in the expectation of a favorable change in their relative prices.
Financial Spread Option	An option on the price differential between two related instruments or commodities.
Credit Insurance Products	Contract to insure against various adverse credit events to reduce credit exposure and Credit Risk (e.g., credit default swaps, credit insurance, etc.).
Volumetric Insurance Products	Contract to insure against various adverse physical and/or operational events to protect against replacement costs (e.g., business interruption insurance, unit outage insurance, etc.).

**Table 1 (c)
Credit Products**

Transaction	Description
Credit Insurance Products	Contract to insure against various adverse credit events to reduce Credit Exposure and Credit Risk (e.g., credit default swaps, credit insurance, etc.).
Volumetric Insurance Products	Contract to insure against various adverse physical and/or operational events to protect against replacement costs (e.g., business interruption insurance, unit outage insurance, etc.).

4. Overview of Energy Market Products

Below is a description of the key products that will be used for managing the physical position of SDG&E’s portfolio.

a. Inter-SC Trades

ISTs are a service offered by the CAISO to assist market participants in the settlement process. ISTs can be useful for settling third-party physical bilateral trades and for settling payments for PPAs for

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

which SDG&E is not the SC. The IST authorizes the CAISO to transfer money between SCs based on the matching quantity submitted and the market price that clears at the designated delivery point. The settlement service offered by ISTs is optional in the sense that the counterparties to a bilateral contract could elect to settle their bilateral contract outside of the CAISO settlement system. The CAISO charges a fee to both parties for providing this settlement function.

b. Exchanges

Exchanges can include a broad group of distinct markets such as electronic auctions and electronic trading platforms. Broker markets are the manual equivalent to electronic exchanges in that brokers have access to a wide pool of buyers and sellers and convey this pricing information to all participants, creating the same price transparency as electronic exchanges, and therefore should be considered exchanges. In addition to creating price transparency, exchanges and brokers create liquidity in the market by attracting large numbers of buyers and sellers into a single arena. This increased liquidity creates the greater competition amongst participants.

Another common characteristic of exchanges is their “double blind” nature. That is, the buyers and sellers are unknown to each other prior to being matched up by the broker/exchange. This allows for transactions with affiliates to be conducted without raising concerns about undue preferential treatment. Lastly, exchanges tend to deal in standard products. This is the trade-off for increased

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

liquidity; the most successful exchange-traded products are those where all products and terms can be standardized. Many highly structured products, such as tolling arrangements for specific power plants or locational swaps for two thinly traded locations, do not have a broad enough market to create standard traded products.

The simplicity of the exchanges/broker markets are part of their appeal. Access to pricing on standard products usually reduces the selection criteria down to a single determinant: price. Exchanges and brokers usually allow participants to be selective about with whom they are matched while preserving anonymity. For instance, a participant can elect to “turn off” any particular counterparty for any reason such as a lack of established credit terms, and these two participants will not be matched. Voice brokers offer a similar service on a manual basis, and can provide pricing for non-standard products that are not currently available through electronic exchanges.

Exchanges provide timely and transparent pricing information by essentially reporting, in real time, the best current market prices and volumes available for transaction. The types of products most frequently procured through exchanges/brokers are standard energy products including baseload gas, 6x16 power, financial products and CAISO products such as AS. Exchange and broker fees are recovered through SDG&E's Energy Resource Recovery Account (ERRA). SDG&E intends to use exchanges to trade baseload products for terms ranging from day-ahead to multi-month or longer.

c. Inter-dealer (Voice) Brokers and Exchanges

SDG&E uses voice brokers and electronic exchanges for its procurement and hedging activities. Fees charged for these brokerage services will be submitted for recovery under the ERRA.

d. Spot Markets/Spot Energy

“Spot markets” include transactions of many types, executed in different markets, whose common characteristic is the timing of the transaction relative to the delivery period. The Commission has defined spot markets as any trading done in a day-ahead, hour-ahead or real-time period. Spot transactions may be executed either through exchanges, or directly with counter parties. It is

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

appropriate to make responsible use of the spot market as a means to procure a reasonable percentage of the total portfolio based on economic criteria.

Some participation in the spot market is necessary to protect the interests of ratepayers. The spot market offers greater flexibility to (i) respond to market conditions; (ii) diversify the price exposure of its portfolio; (iii) capture opportunities that may be advantageous to the portfolio; and (iv) contribute to market efficiency. Since the implementation of the Market, the level of SDG&E's participation in spot market transactions has decreased. SDG&E anticipates that its reliance on the spot market for energy on an annual basis will be limited.

e. Counterparty Sleeves

SDG&E may enter into two-sided trades where the same product is purchased from one counterparty and sold to another simultaneously for the purpose of providing credit. Such transactions, known as credit sleeves, have the two main benefits. First, and most importantly, sleeves help SDG&E control its credit exposure to various counterparties. If SDG&E becomes concerned with its level of financial exposure to Party A, SDG&E may be able to arrange for Party B, who does not have similar credit issues with Party A, to buy from Party A and sell to SDG&E. Thus, Party B acts as a credit sleeve, absorbing SDG&E's exposure to a counterparty with whom it would otherwise be unable to transact. These sleeves, which entail a nominal fee, are useful in expanding the pool of counterparties available to SDG&E. Second, SDG&E may achieve modest yet certain cost reductions to its supply portfolio. From time to time, SDG&E may be asked to buy from Party B to sell to Party C at a small profit because both parties desire to trade, but due to credit restrictions, cannot do so. SDG&E can act as a credit sleeve if the seller is able to sell to SDG&E and if SDG&E has a credit surplus with the buyer. SDG&E has the ability to sleeve trades and either maintain or even improve its credit exposure with the counterparties. In these cases, credit sleeves would have the positive effect of reducing portfolio cost and potentially mitigating credit exposure to either party.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

f. On-Line Auctions

On-line auctions are platforms provided by a third party that allow SDG&E to conduct auctions with selected parties through the third party's Internet website. The auctions are conducted securely (counterparties cannot see each other's offers/bids) and relatively quickly and are typically used for transactions involving short-term products, although these auctions can also be utilized for long-term transactions. The auctions may, in certain situations, provide benefits including additional price transparency and/or additional market liquidity. SDG&E may choose to use on-line auctions as part of its procurement strategy if it believes there is added value provided by utilizing on-line auctions, and may enter into one or more agreements with providers of this service.

g. Instant Messaging

SDG&E uses Instant Messaging (IM) to transact with counterparties in certain situations. SDG&E will utilize IM to transact with brokers and other counterparties for both standard and non-standard/physical and financial products. SDG&E will typically use IM when transacting bilaterally since it provides an efficient way to seek offers from multiple counterparties simultaneously for a particular product or set of products, allowing SDG&E to choose the best price for certain products being bought or sold on a particular day and time. IM can also help reduce broker fees if SDG&E is able to transact for a particular product with a counterparty rather than a broker. IM is also used to schedule both gas and power and to purchase or sell physical power at CAISO intertie points as it is more efficient to transact through IM compared to performing the same duty over the phone or email. Because this form of transaction is not "double blind" and will not involve an Independent Evaluator (IE) given the speed at which it is conducted, SDG&E will not transact with affiliates through this means.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

h. RPS Procurement

SDG&E procures renewable resource products (bundled energy, capacity and renewable energy credits) in accordance with State law and consistent with Commission direction provided in the RPS proceeding, R.08-08-009, and successor proceedings. As detailed in SDG&E's separately-filed RPS Procurement Plan, and discussed in Section II.A.5.c hereof, SDG&E's procurement of renewable products has been, and will continue to be, mainly through long-term Purchase Power Agreements (PPAs). Long-term procurement of renewable resource products will be handled through RFO and bilateral negotiations, subject to review by the IE and SDG&E's Procurement Review Group (PRG). Should liquid markets for short-term renewable products become available, however, SDG&E may explore the purchase of renewable products on a Day-Ahead or balance-of-month basis. .

i. Tolling

Tolling arrangements give the buyer access to generation capacity at a guaranteed gas-to-electricity conversion heat rate. This product can be loosely characterized as a power plant lease. Depending on the circumstances, SDG&E could find itself in the market as either a buyer or seller of tolling contracts. Tolling agreements are relatively complex structured products that do not trade like standardized products since any tolling arrangement must be customized to the characteristics of the unit underlying the contract. The most likely means of trading a Tolling contract is through an RFO.

j. Proxy Demand Response

Proxy Demand Resource (PDR) is a new type of resource the CAISO developed and introduced in 2010 to enable DR programs to participate directly in the wholesale market. It was developed in response to stakeholders' requests for a product designed to facilitate the participation of existing retail DR programs in the ISO wholesale energy and AS markets. The CAISO creates a new PDR upon request after a DR provider registers participating customers of a DR program into the CAISO Demand Response System. Once the PDR is created, the DR provider (through its SC) may submit bids and schedules for the PDR similar to any other wholesale supply resource. PDR is not itself a DR program

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

and does not provide financial incentives to support DR programs, other than payments for energy and AS awards. SDG&E will adopt PDR in accordance with direction provided by the Commission in its DR-related proceedings.

k. Multi-Stage Generation

Multi-Stage Generation (MSG) is a modeling enhancement the CAISO introduced in December 2010 that allows for more specificity in bidding resources with multiple operating states (such as combined cycle power plants) into the CAISO market. Prior to MSG, the CAISO could only accept generator bids that essentially ignored the various states, and transitions between states, that characterize the true operation of many CAISO generators. Under MSG, generator master files and bids can now explicitly reflect characteristics for each operating state, including dispatch ranges, minimum load and transition costs, ramp rates and AS capability. Each MSG resource may have between two and ten distinct operating states that the CAISO will utilize in the DAM and RTM for energy, RUC, AS and ED. SDG&E has implemented MSG for several of its resources and may apply MSG for its combined cycle resources such as the Palomar and Otay Mesa generating plants, pending additional analysis and testing, once SDG&E is reasonably confident that it will enable the CAISO to more efficiently commit, dispatch and settle these resources. SDG&E may request the CAISO to revert MSG resources back to non-MSG resources if the expected benefits cannot be achieved.

l. Resource Adequacy Products

In D.04-10-035, the Commission defined Resource Adequacy Requirements (RAR) for all Load Serving Entities (LSEs) in California. Under this and subsequent Commission orders, each California LSE is required to acquire planning reserves that are at least 15% greater than its peak load forecast, which may be adjusted by the CEC. As the result of this mandate, SDG&E may be required to procure resources solely for the purpose of meeting this RAR planning reserve, rather than for meeting customer load. SDG&E may determine that it must execute transactions, as a buyer or a seller, in order to meet its RAR needs. In accordance with existing Commission requirements, SDG&E submits

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

a year-ahead RA filing in the October/November time-frame for the succeeding year. This filing is intended to demonstrate that SDG&E had resources to meet both Local and System RA. SDG&E also makes monthly system RA filings. SDG&E will include any RMR-related RA allocations into its overall system and local RA portfolio during the allocation process for both annual and monthly RA filings. However, SDG&E may be required to procure RA resources in order to meet its annual and/or monthly filing obligations. In accordance with D.04-07-028, depending upon the length and timing of need, SDG&E may seek RA products of up to 5 years in length either through bilateral negotiations or through an RFO process.^{5/} SDG&E may make excess local/system RA supply (*i.e.*, system/local RA in excess of what SDG&E requires to meet its own RA obligations) available to the market. SDG&E may offer such excess RA products to the market through an RFO process, through a response to a counterparty RFO or through bilateral negotiations with counterparties. Such transactions would be for capacity or rights to capacity, and the related cost would be fully recoverable through SDG&E's ERRRA. Current Commission rules permit SDG&E to buy and/or sell products bilaterally when (1) SDG&E is approached by an outside non-affiliated third party seeking to sell or procure short-term RA of one year or less in duration; or (2) SDG&E has a need to procure monthly system RA capacity. SDG&E will periodically brief its PRG on its RA positions. SDG&E may choose to retain all or some portion of excess RA in order to retain surplus RA for use in management of the Standard Capacity Product, discussed below.

^{5/} In D.04-07-028, the Commission relaxed the restrictions on negotiated bilateral contracts to allow for the use of bilateral negotiated contracts for capacity and energy from power plants where the purpose is to enhance local area reliability (*mimeo*, p.17 and Ordering Paragraph 1.e.). D.04-07-028 prohibits bilateral negotiations between SDG&E and affiliated third parties.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

m. Resource Adequacy Import Counting Rights

Under the current RA rules, entities are given an allocation of CAISO intertie capacity that they may use for forecast (in annual and monthly RA compliance filings) imports of RA products to be used to meet their RA requirement. SDG&E may, during the course of this plan, have a need to either buy more rights than it has been allocated or sell any unused portion of its allocation. These rights convey no physical access to transmission; they are simply an accounting right in RA compliance.

n. Standard Capacity Products

In 2010 the CAISO implemented its Standard Capacity Product (SCP) I tariff for RA resources; it implemented its Standard Capacity Product II tariff in 2011. SCP incentivizes and penalizes RA resources that exceed or fail to meet strict availability standards. Availability is calculated based on unit forced outages and temperature related ambient derates. SCP allows scheduling coordinators to replace RA resources on forced outages with non-RA committed resources to avoid unavailability charges. As mentioned above, to the extent that SDG&E has excess non-RA resources year ahead or month ahead, SDG&E may elect to use some or all of the resources for substitution to avoid SCP penalties.

o. Bilaterally Negotiated Contracts For Conventional Resources

Due to the non-standard nature of many of SDG&E's short and long positions, it may be difficult to locate standard products traded on transparent exchanges that fit all of SDG&E's needs for economic purchases, sales and load-serving. In certain instances, a non-standard, structured product negotiated with a single counterparty may produce the best product for SDG&E's portfolio. The advantages of the bilateral approach over a competitive bid process include both timing and flexibility. Bilaterally negotiated transactions are primarily utilized in day-to-day market transactions where RFOs would be impractical due to the continually changing prices for products. Bilateral transactions may also be used for renegotiation of existing contracts where SDG&E has the potential to extract added value for customers as a result of the renegotiated terms. In these instances, the bilateral approach

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

permits greater flexibility and ability to adapt to changing market conditions and the flexible negotiating process allows counter-parties to reach agreement on commercial terms, including price, more quickly and to achieve potentially more creative and beneficial contract commercial terms.

Prior to executing any such structured transaction, SDG&E will compare the economic and operational benefits to its associated premium over dispatching a generation unit, and against purchasing a standard energy product valued against the forward prices covering the same period of delivery, and will demonstrate that the product benefits the overall portfolio by reducing net cost or portfolio VaR-to-Expiration (VtE) compared to other products.

In D.03-12-062, the Commission established the following limits on bilateral contracting: (1) for short-term transactions of less than 90 days duration and less than 90 days forward, the utilities are authorized to continue to use negotiated bilaterals subject to the strong showing standard adopted in D.02-10-062, as modified by D.03-06-067, and any such negotiated bilateral transactions shall be separately reported in the utilities' quarterly compliance filings; (2) to purchase longer term non-standard products provided they include a statement in quarterly compliance filings to justify the need for a non-standard product in each case; the justification must state why a standard product that could have been purchased through a more open and transparent process was not in the best interest of ratepayers; and (3) for standard products in instances where there are five or fewer counterparties who can supply the product.^{6/} This authority is limited, however, to gas storage and pipeline capacity. Bilateral products for renewable resources are discussed below in Section II.A.5.c.

p. Procurement Diverse Business Enterprises

SDG&E's annual goals within its overall internal procurement strategies currently include procurement of a portion of its natural gas requirement from Diverse Business Enterprises (DBE), (*i.e.* minority or women owned businesses). The Commission has indicated that it supports purchases from DBE suppliers. Thus, SDG&E may develop goals for procurement of electric products from DBEs,

^{6/} D.03-12-062, *mimeo*, pp. 39-40.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

similar to those currently in place for gas products. Should SDG&E adopt internal goals on the electric side, it will negotiate single or multiple monthly arrangements with DBE suppliers either through an RFO process or bilaterally. These arrangements have the advantage of supporting the DBE businesses, as well as reducing the amount of energy-related products SDG&E must procure on a daily basis, further diversifying SDG&E's overall procurement strategy.

q. Feed-in Tariffs

The Commission has adopted RPS Feed-in Tariffs (FiTs) as a means of encouraging procurement of renewable generation from smaller renewable resources. SDG&E currently offers two FiT opportunities. The first is available to water and wastewater customers with projects sized below 1.5 MW that meet certain eligibility criteria (Schedule WATER); the second is available to all customers with projects below 1.5 MW that meet certain eligibility criteria (Schedule CRE). SDG&E may modify or replace these FiTs, or add additional FiTs, in the future in accordance with the Commission's direction.

r. Inter-Utility Exchanges/Swaps

SDG&E will make use of inter-utility exchanges when the appropriate offsetting position with another IOU results in an effective match. Exchanges may be as short-term as intra-day, where one party delivers morning peaking energy and receives back evening peaking energy. Exchanges may also be peak or off-peak, or reach across seasonal differences in net open positions. Additionally, exchanges may be entered into with municipalities, non-California IOUs, merchant generation companies or trading companies to offset short positions with long positions, rather than balancing positions by trading illiquid products and incurring unnecessary transaction costs.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

s. *Convergence Bidding*

Convergence bids are transactions that permit market participants to arbitrage prices between two financially binding energy markets. In the CAISO's case these are the DAM and RTM. If the convergence bid clears in the DAM, the same volume automatically clears in the RTM in the opposite transaction (purchase versus sale). The settlement of this transaction (sales revenue – purchase cost) is determined by the difference between the two market prices and the award quantity.

FERC ordered the CAISO to implement convergence bidding (CB) as part of the new Market. In its September 21, 2006 Order, which conditionally accepted the CAISO MRTU Tariff filing, FERC noted the successful implementation of CB by other RTOs, recognized the market benefits of CB, and directed the CAISO to implement CB within one year after the effective date of the new Market. The market benefits acknowledged by FERC in its order were an improvement in market performance and reduction in market power from an increase in liquidity (number of offers to buy or sell) in the DAM. To participate in the CAISO market with convergence bids, a participant only needs to meet the CAISO credit requirements, since the CB product is financial and has no physical delivery requirement.

In D.10-12-034, the Commission authorized SDG&E's participation in the CAISO CB market under three separate strategies. Convergence bids under all strategies are limited to the nodes or locations where the SDG&E-owned or SDG&E-contracted resources or load are physically located. SDG&E is not required to use any of the three bidding strategies and, to the extent it elects to use one or more of the strategies, may apply them flexibly to meet its own circumstances, consistent with the provisions of D.10-12-034. All costs of such participation are recoverable in the SDG&E ERRRA.

The Commission-authorized products for SDG&E include: (1) manage Real-Time price exposure resulting from unanticipated forced outages, derating of generating units, derating of transmission, or uncertain generation performance for resources scheduled by the IOUs in the CAISO's DAM; (2) manage the forecast/costs of scheduling of intermittent generation into the CAISO market, for volumes up to, but not exceeding, the amount of the Day-Ahead forecast of intermittent generation in

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

the DAM, followed by buying it back through the convergence sale in the CAISO Real-Time market; and (3) as a defensive convergence bidding strategy in the DAM and RTM to mitigate real harms from market manipulation or other unintended market dynamics. Any SDG&E use of the defensive CB strategy will be reported on a case-by-case basis with actual market and settlement data. SDG&E will report if and how it employed CB strategies intended to protect SDG&E's ratepayers from avoidable risks at identified locations.

SDG&E shall, within one business day of its receipt of notice, provide written notice to the Commission's Executive Director, the Director of Energy Division and the General Counsel of: a) notice from the CAISO or its Department of Market Monitoring that SDG&E is the subject of an investigation pursuant to the CAISO Tariff, including Section 37.8.4; b) notice from the CAISO that the conduct of SDG&E has been referred to the FERC by the CAISO pursuant to the CAISO Tariff, including Section 37.8.2; or c) notice from the CAISO that SDG&E's CB trading has been suspended or limited by the CAISO.

SDG&E's use of CB in the DAM and RTM shall be subject to an absolute stop loss limit on the amount of loss SDG&E can incur from CB, on a rolling 365 day basis, of not more than \$5 million. Exceeding this limit will suspend SDG&E's authorization to participate in CB until SDG&E files a Tier 3 advice letter and receives Commission approval to resume CB.

SDG&E will submit a monthly report to the Energy Division for each calendar month, no later than two weeks days from the end of each month, that includes the following:

- a. A list of each cleared convergence bid, containing the hour, location, volume, and justification for the transaction;
- b. A list of the Day-Ahead and Hour Ahead prices corresponding with each convergence bid;
- c. For each day the gains or losses, in dollars, as a result of CB;

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

- d. For that month, and any past months during the calendar year in which convergence bids were transacted, a monthly total of volume, gains or losses (in dollars), the number of times each strategy was employed, and the number of bids conducted outside of SDG&E's service territory;
- e. The approved CB strategies utilized during that time period;
- f. Qualitative analysis of CB impacts upon other related products, such as CRRs; and
- g. A list of any other Sempra affiliates who have or are registered with the CAISO to participate in CB.

SDG&E will provide the report to the Energy Division, monthly for a period of one year after the CB market commences. At the end of one year, absent further direction from the Commission, this information shall be reported in SDG&E's Quarterly Compliance Report filings beginning with the Q1 2012 filing. SDG&E shall review the monthly report, its CB strategies, performance, and market analysis with its PRG on at least a quarterly basis, beginning with the first quarter in which CB activities commence.

t. Greenhouse Gas Emissions (GHG)

The first auction for Greenhouse Gas (GHG) Emissions is expected to commence in February 2012 as part of the State's implementation of Assembly Bill 32. SDG&E may also purchase emission offsets, as allowed by the regulations. SDG&E plans to participate in GHG auctions from time-to-time in order to buy allowances at what it estimates to be the best market price to manage its obligations. SDG&E may also sell allowances from time-to-time, to the extent it is necessary to do so in order to keep its bank in balance. SDG&E's procedures for determining its emission allowance needs and the purchase of the required offsets and allowances are explained in Appendix F.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

u. SO₂ allowances

SDG&E possesses SO₂ allowances and intends to enter into trades of allowances from time-to-time in order to make the highest and best use of any allowances that it possesses.

v. Emissions Reduction Credits (ERCs)

SDG&E has several gas-fired peaking facilities and several combined cycle power plants in its portfolio. Some of these units may be utility-owned, and as such, SDG&E would be responsible for environmental compliance. SDG&E may also find that it cost-effective to buy additional ERCs to expand the hours of dispatch of tolling contracts at units that it does not own. Accordingly, SDG&E may periodically procure these products on the market for use at its generation facilities, at tolling facilities, or to hold for new "in-basin" fossil generation. The market for ERCs is very local in nature and quite illiquid. Such transactions would likely be bilateral, rather than acquired through RFOs or exchanges, and their costs would be recovered through SDG&E's non-fuel generation balancing account (NGBA). Given the limited amount of ERCs available in SDG&E's service territory, it is possible that SDG&E may acquire ERCs that it would hold and book as plant held for future use. The cost of such ERCs would be recovered via advice letter or as part of a future general rate case.

w. Forward Products

SDG&E may procure energy and capacity well in advance of the actual delivery period. As with other physical products discussed in this section, the actual requirement to transact on a forward basis may be due to either managing the portfolio's price risk, filling short positions or realizing economic value. Forward transactions may be for standard energy blocks or non-standard structured products, depending on portfolio need and the market used to procure the product. It is important to note that, despite its physical position, SDG&E may still elect to make a forward purchase or sale of energy if doing so is in its customers' interest.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

x. Indexed Energy

SDG&E may buy energy and capacity products by use of indexed pricing. In this instance, energy is contracted for on terms that are certain as to quantities and delivery times, but the price “floats” based on an agreed upon index. Such transactions allow SDG&E to ensure reliability of supply or market, while stripping away pricing terms for consideration in a risk management strategy.

y. Heat Rate Call Options

A heat rate call option is an option that entitles the holder of the option to purchase power at a strike price that is based on an indexed gas price multiplied by the heat rate, and the seller will collect the premium. This tool is a particularly good means of: (i) realizing value from units with higher than market heat rates because they represent no intrinsic value, but contain extrinsic value due to the volatility of forward prices; or (ii) protecting SDG&E from market heat rate risk.

z. Tradable Renewable Energy Credits

As is discussed in more detail in SDG&E’s RPS Procurement Plan and Section II.5.A.c hereof, SDG&E may procure and/or trade Tradable Renewable Energy Credits (TRECs) in accordance with State law and Commission requirements. To date, SDG&E’s procurement of long-term TRECs has occurred through PPAs, however liquid markets for short-term renewable products have become available and may be accessed.

aa. Congestion Revenue Rights

Under the CAISO’s Market, hedging of exposure to congestion costs has transitioned from Firm Transmission Rights (FTRs) to Congestion Revenue Rights (CRRs) as of April 1, 2009, when the CAISO implemented the Market structure. The CRR process is conducted by the CAISO. Under the CAISO’s process, each LSE receives a certain allocation of CRRs based on its relative market share,

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

and can use this allocation to bid on available CRRs in the CAISO CRR allocation process. The CAISO currently conducts multiple phases of CRR allocations. In addition to the CRRs allocated to the various LSEs, each LSE also has the opportunity to compete with all market participants for additional CRRs through a supplemental auction process held after the initial auction process is completed.

SDG&E utilizes CRRs to manage forecasted congestion on the CAISO system. In the Market structure, the CAISO is responsible for managing congestion on the grid and at interties. While SDG&E continues to manage congestion risk, and may choose to sell off certain resources/products rather than import them if it can do so at a cost less than importing the resource/product and incurring the congestion cost, there are situations where SDG&E may have to incur the congestion costs, either because it cannot economically sell the resource short-term or because it is contractually obligated to purchase and/or import the resource. This situation occurs most often with renewable resources where SDG&E must import the resource in order to receive the associated RECs.

In Resolution E-4124, the Commission granted, with criteria for implementation, SDG&E's request for authority to convert CRRs allocated to it in Tiers 1 and 2 of the CAISO CRR allocation process into long-term (10 year) CRRs, in conformance with the rules established in the CAISO tariff.^{7/} In this approval, the Commission required that such long-term CRRs be used for hedging of expected use of the transmission grid and that long-term CRRs not be acquired for speculative purposes.

In Resolution E-4136, the Commission granted, with criteria for implementation, SDG&E's request^{8/} for acquisition of CRRs. Authorization conferred in that resolution: (1) allows SDG&E to acquire CRRs through the CAISO tariffed allocation and auction program in volumes as limited by the CAISO tariff and SDG&E's expected grid use, and allows SDG&E to transact in secondary CRR markets; (2) requires that SDG&E use CRRs for hedging and not for speculation; (3) requires consultation with the PRG and the Commission's Energy Division prior to nominating CRR quantities,

^{7/} AL 1920-E, filed August 3, 2007.

^{8/} AL 1926-E, filed September 14, 2007.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

where the nominations are based upon forecast valuation established by SDG&E; and (4) requires reporting of CRR transactions in the Quarterly Compliance reports. A description of how SDG&E manages CRRs is contained in Appendix D.

bb. CRR and Non CRR Locational Swaps

SDG&E will have available to it certain resources that are located outside of its service territory and that may or may not have associated CRRs for all PPAs outside of the CAISO grid. These would include, for example, the Boardman Contract power delivered at California Oregon Border (COB), the Sunrise power delivered at ZP26 and power from the Yuma cogeneration plant in Yuma, Arizona and various other PPAs, which must be imported into the CAISO grid for delivery. Due to the risk of congestion charges and potential curtailments across transmission paths, SDG&E may elect not to import power from these units into SP15 during certain hours or periods during the year, but to instead sell the power at the delivery point and purchase replacement power in SP15 or another location with less congestion risk.

In addition, SDG&E may in certain circumstances have more CRRs than resources at a particular inter-tie. SDG&E may choose to monetize these surplus CRRs by purchasing power at one location and selling it at SP15, if it is economic to do so. This would be considered a locational swap.

cc. Third-Party Transmission Capacity

SDG&E will consider purchasing non-CAISO transmission capacity made available by a number of parties on the Open Access Same-Time Information Systems (OASIS) in operation in the WECC. OASIS, as its name implies, is a bulletin board open to many parties that sells transmission capacity at regulated rates. Such capacity will allow SDG&E to access markets such as the Pacific Northwest during the spring run-off season and the Desert Southwest during certain shoulder and off-peak hours.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Transmission may also be required to garner deliveries under exchange agreements or other structured transactions. SDG&E intends to purchase third-party non-CAISO transmission capacity from time-to-time on an opportunistic basis, should its analysis show that such transactions will help to reduce the overall cost of delivered energy for ratepayers.

5. SDG&E Procurement Contracting Methods and Practices

As described herein, SDG&E anticipates that it will utilize the authorized products and mechanisms detailed above for purchasing, selling and contracting for resources. The actual quantities transacted through any one of these means are a function of SDG&E's need, the product availability and pricing.

The products listed herein may not always perfectly match the needs of SDG&E's portfolio. Hence, the need may arise to pursue structured products through bilateral transactions. As discussed in Section II.A.4.o, above, in considering whether to enter into a bilateral transaction, SDG&E would perform an analysis to ensure that any product considered on a bilateral basis is priced competitively relative to its value to the portfolio and against alternate physical energy products.

a. Procurement Practices and Methods for Short- and Medium-Term Transactions

Short-term transactions are also discussed in Sections II.A.2.c, II.A.3 and II.A.4 and Appendices C, D, E and F. SDG&E bids its supply and its load into the CAISO DAM, and the CAISO will determine the most economic solution for supplying load with available supply. SDG&E will transact in the spot market as a hedge against the CAISO DAM and RTM prices. The transactions may be either physical and/or financial and may be done day-ahead or day-of. Spot transactions may include the purchase and/or selling of energy during periods of over-supply or to meet least-cost dispatch obligation when contracts/units are economic to dispatch. Spot transactions are typically executed either day-ahead or in real-time in advance of the delivery period at fixed or indexed prices. Spot transactions are done either through exchanges (including voice brokers) or directly with counter parties on a bilateral basis, and may include but are not limited to, firm and non-firm energy supplies, capacity products and

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

financial swaps. The primary objective of spot transactions is to manage the physical supply/load balance at competitive prevailing market prices. The Commission has provided guidance that IOU spot market transactions should be less than 5% of total load, it has also ordered the IOUs to follow least-cost dispatch. In CAISO's new Market, both supply and demand are bid into and purchased through the market. As such SDG&E will ensure that not more than 5% of its demand is met by the purchase of bilaterally (outside the CAISO market) transacted physical resources and/or financial transactions.

As discussed in Section II.A.4.o, for transactions with a term longer than three months, the Commission's preferred means of utility procurement is through an RFO. For certain short-term transactions offering ratepayer benefits, however, it may be impractical to use an RFO process for purchases. In instances where purchases or sales are made outside of an RFO process, depending upon the length and type of product procured, SDG&E will document the transaction using available and relevant market data and include it in its compliance filings in ERRRA and/or the Quarterly Report.

(i) Contract Duration Pre-Approval Limits

In D.07-12-052, the Commission clarified the applicability of pre-approval rules to certain procurement contracts. The Commission's discussion, set forth below, is incorporated into this LTPP:

- IOU may execute a contract of under five years without pre-approval for which deliveries end at any point within the 10-year LTPP procurement cycle, provided the procurement complies with a procurement limit methodology (which various parties refer to as a ratable rate, laddering or layering methodology) developed by the IOU and approved by a Commission resolution or decision.
- Absent a Commission-approved procurement limit methodology^{9/}, an IOU may execute a contract of under five years without pre-approval provided, per existing Energy Division guidance, that the five-year duration clock begins:
 - at the time the contracted resources begin delivery, if delivery begins within one year of contract execution; or
 - at the time of contract execution, if delivery does not begin within one year of contract execution.

^{9/} SDG&E may at a future time update its LTPP to provide more detail on its procurement limit methodology, if required by the Commission in order to be granted authorization for execution of contracts, without pre-approval by the Commission, where the contract is less than five years in duration and for which contract deliveries end in years 6 through 10 within the 10-year LTPP procurement cycle.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

- In calculating contract duration, calendar days are used, not days of obligation, days of service under the contract or days of need for the resource.^{10/}

b. Procurement Practices and Methods for Long-Term Transactions

In D.07-12-052, the Commission stressed that it does not favor of “just in time” resource acquisition and directed the IOUs to begin procurement on a timeline that takes into consideration project development cycles. SDG&E sees the value of RFOs in longer-term procurement where it is procuring highly-structured, non-standard products and no transparent pricing exists, or where products may be standardized, but no exchange exists on which to trade them. Examples of non-standard products are complex tolling arrangements.

An RFO is typically composed of the following steps. First, analysis is performed to determine the portfolio need and the best products to fill that need, given all constraints that exist on procurement, including the State’s preferred loading order, GHG emission reduction measures, RPS goals, intra-zonal congestion, and system and local RA requirements. RFOs will generally be resource-specific (*i.e.*, soliciting either renewable or conventional resources), based on separate proceedings and processes established by the Commission. However, all-source RFOs may be conducted to fill the need not already met through targeted proceedings. Instances in which SDG&E may limit participation include “set asides” where regulatory/statutory targets create a need to buy or to limit procurement of certain resources such as renewables. In such a case, relative prices among different potential resources is not the primary consideration, but relative prices within the targeted set of resources (*e.g.*, renewables or CHP). Local RA and RFOs targeted to add new generation needed for grid reliability are another form of “set aside” where the concerns regarding the pure economics of procurement may be outweighed by other policy concerns, such as the need for new construction.

Second, creation of the RFO document is a multi-discipline task, utilizing subject matter experts from the procurement, resource planning, legal and credit functions. The draft RFO typically includes a

^{10/} D.07-12-052, *mimeo*, p. 172.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

detailed description of products sought and any requirements that must be met, the term of the products, the minimum or maximum quantities being sought, a description of the data that must be returned with a valid, conforming offer, a draft term sheet that outlines the commercial arrangements that will form the basis of the contract negotiated with the successful bidder, and the administrative schedule of the solicitation. In creating RFO bid documents, SDG&E will consult with its IE, PRG and the Commission's Energy Division on the type and quantity of products to be solicited, the evaluation process and criteria to be used in ranking offers and any unique considerations in the RFO. In the event that the IE, PRG, or Energy Division staff have differences of opinion with SDG&E regarding any aspect of the RFO, SDG&E will work with Energy Division staff to resolve such issues prior to release of the RFO.

Third, the RFO is distributed to the market. In order to achieve the RFO goal of maximum liquidity and competition, SDG&E uses the broadest possible distribution list for e-mailing the RFO document directly to potential bidders. This typically starts with the Western Systems Power Pool (WSPP) membership list and is expanded to include past RFO participants, or any party that has shown an interest or is known by SDG&E to be capable of providing the resources sought in the RFO. Information on the status of the RFO and responses to bidder questions are routinely provided as updates to interested participants.

Fourth is the preparation of bid evaluation criteria. In order to ensure equitable treatment of all RFO participants, it is necessary to have a pre-established method for evaluation of offers. The evaluation methodology applied will vary in accordance with the nature of the products being solicited. Appendix G describes the factors that will be included in the evaluation criteria. In conformance with D.07-12-052, SDG&E incorporated the following change into its Evaluation Criteria.

- Viability: SDG&E has incorporated the concept of a viability criterion into its evaluation criteria. SDG&E will work to further enhance the utilization of viability as a factor in the decision making process.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

SDG&E will work with its IE and PRG to establish and refine its evaluation criteria on an RFO-by-RFO basis. At the conclusion of the evaluation process, SDG&E will present its shortlist to the PRG, including the rationale for the disposition of every selected and rejected bid.

The fifth step is contract negotiation. Even where a pro-forma contract is developed for the RFO, the contracting stage can be a time-consuming series of negotiations. Contracts represent a collection of agreements on a multitude of risk sharing provisions. Negotiations are an opportunity for both sides to create a balance in the contract terms that captures the issues most important to each side. These negotiations tailor the contract to a specific counterparty that was a successful bidder – it is impossible to develop a pro forma contract that accounts for all of the preferences of an unknown counterparty. Credit is a good example of one such “deal point” to be negotiated, as it is one of the many risks that is governed by language in the contract. SDG&E may choose to lower credit requirements as a trade-off for some other risk mitigation in the contracting process. This makes credit requirements fluid and difficult to standardize, as discussed in the credit section of this LTPP. This negotiating stage makes the RFO process somewhat similar to bilateral contracting; however the negotiations cannot move the original transactions too far from the product that was bid on by all other RFO respondents. This is one area where IE oversight is useful.

In conformance with D.07-12-052, SDG&E will “publicly reveal the names of winning bidders, a description of the product and the contract term, within 90 days of when the IOU files an application with the Commission for approval of the contract.” ^{11/}

^{11/} D.07-12-052, *mimeo*, p. 269.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Other steps or processes enter into the conduct of RFOs from time to time. In conducting Request for Bids (RFBs), where SDG&E is selling to the market, SDG&E may employ a reserve price. Such a price would be designed to ensure that ratepayers do not experience a significant loss in the market. For instance, if an RFB receives only a single response, and that bid is for a penny, the ratepayers are protected if the RFB is designed with a reserve price that is set closer to market value of the product. In such case, the RFB would fail due to a lack of bids at or above the reserve price and SDG&E could hold onto the product it seeks to sell and launch a redesigned RFB, or devise another means of attracting more buyers closer to the expected market value. The value of the reserve price would be reviewed with the IE and the PRG.

The Commission has also established requirements regarding when procurement contracts must be filed for pre-approval. In general, contracts with duration five years or longer must be submitted to the Commission for pre-approval.^{12/} Thus, SDG&E will apply the guidelines established in D.07-12-052 in order to determine whether a procurement contract must be filed with the Commission for prior-approval. In addition, in accordance with D.07-12-052, SDG&E will “publicly reveal the names of winning bidders, a description of the product and the contract term, within 90 days of when the IOU files an application with the Commission for approval of the contract.”^{13/}

The standard products described herein may not match the needs of the SDG&E portfolio in every instance. Thus, the need may arise to pursue structured products through bilateral transactions. As stated above, in considering whether to enter into a bilateral contract, SDG&E would perform an analysis to ensure that any product considered was priced competitively relative to the portfolio of alternate products.

^{12/} D.04-012-048, as further clarified in D.07-12-052, *mimeo*, p. 171.

^{13/} D.07-12-052, *mimeo*, p. 269.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

(i) Application of Least-Cost Best Fit Analysis in Procurement Transactions

The least-cost, best fit (LCBF) analysis is the analytical portion of the selection process for a given candidate product for procurement where the function of the evaluation is to apply consistent criteria to determine what options best match SDG&E's portfolio requirements. For example, meeting the physical, RA, energy, and ancillary services needs, and doing so at the lowest cost to ratepayers from among the competing options. While some general principles remain the same, the analysis to be performed on each potential transaction will need to be tailored to the circumstances. SDG&E will review the specific LCBF analysis for each RFO with its PRG and IE prior to receiving bids in any RFO process.

In general, all LCBF processes will:

- Analyze the candidate options to ensure that the transaction is lower cost than other alternatives known to be available when added to SDG&E's portfolio.
- Apply constraints such as meeting target goals/set asides in various programs and honoring recognition of physical constraints.
- Normalize a multitude of non-standard attributes from differing types of resources and the impacts on the entire portfolio.

(ii) Competitive Bid Solicitations (Request for Offers)

The key characteristic of competitive bid solicitations such as RFOs is their utility in bringing together the largest possible number of market participants to make offers to sell, thus promoting liquidity, competition and price discovery. These benefits must be balanced against another, less favorable, characteristic of RFOs, namely that the RFO process is very slow relative to the volatility of market prices and leaves the portfolio exposed until contracts are negotiated and signed. SDG&E sees the value of RFOs in Medium to Long-term procurement where it is procuring highly structured, non-standard products and no transparent pricing exists, or where products may be standardized, but no exchange exists on which to trade them. Further, RFOs are administratively costly due to the extensive contract negotiations required to cover deal-specific commercial, legal and credit terms, which

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

themselves may add further risk to SDG&E customers. SDG&E regularly evaluates the needs of the portfolio to determine whether RFOs present advantages to the alternative of spot trades, exchange traded products, bilateral transactions or some combination thereof. The administrative overhead RFOs makes them unsuited for shorter term procurement.

Examples of non-standard products include complex tolling arrangements or new capacity additions. Examples of standard products that SDG&E may buy or sell through RFOs include RA capacity. In certain instances non-standard and standard products may be combined (*i.e.* tolling arrangements that include RA). In D.08-11-008, the Commission modified the requirements for use of an IE, such that: (i) SDG&E is required by the Commission to use an IE in the solicitation process for products of greater than two years in duration and (ii) SDG&E must employ an IE wherever an affiliate or utility bidder is present, regardless of contract duration.^{14/} The Commission defines when the contract duration clock begins as: (1) at the time the contract resources begin delivery or the product is made available, if delivery or availability of the product occurs within one year of contract execution; or (2) at the time of contract execution, if delivery or availability does not begin within one year of contract execution. Further, to ensure that an IE is retained in all cases where an affiliate or utility may participate in an SDG&E RFO process, the Commission requires that SDG&E address the possibility of affiliate or utility bids by designating at the outset of an RFO whether such bidders are allowed to participate. If SDG&E chooses not to make such a determination upfront, SDG&E will either require that all parties that intend to participate in an RFO submit a notice of intent early in the RFO process such that an IE can be retained before bids are received or designate at the outset of the RFO that an IE will be used.

^{14/} D.08-11-008, *mimeo*, p. 27 and Ordering Paragraph 2.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

In D.04-12-048, the Commission defined “all-source” RFOs as, “open to all resources (conventional/renewable - turnkeys, buyouts, and PPAs).”^{15/} SDG&E interprets this literally as meaning that any resource that can fit the identified need is eligible to participate, but it is important to note that not all resources fit all needs. For instance, a run-of-river hydro project cannot fit a baseload need and a remote project cannot fulfill an in-basin grid reliability need for SDG&E. The Commission recognized this in D.04-12-048: “the IOUs have the flexibility to tailor their RFOs to reflect their specific resource needs.”^{16/} SDG&E cannot in this document present an all-inclusive list of caveats to the term “all-source.” However, as a principle, SDG&E will endeavor to be as inclusive as possible so that its ratepayer customers can select from the largest possible list of products to meet its procurement needs. Also, SDG&E will identify specifically the products sought in each all-source RFO so that bidders may evaluate for themselves whether or not their product will qualify.

SDG&E will create RFOs for filling its Commission-authorized need. In the event that SDG&E determines it is required to seek a product not authorized in the LTPP, it will make a “showing in advance, through advice letter, that unusual or extreme circumstances warrant such an action.”^{17/}

(iii) Utility Owned Generation and Participation in Competitive Solicitations

One of the keys to the success of a RFO is robust competition. Therefore, inclusion of the maximum number of bidders is essential. Consistent with the processes outlined in D.07-12-052, SDG&E will continue to use UOG as one of its available procurement tools. In discussing UOG in the context of renewables, the Commission “recognizes that utility-owned generation from renewable energy sources can potentially put a downward pressure on increasing renewable prices.”^{18/} The same reasoning applies to conventional resources as well, within the restrictions on UOG participation in RFOs created by the Commission in D.07-12-052. In conducting RFOs to seek newly constructed

^{15/} D.04-12-048, *mimeo*, Ordering Paragraph 26a.

^{16/} *Id.* at p. 141

^{17/} See D.07-12-052, *mimeo*, p. 150.

^{18/} *Id.* at p. 79.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

resources to fill an authorized need, SDG&E will adhere to the RFO process enhancements discussed above, as well as Commission guidance on the allowable participation of UOG in conventional projects outlined in D.07-12-052.

Specifically, SDG&E will apply the following limits in its RFOs:

- SDG&E will not bid straight utility self-build projects into its RFOs. This prohibition does not extend to bids by utility affiliates to build and sell to the utility under a PPA;
- In RFOs for conventional resources, SDG&E will not solicit products that require transfer of an asset at the end of a long-term contract;
- SDG&E may seek Purchase and Sale Agreements (PSA) PSA (also known as Build-Own-Transfer or Turnkey) offers in its RFO, where the utility would be seeking a merchant developer to build a new plant that the utility would own upon commercial operations (COD);
- Under appropriate circumstances, SDG&E may seek a competitive bid for an Engineering, Procurement and Construction (EPC) contract that will choose among the best power plant construction firms to find a project that will be owned throughout development and operations by the utility, but managed and constructed under a fixed price contract with an EPC contractor. As stated in D.08-11-008, the purpose of allowing EPC bids is in no way intended to provide the IOUs with a broad loophole that allows for what are essentially direct utility build projects. The purpose is simply to acknowledge that certain extraordinary circumstances that are unpredictable in advance may necessitate utility ownership of generation at a particular site. While extraordinary circumstances are by definition difficult to identify *a priori*, the Commission's intention is to set a high bar for an "appropriate circumstance" for an IOU to circumvent the potential for private ownership by soliciting EPC bids. Simply owning land on which generation could be built or requesting EPC bids in general in an RFO as an alternative to PSAs and PPAs does not satisfy this requirement.

Further discussion regarding how SDG&E evaluates and the methodology involved in processing and evaluation can be found in Appendix G.

(iv) SDG&E's Use of the IE in RFOs Involving a UOG Project

Prior to conducting any RFO where SDG&E seeks a UOG project, SDG&E will work with its IE, PRG and the Commission's Energy Division staff to create a Code of Conduct per D.07-12-052 that will provide the checks-and-balances necessary to ensure that a utility ownership proposal will not be given preferential treatment or access to competitors bid information or other proprietary information that

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

would benefit a utility bid over outside bidders. Such a Code of Conduct is only useful where the utility is actually preparing and tendering a bid into a utility-run RFO or for an EPC or PSA project. Further discussion of SDG&E's process for use of an IE is discussed in Appendix H.

(v) Utility Ownership Proposals Outside of a Competitive Solicitation

The Commission recognizes that there are instances where a utility proposal for ownership of new generation resources that arises outside of a competitive solicitation is reasonable and in the best interest of ratepayers. SDG&E will evaluate its plans for meeting its authorized need in the context of the following important exceptions to the competitive procurement requirement.^{19/}

- **Market Power Mitigation:** The IOU must make a strong showing that as a result of some attribute of the desired resource, a private owner would have the ability to exert significant influence over the price of its development or of the price and quantity of its output (energy, capacity or AS).
- **Preferred Resources:** Resources that further the State's environmental policy objectives.
- **Expansion of Existing Facilities:** Per D.08-11-008, "expansion of Existing Facilities" ceases to be a unique exception which would serve as a vehicle for utility ownership outside of a competitive solicitation. However, as this decision notes, the Commission did "not preclude the expansion of existing facilities for UOG projects approved via one of the remaining four exceptions to the competitive RFO requirement."^{20/}
- **Unique Opportunity.**
- **Reliability:** Resources needed to meet specific, unique reliability issues (particularly under circumstances in which it becomes evident that reliability may be compromised).
- **If new resources are required in the near-term and the only means of developing new resources in a sufficiently timely manner is via UOG.**

^{19/} D.07-12-052, *mimeo*, p. 211.

^{20/} D.08-11-008, *mimeo*, p. 23.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

In each of these cases, the burden is on SDG&E to demonstrate in its application why it invoked one (or more) of the exceptions listed above rather than procuring through an RFO.

Ratemaking for UOG projects discussed above will be handled on a case-by-case basis with proposals made in each individual application. The former cap on recovery of costs of UOG projects, established in D.04-12-048, is removed.

(vi) Procurement Positions

The purpose of this LTPP is to document the upfront standards that govern SDG&E's procurement activity. Appendix A set forth forecast long/short positions for energy and RA. These short positions are based on forward-looking forecasts, which will almost certainly change, and are merely illustrative. SDG&E's procurement efforts will be undertaken in accordance with updated forecasts and the upfront guidelines found in this Plan. SDG&E keeps its PRG up-to-date on current positions.

c. Procurement Practices and Methods for RPS-Eligible Resources

(i) Overview

In accordance with Commission direction, SDG&E separately prepares for Commission approval an RPS Procurement Plan (RPS Plan), which provides a detailed description of SDG&E's RPS procurement strategy. As is described in more detail in SDG&E's RPS Plan, SDG&E's RPS procurement strategy is designed to maintain compliance with existing RPS mandates, as well as with SDG&E's commitments related to the Sunrise Powerlink. The RPS Plan establishes a trajectory to meet a 33% renewable energy target by 2020, within a Least-Cost/Best-Fit (LCBF) framework.

As explained in the RPS Plan, in order to accomplish its renewable energy procurement goals, SDG&E will implement a work plan that includes soliciting contracts through RFOs. SDG&E will periodically issue RFOs seeking offers for renewable resources, in accordance with RPS requirements established by the Commission and the CEC. The RFOs will solicit bids from all RPS-eligible technologies located anywhere in California, as well as outside of California. Requirements are

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

described in more detail in SDG&E's RFO documents submitted with its RPS Plan. SDG&E's RFOs may solicit products such as capacity, energy services, and TREC's from repowered, upgraded or new facilities. SDG&E will evaluate all resources using the LCBF evaluation methodology that has been reviewed by its IE.

In addition, SDG&E will consider bilateral contracting opportunities presented to SDG&E that comply with RPS program requirements, fit SDG&E's resource needs, are competitive when compared against recent RFO offers and provide benefits to ratepayers. SDG&E will also consider utility ownership or investment when SDG&E's economical and prudent participation enhances the viability of the project and provides benefits to ratepayers. Finally, as discussed above, SDG&E will offer FiTs in accordance with Commission requirements.

(ii) Supply and Demand to Determine the Optimal Mix of RPS Resources

SDG&E has been successful in adding renewable resources in previous solicitations that represent a diversified portfolio of technologies suitable for SDG&E's resource needs. SDG&E's goal is to continue to promote a renewable mix that is wide-ranging in technology types and allows SDG&E to pursue a combination of both power purchase and ownership options, including turn-key and joint ventures. SDG&E's ability to make upfront decisions regarding an optimal mix of renewable resources is limited inasmuch as SDG&E is under a directive to comply with the RPS obligations and the required evaluation methodology does not consider optimal fit as an LCBF element. The Commission's RPS rules do not allow a utility to wait for "optimal" resources to be offered into its solicitations. The evaluation methodology, in accordance with RPS rules, involves an assessment based upon quality, viability, price and terms of offers submitted. In essence, SDG&E is required to meet RPS requirements in the most expeditious and cost-effective manner. SDG&E may be prevented from procuring a particular technology due to the lack of offers, or lack of cost-attractive offers.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

(iii) The Use of Flexible Compliance Mechanisms

As explained in its RPS Plan, SDG&E may utilize, consistent with existing RPS rules, flexible compliance mechanisms in order to satisfy RPS program goals. Specifically, SDG&E may utilize flexible compliance mechanisms such as: (1) the ability to sign bilateral agreements, including short-term contracts; (2) the ability to bank purchases in excess of the Annual Procurement Target (APT); (3) the ability to withdraw from the bank to make up for purchase shortfalls; (4) the ability to earmark contracts for purchase shortfalls; (5) the ability to carry forward shortfalls for three years; and (6) other products, as permitted.

d. Procurement Method for CHP and QF Resources

In D.10-12-035, the Commission approved a Combined Heat and Power (CHP) Program Settlement between numerous different groups and interests.^{21/} The Settlement designs and develops a new State CHP Program and, for qualifying facilities greater than 20 MW, a transition from a program approved by the Commission pursuant to its authority under the Public Utility Regulatory Policies Act (PURPA)^{22/} to a new program that includes competitive solicitations. The Settlement becomes effective upon satisfaction of the following conditions precedent: (1) a final and non-appealable FERC order approving the IOUs' application to terminate their PURPA purchase obligation; and (2) a final and non-appealable Commission decision approving the Settlement.

As a result of the Settlement, SDG&E will have established procurement targets for the first program period (Settlement Effective Date through 48 months) of 160 MW, the second program period (end of first program period through 2020) of 51 MW, and additional GHG Emissions Reduction Targets

^{21/} The parties include the three investor-owned utilities – Pacific Gas and Electric Company, Southern California Edison Company and San Diego Gas & Electric Company; cogeneration and combined heat and power qualifying facility representatives – California Cogeneration Council, the Independent Energy Producers Association; the Cogeneration Association of California, and the Energy Producers and Users Coalition; and statewide consumer and ratepayer groups – the Division of Ratepayer Advocates and The Utility Reform Network.

^{22/} 16 United States Code (U.S.C.) Sec. 8241-3(d), *et seq.*

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

(2015 through 2020). The MW Targets are based on the contract nameplate^{23/} for the CHP facility and the MW SDG&E must procure. As an example, a CHP facility with a 40 MW contract nameplate that uses 20 MW at its facility and sells 20 MW to SDG&E, will count as 40 MW against the procurement targets. The following types of CHP procurement will count towards the CHP MW and/or GHG Emissions Reduction Targets: CHP PPAs obtained through RFOs, bilaterally negotiated PPAs and amendments, Optional As-Available PPAs, PPAs for Qualifying Facilities (QFs) 20 MW or less, AB 1613 PPAs, IOU-owned CHP, Utility Prescheduled Facilities,^{24/} and new behind the meter CHP facilities. To the extent SDG&E is unable to meet its procurement targets, it will make a showing to justify its inability to meet the targets. Lack of sufficient offers, the efficiency of the CHP facility, excessive offer prices and amount of GHG emissions reductions are valid justifications for missing the MW and GHG Emissions Reduction Targets. Lack of need or portfolio fit arguments are not justifiable reasons for failure to procure the MW Targets, but are reasons to justify an inability to meet the GHG Emission Reduction Targets.

SDG&E will conduct three CHP-only RFOs, scheduled at regular intervals, during the Initial Program Period. SDG&E will issue its first CHP-only RFO within 90 days of Settlement Effective Date. The MW Target associated with the first RFO is 60 MW for SDG&E.

e. Procurement Methods for Local and System Resource Adequacy

SDG&E anticipates that it will have both long and short positions in RA at various points in time. A discussion of how SDG&E manages its RA positions on an annual basis is contained in Section II.A.4. SDG&E attempts to procure the majority of RA products for one year or more in duration, through the RFO process.

^{23/} For existing CHP facilities, the amount that counts toward the MW target is the contract nameplate value listed on each IOU's July 2010 Cogeneration and Small Power Production Report. For new CHP facilities, the amount that counts toward the MW target will be established by a Capacity Demonstration Test.

^{24/} Utility Prescheduled Facility is defined in the CHP Settlement as an existing CHP facility that has changed operations to convert to a utility controlled scheduled dispatchable generation facility, including but not limited to an Exempt Wholesale Generator.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

6. SDG&E Use of the PRG Process and Consultation with PRG

The Commission established the PRG in D.02-08-071 “[i]n order to ensure that interim procurement contracts entered into by the utilities are subject to sufficient and expedited review and pre-approval.”^{25/} SDG&E’s PRG, which is comprised of non-market participants and is subject to a nondisclosure agreement, has continued to provide value to utility procurement beyond the interim period addressed in the order and, accordingly, has been made a permanent part of the procurement process. In D.02-12-074, each utility was ordered to consult with its PRG for creation of a hedge strategy for Q1 2004^{26/} and to meet with its PRG upon reaching certain trigger thresholds to discuss the need to file new plan updates. In addition, SDG&E was ordered to work with its PRG to establish what magnitude is appropriate for a benefit/cost ratio and how it should be calculated. Further, in D.04-01-050, the Commission established an ongoing requirement that each IOU “meet and confer with its PRG on a quarterly basis.”^{27/}

SDG&E frequently consults with its PRG to ensure that its PRG is kept current on the procurement activities of SDG&E. The PRG consultations allow for important two-way exchanges of information that allow SDG&E to understand the concerns of this group of industry experts and allow this group of potential interveners to have a voice at the early stages of procurement rather than being restricted solely to intervening in the procurement filings of SDG&E.

In compliance with D.07-12-052, SDG&E adopted the following enhancements to its PRG process.

- In order to more effectively coordinate and communicate with its PRG, SDG&E has established a web based calendar.^{28/} This calendar will contain only public information as follows (1) a schedule of upcoming meetings; (2) RFO milestone dates; and (3) to address the suggestion of the Transparency Working Group as adopted by the Commission: (a) the

^{25/} D.02-08-071, *mimeo*, p. 24.

^{26/} D.02-12-074, *mimeo*, Ordering Paragraph 5, Ordering Paragraph 9 and Ordering Paragraph 11.

^{27/} D.04-01-050, *mimeo*, Conclusion of Law 42.

^{28/} This calendar can be found at <http://sdge.com/regulatory/prg/calendar.shtml>.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

date, time and duration of each PRG meeting; (b) the organizations participating in the PRG meeting and the individuals representing each organization; and (c) a list of items discussed, which list will contain only public information (this Transparency Working Group information will also be provided to the LTPP proceeding's current and future service list).

- A commitment to circulate an agenda and meeting materials to PRG members a minimum of 48 hours in advance of a PRG meeting, unless there are unusual, extenuating circumstances.
- Circulation of confidential meeting summaries to PRG members. These summaries will contain "a list of attending PRG members, including the organizations represented, a summary of topics presented and discussed, and a list of information requested or offered to be supplied after the meeting, (and identify the requesting party)".^{29/}

a. CAM PRG

In D.06-07-029, the Commission developed a procurement process whereby IOUs may be required,^{30/} or may elect, to procure new supply capacity that will be beneficial to all transmission customers of the utility (bundled as well as DA customers). The recovery of costs related to such procurement will be divided amongst bundled and DA customers, creating a unique Cost Allocation Mechanism (CAM). Therefore, the Commission ordered that representatives of DA customers, who have no role in SDG&E's PRG, should have the ability to be represented when these procurement decisions are being made and be given a PRG-like role in such procurement decisions. The guidelines, rules and requirements that govern this CAM PRG are outlined in Appendix D of D.07-12-052. SDG&E adopts and incorporates these CAM guidelines into its LTPP. Changes to these guidelines will be incorporated in future updates to this LTPP.

^{29/} D.07-12-052, *mimeo*, p. 124.

^{30/} D.06-07-029 did not order SDG&E to conduct any CAM-type procurement.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

On February 11, 2011 SDG&E issued a solicitation requesting nominations for members to join its CAM PRG. The solicitation requested that nominees be end-use customers of SDG&E or an individual hired to represent end-use customers' interests.^{31/} In March 2011, SDG&E formed its CAM PRG and held its first meeting. SDG&E will convene its CAM PRG as appropriate per D.07-12-052.

(i) Objective of CAM PRG

The CAM PRG is intended to provide feedback to SDG&E when it considers procurement using the "all benefiting customers" CAM approved in D.06-07-029 or a successor CAM that would allocate costs of new generation resources to both bundled and non-bundled customers.

(ii) Rationale for Separate Advisory Group

The PRGs were established as advisory groups for the utilities' bundled procurement process. Under the CAM, certain customers, including bundled customers and customers supplied by DA suppliers and by community choice aggregators (CCAs), are required to pay part of the costs of utility procurement for certain new generation projects that are procured to ensure system reliability. The current PRGs do not include any individuals who specifically represent the interests of end-use customers served by DA providers or by CCAs. Thus, the CAM PRG acts as a separate advisory group representing *all* customers paying the costs of procurement when a utility is engaged in procurement activities where the costs may be allocated using the CAM. The CAM PRG will include bundled customer representatives, as well as DA, CCA, and other non-bundled customers' representatives, as described in more detail below.

(iii) Circumstances Requiring Use of the Separate Advisory Group

The utility will use the CAM PRG as its advisory group when procuring new generation resources and recovering the costs associated with these resources through the CAM mechanism. For

^{31/} D.07-12-052, *mimeo*, Appendix D.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

clarity, when the utility specifies that it will procure new generation resources and recover the costs associated with these resources solely from bundled utility customers, the PRG will continue to serve as the utility's procurement advisory group.

(iv) Triggering the Separate Advisory Group

The utility will use the CAM PRG whenever it is engaging in procurement where the costs may be recovered using the CAM. The utility will notify the Energy Division and the participants of the CAM Group at the time of its decision to begin such procurement. If the utility is undecided at the time it begins its procurement process, the utility will employ the CAM PRG for all associated advisory group meetings until such time as it decides to restrict procurement solely to meet its bundled customers' needs.

(v) Activities of Separate Advisory Group

The CAM PRG will operate identically to the PRG, except that it will review and consult only on procurement activities for which costs may be recovered using the CAM. The CAM PRG will not convene during the planning (*i.e.*, the load and system net-short forecasting) process for meeting bundled utility customers' needs. The CAM PRG will convene at least seven days prior to a utility's issuance to the marketplace of the RFO solicitation for which costs may be recovered using the CAM.

(vi) Access to Information

The CAM PRG participants will have access to the same types and quality of information as do PRG participants, except that the scope of the procurement review will be limited to that for which costs may be recovered using the CAM (*i.e.*, CAM PRG participants are not entitled to receive information that is related to bundled-service procurement, except that PRG participants may request such

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

information through the PRG process). The CAM PRG participants will have the same right to request and receive additional information from the utilities as do PRG participants for bundled procurement-related activities. CAM PRG participant will be required to sign a Non-Disclosure Agreement (NDA) in order to receive confidential information.

(vii) Meetings of Separate Advisory Group

The meetings and conference calls of the CAM PRG will solely address procurement using or potentially using the CAM. Meetings of the PRG addressing procurement for bundled utility customers may be held immediately before or after the meetings of the CAM PRG or at any other time. Unlike with the PRG, the utilities will not be obligated to conduct quarterly face-to-face meetings with the CAM PRG.

(viii) Requirements of CAM PRG Members

Participation in the CAM PRG – The current PRG participants may elect to participate in the CAM PRG, subject to their execution of a NDA for the CAM PRG. Commission personnel may participate in the CAM PRG under the same conditions that they participate in the PRG. A reasonable number of non-wholesale market representatives that are end-use DA, CCA, and other non-bundled customers, as well as non-wholesale market participant groups whose representation includes such customers, shall be allowed to participate in the CAM PRG.

Intervenor Compensation – The Commission has indicated that PRG participants are eligible to obtain intervenor compensation for their participation in the CAM PRG under the same conditions that the Commission's rules govern such compensation for PRG participation. Non-PRG participants who are authorized to receive intervenor compensation shall qualify for such compensation for their activities in the CAM PRG pursuant to the Commission's rules that govern such compensation.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Qualifications of non-PRG CAM Participants – Each non-PRG participant in the CAM PRG must be either an end-use customer or an individual hired to represent end-use customers' interests. Wholesale market participants and representatives of wholesale market participant may not participate in the CAM PRG. For example, the representative for DA customers could be a non-wholesale market participant end-use customer who has accounts supplied through DA service. The CCA representative could be a non-wholesale market participant resident of the community that has implemented a CCA. Alternatively, the non-PRG CAM PRG participants could be consultants or attorneys for groups that represent DA end-use customers, CCAs, or other non-bundled customers in whole or in part in proceedings before the Commission, provided that the representatives execute and comply with the CAM PRG NDA.

Obligations of non-PRG Members – The non-PRG participants of the CAM PRG are obligated to sign the same NDA that is signed by the PRG participants, except that it will be modified only as necessary to reflect the new organization of customer interests in the CAM PRG. Subsequent changes to the PRG and CAM PRG NDAs shall be undertaken in a consistent manner, except as necessary to delineate the composition of each advisory group.

Disputes – Disputes regarding the appropriateness of an entity (or its representatives) participating in the CAM PRG shall be submitted to the Commission for resolution.

Effective Period – Each utility shall be required to establish its CAM PRG for solicitations of new generation projects subject to the CAM in advance of the commencement of such procurement activity.

B. Risk Management Policy and Strategy

This section of the LTPP discusses the following major topics: Current Risk Management Practices; Portfolio Risk Assessment; Customer Risk Tolerance (CRT); VaR-to-Expiration (VtE); Risk Management Products; and Credit Requirements.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

1. Current Risk Management Practices – SDG&E’s Hedge Plan

SDG&E’s procurement plan outlines the company’s hedging strategy to manage and report on near-term risk utilizing a rolling 12 month risk metric, as directed by the Commission in D.07-12-052 and in compliance with the Commission’s objectives. The hedging strategy presented in Appendix B provides the details of SDG&E’s 5-year risk management plan. The hedging strategy includes hedging objectives and targets that, when approved, will become the AB 57 upfront guidelines that guide SDG&E’s future actions when hedging. SDG&E’s overall hedge strategy will continually be reviewed and periodically updated, as required.

SDG&E will implement its hedge strategy using the list of authorized products approved by the Commission and discussed in Sections II.A.3 and II.A.4 above. SDG&E will follow an “incremental and over time” hedging program over a 5-year horizon in order to layer on hedges so as to reduce overall portfolio risk.^{32/} SDG&E intends to take small positions through time to build into rates an average of market prices through time where timing and volumes transacted are informed decisions, guided by the CRT and VtE metrics.

SDG&E plans to actively manage risk during the first rolling 12 months of the 5-year plan using measures, as described in Appendix B, and to manage hedges on a volumetric basis. To assure compliance, SDG&E will measure the annual hedge percentages daily from the first business day through the last business day of each calendar year, will review the overall hedge percentages compared to the 12 month rolling risk metric and annual hedge percentage targets and will increase its hedge percentages over time on a notional basis, as required. Therefore, SDG&E’s actual hedge positions may differ (either up or down) from the “target hedge” strategy, as market conditions dictate. SDG&E will brief its PRG on hedge targets and percentages on at least a quarterly basis.

^{32/} “Incremental and over time” is similar in concept to what SDG&E understands is meant by “ratable rate,” with the important distinction that SDG&E’s approach does not rely solely upon a formula to define volumes and times of execution.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

2. Portfolio Risk Assessment

In developing the hedge strategy required to meet the annual hedge percentage targets for the portfolio, SDG&E uses the current bundled load forecast and existing and committed resources to develop a forecast of hedged and unhedged positions. Each year a percentage of the portfolio energy is already hedged and no longer exposed to market price fluctuations. These hedged volumes are primarily made up by portfolio fixed price contracts such as SONGS, Boardman, Yuma Cogeneration and renewables contracts, CDWR fixed price contracts allocated to SDG&E, and existing hedges.

In establishing the portfolio hedge strategy, SDG&E also considers potential renewable contracts that are expected to be signed as SDG&E moves toward meeting its goal of having 33% of its portfolio needs met through renewable resources by 2020 and forward hedging done for DWR contracts. In addition, SDG&E develops a forecast of gas to be consumed in SDG&E owned or contracted units as SDG&E undertakes least-cost dispatch of its combined portfolio of CDWR and SDG&E resources. Any forecast gas volumes that are unhedged are at risk through exposure to rising market prices. SDG&E develops plans to hedge some portion of this, consistent with the risk strategy and hedge targets presented in Appendix B.

3. Customer Risk Tolerance

In D.02-12-074, the Commission set the CRT for SDG&E. SDG&E uses this measure as a guide to manage customer risk in the rolling 12-month risk management strategy.

4. VaR-to-Expiration

SDG&E uses the term VtE synonymously with TeVaR (Terminal VaR). TeVaR presumes that all positions are held to expiration. Value at Risk refers to the statistical dollar amount that can be lost on the net open position of a portfolio over a specific time horizon and with a given confidence interval.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

TeVAr accounts for the increasing potential distribution of prices as time passes, as well as the expiration of the positions in the portfolio with the passage of time. The result is the estimation of loss, at the specified confidence level, assuming that the portfolio remains constant over time until all positions within it have expired.

For many risk management purposes, VaR is calculated over a one-day time horizon using a 95% confidence level. While a number of methods to calculate VaR exist, one standard is:

$$\text{VaR}(\text{for a specified time horizon}) = \text{Net Open Position Value} * \text{Volatility} * \text{Confidence Interval Factor} * \text{Square Root time, where:}$$

Net Open Position value is the value of the portfolio expressed in dollars over the specified time horizon;

Volatility is the annualized volatility of the portfolio divided by the square root of one year as specified in units of the desired time horizon (*i.e.*, square-root of 252 days to reflect one business day VaR);

Confidence Interval Factor refers to the number of standard deviations in the analysis (for example: the number of standard deviations is 1.645 for a confidence interval of 95%); and

Time horizon refers to the holding period of the VaR calculation in units of business (or trading) days.

The one-day VaR at the 95% confidence interval is appropriate for liquid trading portfolios with risk that may be actively managed, or traded away. This is not the current situation faced by SDG&E's ratepayers, whose risk profile is that of being "short" gas and power over long periods of time. In this circumstance, the short-term VaR measure described above is not appropriate. Instead, a VaR measure that measures risk over a much longer time horizon is required. TeVaR is a methodology for specifically calculating the risk over a longer time horizon of a portfolio of individual positions with different tenors. The expiration of portions of the portfolio can drastically change the portfolio's risk profile. In most cases, expiration will tend to decrease the total remaining risk. SDG&E uses VtE as an approximation to TeVaR for calculating this longer term risk, based on the following assumptions:

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

First, it is technically impossible to generate a TeVaR model that can be back-tested for TeVaRs of one year or greater. As such, SDG&E is not in a position to statistically certify the reasonableness of any true 1-year TeVaR model. However, there are numerous off-the-shelf models that are commonly utilized in the energy industry to calculate 1-Day VaR using historic, analytic or Monte Carlo methodologies. These models are fairly straight-forward to back-test for 1-Day VaR.

Second, it is a common industry practice to assume that, for normal distributions of prices, longer term VaR of the average net open position of a portfolio increases in relation to the square root of time (as measured in trading days). It is a stretch to assume that prices are distributed normally above the 95% confidence interval. As such, SDG&E calculates the VtE of the average net open position of its portfolio by scaling up the 1-Day VaR by the square root of the average business day time to expiration weighted by the shape of the net open positions.

SDG&E utilizes a publicly available Excel-based model utilizing a vendor software solution (Financial Engineering Associates [FEA] VaR Works) for calculation of VtE that utilizes dynamic portfolio valuation. It takes as inputs market information, commodity forward curves, forward volatility curves, intra-commodity correlation, inter-commodity correlation, position information and position volume. The market information is used to create price simulations that have the appropriate joint distributions.

The FEA VaR Works model supports the calculation of analytic, historical and Monte Carlo VaR, as well as stress testing, component VaR and back-testing. Technical features and specifications of FEA VaR Works are available at www.fea.com. SDG&E currently utilizes the Analytic VtE as the official metric for reporting purposes and portfolio management. To implement VtE with FEA, the only change necessary to convert from one- or ten-day VaR is to set the time horizon equal to the volumetric weighted average time to expiration (or duration) of the portfolio.

In general, VtE tends to be the largest when there are the greatest volumes of open positions, when time to expiration is longest, thus statistically allowing for large price movements prior to

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

expiration of positions or when market volatility increases. Volatility is a significant driver in the calculation of VtE because, from a statistical standpoint, prices are likely to make greater changes during periods of high volatility. Additionally, high market prices and low correlations between commodities and locations are drivers that can lead to higher VtEs.

5. Risk Management Products

In Sections II.A.3 and II.A.4 above, SDG&E discusses many of the physical products that it expects will play a large role in procurement activities, and also discusses available risk management products. All of the risk management products discussed are included in SDG&E's list of authorized trading products.

SDG&E anticipates that risk management products used in the implementation of this LTPP will be transacted primarily through exchanges and brokers, trades directly with counterparties, and bilaterally negotiated structured contracts. Risk management products will include those listed in Table 1 locating in Section II.A.3 and any other products listed in this LTPP. Because of the importance of timeliness in managing risk, a formal solicitation process will most likely not be utilized. Except in circumstances where time does not allow, SDG&E will meet and confer with its PRG and propose its strategy to the group prior to taking action.

Executing risk management transactions may require SDG&E to incur administrative and management costs directly associated with the transactions. These costs could include, among other items, expenses for providing credit collateral to counter-parties and brokerage fees as well as the cost of the financial hedges themselves. SDG&E expects that the administrative costs associated with energy and portfolio risk management transactions associated with the Utility Electric Generation

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

(UEG) contracts and the cost of the products themselves will be reimbursed by booking these costs into the ERRR. The CDWR would directly bear the cost of gas hedges associated with allocated CDWR dispatchable contracts. These costs would continue to flow through to the IOUs through a CDWR revenue requirement proceeding.

a. Electricity Exposure

Generally, SDG&E will procure purchased power requirements in the spot and forward markets to spread out timing risk and to best match purchases with forecasted needs and attractiveness of pricing. Additionally, SDG&E may enter into accelerated forward transactions to control the financial exposure of the portfolio when portfolio VtE increases relative to CRT or to maintain certain hedge percentages as specified by this Plan. This activity may include hedges related to anticipated excess energy sales with the goal of protecting the portfolio from excessively low sales prices or locking in future margins. All of the transactions types below may be either physical or financial contracts, although with electricity, a lack of financial instruments makes physical fixed price transactions an attractive hedge instrument.

b. Fixed-Price Forward Trades for Power

A forward trade of standard blocks (e.g., 6x16 or 6x8, 7x24) may be the best hedge of the Net Open Position, despite the imperfect match between the product and actual shape of the Net Open Position. Standard products have several advantages over structured contracts including greater market depth, efficiency in transacting and price transparency. Forward trades can also be expanded to include non-standard products such as super-peak or fixed-shape energy, should product offering and liquidity increase. Also, SDG&E may execute forward trades of non-SP15 delivery products such as NP15 or Palo Verde as a proxy. The benefit to this strategy is access to additional market depth should SP15 become illiquid, provided that these markets are reasonably correlated with SP15.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

c. Exchange of risk exposure

Market risk is dynamic and differs by time of year and type of exposure. For example, spot month volatility is generally higher than back month volatility and summer volatility is higher than shoulder month volatility. Also, certain products, such as super-peak, are likely to have higher volatility risk as well as higher liquidity risk than a standard on-peak product. Exchanging risk from one part of the portfolio to another may be used to adjust risk to the desired level, time period or product type. These differing volatilities may also contribute to formation of specific hedge plans.

d. NYMEX Gas Futures, Options and Gas Basis Swaps

Because the marginally priced units in SDG&E's portfolio are fueled by natural gas, SDG&E will typically use financial gas products as a cross-commodity hedge to manage its price exposure to electricity prices. SDG&E also uses financial electric products to hedge short-term DA and/or RT exposure in the CAISO market. SDG&E periodically reviews its hedging strategies and may use financial electric products in the future for short-term (one to five year) hedges.

e. Gas Price Exposure

When risk attributable to the short gas position increases, SDG&E may, acting either on its own behalf for UEG gas positions or as agent for CDWR positions, enter into longer-term gas transactions to control the financial exposure created by the heat-rate dispatchable units/contracts of the combined CDWR/UEG gas portfolio. Products and tools to manage gas price risk may include the following.

- *Bilateral structured contracts*: As with bilateral power transactions, these contracts can be structured to closely match the product with the profile of the risk to be managed. In pursuing structured contracts, the decision to transact will depend on comparing the benefit of an accurate hedge to the additional cost of the customization. Structured gas contracts may also be either physically or financially settled.
- *Fixed-price futures, forwards and swaps*: Standard products (e.g., baseload delivery, futures or swaps) may be the best hedge of the short gas position despite the imperfect match between the flat delivery schedule and actual gas usage. Several advantages to standard products over structured contracts include market depth, efficiency in transacting

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

and price transparency. Forward trades can also be expanded to include non-standard products such as non-uniform flow gas to better match peak production, should product offering and liquidity increase.

- *Physical and financial options:* SDG&E anticipates the use of options as an important risk management tool for both gas and power. In addition to call options, combinations and various forms of potential option solutions for managing risk may be employed such as collars, straddles, or floors.
- *Swing-swaps:* A specific type of contract-for-difference, which effectively converts gas pricing from a fixed monthly price to a daily price. Swing-swaps are required to extend the protection offered by forward financial gas hedges into the actual month of delivery, as financial hedges typically expire just prior to the commencement of the delivery month.
- *Basis Swaps:* Basis swaps are similar to a contract for differences that offers protection for the difference in pricing at one point versus another. This would allow SDG&E to use very liquid NYMEX swaps and futures, which trade for gas priced at Henry Hub in Louisiana, to hedge physical positions with delivery in California.

6. Risk Management Product Selection Considerations

SDG&E will use the authorized hedge products as approved in this LTPP to manage risk. The selection of a particular product will take into account several factors, including how well the hedge fits the target risk for VtE reduction or increase of hedge percentage, hedge cost relative to hedge effectiveness, and product liquidity given complexity and urgency of need. In addition, the ability to transact depends on the availability of sufficient credit and collateral under CDWR's and SDG&E's physical and financial trading agreements with counterparties including NYMEX and over-the-counter (OTC) brokerage accounts.

7. Credit Requirements

The buying and selling of energy commodity products necessitates multiple transaction types with external counterparties. Contracts with security provisions (e.g. cash, letters of credit, etc.) often require SDG&E to post collateral and maintain adequate liquidity capacity to cover potential collateral requirements. There are working capital costs associated with collateral to maintain these transactions over time. Contracts that allow for unsecured credit exposure require less (or no) working capital and less direct cost to manage collateral requirements. However, over time, if these transactions become

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

positive to SDG&E, they create an indirect cost of credit risk due to an expectation of loss from potential non-performance or non-payment. An event of default, non-performance or non-payment can lead to an actual cost for this credit risk.

a. Credit Risk

SDG&E's procurement operations are exposed to the risk of loss attributable to the failure of a counterparty or customer to honor its contractual obligations, including the obligation to cash settle on a timely basis. Counterparty credit exposure is equal to the sum of all money due (billed or delivered and unbilled) plus the replacement cost of the Mark-to-Market (MtM) contract value, if positive. Credit risk is defined as the cumulative potential non-payment and non-performance of counterparties on contracts to receive and pay for or deliver energy products and derivatives. This risk is a function of the credit exposure, the counterparty's probability of default and the proportion of this value that would be recovered in an event of default. It is important to note that the existence of credit risk, which can sometimes be significant, is an unavoidable by-product of utility procurement activity.

Credit exposure (including the effects of netting and set-off provisions where applicable) will be defined and measured as follows:

Credit Exposure =	MTM Gain/Loss + A/R Balance – A/P Balance + Un-invoiced
MTM Gain/Loss =	Any payments that would be due from (if positive) or to (if negative) the counterparty if all contracts were marked to market and settled for cash immediately
A/R Balance =	Account receivables balance
A/P Balance =	Account payable balance
Un-invoiced =	Value of delivered but un-invoiced commodity, including cash prepayments or cash that is under the control of the counterparty

- Credit exposure less collateral on hand, multiplied by
- Estimated probability of default (PD) of the counterparty, multiplied by
- Estimated loss given default (LGD).

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Potential credit risk shall be calculated as follows:

- Peak potential credit exposure, multiplied by
- Estimated probability of default (PD) of the counterparty, multiplied by
- Estimated loss given default (LGD).

Peak potential credit exposure can be calculated as follows:

- VaR to Expiration (VtE) or Weighted Average Durational VaR at the 95% Confidence Interval.^{33/}

Probabilities of Default (PD) and Losses Given Default (LGD) are determined for each counterparty based on external credit analysis sources or the pricing of unsecured debt. When unsecured debt pricing or external source data is unavailable to determine PD and LGD, SDG&E will seek to utilize the current average for non-investment grade companies, limited to the applicable industry if possible. Potential credit risk will be calculated prior to contract execution for all fixed-price contracts for terms exceeding one year and not covered under a Master Agreement (e.g., ISDA and EEI), which contains appropriate margining provisions. Although this is an estimated expected cost based on PD and LGD, actual losses associated with counterparty default can be greater than the current credit risk.

In the event of a counterparty default, all costs associated with credit default will be recovered through ERRA where either SDG&E is seller and energy or services have been delivered but remain unpaid or where SDG&E is buyer or seller and undelivered energy or services are repurchased or sold at a loss. In addition, all costs associated with procurement activities aimed at mitigating credit risk (such as purchasing credit insurance and/or credit default swaps) will be recovered through ERRA.

^{33/} In some cases, there may be valuable attributes to the proposed transaction (such as capacity or RA) that may not have adequate pricing data to calculate VaR. In these cases, the standardized financial attributes (such as fixed price energy or heat rate call option) can be valued and assessed for peak potential credit exposure separately from the more specialized attributes. These specialized attributes may require more subjective analysis to determine a reasonable potential replacement cost under stressed conditions that is based on information at hand (such as other bids in an RFO, known available local resources, assumptions for capital costs, etc.). With regard to existing asset-related contracts, in many cases the loss stemming from a contractual default or bankruptcy would take the form of a renegotiated contract on the same asset at a higher cost. Otherwise, replacement may potentially take the form of an entirely different product type providing the same specialized attribute.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

b. Credit Risk Monitoring and Mitigation Strategy

SDG&E will seek to contract using clearing, margining provisions or other contractual terms, where possible, in order to minimize unsecured credit exposure.^{34/} Other contract terms that can be considered primary credit risk mitigation tools are netting and set-off provisions.

For short-term physical energy commodity transactions or otherwise where margining provisions are in place, SDG&E will work to maintain the unsecured credit exposure below the limits set by the credit department based on the counterparty's creditworthiness analysis. For these transactions, SDG&E's intent is to limit credit exposure to an amount lower than the assigned credit limit. When conditions warrant, the front office can look for opportunities to directly offset the exposure under the netting and set-off provisions of the agreements with other procurement transactions. If necessary, the front office can also work with the Credit Department to increase the credit limit by either (1) reviewing the counterparty's creditworthiness to determine whether the unsecured credit line might be increased or (2) seeking to secure an increase in collateral or parent guaranty.

For all other transactions, as described above, SDG&E's intent is to negotiate an acceptable amount of secured collateral and other potential contractual security provisions, while keeping in consideration other necessary business objectives, as part of its least-cost best fit analysis. As an example, levels of potential credit risk associated with various counterparties will impact how each counterparty scores in RFO evaluations by adding the potential credit risk to the total expected delivered cost in the least-cost best fit analysis. Where margining provisions cannot be applied, peak potential credit exposure and potential credit risk will be estimated in advance. In some cases, other contract terms can be used to increase collateral as the counterparty's credit rating falls or as the credit exposure increases.

^{34/} Use of clearing and margining provisions creates a demand on financial liquidity. Use of these products is limited by the liquidity limits established in this LTPP.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

In the event that the contract contains no provisions for margining or adjusting collateral requirements over time, it is understood that at some periods of time, credit exposure can exceed the amount of collateral on hand, thus resulting in a certain amount of actual credit risk. SDG&E will periodically calculate and monitor the total credit exposure and actual credit risk for the portfolio as well as the largest concentration (%) share of credit exposure and actual credit risk held by the top several counterparties.

SDG&E's standard approach to mitigating credit risk revolves around minimizing exposure, including credit-weighted selection of counterparty and product, negotiating advantageous terms in the contract, and securing collateral. Although SDG&E is authorized to use credit default swaps and credit insurance, both of which involve transferring credit risk to a third party, most of the credit risk in the electric procurement portfolio is expected to come from less standard transactions, such as fixed-price, asset-based energy, tolling agreements, and other long-term contracts. Because of this, SDG&E expects the use of these credit risk transferring instruments to be less effective (a poor hedge against the real underlying risk), uneconomic (prohibitively expensive) or unavailable (for unrated counterparties or non-standard products). While use of credit risk transferring products are not an active part of SDG&E's credit risk mitigation toolbox, the appearance of unusually high credit risk levels or new information about the availability of such products could prompt a new assessment. The cost of such products, if used, would be recovered in ERRRA.

III. LONG-TERM PROCUREMENT RESOURCE PLAN

A. Introduction to Resource Planning and Planning Approach

The objective of SDG&E's LTPP is to provide reliable electric supply to customers at the lowest possible cost, while simultaneously meeting the State's preferred loading order for resources and reducing the GHG emissions associated with the portfolio. In order to accomplish these goals, the long-term plan addresses both demand- and supply-side resources and makes recommendations

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

designed to achieve the appropriate balance between each of these resource types. SDG&E's LTPP adds resources in the order of the State's priorities (*i.e.*, the Loading Order), as follows: energy efficiency (EE); DR; renewable power; distributed generation (DG); and clean and efficient fossil-fired generation.

Consistent with Commission direction, SDG&E's resource plan serves as an "umbrella" document, incorporating and consolidating inputs from other Commission proceedings and, in some cases, necessarily making assumptions about the outcomes of proceedings currently underway or assumptions regarding the amount and timing of resource additions. For example, energy savings and demand reductions from the EE programs are based on the Commission's adopted targets for committed programs. However, the capacity shown in the Plan for these higher priority resources is based on forward-looking assumptions that are not intended to operate to set minimum or maximum capacity targets. SDG&E will procure capacity based on *actual* resource needs, which may deviate significantly from the assumptions included in the Plan. In short, while the Plan sets forth necessary guidelines and upfront standards for procurement, and may include certain assumptions regarding need, the procurement ultimately undertaken by SDG&E pursuant to the Plan will reflect actual need rather than assumptions that may be included in the Plan. The sections below describe the process and sources used by SDG&E to develop the Plan.

B. Load Forecast

The service area energy and peak demand forecasts used in SDG&E's LTPP reflect the latest forecast from the CEC as required by the Commission in D.05-10-042. If the latest forecast does not cover the entire planning horizon, SDG&E will use its best knowledge of the current conditions in its service area to extend the forecast out to the required years. The load forecast will include both committed and uncommitted EE programs, as well as self-served load, which is made up of generation on the customer's side of the meter. In accordance with the Commission's direction, DR programs will be shown as reducing the peak demand, thus avoiding the need for reserves.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

C. Supply Forecast for Existing Resources

The LTPP will be based on the following assumptions regarding existing and planned supply resources.

Utility-Owned Generation:

- The Miramar Energy Facility I and II will be operational for the entire planning period.
- The Palomar Energy Center will be operational for the entire planning period.
- The El Dorado Power Plant will be operational for the entire planning period after SDG&E takes ownership in 2011.
- SDG&E's share of SONGS will remain in service for the entire planning period.
- The CalPeak El Cajon Unit will become a utility-owned resource in 2012.

Purchased Power Contracts (Non-Renewable):

- SDG&E's existing contracts with QFs continue for their current term.
- SDG&E's existing purchased power contracts with other suppliers will continue for their term.
- Existing DWR contracts that are allocated to customers in San Diego's service area will remain allocated to these customers and will run through their current term without any modification.

Renewable Power:

- The existing contracts for renewable power that are delivering will remain in service for their current contract terms.
- The Plan assumes that contracts approved or currently awaiting Commission approval but not yet delivering will be discounted to reflect development. These will be grouped by technology such as: bio-fuel, wind, solar photovoltaic, etc.
- To the extent additional renewable power is needed, the Plan assumes a generic mix of renewable power based on the expectation that a portion of expiring contracts can be renewed, contracts currently under negotiation will eventually be successful and, that to the extent required, technologies that ranked the highest in the last renewable RFO will fill in the remaining need.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

D. Need Determinations

SDG&E's need for additional resources is derived from calculating the difference between SDG&E's load forecast and its existing and committed resources. The Commission will, through various procurement-related proceedings, authorize and/or require SDG&E to meet the resource needs of its bundled customers (both system and local) and to procure new resources that are needed to meet grid reliability concerns in SDG&E's service territory. The current authorizations are discussed below.

E. Bundled Customer System Capacity Need

SDG&E's bundled customer system RA need is the amount of capacity that SDG&E needs to add in order to meet its forecasted peak load plus the Commission's planning reserve margin requirement, currently set at 15%-17%. SDG&E's bundled customer need is determined each year based on a load forecast provided to SDG&E by the CEC by August 1 of the prior year. SDG&E must make a showing by November 1 that it has met a portion of the System RA need. SDG&E then makes a monthly showing to fully meet the system RA need. Thus, SDG&E's need for system RA will change based on updates to the load forecast, changes in the Net Qualified Capacity (NQC) of each of its resources, and changes in resource on-line dates. An outlook for SDG&E bundled customer system RA needs over the planning period is shown in Appendix A. It should be noted, however, that the values in Appendix A present the need based on one specific set of assumptions. The *actual* system RA need will be determined each year and will almost certainly differ from the amounts shown in Appendix A since all the inputs will be updated each year. Thus Appendix A should be viewed as illustrative in nature and should not be relied upon as a formal determination of SDG&E's system RA need.

F. Bundled Customer Local Capacity Need

Because SDG&E's entire service area is a load pocket, SDG&E's bundled customers have a requirement that a portion of their system RA capacity be located within the SDG&E load pocket. The

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

necessary amount of local capacity is determined each year as part of the Commission's RA proceeding based on studies undertaken by the CAISO. The need for local RA is determined each year at the same time as the system RA need. A forecast of SDG&E's bundled customer local RA need is in Appendix A. Similar to the System RA Tables in Appendix A, the values are illustrative and are based on a specific set of assumptions. The actual local RA needs are determined each year and, thus, will likely vary from what is shown in Appendix A.

G. Need for New Generation in Service Area

Periodically, the Commission may order SDG&E to procure new generation in its service area in order to ensure that sufficient generation is physically located in the service area. The need for new generation is driven by the total load in SDG&E's service area (not merely bundled customers' load), the amount of transmission import capacity and the amount of generation physically located in the load pocket. A description of the latest Commission authorization for new generation is provided in Appendix A.

H. Resource to Fill Identified Need

SDG&E follows the State's policy guidance and the preferred loading order in filling its resource need. Specifically, SDG&E procures resources in the following order of preference to meet the local and system RA needs: (i) cost-effective EE and DR; (ii) renewable resources in order to meet RPS program requirements; (iii) cost-effective CHP facilities; and (iv) other resources. Given SDG&E's existing resource mix, including the large amount of must-take power from nuclear, renewable sources and QFs, and the ability to provide energy from existing and committed combined cycle plants, a substantial portion of bundled customers' annual energy needs will be met. Thus, what is needed is peaking capacity that will operate infrequently, but can be started quickly when loads increase and then shut down as loads decrease. These peaking facilities are expected to operate at low annual capacity, but serve as back-up and to facilitate integration of intermittent renewable power. Given the large amount of intermittent power being added to the grid, storage technologies useful for maintaining

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

reliability and, potentially, for serving peak load needs may become necessary. As needs are refined over time and new technologies develop, SDG&E will assess all technologies to determine which provide a least-cost best-fit solution.

SDG&E's future RFOs may also request offers for black start capability. The current black start capability in SDG&E's service area is provided by a fleet of combustion turbines that are nearing the end of their economic life. It is possible that many of the units will be retired within the planning horizon. Thus, future RFOs may request offers for black start capability so that the new capacity being added will be capable of providing this function to the CAISO and the older units will not have to be maintained solely in order to provide this service.

IV. PROCUREMENT STRATEGY BY RESOURCE TYPE

A. Introduction to Resource Acquisition Strategy

In this section, SDG&E addresses the general product types that SDG&E uses to meet its customers energy and capacity needs and the basis for each. This section describes how the assumptions used in Appendix A are determined.

B. Energy Efficiency

SDG&E actively participates in Commission proceedings designed to determine the level of cost-effective EE and the funding that will be provided to achieve EE targets. These proceedings are typically held every three years and establish goals for a specific program period. These proceedings review the cost effectiveness of programs and set targets and funding levels for the next program cycle. Once the Commission has set specific targets and provided the necessary funding to carry out these programs, they become "committed" EE programs. These committed programs are then rolled into the load forecast that is used for planning the procurement of the remaining resources. Thus the load forecast used to determine resource needs includes committed EE. SDG&E will also include a forecast of "uncommitted" EE. The uncommitted EE forecast will be based on Public Utilities Code Section

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

454.5, which requires that unmet resource need first look to “all available EE resources . . . that are cost effective, reliable and feasible.”

It is important to note that the values used for EE for system need planning do not represent a ceiling or a floor for the amount of EE that will actually occur in future years. SDG&E will undertake its procurement based on actual EE achieved and changes in forecasts of future EE that meet the cost effective, reliable and feasible standard.

C. Demand Response

Demand Response Programs (DRPs) offer an alternative to adding supply-side resources through capacity additions by providing customers the opportunity to participate in demand-side management, while seeking to limit the impact on their operations. DRPs are designed to target the top 80-100 hours of the year when demand for energy peaks and normally energy costs are at their highest. The level of DR also includes reasonably anticipated impacts from programs that are being enabled by the Advanced Metering Infrastructure. As with EE, the Commission addresses DRPs and the funding required to support these programs in a separate proceeding. The Commission’s DRP proceeding(s) involve review the cost-effectiveness of existing and proposed programs for a specified program period (historically, a three-year cycle). SDG&E will use the latest forecasts of cost-effective DRP as forecasts in its resource plan. Although the programs are only approved for a specific cycle, SDG&E’s plan assumes the programs will continue after the funded period.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

D. Self-Service Load

The load forecast will also include a forecast for self-served load. This is load that is served by generation installed behind the customer's meter. The Plan will use the forecast included in the CEC load forecast and the latest Commission decisions. This will include all forms of self-served load including CHP, rooftop PV and any other technologies used by customers.

E. Renewable Energy Procurement

The Plan includes a forecast of the renewable resources that are needed to meet the State's RPS standards. The Plan assumes that all existing, delivering renewable contracts will continue through the term of their contract. To the extent these contracts do not reach the RPS procurement target, the Plan will show generic renewables. Generic resources will be added until the Plan does reach the RPS procurement targets. The generic resources will be grouped by technology such as bio-fuel, wind or solar Photovoltaic to reflect their different operational characteristics. Like the other resources types, the forecast does not represent a ceiling or floor for renewable power, or a specific generic mix SDG&E that SDG&E will target. Since renewable are procured by competitive RFOs, the actual procurement is likely to vary, especially on a year by year basis.

F. Qualifying Facilities and Combined Heat and Power Generation

The Plan will include a forecast of supply from CHP facilities consistent with the latest Commission decisions regarding CHP. This includes any rules regarding re-contracting or adding CHP to meet state GHG objectives. Procurement methods for QF and CHP resources are discussed in Section II.A.5.d. Like the other resources types, the forecast does not represent a ceiling or floor for these resources, thus actual procurement is likely to vary, especially on a year by year basis.

G. Other Generation Supply Resources

To the extent that the resources discussed above are not sufficient to meet SDG&E's bundled customer need, SDG&E will first consider meeting its need from resources in its service territory in order to meet local RA requirements, and then from resources in the CAISO control area and from

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

imported generation (from outside of the CAISO control area) to meet its overall system resource need. The exact resources that will meet this need will be determined through procurement activities described in this Plan. The RFO will describe the need, such as a need for peaking capacity, and then allow all technologies, such as combustion turbines, storage, etc., to compete to submit bids meet that need.

V. EVALUATION OF RESOURCE PLAN

This section describes how SDG&E's resource plan and planning processes meet the policy objectives of the State and the Commission. The Loading Order adopted in the Energy Action Plan and various decisions issued by the Commission provides specific direction concerning utility procurement. The Energy Action Plan II provides as follows:

The loading order identifies energy efficiency and demand response as the State's preferred means of meeting growing energy needs. After cost-effective efficiency and demand response, we rely on renewable sources of power and distributed generation, such as combined heat and power applications. To the extent efficiency, demand response, renewable resources, and distributed generation are unable to satisfy increasing energy and capacity needs, we support clean and efficient fossil-fired generation.^{35/}

The Commission stated in D.04-12-048 that each IOU should take the following steps regarding the loading order: (1) procure the maximum amount of cost-effective EE and demand-side resources, as determined in the subject-area proceedings; and (2) for further resource needs, procure the maximum cost-effective amount of renewable generation resources via RFOs and be prepared to justify the selection of fossil over renewable resources.^{36/} It should also be noted that the utilities carry out EE

^{35/} 2005 EAP II, p. 2.

^{36/} D.04-12-048, *mimeo*, p. 42.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

and DR for their entire service areas, including both bundled and DA customers. Because these programs are evaluated in other proceedings, cost-effective levels of these programs are often determined prior to the procurement organization's determination of the remaining need for bundled customers.

The Commission has also stated that "renewable bids are to be favored in the all-source solicitation process to the extent that they provide the desired electricity product and are cost-competitive in light of our GHG policies."^{37/} The Commission has made it clear that cost-effectiveness is to be considered when making procurement decisions on loading order resources.

SDG&E's Plan incorporates the direction provided by the Commission and takes the loading order into account in its resource plan and planning processes in the following manner:

- First, the Plan seeks to reduce energy demand through committed and uncommitted EE programs. SDG&E will undertake its procurement activities based on updated information from the Commission's separate proceedings that determine the amount of cost effective EE.
- Second, the Plan reduces the need for peaking resources by looking to demand response programs, including programs that will be made possible by the installation of Smart Meters. SDG&E will undertake its procurement activities based on updated information from the Commission's separate proceedings that determining the amount of cost effective demand response.
- Third, the Plan contemplates achievement of a 33% RPS standard for SDG&E's bundled customers by 2020. The Plan shows SDG&E working aggressively to add renewable power in advance of yearly procurement targets. This will allow SDG&E time to pursue new projects, should some portion of the projects currently under contract produce at a lower level than forecast or fail to reach commercial operation.
- Fourth, the Plan looks to maintain existing and add new CHP facilities that prove to be cost-effective and help the state lower its GHG production.
- Fifth, the Plan contemplates that SDG&E will allow its current contract with a coal fuel facility to expire in 2013, at which point SDG&E's portfolio will include no coal fuel resources.
- Sixth, the Plan looks to add resources needed to meet both system and local RA obligations.

^{37/} D.04-12-048, *mimeo*, p. 80.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

- Seventh, the Plan relies on competitive solicitation and bilateral negotiations to add resources based on least-cost, best fit principles. Given SDG&E's current portfolio, these will be resources that will be able to meet peak loads and help to integrate renewable resources.
- Eighth, the Plan forecasts its expected energy and dispatch including a GHG price adder. This will provide SDG&E with a forecast of its GHG allowance needs so that a well planned procurement strategy can be implemented.

VI. COST RECOVERY ISSUES

In this section, SDG&E describes existing cost recovery mechanisms for procurement-related costs and also summarizes the Commission's guidance related to debt equivalence and Financial Accounting Standards Board (FASB) Interpretation No. 46(R) (FIN 46(R)) for resources procured during the term of this LTPP.

A. Existing Recovery Mechanisms for Procurement Costs

SDG&E's recovery mechanisms for procurement-related costs were adopted by the Commission in D.04-12-048 and D.02-10-062. The existing balancing account and ratemaking recovery mechanisms (ERRA, Gas Cost Recovery, Non-Fuel Generating Costs) are described below.

1. ERRA Balancing Account

The ERRA records revenues from SDG&E's Electric Energy Commodity Cost (EECC) and EECC-Transitional Bundled Service rate schedules, adjusted to exclude CDWR purchases, and commodity revenues assigned to the NGBA.^{38/} The ERRA account also provides for full recovery of all energy procurement related costs including fuel costs, purchased power, utility-retained generation, ISO related costs, capacity payments and hedging costs. In accordance with AB 57, SDG&E's ERRA is subject to a trigger mechanism that requires the filing of a rate change application if SDG&E's monthly forecasts indicate that the ERRA will face an undercollection or over-collection in excess of 5%

^{38/} In compliance with D.03-12-062, the NGBA became effective January 1, 2004.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

of the previous year's non-CDWR generation revenues.^{39/} SDG&E will continue to utilize the existing ERRA balancing account and ratemaking mechanisms for applicable ongoing and future procurement costs.

2. CDWR Gas Cost Recovery

When procuring gas, gas-related services and hedging for CDWR, SDG&E will continue to act as limited agent for all gas purchased for forecasted CDWR needs, which will remain the financial obligation of CDWR. The costs associated with these CDWR volumes, purchased as agent for CDWR, will continue to be recovered through the CDWR annual revenue requirement.

3. NGBA Balancing Account

The NGBA records electric generation non-fuel costs, such as authorized O&M and capital-related revenue requirements, associated with new turnkey and utility-owned generation plants.^{40/} The disposition of the NGBA account is addressed in SDG&E's consolidated advice letter filing that sets electric rates beginning January 1 of each year. SDG&E plans to continue to utilize the existing NGBA balancing account and ratemaking mechanisms in order to provide for timely cost recovery between rate cases of revenue requirements associated with ongoing and future utility-owned generation projects.

B. Current Commission Guidance Related to Debt Equivalence

In D.08-11-008, the Commission allowed "the use of the 20% DE adder in head-to-head competition between PPAs where no UOG projects (including EPC or PSA bids) are being considered."^{41/} SDG&E will work with its IE and PRG to integrate debt equivalence into its bid

^{39/} In D.07-05-008, the Commission authorized SDG&E to notify the Commission through an advice letter filing, instead of an application, when the ERRA balance exceeds its trigger point and SDG&E does not seek a change in rates, if the ERRA balance will self-correct below the trigger point within 120 days of filing (*mimeo*, Ordering Paragraph 2).

^{40/} SDG&E's NGBA also includes non-fuel costs related to its ownership share of SONGS that are approved for SDG&E as part of D.06-05-016 in SCE's General Rate Case.

^{41/} D.08-11-008, *mimeo*, p 16.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

evaluation criteria, in particular to ensure that “the use of the DE adder does not disadvantage bids for renewable and innovative low-carbon resources that may have higher capital costs than traditional gas-fired generation.”^{42/}

The Commission also stated that “[w]e continue to direct the IOUs, especially SDG&E, to raise any individual concerns it has with the impact of a particular PPA on its debt to equity ratio in its Cost of Capital proceeding.”^{43/}

C. Current Commission Guidance Related to FIN 46(R)

In D.07-12-052, the Commission indicated that SDG&E may address the impacts of FIN 46(R) on its capital structure in Cost of Capital proceedings before the Commission. In addition, the Commission stated that “[a]t this point in time, without prejudice to the issue being re-introduced in future LTPP filings, we do not find that there is sufficient information for us to know how a utility should weigh the FIN 46(R) impacts of a PPA when evaluating competing bids.”^{44/}

^{42/} *Id.*

^{43/} D.07-12-052, *mimeo*, p. 164.

^{44/} *Id.* at p. 165.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

SAN DIEGO GAS & ELECTRIC COMPANY 2012 LONG-TERM PROCUREMENT PLAN

APPENDICES

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

APPENDIX A Energy and Capacity Tables

Appendix A-1 Capacity Table Based on Scoping Memo Assumptions

Peak Load Calculations (MW):	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Forecast System Peak Demand	4658	4738	4797	4856	4911	4973	5032	5094	5157	5221
Uncommitted Energy Efficiency (-)	4	66	121	179	247	321	398	471	544	616
Demand Response (-)	226	270	277	285	289	293	298	302	302	302
Incremental Demand Side CHP (-)	12	17	23	29	35	41	46	52	58	64
Direct Access Load, net of EE, DR and CHP (-)	529	516	509	501	493	485	476	468	460	453
Bundled Peak Demand	3887	3869	3867	3862	3847	3833	3813	3801	3793	3786
Coincidence Adjustment (-)	42	42	43	44	44	45	45	46	46	47
Coincident Peak-Hour Demand	3845	3826	3824	3818	3803	3789	3768	3755	3747	3739
Planning Reserve Margin (15%)	577	574	574	573	570	568	565	563	562	561
Firm LSE Peak-Hour Resource Requirement	4422	4400	4398	4391	4374	4357	4333	4319	4309	4300

Capacity Supply Resources										
Total Fossil Fuel Capacity										
Natural Gas: El Cajon Energy Facility	42	42	42	42	42	42	42	42	42	42
Natural Gas: El Dorado Power Plant	439	439	439	439	439	439	439	439	439	439
Natural Gas: Miramar Energy Facility I	47	47	47	47	47	47	47	47	47	47

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

Natural Gas: Miramar Energy Facility II	48	48	48	48	48	48	48	48	48	48
Natural Gas: Palomar Energy Center	565	565	565	565	565	565	565	565	565	565
Total Nuclear Capacity										
Nuclear: Songs 2	224	224	224	224	224	224	224	224	224	224
Nuclear: Songs 3	225	225	225	225	225	225	225	225	225	225

Total Hydroelectric Capacity										
Total: Hydro Plants larger than 30 MW	40	40	40	40	40	40	40	40	40	40
Total Capacity from DWR Contracts										
Sunrise	0	0	0	0	0	0	0	0	0	0
Cabazon	13	13	0	0	0	0	0	0	0	0
Whitewater Hill	17	17	0	0	0	0	0	0	0	0
Total Qualifying Facility (QF) Capacity										
Biofuels	3	3	3	3	3	3	3	2	2	2
Small Hydro	2	2	2	2	2	1	1	1	1	1
Natural Gas	196	196	196	196	196	196	196	196	196	196

Total Capacity from Renewable Energy Contracts										
Bio Gas: Covanta Otay	3	3	3	3	3	0	0	0	0	0
BioGas: GRS - Coyote Canyon	0	0	0	0	0	0	0	0	0	0
BioGas: GRS - Sycamore	1	1	0	0	0	0	0	0	0	0
BioGas: MM Prima Deshecha Energy LLC	5	5	5	7	7	7	8	10	10	10
BioGas: MM San Diego – Miramar	2	0	0	0	0	0	0	0	0	0
BioGas: MM San Diego - North City	1	0	0	0	0	0	0	0	0	0
Bio-Mass: Covanta Delano	33	33	33	33	33	33	33	33	33	33

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Bio-Mass: Renewable Energy Providers (Blue Lake Power)	10	10	10	10	10	10	10	10	0	0	0
Conduit Hydro: SDCWA - Penasquitos	4	4	4	4	4	0	0	0	0	0	0
Digester Gas: City of San Diego MWD	2	0	0	0	0	0	0	0	0	0	0
Geothermal: Calpine - Geysers	25	25	25	0	0	0	0	0	0	0	0
Solar PV: Centinela Solar Energy	0	11	47	47	47	47	47	47	47	47	47
Solar PV: NRG Borrego Solar	9	9	9	9	9	9	9	9	9	9	9
Solar PV: Mt Signal Solar	0	0	30	30	30	30	30	30	30	30	30
Solar PV: Sterling Solar	141	141	141	141	141	141	141	141	141	141	141
Wind: Alta Mesa Power Partners, LLC (Alta Mesa Ph IV)	5	5	5	5	5	5	5	5	5	5	5
Wind: Coram Energy	1	1	1	1	1	1	1	1	1	1	1
Wind: FPL/WTE Acquisition (Garnet Green Pwr Wind)	1	1	1	1	1	1	1	1	0	0	0
Wind: Iberdrola Renewables (formerly PPM Mountain Energy)	2	2	2	2	2	2	2	2	0	0	0
Wind: Kumeyaay	7	7	7	7	7	7	7	7	7	7	7
Wind: Oasis Power Partners	5	5	5	5	5	5	5	5	5	0	0
Wind: Ocotillo Express	0	39	39	39	39	39	39	39	39	39	39
Wind: Pacific Wind	25	25	25	25	25	25	25	25	25	25	25
Total Capacity from Other Bilateral Contracts											
Celerity	0	0	0	0	0	0	0	0	0	0	0
Orange Grove	100	100	100	100	100	100	100	100	100	100	100
Otay Mesa	604	604	604	604	604	604	604	604	604	0	0
PGE (Portland General Electric)	84	84	0	0	0	0	0	0	0	0	0
Wellhead El Cajon	48	48	48	48	48	48	48	48	48	48	48
Short-Term and Spot Market Purchases	0	0	0	0	0	0	0	0	0	0	0

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

Capacity Balance Summary										
Total: Existing and Planned Capacity	2977	3022	2973	2950	2950	2943	2944	2931	2322	2322
Firm LSE Peak-Hour Resource Requirement	4422	4400	4398	4391	4374	4357	4333	4319	4309	4300
(Capacity Need)	-	-	-	-	-	-	-	-	-	-
	1445	1378	1425	1441	1424	1414	1390	1388	1988	-1979
Generic Biomass Resource	0	8	10	10	10	13	44	51	54	54
Generic Geothermal Resource	0	0	0	19	19	19	19	19	19	19
Generic Hydro Resource	0	0	0	0	0	3	3	3	3	3
Generic Solar Resource	0	12	45	68	91	102	102	102	102	102
Generic Wind Resource	0	0	0	0	0	0	0	13	27	27
Incremental CHP	6	9	12	15	18	21	24	26	29	32
Generic Non-Renewable	1439	1350	1358	1328	1285	1257	1198	1175	1754	1742
Total Generic Capacity	1445	1378	1425	1441	1424	1414	1390	1388	1988	1979

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

Appendix A-2 Energy Table Based on Scoping Memo Assumptions

Energy Demand (GWh)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Forecast System Energy Demand	22,284	22,680	22,978	23,283	23,556	23,845	24,130	24,434	24,740	25,046
Uncommitted Energy Efficiency (-)	22	209	348	479	645	843	1041	1207	1348	1528
Demand Response (-)	15	18	19	19	19	20	20	20	20	20
Incremental Demand-Side CHP (-)	216	325	433	523	616	710	805	900	996	1,096
Direct Access Loads, net of EE, DR and CHP (-)	3,340	3,297	3,261	3,231	3,195	3,156	3,118	3,085	3,056	3,022
Bundled Energy Demand	18,689	18,832	18,917	19,031	19,080	19,115	19,145	19,221	19,320	19,380
Firm Sales Obligations	0	0	0	0	0	0	0	0	0	0
Firm LSE Energy Requirement	18,689	18,832	18,917	19,031	19,080	19,115	19,145	19,221	19,320	19,380

Energy Supply Resources										
Total Fossil Energy Supply										
Natural Gas: El Cajon Energy Facility	■	■	■	10	11	8	10	11	11	11
Natural Gas: El Dorado Power Plant	■	■	■	2030	1936	1829	2036	1927	1904	1992

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Natural Gas: Miramar Energy Facility I	[REDACTED]	[REDACTED]	[REDACTED]	38	40	34	19	21	18	20
Natural Gas: Miramar Energy Facility II	[REDACTED]	[REDACTED]	[REDACTED]	37	38	30	18	18	16	17
Natural Gas: Palomar Energy Center	[REDACTED]	[REDACTED]	[REDACTED]	3687	3703	3654	3700	3711	3734	3748

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

Total Nuclear Energy Supply										
Nuclear: Songs 2	█	█	█	1809	1814	1971	1809	1809	1976	1809
Nuclear: Songs 3	█	█	█	1809	1976	1809	1809	1971	1814	1809
Total Hydroelectric Energy Supply										
Total: Hydro Plants larger than 30 MW	█	█	█	36	32	32	35	35	35	33
Total Energy Supply from DWR Contracts										
Sunrise	█	█	█	0	0	0	0	0	0	0
Cabazon	█	█	█	0	0	0	0	0	0	0
Whitewater Hill	█	█	█	0	0	0	0	0	0	0
Total Qualifying Facility (QF) Energy Supply										
Biofuels	47	47	47	47	47	47	47	39	35	35
Small Hydro	14	14	14	14	14	13	12	12	12	12
Natural Gas	1296	1304	1289	1287	1310	1292	1296	1304	1288	1293
Total Energy Supply from Renewable Energy Contracts										
Bio Gas: Covanta Otay	24	24	24	24	24	4	0	0	0	0

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

BioGas: GRS - Coyote Canyon	41	0	0	0	0	0	0	0	0	0
BioGas: GRS - Sycamore	19	19	2	0	0	0	0	0	0	0
BioGas: MM Prima Deshecha Energy LLC	47	47	47	71	71	71	77	95	95	95
BioGas: MM San Diego - Miramar	26	8	0	0	0	0	0	0	0	0
BioGas: MM San Diego - North City	7	2	0	0	0	0	0	0	0	0
Bio-Mass: Covanta Delano	367	367	366	366	367	366	0	0	0	0
Bio-Mass: Renewable Energy Providers (Blue Lake Power)	90	90	90	90	90	90	90	29	0	0
Conduit Hydro: SDCWA – Penasquitos	20	20	20	20	20	0	0	0	0	0
Digester Gas: City of San Diego MWD	22	0	0	0	0	0	0	0	0	0
Geothermal: Calpine - Geysers	212	211	211	0	0	0	0	0	0	0
Solar PV: Centinela Solar Energy	0	57	337	358	359	358	358	358	359	358
Solar PV: NRG Borrego Solar	60	60	60	60	60	60	60	60	60	60
Solar PV: Mt Signal Solar	0	54	299	299	299	299	299	299	299	299
Solar PV: Sterling Solar	334	693	693	693	694	693	693	693	694	693

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

Wind: Alta Mesa Power Partners, LLC (Alta Mesa Ph IV)	127	127	127	127	127	127	127	127	127	127
Wind: Coram Energy	20	20	20	20	20	20	20	20	20	20
Wind: FPL/WTE Acquisition (Garnet Green Pwr Wind)	24	24	26	26	26	26	26	0	0	0
Wind: Iberdrola Renewables (formerly PPM Mountain Energy)	86	86	86	86	86	86	86	0	0	0
Wind: Kumeyaay	138	137	137	137	138	137	137	137	138	137
Wind: Oasis Power Partners	162	162	162	162	162	162	162	162	0	0
Wind: Ocotillo Express	72	850	850	850	852	850	850	850	852	850
Wind: Pacific Wind	127	378	378	378	379	378	378	378	379	378
Total Energy Supply from Other Bilateral Contracts										
Celerity				0	0	0	0	0	0	0
Orange Grove				64	69	57	29	34	34	35
Otay Mesa				3288	3330	3246	3318	2607	0	0
PGE (Portland General Electric)				0	0	0	0	0	0	0
Wellhead El Cajon				2	2	1	5	5	6	5
Short-Term and Spot Market Purchases				-333	-635	-171	-213	-362	-373	-331

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

ENERGY BALANCE SUMMARY											
Total Energy: Existing and Planned Resources	█	█	█	17591	17463	17578	17291	16349	13534	13504	
Firm LSE Energy Requirement	18689	18832	18917	19031	19080	19115	19145	19221	19320	19380	
(Energy Need) or Energy Surplus	█	█	█	(1440)	(1618)	(1537)	(1854)	(2872)	(5785)	(5876)	
Generic Renewable Energy											
Generic Biomass Resource	0	60	79	79	79	99	343	398	417	415	
Generic Geothermal Resource	0	0	0	160	161	160	160	161	161	160	
Generic Hydro Resource	0	0	0	0	0	18	18	18	18	18	
Generic Large Scale PV	0	0	0	0	0	0	0	0	0	0	
Generic Solar Resource	0	46	173	263	352	393	393	393	393	393	
Generic Wind Resource	0	0	0	0	0	0	0	270	568	567	
Incremental CHP	█	█	█	46	56	63	73	81	92	97	
Generic Non-Renewable	█	█	█	891	969	804	867	1553	4137	4226	
Total Generic Energy	█	█	█	1440	1618	1537	1854	2872	5785	5876	

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Appendix A-3 Local Resource Adequacy Need Based on Scoping Memo Assumptions

Capacity Resource Accounting										
Peak Load Calculations (MW):	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Forecast Peak-Hour 1-in-10	5106	5121	5119	5113	5092	5072	5046	5027	5011	4995
Transmission Capability (-)	2500	3500	3500	3500	3500	3500	3500	3500	3500	3500
Generation Contingency (+)	604	604	604	604	604	604	604	604	604	604
Resource Need	3210	2225	2223	2217	2196	2176	2150	2131	2115	2099
Bundled share (%)	88%	88%	88%	89%	89%	89%	89%	89%	89%	89%
Bundled Local Requirement	2825	1963	1964	1962	1946	1932	1912	1898	1886	1875
Demand Response (share)	199	238	245	252	256	260	265	269	269	269
Local Resource Req.	2627	1725	1719	1710	1690	1672	1646	1629	1617	1605

Local Capacity Supply Resources										
Total Fossil Fuel Dependable Capacity										
Natural Gas: El Cajon Energy Facility	42	42	42	42	42	42	42	42	42	42
Natural Gas: Miramar Energy Facility I	47	47	47	47	47	47	47	47	47	47
Natural Gas: Miramar Energy Facility II	48	48	48	48	48	48	48	48	48	48
Natural Gas: Palomar Energy Center	565	565	565	565	565	565	565	565	565	565

Total Dependable Hydroelectric Capacity										
Total: Hydro Plants larger than 30 MW	40	40	40	40	40	40	40	40	40	40

Total Qualifying

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Facility (QF) Capacity										
Biofuels	3	3	3	3	3	3	3	2	2	2
Small Hydro	2	2	2	2	2	1	1	1	1	1
Natural Gas	136	136	136	136	136	136	136	136	136	136

Total Capacity from Renewable Energy Contracts										
Bio Gas: Covanta Otay	3	3	3	3	3	0	0	0	0	0
BioGas: GRS - Sycamore	1	1	0	0	0	0	0	0	0	0
BioGas: MM Prima Deshecha Energy LLC	5	5	5	7	7	7	8	10	10	10
BioGas: MM San Diego - Miramar	2	0	0	0	0	0	0	0	0	0
BioGas: MM San Diego - North City	1	0	0	0	0	0	0	0	0	0
Conduit Hydro: SDCWA - Penasquitos	4	4	4	4	4	0	0	0	0	0
Digester Gas: City of San Diego MWD	2	0	0	0	0	0	0	0	0	0
Solar PV: NRG Borrego Solar	9	9	9	9	9	9	9	9	9	9
Wind: Kumeyaay	7	7	7	7	7	7	7	7	7	7

Bilateral Contracts										
Celerity	0	0	0	0	0	0	0	0	0	0
Orange Grove	100	100	100	100	100	100	100	100	100	100
Otay Mesa	604	604	604	604	604	604	604	604	0	0
Wellhead El Cajon	48	48	48	48	48	48	48	48	48	48

Capacity Balance Summary										
Total: Existing and Planned Capacity	1667	1662	1661	1663	1663	1656	1657	1657	1053	1053
Local Requirement	2627	1725	1719	1710	1690	1672	1646	1629	1617	1605
(Capacity Need) or Capacity Surplus	-959	-63	-59	-47	-27	-15	11	28	-564	-552

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Appendix A (cont.) Need for New Generation in Service Area

D.07-12-052 and D.08-11-008 determined the need for new capacity to be built to meet the local RA need of all of SDG&E's system-wide customers (including bundled customers). The local area capacity need is based on the CAISO's grid planning requirements, which are used by the utilities to design their systems to a standard designed to prevent interruption of customer load under hot summer day conditions that are expected to happen once every ten years, following a single transmission circuit outage with the largest generator already out of service.

This is referred to as the "G-1/N-1" criterion.^{1/} This criterion requires that SDG&E have sufficient on-system resources and import capability to serve the full adverse peak summer demand forecast (1 in 10) during the worst G-1/N-1 event. SDG&E's current worst G-1/N-1 event would be the outage of the Otay Mesa plant plus the loss of the Southwest Power Link (SWPL).^{2/}

D.08-11-008 authorizes SDG&E to procure up to the 530 MWs of new local capacity authorized in D.07-12-052, with the stipulation that applications for this procurement should be supported by updates of the status and projected on-line date of the Sunrise Powerlink project. Resources approved in D.07-09-010 (Orange Grove and Wellhead El Cajon) and D.09-01-008 (Miramar II) will count against this total. D.07-12-052 also noted that if a previously authorized resource is determined to be unviable during the development process and the associated contract is terminated, the procurement authority for those megawatts remains. In addition, it authorized SDG&E to procure the equivalent quantity of local capacity associated with any retirements of local area resources that occur beyond the amount of retirements it forecasts in its LTPP.

^{1/} The CAISO periodically reviews this criterion based on historical data and actual grid operations and may develop a more stringent criterion. Based on CAISO review of historic generator outage data for the San Francisco area, the CAISO Board approved use of a G-4, N-2 planning criterion for that portion of the CAISO controlled grid.

^{2/} The assumption that the full output of the Palomar and Otay power plants will be treated as the largest G-1 is based on the CAISO's current assumptions.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Appendix B

Electricity and Gas Hedging Strategy

A. Electric Hedging

SDG&E has historically chosen to not hedge electric positions on a long-term basis. SDG&E's price exposure is primarily gas related and as such, the more effective means to reduce its long term open positions is with Natural Gas hedges, which SDG&E performs on a one-to-five year basis as discussed further herein. As SDG&E's portfolio changes over time, long term electric hedging may become a more effective means to hedges.

SDG&E executes hedges to reduce its forecasted open position over time. As a greater portion of its portfolio is hedged, using gas hedges, price exposure will shift to electric prices. Therefore, SDG&E also will execute shorter term hedges for electric prices. The majority of these short term hedges will be in the day ahead or intra-day markets where it has the most certainty as to its expected long or short electric positions, and can reduce its exposure the CAISO Integrated Forward Market (IFM) prices. Financial Hedges do not provide a perfect hedge by themselves, as they offer price protection for the IFM at the trading Hubs rather than SDG&E's Default Load Aggregation Point (DLAP), however during most hours the correlation between trading Hubs and SDG&E's DLAP is fairly good and as such these hedges will limit SDG&E's overall exposure to CAISO price volatility. CRRs also serve as a hedge by shifting price risk from the trading hub to the DLAP.

B. Overview of Natural Gas Hedging

Risk management and hedging of the overall portfolio is discussed below in this Appendix. The hedging strategy and instruments chosen will be dictated by the CRT risk strategy to control the cost of serving bundled customers.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

C. Hedging Strategy

The hedging strategy presented provides the details of SDG&E's hedge plan for years one through five (short-term) and longer-term (years six through ten). The 5-year risk management plan includes hedging objectives and targets that, when approved, would become the upfront guidelines envisioned in AB57 that will guide SDG&E's future actions when hedging.

First Rolling 12 Months and Year 1

In conformance with Commission requirements, SDG&E utilizes a 125% of CRT and VtE on a 95% confidence level to measure portfolio risk.^{1/} For purposes of this document, VtE will be considered to be calculated at the 95th percentile if not specifically delineated as something other than VtE (95%). The purpose of this VtE metric at the 95th percentile is to estimate the 1 in 20 adverse outcome for portfolio cost over a rolling 12 month period. SDG&E will calculate risk using the Commission's preferred metric of 125% CRT – VtE (95%), on a rolling 12 month basis, and use this for reporting purposes. SDG&E will actively manage risk during the rolling 12-month period and incrementally hedge to maintain an overall hedge position with a goal of maintaining positive values for CRT – VtE(95%). SDG&E will continue to review its overall hedge position and market conditions to determine if additional hedging is required. As such, SDG&E may, after considering its overall hedge position and market conditions, further increase its hedges as necessary in an attempt to mitigate a falling metric position(s) and re-establish a positive risk metrics.

In the event that at any time the VtE (95%) value exceeds 125% of CRT for the current rolling 12 month period, SDG&E will call a special meeting of its PRG to review the causes, review the pre-existing hedge positions, and discuss and decide whether new hedges are needed to bring 125% CRT - VtE (95%) back within the allowed threshold. Depending upon the level to which the primary metric has fallen below zero and how quickly SDG&E can arrange for a meeting with the PRG, SDG&E may

^{1/} D.01-12-074 established the Customer Risk Tolerance (CRT) for SDG&E equal to one cent per kilowatt hour of retail customer sales.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

decide that it must act immediately and hedge more aggressively to further reduce its open position, even before it can brief the PRG. SDG&E will continue to review its hedge positions with the PRG at least quarterly.

Year 2

Since the Commission has directed SDG&E to manage risk for the initial time horizon of the Plan on a rolling 12 month basis, SDG&E determined that it is most consistent with its overall plan strategy to manage calendar Year 2 on a volumetric basis using an average annual hedge target. This is consistent with how SDG&E has managed Years 3 through 5, while recognizing that each month of Year 2 will also actively be managed as each month of Year 2 “rolls” into the rolling 12 month period throughout the year.

As SDG&E rolls from Year 1 into Year 2, SDG&E has adopted an [REDACTED] [REDACTED] of its total portfolio by adding fixed-price contracts, financial hedges or a combination of both. [REDACTED]

[REDACTED] SDG&E will continually review its hedge position internally and decide whether additional financial hedging is necessary. SDG&E will brief its PRG on hedge targets and percentages on at least a quarterly basis. As with the strategy used for calendar years 3 through 5, as described below, the Year 2 period will move each year on a calendar year basis.

Intermediate Term – For Years 3 through 5 of the Rolling 5 Year Plan

SDG&E does not propose any significant revisions to its intermediate timeframe strategy. For Years 3, 4 and 5 SDG&E undertakes more passive risk management than for the rolling 12 month period, for the reasons discussed below, where it takes positions without regard to market price signals but rather with an objective of maintaining a certain percentage of portfolio hedge positions. SDG&E

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

will undertake hedges so that each year it fixes or caps the price of an [REDACTED] of ratepayer open positions in each of Years 3, 4 and 5 within certain bounds.^{2/}

As an example, in 2011, Year 5 of the hedging plan will be 2015. SDG&E would hedge, through a combination of products, [REDACTED] of the open position for that year. In 2012, Year 4 of the Plan will be 2015 and SDG&E would hedge an [REDACTED] of the 2015 open positions. In 2013, Year 3 of the Plan will be 2015 and SDG&E will [REDACTED] of 2015's open positions. In 2014, Year 2 of the Plan will be 2015. By this point in time, SDG&E would have [REDACTED] of the open positions for that year, on top of any fixed price positions resulting from existing long-term resources contracts, such as SONGS, QF contracts or renewables. Since Year 2 will also be hedged volumetrically, the strategy utilized for calendar years 3 through 5 will now flow into year 2 to form a consistent, hedge-over-time strategy for management of portfolio risk.

The hedging plan outlined above is further constrained by two limits established here as a part of this plan. First, SDG&E does not believe that it is prudent [REDACTED] of ratepayer risk five years forward. To do so would preclude ratepayers from realizing the benefit from any future fall in market prices if hedging was accomplished through fixed price instruments, and ignore the risk of load uncertainty created by the resumption of DA or CCA, either of which could lead to potential stranded hedging costs. Therefore, SDG&E here establishes targets for how much of its total portfolio it will hedge in years 2, 3, 4 and 5 of the rolling five-year plan. Notwithstanding other elements of this plan, SDG&E will not undertake further hedges under this rolling 5 year procurement plan:

- If in Year 3, if the total portfolio hedged has reached [REDACTED]
- If in Year 4, if the total portfolio hedged has reached [REDACTED]
- If in Year 5, if the total portfolio hedged has reached [REDACTED]

^{2/} Due to the progressive nature of this plan, SDG&E uses a relativistic terminology to refer to calendar years. The first rolling 12-month period refers to the current month and next 11 months, while Year 2 refers to calendar Year 2. Year 2 will overlap the first rolling 12-month period as the rolling 12-month period moves. Therefore, if today is a date in 2011, a reference to Year 2 is 2012 and Year 3 would mean the calendar year 2013, and so on. When the first month of the rolling 12-month period reaches January 2012, then Year 2 will become 2013, Year 3 -2014 and so on.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Second, collateral/liquidity requirements necessary to implement the hedging contained in this plan can be significant and potentially impact company finances. As discussed in this Appendix under the Section labeled, "Liquidity Requirements," SDG&E describes the liquidity requirements, and sets a limit on how much liquidity SDG&E is prepared to make available to implement this plan.

SDG&E will use a variety of products and instruments to meet the goal of hedging [REDACTED] incremental positions in Years 3, 4 and 5, all of which are authorized in Table 1 "Authorized Procurement Products" in D.02-10-062, or have been/will be approved by separate application. One of the most likely means of meeting the [REDACTED] incremental annual hedge targets is hedging of SDG&E's net open position through execution of [REDACTED]. These contracts are incremental to the current portfolio, and as they are added they eliminate the exposure to market prices for the volume transacted. A second likely means is hedging through [REDACTED]. Other means include financial or physical [REDACTED]. [REDACTED] [REDACTED] [REDACTED] [REDACTED]. Any shortfall in meeting the targeted forecast hedges in any individual category in this table will be made up through the use of a combination of other instruments, most likely financial gas instruments, as these are relatively liquid through the five year term discussed here.

In each plan year, SDG&E will seek to hedge an additional volume equal [REDACTED] of the total portfolio regardless of previous year's hedging, up to the limits described below. Because of the "lumpiness" of resource additions, it is possible in some years that SDG&E may add a fixed price contract that [REDACTED] of the total portfolio for Plan years 3, 4 and 5. If that happens, in the next

[REDACTED]

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

year SDG&E would still add an [REDACTED] to hedge positions in each year, subject to the limits previously described. Additionally, there may be instances in which adding the prescribed incremental volume of hedges equal [REDACTED] in one or more of years 3, 4 or 5, may still leave SDG&E below the capped levels for hedging. Given that the planning horizon in these instances is still a number of years out in the future, it may or may not be appropriate to increase the volume of financial hedges. As such, SDG&E will periodically throughout each year review its annual hedge levels, [REDACTED] [REDACTED]. Should the overall portfolio hedge level(s) for any of the Years 3 through 5 remain [REDACTED] below the yearly cap level, SDG&E will review the potential for additional increases to overall hedge volumes, based on the potential for additional fixed priced contracts not originally included in its analysis for the year(s) in question.^{4/} If after taking into account the potential for additional fixed-priced resource additions, the annual hedge level is still [REDACTED] below the yearly cap level, SDG&E may take action to incrementally hedge above the [REDACTED] level to bring the annual hedge position more in line with the capped hedge target. This is appropriate if SDG&E determines that leaving the hedge levels as they otherwise exist could cause SDG&E to not meet its hedge targets in subsequent years of its plan.

In summary, this hedging strategy results in ratepayers acquiring a portfolio that has a weighted blend of market prices transacted at various points in time. This strategy of hedging incrementally and over time is similar to SDG&E's understanding of the "ratable rate" plan of other utilities. Hedging plans are regularly reviewed with SDG&E's PRG, although this review may take place after some hedging has occurred if market price movements dictate that execution proceed on a timeframe faster than a PRG meeting can be arranged. In addition, SDG&E also reports a rolling 60 month CRT -VtE (95%) to

^{4/} This could happen for several reasons: a fixed priced contract may be in the process of being negotiated but is not yet finalized; a fixed priced contract may have been executed but not yet approved by the Commission. In these instances SDG&E would evaluate the need to add the contract into the model and re-evaluate whether additional hedging was warranted or appropriate at that time.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

the Commission, but will not modify its 5-year hedging strategy based on the values contained in this report.

This approach is appropriate because sufficient time remains for SDG&E to analyze, discuss and modify its hedge plan as needed with the PRG and Energy Division without reacting defensively to adverse changes in forward market prices. SDG&E's view is that over-hedging long-term positions in reaction to short-term price signals is ill-advised.

Long-term (Years 6 Through 10)

SDG&E's effective fixed price hedging target for years 6-10 is no lower than [REDACTED]. These hedge levels are currently assured through the fixed price positions inherent in the portfolio's legacy contracts such as SONGS, QFs and renewables and, as such, SDG&E has no plans to financially hedge a greater percentage through OTC or exchange-based derivatives. SDG&E will adopt reporting triggers at the following levels: Years 6-8: [REDACTED] Years 9-10: [REDACTED]. These calculations for Years 6-10 are to be performed no later than the last business day of each year. If the hedged portion of the portfolio falls below these levels, SDG&E will consult with its PRG and notify the Commission of any planned actions through an update to this LTPP. Some limited amount of passive hedging will occur naturally as a consequence of the addition of certain fixed-price supply additions to the portfolio.

In addition to the foregoing, the scope of the active hedging horizon has been limited to five years in this LTPP for of the following reasons:

- The Commission's requirement that any transactions longer than 5 years be submitted for separate approval essentially places a limitation on trading authority for transactions such that any hedge for years 6-10 would require going to the Commission for pre-approval. SDG&E considers the notification at certain hedge levels followed by a plan update, as outlined above, is consistent with this restriction.
- Reduced liquidity in the market beyond five years, which makes transaction execution more difficult, increases bid/ask spreads and makes price discovery less robust.
- Beyond five years, the SDG&E Long-term Resource Plan currently relies on some generic, yet-to-be contracted-for resources. The uncertainties surrounding

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

these future resources make calculation of the Net Open Positions much less certain for these years.

In addition to price risk, the Commission has previously directed SDG&E to address additional procurement risks:

- *Supplier Diversification* – SDG&E has plans that represent diversity of supply with resources expected to be drawn from electric market, gas markets, renewable suppliers and contract resources. SDG&E will adopt supplier diversity as one non-price aspect to be considered in procurement decisions when filling the short positions. SDG&E will also strive to evaluate all options to diversify, from use of Diverse Business Enterprises for procurement, to diversification of development risk through division of renewable procurement among a large number of projects and fuel types to limit over reliance on any single source.
- *Liquidity Risk* – To the extent that portfolio VtE remains below the CRT, transacting for energy supplies will be spread using the “incremental and over time” approach to hedging adopted in this plan. That approach reduces timing risk that would arise if all hedging were done at one point in time. Notwithstanding the need to pay attention to timing risk, a high volume of procurement or hedging activity could be appropriate in a short time period to defensively protect the portfolio should volatility (and thereby VtE) or prices show signs of increasing. Since market conditions will inevitably change as we move through the period covered by this Plan, risk strategies and measures, including timing of transactions, will also need to be constantly updated to reflect current market conditions. Timing in SDG&E’s plan is governed largely by changes in the CRT risk metric.
- *Transaction Risk* – It is possible that there may not be sufficient market liquidity to execute the procurement plan at the time and in the manner proposed by SDG&E. Some of the transaction risk may be mitigated by spreading out transactions over time, using a variety of products to achieve a desired position (for example, financial versus physical), and having trading and credit agreements established with enough counter parties such that SDG&E is not precluded from certain transactions that are being offered to other participants.

Liquidity Requirements: S&P’s rating agency has developed a standardized financial liquidity requirements test for certain companies using marginable derivatives or like products that contain any of a variety of contractual terms that could result in an obligation to post collateral (e.g. daily or initial margin). The potential to post collateral can create a cash requirement on the company. The collective contracts and positions that generate a potential demand for liquidity according to the S&P methodology will be called “liquidity demanding” contracts and positions. S&P’s objective in this test is

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

to ensure that companies engaging in such transactions maintain sufficient liquidity on hand (the capacity to meet cash obligations) to ensure the continuing viability of the corporate entity; this has a direct bearing on the credit rating S&P issues for energy companies.

Although not currently required by S&P, SDG&E has internally adopted S&P's liquidity calculation methodology in order to manage its working capital requirements within the liquidity limit set per this plan. SDG&E tracks this "Liquidity Utilization" against the liquidity limit. In addition, we calculate a 10-day VaR on marginable derivatives to assess the statistical possibility of exceeding the authorized liquidity limit.

"Liquidity Utilization" is defined as the sum of:

1. unrealized mark-to-market of marginable transactions; and
2. the greater of an upward or downward shock of NYMEX natural gas prices of 15% for first year forward and 20% for later years, with natural gas basis fixed and with full netting across positions.

One function of the S&P methodology is that the total liquidity requirements should always exceed the actual collateral that may be required to be posted at any given time. The S&P calculated "Liquidity Utilization" using the S&P methodology will be the binding requirement on this plan, since it includes both the unrealized MtM component as well as the 15% and 20% "stress test" reserve requirement. The liquidity utilization is the metric used to track against the liquidity limit. The 10-day VaR on marginable transactions is purely an internal management tool used to potentially provide early warning on the possibility of exceeding the liquidity limit.

SDG&E's Established Liquidity Limit: Approval of this plan will include the explicit limit on the amount of financial resources for executing this long-term hedging plan. SDG&E is proposing to set its liquidity limit at [REDACTED] in recognition of 1) the size of the anticipated liquidity requirements; 2) market conditions; 3) the expectation to complete identified hedging using a combination of products or instruments including those that do not require collateral; and 4) the impact of raising cash or cash

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

equivalents to be used for collateral [REDACTED], which is based upon the hedging volumes and instruments currently forecast to be used to implement this plan. The actual liquidity needs will vary with movements in forward market prices and the types of hedge instruments utilized under this plan.

Setting a limit on working capital requirements for liquidity is consistent with AB57 stated goal of assuring creditworthiness. At any time during the term of this plan, if SDG&E reaches or appears likely to reach its authorized and approved liquidity limit, SDG&E will take the following actions:

- Temporarily cease any further hedging activity that gives rise to additional liquidity requirements.
- Evaluate its current overall hedge position and portfolio and unwind hedges as needed to move its liquidity requirements below the authorized and approved limit.
- Meet with its internal management to evaluate its liquidity position, current hedge position and overall market conditions and determine whether SDG&E should apply to the Commission for additional borrowing authority to be used for the purpose of meeting these margin/collateral requirements so that it may resume execution of the hedge plan or continue to manage its hedge positions and portfolio within the authorized and approved limit.
- Inform the PRG of its liquidity position and intended actions.
- Update this plan to outline further actions as necessary.

D. Security Requirements (Collateral and Credit)

Collateral Requirements: As discussed in this LTPP, SDG&E can hedge open positions taking fixed-price positions (hedge open positions) up to five years forward to implement the company's risk strategy. There are a couple of implications associated with this strategy. First, a five-year forward position covers periods where SDG&E's share of open positions, relative to CDWR's are significantly larger. Second, given the increased holding period for positions there is a potential for greater divergence between the transaction price and market prices through time. These factors combine to create a much larger potential need for SDG&E to hold or post collateral. In this section, SDG&E discusses transactions that create needs for collateral as well as those that have reduced collateral requirements.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Products that Contribute to the Need for Collateral: These products would include all those that contain any contract provisions that may require SDG&E to make a cash or similar payment as a function of the contract's market value in advance of settlement. The contractual terms are typically standardized and reflected in Master Agreements, such as ISDA, EEI, NAESB, and WSPP. SDG&E's various contracts contain a variety of such provisions, ranging from active margining (see Exchanged Cleared Products below) on one extreme to a limited requirement to post collateral should SDG&E receive a credit downgrade.

Exchange Cleared Products: Products transacted on exchanges, such as NYMEX, often rely on a clearinghouse to guarantee settlement. Use of these products requires parties to meet active margining obligations, including initial margin, maintenance margin and margin calls on a day-to-day basis in some cases.

ICE Traded Products: Financial transactions executed through ICE are cleared through a clearinghouse. The margining process for these transactions is similar to that for exchange cleared products. Physical transactions on ICE can be cleared or traded bilaterally through WSPP Master Purchase and Sale Agreements.

Other OTC "Liquidity Demanding" Products: Most forward gas and electricity products, both physical and financial, such as fixed-price physical gas, fixed price swaps, OTC basis swaps and options, contain contractual provisions for securing or collateralizing each counterparty's positions. These are often referred to as credit or security provisions. These provisions lead to S&P's insistence that sufficient liquidity be maintained for all such "liquidity demanding" contracts, since counterparties are able to negotiate unsecured credit lines.

Products that Do Not Contribute to the Need for Collateral: These products could limit the total need for collateral and are potentially necessary to fully implement this plan. The following, non-exhaustive list, highlights some of the products that do not contribute to the need for collateral and are likely to be used by SDG&E in hedging of risk positions. It should be noted that, while SDG&E has a

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

preference for these types of products (due to the lack of margining provisions), use of these products may be somewhat limited either by their higher costs, limited availability or increased exposure to credit risk.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Structured bilateral contracts with negotiated credit provisions. When a transaction is executed bilaterally, both parties may agree in negotiations on specific credit provisions covering that transaction that could result in a wide range of collateral reduction solutions. SDG&E intends to make use of this type of resource to execute on this hedge plan while working within the liquidity limit.

Options. SDG&E frequently uses options to hedge its electric portfolio where the premium paid is the extent of the margin requirements. SDG&E may act as an outright buyer of options (call options to cap price exposure act as a stop loss, or put options to restore ratepayer benefit associated with fixed-price purchases in a falling market) to reduce VtE or manage to volumetric hedge percentage targets (measured on a notional basis). SDG&E may also act as a seller of options to reduce overall hedging costs, reduce VtE or manage to volumetric hedge percentage targets (measured on a notional basis).

CDWR Long-Term Hedging of its Gas Positions. In its role as agent for CDWR, SDG&E arranges hedges for gas associated with dispatchable CDWR tolling agreements that SDG&E has been allocated for operational purposes. SDG&E, in accordance with this LTPP, will [REDACTED]

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

████████████████████ with volumes of each party being hedged proportionately. Hedging done by CDWR will place all margining requirements on that agency, rather than SDG&E.

Calculation of Unsecured Credit Lines: The Credit Department will review counterparty creditworthiness and assign internal ratings. These ratings govern the amount of the unsecured credit line that will be made available to a counterparty ████████████████████. The following criteria may be used to assign ratings and establish limits for counterparties:

- Counterparty's last three audited financial statements
- Counterparty's latest annual report and SEC 10K filing (if applicable)
- Organizational chart showing parent and subsidiaries
- First hand and general knowledge or experience with the company
- Last month's or last quarter's internally prepared financial statements if this time period is not included in the most recent audited statements (if available)
- Agency public credit rating (if available)
- Personal visits to customer offices and facilities and with key company contacts
- Information services: Reuters; Bloomberg; Moody's; S & P; Dow Jones; Lexis-Nexis
- News articles
- Other information as necessary to conduct credit analysis

Contractual Credit Provisions: Below are brief descriptions of the credit terms of various standard contracts used in procurement.

Physical Energy Master Agreements: For short-term physical energy transactions, SDG&E uses standardized master agreements, including, among others, the North American Energy Standards Board (NAESB) a bi-lateral form for natural gas transactions and the WSPP a multi-lateral agreement for power transactions. Typically these agreements contain provisions for liquidated damages to cover cases of counterparty default. Counterparties may negotiate collateral arrangements in support of

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

transactions under these agreements; however, margining is generally not a feature of these agreements.

ISDA Master Agreements: For OTC financial transactions (*i.e.*, derivatives), such as swaps and options, SDG&E generally utilizes the International Swaps and Derivatives Association (ISDA) Master Agreement, including the various cover letters and schedules used to tailor the terms. When an ISDA has not been fully negotiated and executed SDG&E may use a “long form confirmation” for each transaction. The long form confirmation contains many of the provisions in an ISDA, but may be easier to negotiate quickly because it won’t necessarily apply to follow-on transactions.

ISDAs contain liquidated damages provisions and also provide for margining. The ISDA makes delay or refusal to comply with a margin call an event of default, thus triggering liquidated damages. As a result, when transacting under a contract with margining provisions, SDG&E expects that exposures in excess of the unsecured credit line can be quickly collateralized.

Cleared Transactions: The use of clearing can dramatically reduce credit risk. For transactions with a commodity futures exchange, such as NYMEX futures and options, the exchange clearinghouse acts as counterparty to every transaction while maintaining adequate margin monies from all clearing members. In addition to NYMEX futures and options other products and transactions (*e.g.* OTC) can also be cleared through the exchange, thus providing all of the credit backing of the exchange to an OTC product.

Long-Term Renewable Energy PPAs: Generally, SDG&E’s renewable power purchase agreements (PPAs) involve buying power under long-term, fixed-price contracts. [REDACTED]

[REDACTED] SDG&E has established standards for how much collateral must be secured in support of renewable PPAs, including project development security and default security, based on the creditworthiness of the counterparty and the likelihood that actual exposures may exceed that level during some period over the lifetime of the contract.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

The project development security applies to new generation development projects and represents performance assurance. The amount is calculated as twice the estimated energy amount (MWh) multiplied by a value not lower than \$5/MWh, and is held during the construction phase until the commencement of deliveries. This collateral is returned to the counterparty, net of any delay damages, upon commercial operation.

The default security applies to the commercial operation period of new renewable PPAs. The seller provides default security prior to the commencement of commercial operation or expected deliveries, which is then used to secure a portion of the potential losses associated with a contract default. The default security amount is calculated as twice the estimated energy amount (MWh) multiplied by a value not to exceed \$15/MWh and is held throughout commercial operations. This collateral is returned to the counterparty, net of any default related damages retained, at the end of the contract.

Other Long-Term Contracts: These types of contracts may include capacity or RA contracts, tolling agreements or heat-rate options, or other fixed-price energy PPAs, among others. The counterparty's potential credit risk will be factored into the least-cost best-fit analysis when comparing against other counterparties. [REDACTED]

[REDACTED] Because some contracts have 5-, 10- or even 20-year terms, the peak potential exposure that may be calculated prior to contract execution will often represent an amount that [REDACTED]

[REDACTED]. SDG&E will seek to minimize the potential for this unsecured credit exposure, and during contract negotiations will use the calculated potential credit risk as a reference point.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Appendix C

Gas Supply Plan

CDWR – UEG Natural Gas Procurement Strategies

The following section describes some of the strategies/procedures used by SDG&E in meeting the gas requirements of the combined CDWR/UEG portfolio:

A. Fuel Supply Procurement

In D.07-12-052, while the Commission recognized the need for SDG&E to continue with purchasing of gas for both SDG&E owned/contracted units and the CDWR units that are allocated to SDG&E for operation administration. These resources include SDG&E-owned facilities, SDG&E-contracted tolling agreements and CDWR dispatchable contracts allocated to SDG&E. As outlined below, SDG&E will procure gas for an integrated CDWR and UEG portfolio, as required by the Commission's Standard of Conduct #4.

The combined SDG&E and CDWR generation fuel portfolio of gas contracts and purchases is maintained as a separate and distinct portfolio from SDG&E's portfolio of gas contracts and purchases to serve its core gas customers. When SDG&E is acting as Fuel Supplier under an approved Gas Supply Plan as limited agent for CDWR, all purchases of physical gas for the CDWR gas contracts will be made by the SDG&E personnel whose responsibilities also include procurement for the non-core SDG&E gas portfolio; *i.e.*, UEG fuel needs. Such CDWR purchases will be made within the authority granted to SDG&E by CDWR as defined in the Operating Agreement and CDWR Fuels Protocols.

If SDG&E does not act as Fuel Supplier for CDWR gas portfolio needs, then the default Fuel Supplier (the CDWR contract counterparty) will procure physical gas under the Gas Supply Plan. In financial transactions (hedges), SDG&E personnel will make recommendations to CDWR, which will then execute the transaction through its broker, as CDWR has not authorized SDG&E to execute such

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

transactions. CDWR also retains the ability, in its Operating Agreement Fuels Protocol, to making hedging decisions independent of SDG&E recommendations.

Gas for dispatch by SDG&E to serve bundled customer load represents costs that will be recovered from ratepayers through ERRAs and thus are part of the CRT risk management strategy.

SDG&E procures gas for load-serving generation with the objectives of least-cost dispatch and managing gas costs through its CRT-based risk management strategy, as described in this LTPP Section II B.

Regarding affiliate transactions in gas procurement, SDG&E may conduct transactions over the ICE, which could result in anonymous transactions with its regulated or non-utility affiliates. Such anonymous transactions with regulated affiliates are authorized by Resolution E-3838 and other Commission decisions, and such transactions with non-utility affiliates are specifically authorized in D.03-06-076 and elsewhere. CDWR has also executed a contract for capacity products with SoCalGas, which would allow SDG&E to engage in hub transactions, park-and-loan transactions, and short-term storage transactions with SoCal Gas.

B. Natural Gas Procurement Strategies and Products

1. Products

The primary physical products that SDG&E intends to trade in procuring gas for electric generation include the items discussed below. SDG&E's traders transact to procure physical natural gas for delivery the next day, through ICE, brokers and instant messaging (IM), so as to meet the expected needs for SDG&E UOG and tolled generation facilities the next day. Financial instruments are also discussed as part of SDG&E's hedging strategies.

a. Baseload Gas

For each month, SDG&E plans to baseload [REDACTED] of gas requirements for generation which serves SDG&E customer load at prevailing prices, given liquidity and credit

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

constraints, consistent with its baseload strategy for DWR gas requirements. SDG&E may purchase additional baseload gas supply to lock in generation cost associated with a forward sale. The price for baseload gas will typically be fixed-price or based on index pricing. While SDG&E's practice has been to purchase baseload gas month-to-month, multi-month contracts may also be used to reduce the exposure to bid-week volatility and liquidity constraints. The [REDACTED] level assures that the major portion of gas to be used to serve bundled customers remains hedged after financial hedges expire, a few days prior to the delivery month.

b. Intra-month (swing) Gas

SDG&E expects to procure the balance of its UEG physical gas requirements throughout the month in the spot market at prevailing prices. This procurement may be constrained at times by liquidity and credit.

c. Transportation Services

SDG&E will incur intra-state transportation, firm non-core transportation rights and Firm Access Rights charges to transport gas supply between various points, such as from SoCalGas border points, SoCalGas storage or SoCal Hub receipt points to the UEG units. These costs will be based on prevailing tariff rates. SDG&E also will explore and procure short and long-term interstate transportation capacity opportunities to access producing basins in the San Juan, Permian, and Rockies basins, if such interstate transport supports its gas procurement objectives and is forecast to be economic based on forward prices. Transportation and storage are discussed below.

Operational transactions – SDG&E may incur operational costs associated with managing gas supply and balances to respond to late notice dispatch, forced curtailment of the units, OFO notices and other operational issues. These costs include, among other things, park and loan transactions, interruptible transportation, storage capacity, imbalance trades, late cycle purchases and sales, OFO and other imbalance-related charges and credit sleeves. Such costs may be either explicit or bundled in the commodity price.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

d. Park and Loan Services

Park and Loan services allow SDG&E the flexibility of storing gas on its system for later use (Parking) or taking gas off of its system (Loaning) in order to avoid purchasing spot-gas at high prices. SDG&E will utilize this "balancing service" at times when SDG&E may find itself out of balance on the pipeline (different pipelines will have different allowances for balancing) so as to avoid any balancing fees or penalties. In addition, SDG&E may use this service to take advantage of short-term price swings on the open market.

e. Brokerage Services

SDG&E anticipates using voice brokers and electronic exchanges for its procurement and hedging activity. Fees charged for these brokerage services will be submitted for recovery under the ERRRA.

f. Sleeve Fees

When transacting in the market, it is sometimes economic to transact with a party that does not have a contractual relationship with either the CDWR or SDG&E. In these instances, it is possible to use an intermediary, a third party that can transact with both DWR/SDG&E and the party of interest. This third party charges a "sleeve fee" for performing this transaction. SDG&E will not engage in any such transactions with affiliated, unregulated companies.

In addition to transacting outright for the products and services listed above, SDG&E may also combine certain purchases for cost-effectiveness or transactional efficiency reasons. For example, SDG&E may include hedge products in its physical baseload purchases to supplement financial hedges. One such combination could be purchasing baseload gas on a forward basis, where the price is based on the bid-week index price that is capped at a predetermined strike price. Such a transaction is a combination of a baseload purchase and a financial call option, and may be a better procurement solution than an outright financial call option that expires prior to the delivery month.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

g. Other Products/Other Fuels

Nuclear Fuel: The fuel requirements for the San Onofre Nuclear Generating Station (SONGS) are provided by SCE. SDG&E pays SCE for 20% of the fuel procured and recovers these costs through ERRA as fuel is burned.

Biofuels: SDG&E may procure biofuels as part of its renewable RFO process. SDG&E may also procure biofuels on a monthly and/or daily basis similar to procurement of natural gas products should such markets/exchanges develop.

C. Strategy For Procurement of Fuels

1. SDG&E Owned Facilities

SDG&E owned facilities run predominantly based upon economics, but are also subject to CAISO dispatch under RA, RUC Ancillary Service and ED obligations. Gas for these units is supplied under applicable SDG&E, Southern California Gas Company and Southwest Gas tariffs, or other such tariffs as necessary and appropriate for procurement and delivery of natural gas or other alternative fuels to the respective facilities. Gas positions are marked to SoCal Border Index and/or the SoCal CityGate Index prices (for plants located in California) or Kern Delivered indexed prices (for facilities located in Nevada). SDG&E is responsible for the management of all associated gas transactions for these plants and buys in its own name for plant fuel needs. Consistent with the SDG&E gas portfolio strategy, and as is the practice for gas procurement for baseload CDWR dispatchable units, SDG&E will generally procure during bid week each month [REDACTED] of its anticipated forecasted baseload needs.

Peaking units are subject to the same CAISO obligations as baseload units. SDG&E purchases the gas in its own name as needed to meet the requirements of this peaking generation facility. The generation output may be used to meet load, or be dispatched by the CAISO for RA, RUC Ancillary Service and ED obligations. Peaking resources have infrequent and often unpredictable dispatches,

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

and as such, gas is usually purchased either in the daily market or after actual dispatch has occurred, to fill any imbalance.

2. SDG&E-Controlled Units (Tolling Agreements)

SDG&E transacts new tolling agreements through periodic RFO processes. These units will consist of baseload, intermediate and peaking type facilities. SDG&E expects that these facilities will run for the purpose of serving bundled customer needs. As with SDG&E owned units, the units should run predominantly based upon economics, however, they are also be subject to CAISO dispatch under CAISO RA designation, RUC, Ancillary Service and ED obligations.

Gas for these units is supplied under the applicable SDG&E tariff. Gas positions are marked to SoCal Border Index and/or the SoCal CityGate Index prices. SDG&E also, is responsible for the management of all associated gas transactions, buying in its own name for plant fuel needs.

Consistent with the SDG&E gas portfolio strategy, SDG&E will generally procure during [REDACTED] [REDACTED] of its anticipated forecasted baseload needs.

For peaking resource with infrequent and often unpredictable dispatches, gas will typically be purchased either in the daily market or after actual dispatch has occurred, to fill any imbalance. For intermediate type resources, gas may be purchased either in the daily market, DAM or a combination of both, depending upon the characteristics and frequency of dispatch of the individual unit.

3. Qualifying Facilities

SDG&E also purchases capacity and energy from a number of QFs through a combination of Standard Offer and non-Standard Offer contracts. While SDG&E does not procure fuel for any of the QF plants, SDG&E has financial exposure to movements in gas prices in even though SDG&E has no physical position with respect to the procurement of gas for QF plants, because QFs are paid the utility's Short Run Avoided Cost (SRAC). That payment formula is indexed to SoCal Border gas prices.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

As such, the indexation of payments for the electric off-take of QFs creates a financial exposure at the SoCal Border, equal to a volume proportional to the electric QF off-take. SDG&E may choose to hedge this gas position with financial products in conjunction with hedging of other UEG physical gas positions as part of the risk strategy described elsewhere in this LTPP.

D. CDWR Gas Supply Plan

SDG&E has been allocated operational administration of a number of the CDWR tolling contracts that include an option for CDWR to provide gas for generation. SDG&E and CDWR have defined the relationship that exists between the parties involved in gas transactions in the Operating Agreement approved by the Commission on April 3, 2003 in D.03-04-029.

According to D.03-04-029, SDG&E evaluates the Gas Supply Plans of the generators (CDWR counterparties) and, in its own Gas Supply Plan, recommends to CDWR that either SDG&E assumes the role of Fuel Supplier and/or Fuel Manager, or that the default Fuel Supplier/Manager assume these functions. The Fuel Supplier/Manager performs the functions needed to procure and deliver to the generators the necessary quantities of physical gas. Management of price risk associated with that gas is a separate function addressed in this LTPP (see "Risk Management Policy and Strategy") as part of an overall risk strategy designed to manage the total cost to SDG&E's customers. SDG&E is required to operate both the CDWR and UEG gas portfolios as a single integrated gas position. The arrangements that govern the SDG&E management of CDWR gas activities are described in two different documents, the Operating Agreement between SDG&E and CDWR, SDG&E's Gas Supply Plan. A summary of how SDG&E manages the CDWR allocated portfolio is provided below.

1. Gas Supply Plans

D.03-04-029, as modified by D.04-10-035 and in D.07-12-52, approved an Operating Agreement between SDG&E and the CDWR that among other responsibilities, requires SDG&E to prepare an annual Gas Supply Plan, which is subject to Commission approval. In each plan, SDG&E

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

evaluates default Gas Supply Plans submitted by the generators in each DWR tolling contract. SDG&E then presents its recommendation to approve the current default plan or SDG&E's alternate Plan. The final Gas Supply Plan for CDWR facilities is effective for the period October 1, 2011 through June 30, 2012.

2. Strategy for Procurement of Fuels

The CDWR allocated contracts provide access to both baseload and peaking type facilities. The Sunrise facility is a combined cycle plant located in CAISO zone ZP26. Its heat rate makes this unit one of the least-cost generators in the CAISO system. As such, Sunrise typically operates as an intermediate to base load plant. Because of stringent balancing requirements on the Kern River pipeline, the source of most Sunrise gas, this unit is not subject to CAISO ADS dispatch requirements. SDG&E has acted as an agent to CDWR and CDWR acts as both Fuel Supplier and Fuel Manager for Sunrise. SDG&E expects this structure to continue during the remaining life of the contract, which extends through June 30, 2012. Sunrise is dispatched to serve load because of its low generation cost. Physical gas transactions for the Sunrise contract were made to accomplish procurement of fuel for Sunrise generation, management of imbalances on the Kern River pipeline and monetizing of excess capacity on that pipeline that included delivery of Rockies gas to CDWR/UEG generation gas requirements in the SoCalGas service territory.

SDG&E typically purchases during bid-week each month [REDACTED] of the plant's forecast requirements consistent with its procurement strategy described in the Gas Supply Plan and the risk strategy of this LTPP. SDG&E will buy significant baseload volumes due to the high load factor of the plant and to protect against price volatility provided by expiring forward hedge transactions. The purchases made for Sunrise may not always be at Opal. SDG&E will buy gas at whatever location(s) can be delivered to Sunrise most economically.

With regard to management of imbalances, on Kern River, the Kern pipeline has relatively stringent balancing requirements. The Sunrise plant's daily imbalance should not exceed

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

approximately 10,000 MMBtu without specific authorization from the pipeline operator. The Sunrise plant's cumulative gas imbalance cannot exceed approximately 50,000 MMBtu. SDG&E trades additional day-ahead gas and even intra-day gas transactions to manage Sunrise's gas balancing requirements on the Kern River pipeline.

The Sunrise contract includes rights to 85,000 MMBtu/day of firm Kern River capacity through the term of the CDWR – Sunrise power purchase agreement. The first priority for this capacity is to supply gas to the Sunrise plant. SDG&E will primarily source baseload gas from the Opal market and deliverer this gas to Sunrise using the Kern River capacity. However, the cost of supplying gas from Opal will be compared on a daily basis to the cost of buying gas delivered at the plant to determine if variable transportation cost savings could be realized. SDG&E also will consider opportunities to extract value from the Kern River pipeline capacity. These opportunities included selling gas to alternate delivery points such as Wheeler Ridge or Kramer Junction or delivering into SoCal Border and/or CityGate to meet other CDWR/UEG requirements or to bank the gas against a SoCal imbalance account associated with SDG&E the burn account for Palomar when the SoCal – Opal spread exceeds the variable cost of transport. If SDG&E does not need the capacity, SDG&E will consider selling the unused pipeline capacity. Moving gas from Rockies to SoCal and capturing any arbitrage opportunity, as described herein, is an effective means of monetizing excess Kern River pipeline capacity. Without firm delivery to the SoCal system, however, transportation might be interrupted. The Sunrise contract originally included 85,000 MMBtu/day of firm Kern River pipeline capacity with firm receipt at Opal and firm delivery at the Sunrise meter. Because there are no delivery constraints to Sunrise, CDWR changed the primary delivery point from the Sunrise plant to Wheeler Ridge and Kramer Junction, as recommended by SDG&E. These new primary delivery points increase the ability to move Kern River gas onto the SoCal system without compromising deliveries to the Sunrise power plant. Having firm delivery at Wheeler Ridge and Kramer Junction allows SDG&E to more effectively monetize excess capacity. Because of the transportation rights on Kern River, dispatch decisions for Sunrise are made

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

using the higher of the Kern delivered and SoCal border price is used to calculate the generation cost, despite the fact that most of the gas is purchased at Opal. This is possible because the natural gas not used for generation can be sold at the higher priced delivery point.

The CDWR allocated facilities also includes three peaking units that comprise the Calpeak units: Border, Enterprise and El Cajon. The heat rates of these units makes them relatively expensive units to operate compared to the market in the majority of hours throughout the year. Therefore, they tend to operate in a peaking mode, making only a small contribution to SDG&E energy needs. SDG&E acts as the Fuel Supplier and as of March 2010 as Fuel Manager, for all three of the Calpeak plants, and expects to continue as such during the remaining term of the contracts. The Calpeak units are subject to RA and RUC dispatch by the CAISO. Calpeak retains the right to operate the units once SDG&E has exhausted the 2500 annual operating limit under the contract(s), and when so doing, CalPeak is responsible for providing fuel. The CalPeak contracts expire in the fourth quarter of 2011. Since these plants operate as peaking facilities, SDG&E procures gas on a daily basis primarily at SoCal Gas CityGate. During times when the Sunrise plant is not at full capacity and there is unused capacity remaining under the Kern River Pipeline contract, and if it is economical for SDG&E, SDG&E can use Kern Capacity to transport gas to SoCal CityGate for delivery to the Calpeak facilities. to use this gas for purposes of serving the CalPeak facilities.

3. Interaction between CDWR and UEG Portfolios

SDG&E has designed a business process for dealing with gas requirements for itself and CDWR using the same personnel and system requirements for each. The following briefly describes how this single, integrated portfolio is operated to maximize synergies, while maintaining enough separation to allow for accurate accounting and invoice processing.

Positions (gas volumes) - The portfolio will be one integrated gas book with underlying gas positions tracked by physical demand at each plant. The various positions are:

- SoCal CityGate: this includes all existing generation within SoCal additional natural gas

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

- fired facilities, for which gas would be procured at SoCal CityGate, added in the future;
- SoCal Border: this includes various receipt points from interstate pipelines aggregated at one average price;
 - Rockies: this position includes all gas required for Sunrise, or gas used to monetize excess capacity of the DWR transportation on Kern River Transport;
 - Rockies/Southwest Gas: this position includes all gas required for facilities located in Nevada; and
 - Other positions as necessary, such as storage positions or hub positions.

Commercial Arrangements – SDG&E will divide the procurement transaction and hedging volumes between CDWR and SDG&E based upon each entity's relative share of forecast gas demand. This proportional buying of gas ensures that each entity bears an appropriate amount of the financial burden of transactions, such as cash flow, margining or collateral expenses.

All gas costs, whether CDWR or SDG&E, are eventually borne by SDG&E ratepayers. Gas purchased for SDG&E plants is recovered from ratepayers through the SDG&E ERRRA account. Gas purchased as agent for CDWR is recovered through the CDWR revenue requirement. Under the Commission adopted DWR revenue requirement cost allocation, all variable costs "follow contract" so that there is no possibility of inadvertently shifting costs from SDG&E ratepayers to the ratepayers of another IOU.

Similar procurement and hedging strategies will be employed for both portfolios, which should result in the cost of gas on a per MMBtu basis being roughly the same. However, as discussed above, all gas costs are eventually recovered from SDG&E ratepayers, so any small differences in cost that may arise through timing of transactions is irrelevant.

A NAESB contract is necessary in order to allow gas to be transacted between SDG&E electric fuel position and the CDWR tolling contract position in order to allow the two positions to be operated as a single portfolio with gas flowing between the two based upon total portfolio economics and

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

operational need, so that ratepayers fully realize the synergy of the larger, integrated single portfolio. To date, CDWR and SDG&E have been unable to conclude these contract negotiations and as such SDG&E executes any required inter-company transactions through use of a sleeve, usually at some nominal cost.

Personnel – The same set of personnel are used to transact and schedule gas for the total gas demand of the integrated portfolio. This staff works alternately as SDG&E employees and as limited agents for CDWR. The SDG&E personnel dedicated to this effort are part of the electric procurement group, and transact gas solely for use as electric fuel.

Systems - Forecasting systems currently in place will be able to forecast gas demand for individual plants and “roll up” these volumes into locational positions described above or into a single total gas demand number. Transactional systems will be able to track and report on gas deals in a similar manner by owner (CDWR or SDG&E), plant or location. Since CDWR remains financially responsible for all gas transacted for use in CDWR contract units, settlements systems will continue to process CDWR gas invoices separately from SDG&E gas invoices. Actual dollars associated with procurement and other costs (such as credit or margining) are shared proportionally. Similarly, when hedging these forecast gas burns, hedge transactions are generally split proportionately as closely as practicable.

E. Storage and Transportation

Additionally, SDG&E will continue to evaluate the economics of procuring natural gas storage on the SoCal system based on projections of seasonal spreads, operational benefits and other relevant benefits compared to the associated premiums charged for firm market-based storage inventory available through SoCalGas. SDG&E will base its decisions on whether to procure storage (and whether to procure firm injection and/or withdrawal rights) based on overall projected benefits at the time

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

firm storage is evaluated during the SoCal Gas open season for storage. SDG&E briefs its PRG at least annually on its overall strategy for procuring Storage and Pipeline Capacity.

1. Gas Pipeline Capacity

SDG&E procures natural gas supplies for certain CDWR power contracts and for its own generation load and reliability requirements including delivery to the SoCal Gas pipeline system. SDG&E also procures natural gas supplies an out-of-state generation facility located in Nevada. Overall, SDG&E procures the majority of its additional gas requirements at the California border at spot market prices each month. Currently with excess supply and delivery capacity to SoCal, the border price purchases do not represent a risk to supply availability and are the most economic alternative to SDG&E ratepayers.

SDG&E manages a limited amount of firm interstate pipeline capacity on the Kern River Transmission (Kern) system as part of its DWR gas supply delivery responsibilities. Access to the DWR related Kern Pipeline Capacity will terminate concurrent with expiration of the Sunrise allocated power purchase agreement on June 30, 2012. SDG&E does not envision entering into long-term commitments for interstate pipeline capacity at this time but will continue to evaluate opportunities to procure long-term interstate pipeline capacity and may enter into such arrangements if such arrangements are forecast to be economic. Should SDG&E enter one or more such transactions, SDG&E will brief its PRG on the projected benefits of entering into such long-term commitments.

Availability of long-term Kern River capacity is uncertain since capacity is currently fully subscribed. SDG&E will evaluate any posted capacity bids that may be offered for a full 15 years or for partial subscriptions based on forecasted benefits over the offered term. Capacity on the El Paso and Transwestern Pipelines is currently being offered for short-term commitments, reducing the risk of longer-term price uncertainty. In conclusion, SDG&E will evaluate the economics of entering into long-term pipeline capacity transactions based on forecasted economic benefits. SDG&E will also seek short-term opportunities to secure pipeline capacity and may enter into short-term commitments for

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

capacity should forecasts show positive benefits. SDG&E will brief its PRG on a periodic basis to update it on its strategies and transactions related to pipeline capacity forecasted prices, costs and benefits.

2. Gas Storage Capacity

Firm storage inventory, injection and withdrawal rights may be obtained through SoCalGas for annual terms effective each April 1. Long-term storage is defined as annual capacity rights for up to 10 years. SDG&E defines Short-term storage as either monthly capacity rights or annual capacity rights for up to 3 years. The availability and price for firm storage service will not be known until bidding commences during each SoCal Storage open season, and an estimate will be made of these costs by calculating the expected premium (or price mark-up) to the projected summer/winter price spread from historical data trends for the SoCal Gas Transaction-Based Storage bids, and any associated projected operational benefits. For each storage cycle, the seasonal price spreads at the time of bidding are compared to the price determined for the current year's reservation and variable expense costs. The price of this firm storage bid consists of the seasonal price spread and variable storage cost plus a premium that includes an extrinsic value for market risk and utilization of firm storage rights to generate a price advantage through continuous cycling and trading. The greater the expected volatility and risk, the more the storage is worth to participants willing and able to manage storage for these purposes. This premium is the "break-even" cost that would have to be recovered through market trading using the storage (such as buy-hold-sell excess supplies) and from operational flexibility in avoiding OFO penalties and managing imbalances.

Given the significant market/operational savings required to economically justify a commitment to long-term storage service, SDG&E may not conclude the acquisition of long-term storage services to be economic, but instead may focus on procuring annual (1 year) storage services based on the forward spreads between winter and summer prices and operational value. Analysis of these seasonal spreads is based on one year forward market prices and allows SDG&E to inject gas during the

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

summer season when prices are typically lower and withdraw during winter months when prices are typically higher. In addition, savings from holding firm storage inventory would be possible should it become necessary to sell excess gas supply in the market at a loss in order to avoid utility Operational Flow Order (OFO) penalties. SoCal Gas declared OFO conditions can occur frequently during certain periods of the year, most notably in spring and the fall when gas usage is low, and can occur infrequently during other times of a year. SDG&E will tailor its storage bid to maximize the potential value for ratepayers and will enter into short-term storage transactions when the potential benefits for short-term storage exceed the cost SoCal Gas commands for such storage capacity.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Appendix D Congestion Revenue Rights

A. Overview

The CAISO Allocation process is the means by which SDG&E acquires the majority of its CRRs. SDG&E does not incur any cost for CRR acquired through the allocation (SDG&E is allocated CRRs in proportion to its load share), however SDG&E is limited in the quantity of CRRs that it can request and CRRs must have a sink that corresponds the location of the load served, the SDGE default load aggregation point (DLAP).

The Allocation process is divided into two separate processes, annual and monthly. The Annual Allocation is conducted in the September to November timeframe of the year prior to the year that the awarded CRR will be effective. Annual Allocation CRRs are seasonal and all four seasons are available for nomination. Nominally, 75% of the CRRs acquired by SDG&E will be from the Annual Allocation. Grid capacity for the Simultaneous Feasibility Test is reduced to 75% and nomination limits are based on 75% of peak load. The Monthly Allocation is conducted monthly in the month prior the month that the CRRs will be effective. Grid capacity in the monthly SFT is increased to 100%.

Both the Annual and Monthly Allocation processes start with the submission of load data by SDG&E to the CAISO. The load data is the basis for setting the limits of CRRs that SDG&E can nominate in the two allocation processes. For the Annual Allocation, historic bundled load meter data from prior year is used,^{1/} For the Monthly Allocation, forecast bundled load for the CRR month is used. The load forecast used for Monthly Allocation is the same one used for RA.

The CAISO makes several adjustments to the submitted load data to determine SDG&E CRR nomination limits. One adjustment is for 99.5% exceedance. The adjustment selects a MW value from the submitted data that is only being exceeded in 0.5% of the period hours. Another adjustment to the

^{1/} For example, 2011 Annual Allocation CRRs, which are nominated in Fall 2010, use limits based on 2009 recorded load.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

CRR limit is load migration, which accounts for service area customers moving between SDG&E and Energy Service Providers for commodity service. The load migration adjustment can be either positive or negative.

When the CAISO has completed processing the load data, it provides SDG&E with Adjusted Load Metric (ALM), which is the basis for setting all CRR limits. The ALM is provided for both the on-peak and off-peak periods. For the Annual Allocation, the ALM is based on seasonal (quarterly) data and for the Monthly Allocation, it is based on monthly data. In the Annual Allocation, the ALM is further reduced by 25% to determine the Seasonal Eligible Quantity (SEQ),^{2/} which is the base value for establishing nomination limits. In the Monthly Allocation, the ALM, which is based on forecast load, sets the Monthly Eligible Quantity (MEQ).

The nomination of CRRs is conducted in rounds or tiers. The Annual Allocation consists of 3 tiers and the Monthly Allocation is conducted in 2 tiers. The nomination limits for each tier are based on the SEQ for the Annual Allocation and MEQ for Monthly Allocation.

The first tier of the Annual Allocation is known as the Priority Nomination Process (PNP) or PNP Tier. The PNP allows a Market Participant (MP) to renew CRRs from last year's CRR portfolio that was acquired through the Annual Allocation. Prior to nominating CRRs in the PNP, the CAISO provides SDG&E with a list of the CRRs that can be renewed in the PNP by season and by TOU. The PNP renewal list excludes any Long-Term (LT) CRRs held by SDG&E in the prior year. The nomination limit in the PNP is the lower of: 1) two thirds of SEQ less any LT CRRs or 2) total renewable CRR quantity less any LT CRRs.^{3/} This is because only CRR on the CAISO-provided renewal list can be renewed in the PNP.

Following the PNP, SDG&E will be allowed to convert any CRR awarded in PNP to Long Term CRRs. The converted CRR will apply for the same season and Time Of Use for a 10 year term. The

^{2/} SEQ = .75 x ALM.

^{3/} For example, ALM = 1000 , LT CRR = 10 , Renewable CRR = 450; SEQ = 1000 x .75 = 750, PNP Tier case 1 = SEQ x 2/3 - LT = 500 - 10 = 490. PNP Tier case 2 = 450 - 10 = 440. Therefore PNP Tier limit = 440.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

10 year term includes the year of the original CRR before conversion plus 9 more years for a total of 10 years.^{4/} The limit on total LT CRRs is 50% of ALM.

The second tier (Tier 2) of the Annual Allocation is an open tier that allows a MP to nominate any source point. The nomination limit for Tier 2 is two thirds of SEQ less any LT CRRs and any CRR awarded in prior PNP Tier. Because the Tier 2 limit uses the same base quantity as the PNP Tier ($2/3$ SEQ), it is possible in some cases to not have any Tier 2 nomination quantity if the full PNP Tier quantity was nominated and 100% of the nomination quantity was awarded. To ensure that CRR are available to nominate in the open Tier 2, a value lower than $2/3$ SEQ should be nominated in the PNP Tier. If the PNP nomination limit is set by the quantity of renewable CRRs, then a Tier 2 nomination will be guaranteed, since that quantity will be less than $2/3$ SEQ.

The third tier (Tier 3) of the Annual Allocation is also an open tier. The nomination limit for Tier 3 is the full SEQ less any LT CRRs and any CRRs awarded in the PNP Tier and Tier 2.

Following each round of CRR nominations, the CAISO conducts a Simultaneous Feasibility Test (SFT) with all CRR nominations to determine which CRR will flow. Once the SFT is conducted, the CAISO makes available the following information to SDG&E: SDG&E nominations and awards, grid-wide binding constraints and grid-wide CRR award by MP.

In the Allocation Process, it is possible to nominate CRR sources at the Trading Hubs (SP15, NP15 or ZP26). In the network model, trading hub prices are reflective of a weighted average of the generation node prices that are within the boundaries of the trading hub. A trading hub can include between 200 to 300 generation nodes. For CRR purposes, when a trading hub is nominated as the source for a CRR, the nomination is broken down into the individual generation nodes that make up the trading hub. The CRR award from a trading hub nomination is provided at the individual generation

^{4/} For example, if a 2010 Season 1 On Peak CRR was converted to Long Term, it would be effective for 2010 plus Season 1 On Peak for years 2011 -2019.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

node level.^{5/} In the PNP Tier, it is not possible to renew a trading hub CRR, since the awards from past year trading hub CRR are at the generator level. To renew a trading hub CRR in the PNP, the individual generator CRR in the trading hub needs to be renewed. It is possible to nominate trading hubs in Tier 2 and Tier 3 of the Annual Allocation and both tiers in the Monthly Allocation.

B. Auction Process

Unlike the allocation process, which is limited to LSEs only and only CRR that sink at LAPs, the auction process is open to all MPs. To participate in the CRR Auction, a MP only needs to register with the CAISO and post the required collateral. The auction process always follows the allocation process, and consequently, there is an Annual Auction and 12 monthly auctions per year. Whether annual or monthly, there is only one auction round. CRRs awarded in through the auction will have the same term as the preceding allocation, season or month.

In the auction process, MP can buy or sell CRRs using any combination of source-sink points. Instead of a nomination, which is used in the allocation, the auction uses MP bids, which are made up of MW quantity and bid price pairs. In the bid set, MW quantities must be greater than or equal to 0 and increasing, prices must be monotonically non-increasing. MW are denominated in thousandths of MW and prices are denominated in \$/MW/period. Bid prices may be negative, which would be used to sell a CRR. To sell a CRR in the auction, a bid for the counter flow CRR is submitted with a negative price.^{6/} It is also possible to bilaterally buy or sell an existing CRR. Once the transaction is complete, the new holder of the CRR must be registered with the CAISO through the Secondary Registration System (SRS).

Since auction process always comes after the allocation process, a significant portion of the grid capacity is already allocated. To insure that some grid capacity will be available in the auction, the

^{5/} For example, suppose 250 generator nodes are included in a trading hub. A nomination of a 100 mw trading hub CRR, which fully cleared the SFT, would result in an award of a CRR at each of the 250 generator nodes in the trading hub with the quantity of 250 CRRs summing to 100 mw.

^{6/} For example, to sell 50 mw of a 100 mw CRR (source A, sink B) a negative priced bid for a 50 mw (source B, sink A) would be submitted into the auction. If the bid clears, the MP will hold a 100 mw A to B CRR and 50 mw B to A CRR, which will settle at a net 50 mw A to B CRR.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

CAISO will set aside some intertie capacity for the auction. In the annual process, after the Tier 1, Tier 2 and Tier LT allocations are complete, the CAISO sets aside 50% of the remaining import capacity at each intertie. Similarly, for the monthly process, after the Tier 1 allocations are complete, the CAISO sets aside 50% of the remaining import capacity at each intertie. If the entire capacity of an intertie is committed in the early allocation rounds, the set aside for that intertie will be 0 MW.

As with the allocation process, the CAISO uses the SFT to determine which auction bids can flow, given the prior-awarded CRRs. The CRRs with the highest auction bid up to the allowable flow quantity are awarded to MP. Since the auction allows any combination of source-sink points, some auction bids may create counter flow on the grid that will allow CRR to flow in the auction that could not flow in the allocation.

At the end of each auction, annual or monthly, the CAISO will publish the prices of the CRRs awarded in that auction. The price set will be for all available source-sink points even though the point was not part of an auction-awarded CRR .

1. Full Network Model (FNM)

The CRR FNM is a mathematical representation of the CAISO grid. Access to the FNM requires a user to execute a Non-Disclosure Agreement (NDA). This is accomplished by signing Attachment A of the master CRR NDA between SDG&E and CAISO. The CRR NDA document is located on CAISO website.

The FNM data can be accessed through the CAISO Secure FTP (SFTP) site. With SFTP access, the user can download the FNM data files as they are revised by the CAISO. The CAISO provides a market notice whenever the FNM is updated along with zipped file password. Contained in the FNM data file is:

- a) Mapping by bus name and number for all network pricing nodes
- b) Mapping of all generators by resource ID, Pmax, bus name and pricing node
- c) Weight factors by season and TOU for all aggregated price nodes (DLAP, CLAP, TH)

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

- d) Intertie interface definitions (summer, winter)
- e) Intertie interface limits (summer, winter)
- f) ETC and TOR MW on interties
- g) Raw FNM data defining each node, transmission line and facility (transformer, etc.)

The FNM data is required for the Transmission Planning congestion cost forecast and to locate binding constraints. The FNM to be used in the Annual Allocation is typically published in July, two months before the first nominations are due.

2. Forecast Congestion Costs

Transmission Planning (TP) provides SDG&E a data set containing hourly congestion prices or Marginal Congestion Costs (MCC) for the selected nodes. This data set must be further processed in an Access data base to determine the per MW seasonal, on- and off-peak congestion cost⁷¹ for each node. The data set provided by TP selected node bus number (column) by hour (row). To calculate congestion costs the source MCC data needs to be converted into a format with a single MCC price by data-time and bus number. This is accomplished through a union query which transposes the TP data. Since the selected nodes and associated bus number do not change much from year to year, the prior year union query can be edited to create the union query for coming year. The DLAP MCC (sink) provided by TP is used to create a separate table, which can be used in congestion cost calculation (see footnote 11 below). A separate data, which relates date-time to season and TOU period, is also needed. The final congestion cost data results are seasonal on- and off-peak congestion costs for each selected node.

C. CRR Strategy

Any nodal market will create congestion costs as part of the congestion management process, which keeps power flows within physical line limits and charges those willing to pay “congestion rents”

⁷¹ The formula for hourly congestion cost is sink MCC (*i.e.*, DLAP) – source MCC. The seasonal congestion cost is the sum of the hourly costs by season and TOU period. 8760 hourly costs yield 8 seasonal TOU costs (4 seasons with 2 TOU periods per season).

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

for the right to flow their power on congested lines. CRRs provide a means for LSEs to hedge (*i.e.* offset) the congestion cost associated with delivering energy from their supply resources to their customers.

The CRR process places limits on the CRRs that SDG&E can request. SDG&E's strategy is to maximize the value the limited number of CRRs that we can request. The CRR limits come in the form of limits on nomination MWs and sources. Nomination MW limits are part of both the annual and monthly allocation processes and limit the total MW that SDG&E can nominate in any nomination round. Nomination MW limits are determined from the maximum allowable nomination quantity, based on forecast or historic peak load, and existing CRRs already held either as LT CRRs or prior round awarded CRRs. Source nomination limits are part of the renewal process (PNP), which source nomination to the set of CRRs held at the end of the prior year Annual Allocation.

The first step for any CRR nomination cycle is to determine the relative value of CRRs at the source points in existing and potential portfolio resources. This can be accomplished by using CRR valuation data, weather forecast, market or recorded. Typically, the Annual Allocation process will rely on forecast CRR value for resource ranking. The Monthly Allocation will typically rely on market and recorded CRR values for ranking, although forecast value can also be used.

The next step is determination of which CRRs will be nominated in a particular round. While nomination MW limits increase with each round, the award of nominated CRR tends to decrease with each round as because of prior awarded CRRs in the SFT. Resources with the highest CRR value should be nominated before those of lower value. Resource with very low or negative CRR value can be excluded from CRR nomination. If a large resource has a low projected CRR value, such as SONGS, it should be considered for nomination to hedge against valuation errors.

The final step is a determination of the MW quantity of each resource selected for nomination. Nomination quantity should be based on the expected resource schedule for the TOU period. Resources with predictable schedules are obviously easier to hedge than those whose output varies with market conditions. The lack of a resource schedule on any trade day does not impact CRR

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

settlement, since prices will still be produced for that resource node. However, without resource schedule, there will be no offsetting congestion cost. The sum of source MW nominations cannot exceed the CAISO-published MW limits for that round. It is not necessary to nominate the full MW quantity in any round.

The most complicated nomination round in allocation process is CRR renewal (PNP) in the first round of the Annual Allocation. Renew nominations are limited to those CRRs (source and MW) awarded in the prior year Annual Allocation. Nominations are also limited by a PNP MW limit, based on ALM. If the total quantity of CRRs available for renewal is lower the PNP MW limit, the renewal MW quantity (Sink Upper Bound) applies. If the total renewal quantity is higher than the PNP MW limit, the PNP MW limit applies.

In cases where the CRR quantity available for renew exceeds the PNP MW limit (*i.e.* PNP MW limit applies), SDG&E may choose to under nominate the CRR to avoid have no CRRs to nomination in Tier 2, when any source can be nominated. The MW limit in the PNP and Tier 2 are both based on the same percentages of ALM (*i.e.* $ALM \times .75 \times 2/3$). When the PNP MW limit set the maximum MW that can be nominated in the PNP tier, it is possible to be awarded 100% of nomination. When this happens, the Tier 2 nomination limit will be 0 MW because Tier 2 MW limits less LT CRR and less PNP awarded CRRs is 0. By under-nominating in the PNP Tier, SDG&E is assured to have available MW that it can in Tier 2 for new or additional high value sources that were not part of renewal process.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

It is also not possible to renew a TH (SP15, NP15, ZP26) CRR in the renewal process since TH CRR nominations are awarded as the individual TH generator CRRs. To renew a TH CRR, the individual TH source CRRs have to be renewed. It is also possible to just renew certain TH source CRR, such as the Mexicali generators, which can serve as SWPL proxy CRRs.

The Tier 2 and Tier 3 nominations in the Annual Allocation are “open” nominations, meaning that any CRR source can be nominated. Prior to these nominations the CAISO publishes the CRR award results from the PNP renewal and any bind constraints. From the CRR award file, it is possible to discover the existing quantity of CRR award for any source and from that information, it can be implied what remaining quantities of CRR might be available to SDG&E in the next nomination round. The binding constraint file shows lines and branch groups that were binding in the prior SFT. Any addition CRR nominations that would increase flow over a previously constraint will not be awarded.

In Tiers 2 and 3 of the Annual Allocation, it is possible to nominate Trading Hub CRRs. The CRR award from a TH nomination will be the individual generation CRRs for those nodes that make up the Trading Hub.

In the Monthly Allocation, both Tier 1 and Tier 2 are “open” nominations. Like the Annual Allocation, the CAISO publishes the MW limits for both tiers. While the Monthly Allocation uses the full grid capacity (annual process only uses 75% of grid capacity), the FNM is already encumbered with both LT and Annual Allocation CRRs. If high value CRR were obtained in the Annual Allocation, the monthly process is only needed to round out the CRR portfolio with mid to low value CRRs; otherwise SDG&E will attempt to utilize remaining unallocated CRRs at the most strategic locations based on its model runs to secure the highest value CRRs remaining to be allocated. Since the CAISO does not publish the amount of unallocated CRRs, similar to the annual process SDG&E will review, the CAISO published binding constraints after Tier 1 nominations are awarded to help determine whether CRRs may still be available along various paths. Any monthly nomination that increases flow on a binding constraint will not be awarded.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

SDG&E has limited its participation in the CRR auction process since CRRs not available in the allocation process will likely not be available through the auction, with the possible exception of the inertie CRRs. SDG&E will evaluate the likelihood of availability of inertie CRRs and may participate in the auction process if it determines a need for and likely availability of inertie CRRs. The CAISO does set aside some inertie capacity for the auction processes. It is possible to “sell” a CRR position in auction by buying the counter flow CRR.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Appendix E Convergence Bidding

A. Overview

Convergence Bidding (CB), also referred to as Virtual Bidding,^{1/} is a common market design element in ISO electric markets that the CAISO market implemented in February 2011. Convergence bids are transactions that permit market participants to arbitrage prices between two financially binding energy markets, in CAISO's case, the Day-Ahead (DA) Market and the Real-Time (RT) Market. The DA and RT markets each have their own energy settlement prices and traders will seek to buy in the lower price market and sell in the higher price market. If a virtual bid clears in the DA Market, the transaction is automatically reversed in the RT Market with the opposite transaction. The settlement of this transaction (sales revenue – purchase cost) is determined by the difference between the two market prices and the awarded quantity. For example, a virtual demand bid that clears the DA Market would be profitable if the RT Market sale price was higher than the DA Market purchase price. Conversely, a virtual supply bid that clears the DA Market would be profitable if the RT Market purchase price was lower than the DA Market sales price. The arbitrage of these two markets by market participants through virtual bidding is expected to “converge” the two markets – *i.e.*, to minimize the spread between DA and RT market clearing prices.

Under the CAISO's implementation of CB, market participants will be able to submit virtual bids at interties, aggregated pricing nodes (APNs) and most Pnodes. Physical and virtual bids for supply and demand will both be included in the set of bids used in the DA IFM. IFM results will be processed as they are now and awards for supply and demand will be a combination of physical and virtual resources. When the Residual Unit Commitment (RUC) process is run after the IFM, CAISO will only consider physical resources in determining what additional physical capacity must be reserved for

^{1/} The terms “convergence bidding/bids” and “virtual bidding/bids” are used interchangeably herein.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

reliability purposes to cover forecast demand. In real-time, the CAISO will dispatch balancing energy from physical resources, as is done today. Initially a 10% position limit will be imposed on any Pnode, with those limits gradually expiring as CB matures. To participate in the CAISO market with virtual bids, a participant only needs to meet the CAISO credit requirements, since the CB product is purely financial with no physical delivery requirement.

B. Applications of CB

SDG&E intends to use CB as a tool to provide cost reduction or risk mitigation benefits to ratepayers, rather than increasing risk through speculative trading between the DA and RT markets. SDG&E's proposed applications of CB can be grouped into two categories – operational enhancements and defensive price arbitrage. These categories are explained in detail below.

1. Operational Enhancements

As noted above, CB allows market participants to buy the DA Market price against the RT Market price or sell the DA Market price against the RT Market price. This mechanism can be used to shift the price exposure of market awards for physical supply resources and demand, regardless of the market in which the awards were issued. If generation is normally sold in the DA Market but the market participant wants to receive the RT Market price for the award, a virtual demand bid in the DA Market can accomplish this objective by offsetting the DA physical sale with the virtual purchase, netting a RT virtual sale. Likewise, generation that normally receives a RT Market award can effectively be settled at DA Market prices using a virtual supply bid in the DA Market.

SDG&E intends to avail itself of the ability to control market exposure through Convergence Bidding and has identified three targeted applications for CB to enhance its day-to-day scheduling practice:

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

a. Virtual Sale of Wind Generation in DA Market

Currently, SDG&E has approximately 255 MW^{2/} of wind resources under contract, which are scheduled only into the RTM to comply with PIRP and PPA requirements. Since wind generation is settled at the real-time price, it is currently not possible to financially balance this supply with SDG&E's demand, since demand is primarily scheduled and settled in the DAM. Also, the scheduling of wind generation in the RTM leaves a significant amount of must-take energy out of the IFM, resulting in higher DAM clearing energy prices.

CB would provide SDG&E with a mechanism to effectively "shift" some or all of its wind generation into the DAM where it can more effectively offset SDG&E's Day-Ahead load schedule. This shift would be achieved through a virtual sale of the expected wind generation quantity in the DAM. The resulting buy-back of the virtual sale in the RTM would then be hedged by the underlying physical wind generation schedules. For this wind generation application, SDG&E plans to make virtual sales into the DAM in an amount up to, but not exceeding, the day-ahead forecast of wind generation. SDG&E's primary source of the day-ahead forecast will be PIRP; should the day-ahead PIRP forecast be unavailable or provide inaccurate values, SDG&E would apply technical judgment to develop a proxy day-ahead forecast.

b. Mitigation of DA Awards on Generation Returning to Service

Most of SDG&E's resource portfolio is bid in and awarded in the DAM. Each resource is then obligated to deliver the cleared Day-Ahead quantity at the DAM price for each hour. However, there are instances where the generator's ability to meet its Day-Ahead obligation is uncertain. For example, a risk arises when a unit returns to service from an extended period of shutdown resulting from lack of market awards or maintenance outage. During these events, the plant can encounter start-up problems or delays. If the plant cannot perform in accordance with the award received in the DAM, SDG&E would be required to buy back the Day-Ahead awarded sales quantities at RTM prices.

^{2/} Based on nameplate capacity.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

To mitigate this risk, SDG&E could make a virtual purchase in the DAM for a portion of the unit's expected DAM award. The bid would cover the expected hours and quantity where risk is heightened. The Day-Ahead virtual purchase would be offset by a corresponding virtual sale in the RTM, which would hedge the potential under-delivery of energy from the unit returning to service. For this CB application, SDG&E plans to use virtual bids in the DAM on a case-by-case basis up to the expected DAM award expected on the unit at risk until reliable operation has been established.

c. Mitigation of Bundled Load Forecast Uncertainty

SDG&E employs Commission-approved processes and tools to forecast demand. However, uncertainties in the forecasted temperature, humidity and weather/load correlation naturally result in some load forecast error. The potential for larger deviations is especially pronounced during the initial and final stages of heat waves or other sudden weather changes. Holidays also present a challenge to load forecasting because the limited availability of comparative historical data increases the uncertainty of the correlation between the weather and load forecasts.

In the new Market, demand can only be bid and awarded in the DAM; residual demand requirements are then settled in the RTM. The inability to adjust Day-Ahead forecasts of demand, hour-ahead logically results in larger forecast errors in the new Market.

CB provides a tool to explicitly manage demand forecast uncertainty. SDG&E may submit a virtual bid to purchase energy above its physical Day-Ahead load award, or a virtual bid to sell energy below its physical Day-Ahead load award, to mitigate load exposure in the RTM. The same result may be achieved by modifying the physical demand bid or schedule in the DAM; however, virtual bids would make transparent the intent of SDG&E's DAM awards to serve physical customer demand based on Day-Ahead forecasted loads while hedging demand forecast uncertainty. This distinction provides operational benefits, for example preserving initial demand forecast data (prior to load forecast adjustments) for after-the-fact analysis. SDG&E plans to limit virtual bids for demand forecast hedging to the potential variability between the Day-Ahead forecast and actual load in any hour. Such virtual

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

bids will be submitted at SDG&E's Default Load Aggregation Point (DLAP) delivery point to match physical demand awards.

2. Defensive Price Arbitrage

The intent of CB is to enable market participants to arbitrage the DAM and RTM, forcing convergence of pricing between these two markets via efficient bidding behavior. Because CB will open new trading opportunities to existing and new market participants, SDG&E believes it is prudent to guard against unintended price impacts through the use of defensive CB strategies, as described herein.

CB activity pursued by other market participants may result in potentially harmful outcomes for SDG&E ratepayers. For example, since virtual and physical bids compete head-to-head in the IFM, virtual supply bids could displace physical resources in the DAM, potentially impacting the CAISO's power flow solution and leading to Pnode-specific price divergence. There may be other factors that cause DAM/RTM price distortions that, depending on severity, location, frequency, etc., could increase cost to SDG&E's ratepayers. Because such distortions cannot be accurately predicted prior to actual implementation of CB, SDG&E believes enabling IOUs to respond as such events arise would be prudent.

Contrary to the three operational applications of CB described earlier, defining or predicting how SDG&E would utilize CB to address the price distortion risk, on a day-by-day basis, is not possible until the specific market anomaly has been identified. However, SDG&E proposes certain standards that should be met in order to use CB for defensive price arbitrage:

1. SDG&E will monitor market prices to determine whether Pnodes prices within its portfolio appear reasonable or exhibit anomalous behavior.
2. If such price anomalies are identified, SDG&E may implement defensive price arbitrage CB to mitigate the affect of such anomalies. This activity would be applied at Pnodes within SDG&E's DLAP or those that correlate to resources in its portfolio.
3. SDG&E will establish a quantity limit for this application of CB at each Pnode corresponding to its perceived exposure.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

As SDG&E gains experience observing the market impact of CBs and/or develops further beneficial uses for its portfolio, SDG&E could seek approval to expand the use of CB by modifying its LTPP via an advice letter.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G),
GO 66-C AND D.06-06-066.

Appendix F Green House Gas/AB32 Compliance Plan

Note: This Appendix to be included following Commission approval of SDG&E's GHG implementation Strategy.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Appendix G

SDG&E's Request for Offer Evaluation Methodology Offer Processing and Evaluation

This appendix outlines SDG&E general methodology for processing and evaluating all non-renewable offers submitted in a RFO. The process outlined in this Attachment is necessarily generic and high-level; the process will be customized for each RFO depending on the specific products being sought. The final process for each RFO will be reviewed with the IE prior to receiving bids. The intent is to implement a systematic approach to assess the merits of all offers without prejudice for or against any particular Respondent or a particular product type.

It is important to reiterate that the PRG and IE will play key consultative roles during all phases of the solicitation, especially during offer evaluation.

I. Processing Offers

SDG&E, in conjunction with the IE, will collect and document all offers received by the deadline, and will carry out the following steps:

A. *On the Due Date*

- i. Save offers and all incoming documents to a restricted, secured server. Only members of the procurement team and the IE will have access to the files on the restricted server.
- ii. Block the SDG&E website from accepting offers after the closing deadline.

B. *Compiling Offers*

- i. Each offer received will be documented in an Excel spreadsheet summarizing key characteristics such as: resource type, offer number, technology, price, type of facility, product type (such as as-available, unit firm, peaking, or baseload), offer amounts (MW), contract terms, etc.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

C. Collect Hardcopy of Offers

- i. File hardcopies in secure cabinets.
- ii. Follow-up with Respondents who have not submitted hardcopies.
- iii. Verify that hardcopies are identical to the offers received electronically.

II. Evaluation Process Overview^{1/}

SDG&E intends to evaluate all offers via a three-step process. Passing each level is required in order to advance to the next level. The following provides a general description of each evaluation level.

Level I: *Check for Conformance*

All offers are checked to meet minimum RFO criteria established for each product type. Minimum criteria will be provided to all bidders in the RFO. All offers meeting minimum requirements will pass Level I, will be deemed “conforming” and will move on to Level II. Offers will be determined to be conforming or non-conforming based on the list of criteria in the RFO. Not all products in an RFO will have the same conformance requirements. The check for conformance will see if the offer meets the major requirements spelled out in the RFO, such as product type, minimum and/or maximum capacity (MW) requirement, seasonal requirement (monthly or quarterly), online date requirement, locational and delivery point requirements. SDG&E reserves the right to consider non-conforming offers. Any such consideration will be discussed with the IE and the PRG. SDG&E may contact bidders for clarifications and added information to clear non-conforming conditions.

Level II: *Screening Analysis*

All conforming offers will be screened and assessed to get an initial ranking. Ranking will be based on pre-established, quantitative criteria unique to each product type. Different

^{1/} Since it is not possible to perfectly predict all variations in offers, SDG&E reserves the right to vary from these criteria. Any variation will be applied equally to all offers in which the variation is applicable. Any variation will be explained to the IE and PRG as to the basis for deviating from the proposed criteria and how it benefits customers.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

factors may be included in the initial screening analysis depending on the products but generally the analysis will look at the cost of the offer, such as capacity or other fixed payments minus any benefits, such as energy savings and/or ancillary services. Depending on the products, other items may be considered in this step such as congestion costs/benefits and/or debt equivalence, when appropriate.

SDG&E will rank all the offers. Depending on the term of the RFO the ranking may be based on individual year scores or the net present value over an evaluation period. The assessment will be based on the offer data but SDG&E may request additional data from the bidder, if needed to fairly screen the offers. This screening analysis will be used to determine a "Short List" that will move on to Level III. Some offers may be dropped from further consideration at this point.

Level III: *Modeling/Detailed Analysis*

Short Listed offers will then go through a more detailed analysis process. Depending on the products this may include modeling in production cost models to model all offer limitations and determine how the offer perform as part of SDG&E's portfolio. All major modeling inputs such as natural gas and market prices, GHG prices, etc, will be agreed to with the IE prior to receiving any bids. Offer rankings will be updated based on this detailed analysis. At this stage, additional numeric evaluation metrics and other costs such as transmission costs may be included. The offers will also be assessed of non-quantifiable terms that were specified in the RFO, such as benefits to minority and low income areas, resource diversity, environmental stewardship, corporate capabilities, credit, and proven experience. SDG&E may update the analysis throughout the negotiation process should inputs change as well as conduct sensitivity analysis to determine how robust the selection is to changes in assumptions.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Appendix H

SDG&E's Consultation Processes with its Independent Evaluator

A. Overview

The Commission has set up two important layers of independent review to monitor utility procurement and provide feedback prior to the many decisions being made in utility procurement. The two groups include an IE to work with SDG&E in the design and implementation of its RFOs, and the PRG. SDG&E, and its ratepayers have derived much benefit from SDG&Es interactions with these groups and the ability to discuss procurement decisions and activities ex-ante rather than after the fact through litigation at the Commission.

B. The IE Requirement

In D.04-12-048, the Commission ordered the use of an IE for RFOs that included "affiliates, IOU-built, or IOU-turnkey bidders."^{1/} Further, in D.06-10-019, Finding of Fact 19, Conclusion of Law 19 and Ordering Paragraph 19, the IOUs were ordered to utilize an IE in the conduct of any renewables negotiations that involved renewables procurement from an affiliate. In D.07-12-052, the Commission further defined the parameters for how IOUs are to utilize IEs.

In D.08-11-008, the Commission modified its requirements related to use of an IE and ordered: (i) that IEs be utilized for all RFOs seeking products of greater than two years in duration; and (ii) that IEs continue to be utilized for all solicitations that involve affiliate transactions or utility-owned or utility-turnkey bids regardless of length of the product sought. The Commission defines when the contract duration clock begins as: (1) at the time the contract resources begin delivery or the product is made available, if delivery or availability of the product occurs within one year of contract execution; or (2) at the time of contract execution, if delivery or availability does not begin within one year of contract

^{1/} D.04-12-048, *mimeo*, Ordering Paragraph 26i.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

execution. Further, to ensure that an IE is retained in such cases, SDG&E will address the possibility of affiliate or utility bids by designating at the outset of an RFO whether such bidders are allowed to participate. If SDG&E does not wish to make such a determination up front, SDG&E will either require that all parties that intend to participate in an RFO submit a notice of intent early in the RFO process such that an IE can be retained before bids are received, or designate at the outset of the RFO that an IE will be used.

Potentially qualified IE candidates are interviewed by SDG&E's PRG members, Energy Division staff and SDG&E's representatives; existing IEs are not interviewed since SDG&E, the PRG and Energy Division Staff are already familiar with and accustomed to working with them. SDG&E accepts recommendations from its PRG and Energy Division participant's proposal to add new IEs to its existing IE pool. Once new IEs are selected, a letter proposing the new IE pool and requesting formal approval is submitted to the Energy Division. The new IE pool becomes effective upon final approval by the Energy Division.

While SDG&E feels that it already has a pool of qualified IEs, it will periodically work with its PRG to validate those parties as qualified IEs and identify other IEs to potentially add to its pool. The Commission has adopted a very detailed process for SDG&E to follow in creating the pool of IE candidates and SDG&E adopts and incorporates this process into its LTPP. The process, found in D.07-12-052 at page 137, is as follows:

1. The IOU shall develop a list of prospective IEs via industry contacts, literature searches, PRG recommendations and similar methods, solicit information from the prospective IEs and circulate the list of candidates and their "resumes" to the PRG and Energy Division staff for feedback;
2. The IOU should rely on the guidance regarding IE expertise and qualifications provided in D.04-12-048. However, these qualifications should represent the minimum necessary for an IE to be effective, and the IOU and the PRG should include any additional relevant information that it has gained through its experiences implementing the IE requirements;
3. The IOU and PRG shall interview a subset of prospective candidates that the IOU, its PRG and Energy Division staff deem most suitable for the role (IOUs should arrange

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

for the PRG to conduct interviews with candidate IEs in isolation from the contracting IOU);

4. The PRG shall coordinate the development and submittal to the IOU its recommendations on each prospective candidate (including the general consensus and any opposition to the consensus). The IOU shall submit a written list of qualified IEs to Energy Division to add to the IOU's pool. The list must contain the recommendations of the PRG that were submitted to the IOU. Energy Division will evaluate the proposed IE's competencies based on the guidelines in D.04-12-048 as well as evaluating the IEs independence including any conflicts of interest. Energy Division shall give final approval for inclusion of an IE in the IE pool by letter to the submitting IOU;
5. Beyond the development of the initial IE pool, additional IE's may be added to the pool by following the same procedures listed above;
6. An IE may remain in the IE pool for two years, after which he/she must go through a reevaluation process based upon the inclusion criteria to assure continued compliance. The reevaluation process will involve additional reviews of the IE candidate by the PRG, IOU and Energy Division staff, including additional interviews, if necessary; and

The IOUs shall develop a pro forma contract to be used each time it contracts with an IE. If deviations from the pro forma are necessary, the modifications must be fully supported by Energy Division staff when the IOU seeks final approval of the contract. This pro forma contract shall be submitted as part of the next LTPP filing and will be subject to Commission approval.

As part of the selection process, working with the PRG and Energy Division staff, SDG&E will develop comprehensive conflict of interest disclosure requirements for the IE. Also, SDG&E will report to it's PRG, with regard to each RFO, the "the name and information of the IE for each IOU, the type of procurement solicitation the IE was used for and the amount of money involved in the procurement solicitation".^{2/}

^{2/} D.07-12-052, *mimeo*, p. 140.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

With respect to the role of the IE, SDG&E's IE is used to verify that the RFO process is carried out in a manner that is fair to all bidders, is not otherwise biased for or against any individual bidder, and is consistent with the process prepared prior to the receipt of bids. The IE reviews application of the evaluation criteria and analysis methodology used by SDG&E. The IE is brought into the RFO process early such that the goals, needs and objectives of the RFO are reviewed with the IE. Drafts of the RFO documents are reviewed by the IE prior to public release. SDG&E reviews and takes appropriate action on any comments or concerns expressed by the IE.

Similar to the development of the public RFO documents, SDG&E works with its IE to create criteria for reviewing and ultimately selecting from RFO offers received. In SDG&E's experience, the IE provides value beyond checking the evaluation criteria to ensure that it contains no undue biases for or against any particular product or bidder; the IE has been a useful third party, independent reviewer of documents that helps to ensure the best possible process at each stage and under the particular circumstances. The IE uses its expertise to check that evaluation criteria are properly applied and that models used to evaluate bids correctly reflect and incorporate the evaluation criteria. At all stages of the RFO process, the IE is made available to SDG&E's PRG and to Energy Division staff to answer questions, or express concerns.

Lastly, with respect to the IE report, it will follow the IE Report Template developed by Energy Division "through a public process which will allow for public comments and workshops, if needed," as directed by the Commission.^{3/} IE reports associated with solicitations of less than five years shall be filed with the Quarterly Transaction Reports.

^{3/} D.07-12-052, *mimeo*, p. 141.

Appendix I Glossary of Terms

Area Load

The electrical load in given geographic area irrespective of what LSEs are providing generation services to end-users within the area.

- **Service Area Load** is generally used to mean the load in an IOU distribution service area including loads served by IOUs through bundled service tariffs, loads served by ESPs under DA, and loads served by CCAs through the provisions of AB 117. In addition, for the SCE service area the generation and loads of MWD Metropolitan Water district included.
- **Planning Area Load** is generally used to mean Service Area Load plus the loads of publicly-owned utilities embedded within an IOU distribution service area or adjacent to the IOU distribution service area which collectively received transmission service from the PTO unit of an IOU.

PG&E and SCE provide transmission services to, and plan such services for, an extensive list of publicly-owned utilities in common with their own distribution service area customers. In contrast, SDG&E provides no such transmission services to publicly-owned utilities.

Base-load Unit

A power generating facility that is economic to run in all hours at full or near full capacity levels.

Bilateral Contracts

A two-party agreement for the purchase and the sale of energy and/or capacity products and services.

Booked-out Power

Rather than delivering equal and offsetting positions (*i.e.*, for the same operating hour and delivery point), two parties agree to not deliver the transaction quantity and instead settle the financial terms of the contract. The parties avoid scheduling and transmission charges.

Bundled Customers

Bundled customers are those customers of the IOU for whom the IOU provides a suite of “bundled” services, including procuring and supplying electricity, as well as providing transmission, distribution and customer services.

Bundled Deliveries

Deliveries after from an RPS-certified generators that convey both energy and renewable energy credits (RECs), as defined under Commission decision D. 10-03-021.

Bundled Service

Electric power, transmission, distribution, billing, metering and related service provided by the IOU.

Capacity

The amount of electric power for which a generating unit, generating station, or other electrical apparatus is rated either by the user or manufacturer. Usually is measured in MW.

Community Choice Aggregation Service (CCA Service)

Community Choice Aggregation Service allows customers to purchase electric power and, at the customer's election, participate in additional EE or conservation programs from non-utility entities known as Community Choice Aggregators (CCAs). It is a form of DA.

Community Choice Aggregator

Any city, county, or city and county, or group of cities, counties, or cities and counties, whose governing board or boards elect to combine the loads of their residents, businesses, and municipal facilities in a community wide electricity buyers' program. (see PU Code § 331.5.) A CCA may also provide certain EE and conservation programs to its CCA customers.

Customer Class

A "Customer Class" refers to, in general, a group of customers with similar service requirements. Typical customer classes include residential, industrial, commercial and agricultural.

Demand Response Programs

"Demand response" refers to actions taken by end-users to reduce power demand during critical peak times or to shift demand to off-peak times. A demand response program provides customers with incentives for reducing load in response to an event signal. These incentives can take the form of a financial credit or their bill, a dynamic rate or exemption from rolling blackouts. Events can be called for economic or reliability reasons. Because demand response programs are designed to operate only a few hours per event, they typically reduce capacity (kW) but not energy (kWh).

Direct Access

The ability of end-use customers located in the service territory of an IOU to purchase electricity from retail sellers other than their local utility.

Direct Access Customers

Customers located within the service territory of an IOU who purchase electricity from sellers other than their local utility. DA customers continue to receive and pay for delivery services from their local utility.

Direct Access-Eligible Customer

A customer located within the service territory of an IOU who is eligible for DA.

Distribution System

The substations, transformers and lines that convey electricity from high-power transmission lines to ultimate consumers, or for Electric Microutilities, the distribution lines that convey electricity from the generating units to the ultimate customer.

Distribution Lines

Overhead and underground facilities which are operated at distribution voltages, and which are designed to supply two or more customers.

DWR Contracts

Contracts for generating resource capacity and energy deliveries executed by the California Department of Water Resources during 2001 and allocated to the investor owned utilities for contract administration purposes only.

EI Contract

Edison Electric Institute contract is a standard master agreement that provides the base terms and conditions for transactions executed between two parties of a particular master agreement.

Electric Microutility

Any electrical corporation that is regulated by the California Public Utilities Commission and organized for the purpose of providing sole-source generation, distribution, and sale of electricity exclusively to a customer base of fewer than 2,000 customers. (Public Utilities Code § 2780.) An Electric Microutility is not connected to the ISO controlled transmission grid and thus has no relationship with the ISO nor any ability to import or export power.

Electric Service Provider (ESP)

An entity that is licensed by the COMMISSION to provide electric power service to DA Customers (see PU Code §§ 218.3 and 394). An end-use customer can act as its own ESP as long as it complies with all requirements of being an ESP. Also referred to as Energy Service Providers.

Electronic Quarterly Reports ("EQR"):

All FERC jurisdictional public utilities, including power marketers, must file EQRs, in which they:

- Summarize contractual terms and conditions in their agreements for all jurisdictional services, including:
 1. Market-based power sales;
 2. Cost-based power sales; and
 3. Transmission service
- Detail transaction information for short-term and long-term market-based power sales and cost-based power sales during the most recent calendar quarter.
- Tariff holders without effective contracts and transactions must file the ID Data portion of the EQR.

Energy

Energy is the amount of electricity produced, flowing or supplied by generation, transmission or distribution facilities or consumed over time. Usually it is measured in units of watt-hours or standard multiples thereof, e.g., 1,000 Wh=1 kWh, 1,000 kWh=1MWh, etc.

Energy Efficiency

Programs and measures designed to reduce consumer energy consumption. Example of programs and measures include lighting retrofit, process redesign and appliance rebates which encourage consumers to purchase high-efficiency appliances.

Exchange Traded Contracts

Contract for electric capacity and energy executed through electronic and voice exchange markets under standard product terms and conditions. Products are generally for “standard products” (peak, on-peak or flat) and standard periods of duration (hourly, daily, balance of month, monthly, quarterly).

Heat Rate

A number that tells how efficient a fuel-burning power plant is. Measured by Btu/kWh. The heat rate equals the Btu content of the fuel input divided by the kWh or power output. The lower the heat rate of a generating unit, the more efficient the unit.

Intermediate Unit

A generator unit that is used for energy production as required with a capacity factor normally in the range of 15-60%.

Interruptible Service or Tariff

Electricity supplied under agreements that allow the supplier to curtail or stop services at times.

A service under which, upon notification from the Independent System Operator, the IOU requires the customer to reduce the demand imposed on the electrical system to firm service level (*i.e.*, a level below which the customer’s load will not be interruptible), and the customer must comply within 30 minutes.

Investor-Owned Electric Utility (IOU)

An investor owned utility (IOU) is a private company owned by stockholders that provides electric utility services to a specific service area. A designation used to differentiate a utility owned and operated for the benefit of shareholders from municipally owned and operated utilities and rural electric cooperatives. The investor-owned utility is regulated by the California Public Utilities Commission.

Load

Load is the amount of electric power supplied to meet end users' needs. Load is also an end-use device of an end-use customer that consumes power. Load should not be confused with demand, which is the measure of power that a load receives or requires.

Load-Serving Entity (LSE)

An entity that provides electric power service to end-use customers. LSEs include but are not limited to IOUs, ESPs, CCAs and public-owned utilities.

Mark-to-Market (MtM)

A measure of the fair value of accounts that can change over time, such as assets and liabilities.

Market Clearing Price: The price in a market at which supply equals demand. All demand prepared to pay at least this price has been satisfied and all supply prepared to operate at or below this price has been purchased.

Must-Take Generation

Utilities are mandated to take electricity from specific resources identified by the COMMISSION . Except for Electric Microutilities, the receiver of must-take generation will pay for the electrical energy output of must-take resource even if they refuse to schedule and receive that energy. For this reason, these resources are always economic to receive and scheduled in order to minimize financial loss. Regulatory must-take generation include QF generating units under federal law, nuclear units and pre-existing power-purchase contracts that have minimum-take provisions.

New-World Contracts

IOU Contracts for electric capacity and energy executed after January 1, 2003 when utilities returned to procurement.

Old-World Contracts

IOU Contracts for electric capacity and energy executed prior to January 1, 2003 when utilities returned to procurement.

Off-peak

Periods of low demands. All the time outside the on-peak period.

On-peak

Periods of the highest demand.

Peak Demand

The electric load that corresponds to a maximum level of electric demand in a specified time period.

Peaking Unit

A power generating station that is normally used to produce extra electricity during peak load times. Typical peaking resources are fully dispatchable and deliver in approximately 10% of hours.

Price Curves:

- **Forward Curve** (or "futures price") - A forward curve is a term structure of forward prices observed in the market. Forward contracts, like futures, are agreements to buy or sell a commodity at a future time. Forward price is the price to be paid at delivery.
- **Price Forecast** - A price forecast is a projection of future price levels (these could be day-ahead prices, futures prices, monthly prices etc.) expressed either in nominal or a given year's dollars.

Qualifying Facilities (QFs)

"Qualifying facilities" (QFs) are non-utility cogeneration or other power producers that often generate electricity using renewable and alternative resources, such as hydro, wind, solar, geothermal, or biomass (solid waste). QFs must meet certain operating, efficiency, and fuel-use standards set forth by the FERC pursuant to PURPA (The Public Utility Regulatory Policies Act of 1978).

Reliability-Must-Run (RMR) Agreements

A Must-Run Service Agreement between the owner of an RMR Unit and the ISO within geographical areas identified via the Local Area Reliability Service (LARS) process.

Reliability Must-Run (RMR) Generation

Generation that the ISO determines is required to be on line to meet applicable reliability criteria requirements. This includes:

- i) Generation constrained on line to meet NERC and WECC reliability criteria for interconnected systems operation;
- ii) Generation needed to meet load demand in constrained areas; and
- iii) Generation needed to be operated to provide voltage or security support of the ISO or a local area.

Residual Net Long for Capacity (Surplus)

When the capacity resources under an LSE's control exceed the peak hourly demand (MW), including the required planning reserve margin, of the LSE's customers, the LSE is in a residual net long situation for capacity.

Residual Net Long for Energy

When the energy requirement (kWh or MWh) of the LSE's customers load, for a given period of time (*i.e.* hour, month, year, etc), is less than the total energy supply available to serve the LSE's customers, the LSE is in a residual net long situation for energy.

Residual Net Short for Capacity (Deficit)

When the peak hourly demand (MW), including the required planning reserve margin, of the LSE's customers exceeds the capacity resources under the LSE's control, the LSE is in a residual net short situation for capacity.

Residual Net Short for Energy

When the energy requirement (kWh or MWh) of an LSE's customer load, for a given time interval (*i.e.* hour, month, year, etc), is greater than the total energy supply available to serve the LSE's customers, the LSE is in a residual net short situation for energy.

Spark Spread

The difference between the market price of electricity and its cost of production for a specific natural gas fired generating plant.

Spot Market

A market in which transactions take place at most one day ahead of scheduled delivery.

Spot Price

The price for spot transactions.

System Net Energy Forecast

Energy used by IOU and DA customers, as measured at generation (includes T&D losses).

Tradable Renewable Energy Credits (TREC)s

Renewable energy credits that are delivered separately from the energy from a RPS-certified generator or as defined under Commission decision D. 10-03-021, *et seq.*

Transmission & Distribution ("T&D") Losses

Electric energy or capacity that is wasted in the normal operation of a power system. Some kilowatt-hours are lost in the form of waste heat in electrical apparatus such as substation transformers. Line losses are kilowatts or kilowatt-hours lost in transmission and distribution of electricity.

Tolling Agreements

In a tolling agreement, the buyer is also the fuel supplier, and instead of buying kilowatt hours, the buyer, in effect, buys the service of converting fuel into electric energy. The project owner still sells capacity and AS. However, instead of a sale of goods, a tolling agreement is more in the nature of a service contract, where the project owner sells fuel conversion services. The term "tolling agreement" derives from the fact that the project owner is charging the purchaser a "toll" for allowing the purchaser's fuel to pass through the owner's project.

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

UDC (Utility Distribution Company)

An entity that owns a distribution system for the delivery of energy (to and from the ISO controlled grid) and that provides regulated retail electric service to eligible customers, as well as regulated procurement service to those end-use customers who are not yet eligible for DA, or who choose not to arrange services through another retailer. Electric Microutility is defined separately above and is not included in this definition.

Utility Generation

Resources owned by an investor-owned utility. Does not include resources that may be under contract or otherwise available to utilities, such as DWR contracts.

Weather scenarios - 1:5, 1:10, & 1:20

Forecasts of expected highest demand (MW) under different weather scenarios. 1:2 means average weather conditions. 1:5, 1:10, 1:20 mean probability of hot temperature (one in every five, ten or twenty years).

Appendix J ACRONYMS GLOSSARY

Acronym	Term
AB	Assembly Bill
AB 32	Assembly Bill 32
AB 57	Assembly Bill 57
AL	Advice Letter
ANNSTLF	Advanced Artificial Neural-Network Short-Term Load Forecaster
AS	Ancillary Services
Btu	British Thermal Unit
CAISO	California Independent System Operator Corporation
CAM	Cost Allocation Mechanism
CAM PRG	Cost Allocation Mechanism Procurement Review Group
CCA	Community Choice Aggregator
CDWR or DWR	California Department of Water Resources
CEC	California Energy Commission
CHP	Combined Heat and Power
CO ₂	Carbon Dioxide
COB	California-Oregon Border
COD	Commercial Operations Date
CRR	Congestion Revenue Rights
CRT	Consumer Risk Tolerance
D.	Decision
DA	Direct Access
DAM	Day-Ahead Market

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Acronym	Term
DBE	Diverse Business Enterprises
DG	Distributed Generation
DR	Demand Response
DRP	Demand Response Program
EAP	Energy Action Plan
EAP II	Energy Action Plan II
ED	Exceptional Dispatch
EE	Energy Efficiency
EECC	Electric Energy Commodity Cost
E&FP	SDG&E's Energy Procurement organization
EPC	Engineering, Procurement and Construction
EPRI	Electric Power Research Institute
ERC	Emissions Reduction Credit
ERRA	Energy Resource Recovery Account
ET	Evaluation Team
FASB	Financial Accounting Standards Board
FEA	Financial Engineering Associates
FERC	Federal Energy Regulatory Commission
FiT	Feed-in Tariff
GDP-IPD	Gross Domestic Product Implicit Price Deflator
GHG	Greenhouse Gas
GWh	Gigawatt-hour
HASP	Hour Ahead Scheduling Process
ICE	Intercontinental Exchange

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Acronym	Term
ID	Identification
IE	Independent Evaluator
IFM	Integrated Forward Market
IM	Instant Messaging
IST	Inter-SC trades
IOU	Investor-owned Utility
ISDA	International Swaps and Derivatives Association, Inc.
kW	Kilowatt
kWh	Kilowatt-hour
LCBF	Least-Cost, Best Fit
LCD	Least-Cost Dispatch
LMP	Locational Marginal Price
LSE	Load-serving Entity
LT	Long Term
LTPP	Long-Term Procurement Plan
MMBtu	Millions of British Thermal Units
MRTU	Market Redesign and Technology Upgrade
MSG	Multi-Stage Generation
MtM	Mark to Market
MW	Megawatt
MWh	Megawatt-hour
NAESB	North American Energy Standards Board
NGBA	Non-Fuel Generation Balancing Account
NP15	North of Path-15

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Acronym	Term
NP26	North of Path-26
NQC	Net Qualified Capacity
NYMEX	New York Mercantile Exchange
OASIS	Open Access Same-time Information Systems
OFO	Operational Flow Order
OTC	Over-the-counter
PCI	Power Cost Incorporated
PDR	Proxy Demand Response
PG&E	Pacific Gas and Electric Company
PIRP	Participating Intermittent Resource Program
RPS Plan	Renewable Portfolio Standard Procurement Plan
PPA	Power Purchase Agreement
PRG	Procurement Review Group
PSA	Purchase and Sale Agreement
PURPA	Public Utility Regulatory Policy Act of 1978
PV	Photovoltaic
QF	Qualifying Facility
QF/CHP Settlement	Qualifying Facility and Combined Heat and Power Settlement
R.	Rulemaking
RA	Resource Adequacy
RAR	Resource Adequacy Requirement
REC	Renewable Energy Credit
RFB	Request for Bids
RFO	Request for Offer

2012 LONG TERM PROCUREMENT PLAN

CONFIDENTIAL/PRIVILEGED/PROTECTED MATERIALS SUBMITTED PURSUANT TO PUC SECTION 583, PUC SECTION 454.5(G), GO 66-C AND D.06-06-066.

Acronym	Term
RFP	Request for Proposal
RMR	Reliability Must-Run
RNS	Residual Net Short
RPS	Renewable Portfolio Standard
RTM	Real Time Market
RTO	<i>Regional Transmission Organization</i>
RUC	Residual Unit Commitment
SB	Senate Bill
SC	Scheduling Coordinator
SCP	Standard Capacity Product
SCE	Southern California Edison Company
SDG&E	San Diego Gas and Electric Company
SP15	South of Path 15
SONGS	San Onofre Nuclear Generating Station
TeVAr	To-expiration-Value-at-Risk
TREC	Tradable Renewable Energy Credit
TOU	Time-of-Use
UEG	Utility Electric Generation
UOG	Utility-owned Generation
U.S.	United States
URG	Utility Retained Generation
VtE	VaR to Expiration
WECC	Western Electric Coordinating Council
WSPP	Western System Power Pool

Appendix K Energy Procurement Organization

