



# **RENEWABLES PORTFOLIO STANDARD**

## **2004 SOLICITATION**

### **BIDDERS CONFERENCE**

*July 28, 2004*

# *Agenda*

- I. Overview
- II. Quantitative Evaluation
- III. Contract and Offer Forms
- IV. Transmission
- V. Solicitation Documents
- VI. Q & A

# *Overview*

# RFO Goals

Target: 711,000 MWhrs/Year

Product	Type	Performance Requirements
As-Available	Intermittent	Eligible technologies only Minimum annual volume
Baseload	Unit-Firm	7 x 24 Minimum 80% annual Capacity Factor
Peaking	Unit-Firm	5 x 8 ♦ June-September Minimum 95% Capacity Factor
Dispatchable	Unit-Firm	≥ 25 MW ♦ Day-Ahead Minimum 95% Availability Factor June-September

# ***PG&E Need***

**Table II.2: Assessment of PG&E Need by Product**

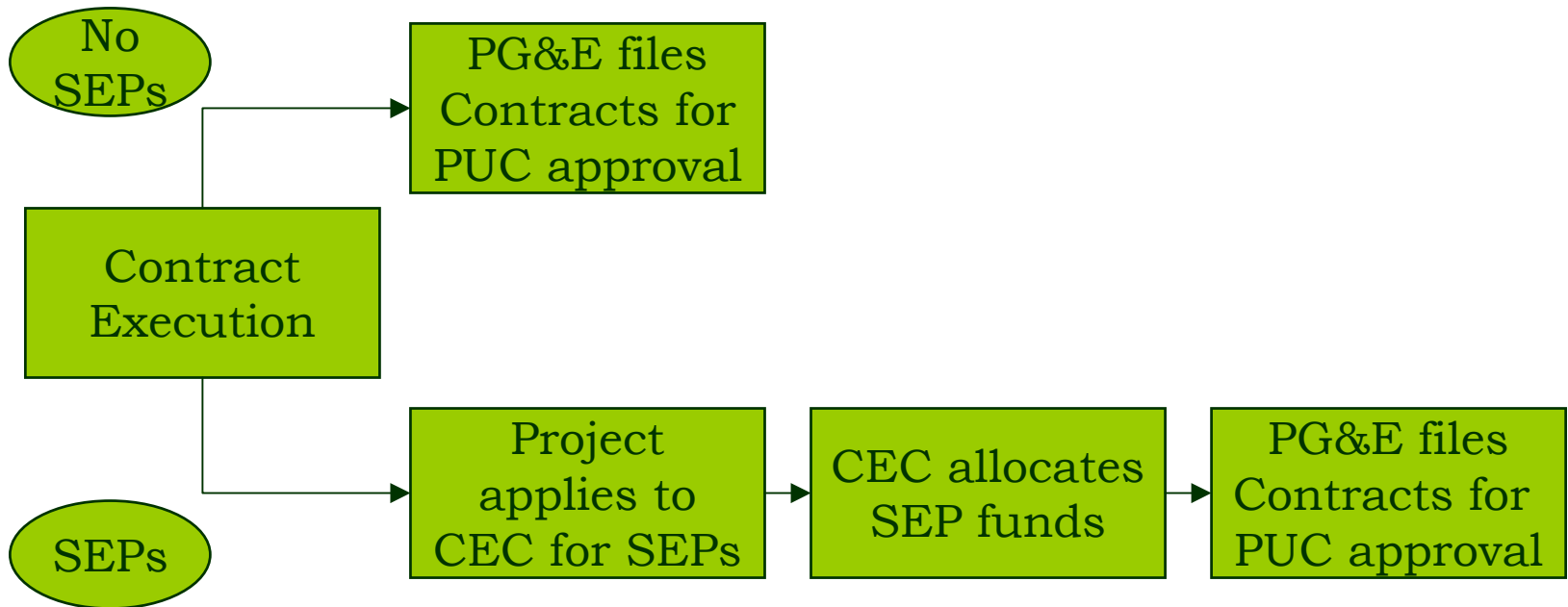
<b>PRODUCT</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
As-Available	Low	Low	Medium	Medium	Medium	Medium
Baseload	Low	Low	Medium	High	High	High
Peaking	Medium	High	High	High	High	High
Dispatchable	High	High	High	High	High	High

# Schedule

**Table V.1: PG&E RFO Schedule**

<b>DATE</b>	<b>EVENT</b>
July 15	PG&E issues Request for Offers
July 26	Participants file Notice of Intent to Bid
July 28	Pre-Bid Conference
August 23	Deadline for Participants to submit bids
September 29	PG&E selects Shortlist of Bids; Consults with PRG
November 29	PG&E concludes negotiations with Shortlisted Bidders; Consults with PRG
December 6	PG&E & Participants execute PPAs subject to Regulatory Approval
December 17	PG&E submits PPAs for Regulatory Approval

# *RPS Regulatory Process*



# *What's an Offer?*

- Discrete Technology, Size and Location
- Price Variations for:
  - a) Commercial Operation Date
  - b) Delivery Term
  - c) Credit Terms
  - d) Production Tax Credit
- Refundable Bid Deposit: \$5/kW

# ***Evaluation Criteria***

Market Valuation	60%
Portfolio Fit	10%
Credit	20%
Project Status	5%
Technology Viability	5%
Transmission Adders, Integration Costs incorporated into Quantitative Analysis	
RPS Qualitative Factors	Qualitative
Changes to Form PPA	Case-by-Case

# Credit

**Table X.1: Performance Assurance Standards**

Score	10 Yr Contract	15 Yr Contract	20 Yr Contract
20 Points	(1) Security Deposit: Development: \$20/kw Operations: 6 mos. Revenue (2) Credit Assurance (3) Replacement Cost Collateral	(1) Security Deposit: Development: \$20/kw; Operations: 9 mos. Revenue (2) Credit Assurance (3) Replacement Cost Collateral	(1) Security Deposit: Development: \$20/kw; Operations: 12 mos. Revenue (2) Credit Assurance (3) Replacement Cost Collateral
10 Points	(1) Security Deposit: Development: \$20/kw; Operations: 3 mos. Revenue	(1) Security Deposit: Development: \$20/kw; Operations: 4 ½ mos. Revenue	(1) Security Deposit: Development: \$20/kw; Operations: 6 mos. Revenue
0 Points	No Performance Assurance	No Performance Assurance	No Performance Assurance

*Note: Revenue is calculated as the maximum potential revenue for the Operations period*

## Types of Performance Assurance

- Cash, Letter of Credit, or other security acceptable to PG&E

# *Quantitative Evaluation*

# *Quantitative Evaluation*

## ■ Market Valuation

- Comparison of Offer pricing to the market value of the energy deliveries

## ■ Portfolio Fit

- Comparison of the online data and generation profile to PG&E's hourly, seasonal and annual positions

# *Time of Delivery Values*

**Table VIII.2: Time of Delivery (TOD) Periods & Factors**

<b>Monthly Period</b>	<b>Super-Peak</b>	<b>Shoulder</b>	<b>Night</b>
June - September	1.25	1.06	0.85
December & January	1.20	1.07	0.85
February - May, October & November	1.11	1.00	0.82

# *Contract & Offer Forms*

# *Contract Structure*

Form of  
Unit-Firm  
Confirmation

Form of  
As-Available  
Confirmation

3 Appendices to Coversheet

Form of EEI Coversheet & Addendum

EEI Master Power Purchase & Sale Agreement

# ***Contract Structure (cont'd)***

## **EEI Master Power Purchase & Sales Agreement (“EEI”)**

- Constitutes the base agreement
- Modified by the EEI Coversheet and Addendum

## **EEI Coversheet and Addendum**

- Referred to as the “Coversheet”
- Contain all of the modifications to the EEI
- Section references refer back to sections in the EEI
- Three Appendices:
  - Appendix I: Principles for Initial and Annual Capacity Demonstration Tests
  - Appendix II: Monthly Construction Progress Report
  - Appendix III: Outage Notification Form

# ***Contract Structure (cont'd)***

## **■ Two Forms of Confirmation Agreements**

- Unit-Firm products: Baseload, Peaking, Dispatchable
- As-Available product
- Contains key commercial terms for the product
- Refer to sections in the Coversheet and terms that are defined in the Coversheet, so you will need to become familiar with the Coversheet to fully understand the ramifications of these terms in the Confirmation

# Standard Terms & Conditions

No Modification	PG&E Contract Reference
CPUC Approval	Article One Definitions, “CPUC Approval” in the Coversheet
Definition and Ownership of RECs	Article One Definitions, “Environmental Attributes,” and Section 3.2 “Environmental Attributes” in the Coversheet
SEP Awards and Contingencies	Section 10.1(a) and (b) in the Coversheet
Contract Term	See the Delivery Term options in Section 2 of each of the Confirmations
Eligibility	Section 10.12 (xiii) in the Coversheet
Applicable Law	Section 10.6 in the Coversheet

# Standard Terms (cont'd)

May be Modified by Parties	PG&E Contract Reference
Confidentiality (modify only for additional disclosure)	Sections 10.11 and 10.12, "Confidentiality" and "RPS Confidentiality" in the Coversheet
Performance Standards/Requirements (CPUC may impose limits on changes)	Section 9 in each of the Unit Firm and As-Available Confirmations
Product Definitions (CPUC may impose limits on changes)	Schedule P in the Coversheet
Non-Performance or Termination Penalties and Default (CPUC may impose limits)	Article 5 of both the EEI and the Coversheet
Credit Terms	Article 8 of the EEI, and Sections 8.1, 8.2, and 8.4(a) in the Coversheet
Contract Modifications	Section 10.8 in the Coversheet
Assignment	Section 10.5 in the Coversheet

# Commercial Overview

- Seller proposes Term, Contract Price and Contract Capacity (“CC”) in its binding Offer:
  - For As-Available, CC = Net Rated Output Capacity
- Seller is or hires its own Scheduling Coordinator
- All deliveries are made by SC-to-SC trades
- Delivery Point is NP-15
- Seller receives the Contract Price - as adjusted by TOD Factors - for Delivered Energy
- Imbalance Energy – deviations of Delivered Energy from Scheduled Energy – is settled at the applicable Imbalance Price
- All Environmental Attributes are bundled with Product

# ***Energy Payments***

The Contract Price for each megawatt hour (MWh) of Delivered Energy in each Contract Year shall be:

Contract Year	Contract Price (\$/MWh)

# ***Delivered Energy Defined***

Delivered Energy is defined as all energy produced from the Unit(s) as measured in megawatt hours (MWh) at the ISO revenue meter of the Unit(s), based on a power factor of precisely one (1) and net of all applicable losses, including, but not limited to: (a) any transmission or transformation losses between the ISO revenue meter and the Delivery Point; (b) the applicable GMM or any successor method to account for losses or congestion established by the ISO (or successor organization); and (c) the applicable Distribution Loss Factor, if applicable.

# ***Delivery Point is NP-15***

If the current NP-15 zonal delivery point is replaced with an alternate trading hub, as established by the ISO (or successor organization), then the Delivery Point shall be the new NP-15 trading hub; or,

If the ISO (or successor organization) replaces the single NP-15 zonal delivery point with multiple nodal delivery points, then, each time such a change is made by the ISO (or successor organization) during the remaining Delivery Term, the Delivery Point shall be a delivery point that best approximates the location and characteristics of the current NP-15 zonal delivery point.

# Time of Delivery Periods

The Time of Delivery Periods ("TOD Periods") specified below shall be referenced by the following designations:

Monthly Period	Super-Peak <sup>1</sup>	Shoulder <sup>2</sup>	Night <sup>3</sup>
June - September <sup>(a)</sup>	A1	A2	A3
December & January <sup>(b)</sup>	B1	B2	B3
February - May, <sup>(c)</sup> October & November	C1	C2	C3

## Time of Day Period Definitions

- 1. Super-Peak** (5x8) = HE (Hours Ending) 13 – 20 Pacific Prevailing Time (PPT), Monday – Friday (except NERC holidays);
- 2. Shoulder** = HE 7 – 12, 21 and 22 PPT, Monday – Friday (except NERC holidays); and HE 7 – 22 PPT Saturday, Sunday and all NERC holidays;
- 3. Night** (7x8) = HE 1 - 6, 23 and 24 PPT all days (including NERC holidays);

# *Capacity Factors*

The Capacity Factor shall be calculated by TOD Period and defined as the percentage amount resulting from the Delivered Energy in the applicable TOD Period divided by the product resulting from multiplying the Contract Capacity times the number of hours in the applicable TOD Period:

$$\text{Capacity Factor} = \frac{\text{Delivered Energy}}{\text{Contract Capacity} \times \text{Hours in TOD}}$$

# TOD Factors

The Contract Price for Delivered Energy shall be adjusted by the following Time of Delivery Factors ("TOD Factors") for each of the specified TOD Periods in which the Delivered Energy is delivered:

Monthly Period	Super-Peak	Shoulder	Night
June - September	1.25	1.06	0.85
December & January	1.20	1.07	0.85
February - May, October & November	1.11	1.00	0.82

**Monthly TOD Payment =**

**Contract Price x TOD Factor x Capacity Factor x  
Contract Capacity x Hours in applicable TOD Period**

# Performance Requirements

To avoid incurring Performance Penalties, Seller shall cause the Unit(s) to deliver no less than the following Capacity Factors in each of the TOD Periods ("Performance Requirements"):

Monthly Period	Super-Peak	Shoulder	Night
June - September	95%	90%	80%
December & January	90%	90%	80%
February - May, October & November	80%	80%	60%

For both the Monthly Periods A and B, the Performance Requirements will be measured and calculated for each month in each Monthly Period.

For Monthly Period C, the Performance Requirements shall be measured and calculated once for the entire Monthly Period in the month immediately following the last month of the completed Period C, which shall include all months constituting Period C.

# Performance Penalties

To the extent that Seller fails to satisfy the Performance Requirements specified, Seller shall pay Buyer "Performance Penalties." For each 1 percent by which the Capacity Factor in each TOD Period is less than the Performance Requirement for such TOD Period, Seller shall pay Buyer the following percentages of the applicable Maximum Monthly TOD Payment ("Performance Penalty Factors"):

Monthly Period	Super-Peak	Shoulder	Night
June - September	3.00	2.00	1.25
December & January	2.50	2.00	1.25
February - May, October & November	1.50	1.25	1.00

For each TOD Period, if the applicable Capacity Factor is less than the applicable Performance Requirement, then the Performance Penalty for such TOD Period shall be calculated as follows:

**Performance Penalty =**

**(Performance Requirement - Capacity Factor) x Performance Penalty Factor x Maximum Monthly TOD Payment**

# ***Performance Penalties***

## ***(cont'd)***

For each TOD Period, if the Capacity Factor were assumed to be precisely 100 percent, then the Maximum Monthly TOD Payment shall be defined as follows:

**Maximum Monthly TOD Payment =**

**Contract Price x TOD Factor x 1.00 x Contract Capacity x Hours (in applicable TOD Period)**

In no event shall the applicable Performance Penalty exceed the amount of the applicable Maximum Monthly TOD Payment.

# ***Performance Penalties***

## ***(cont'd)***

### *Example*

The Performance Requirement in Period A2 is 90 percent Capacity Factor and the Performance Penalty Factor for Period A2 is 2.0.

If the actual Capacity Factor in Period A2 were 88.5 percent, then Seller would pay Buyer the following Performance Penalty =  $(90\% - 88.5\%) \times 2.0 = 1.5\% \times 2.0 = 3.0$  percent of the Maximum Monthly TOD Payment for TOD Period A2.

# *Imbalance Energy*

"Imbalance Energy" means the amount of energy, in any given hour, by which the amount of Delivered Energy deviates from the amount of Scheduled Energy.

When Delivered Energy minus the Scheduled Energy is a positive amount, it shall be considered "**Positive Imbalance Energy**".

When Delivered Energy minus Scheduled Energy is a negative amount, the absolute (*i.e., positive*) value of that amount shall be considered the "**Negative Imbalance Energy**".

# *Imbalance Price*

For each ISO settlement time interval in any month in which there is **Positive Energy Imbalance**, the Imbalance Price shall be the Ex Post Price applied by the ISO with respect to positive uninstructed imbalance energy charges for the applicable ISO settlement time interval and zone.

For each ISO settlement time interval in any month in which there is **Negative Energy Imbalance**, the Imbalance Price shall be the Ex Post Price applied by the ISO with respect to negative uninstructed imbalance energy charges for the applicable time interval and zone.

# *True Up Adjustment*

**True Up Adjustment for Positive Imbalance Energy (Over Deliveries).** For each ISO settlement time interval in which there is Positive Energy Imbalance, Seller shall pay Buyer for the Positive Imbalance Energy at the higher of the applicable Imbalance Price or the applicable Contract Price.

**True Up Adjustment for Negative Imbalance Energy (Under Deliveries).** For each ISO Settlement time interval in which there is Negative Imbalance Energy, Buyer shall pay Seller the Negative Imbalance Energy at the lower of the applicable Contract Price or the applicable Imbalance Price.

# ***ISO Charges***

- Seller shall assume all liability and pay for all congestion charges
- Seller shall also assume all liability and reimburse Buyer for any fees, liabilities, assessments, or similar charges assessed by the ISO, incurred by Buyer as a result of Seller's failure to abide by the Tariff
- Both parties shall cooperate to minimize imbalances and ISO fees and charges to the extent possible
- Seller shall promptly notify Buyer as soon as possible of any material imbalance that is occurring or has occurred

# ***Dispatchable Product: Dispatched Energy***

"Dispatched Energy" shall be the amount of energy, in any hour, that Buyer requests Seller to deliver, pursuant to the terms and conditions of the Dispatch Protocol *(to be mutually agreed by Buyer and Seller and attached as an Appendix to this Confirmation)*.

In no event shall Buyer be obligated to receive or pay for, in any hour, any Delivered Energy that either exceeds the amount of Dispatched Energy for the applicable hour or that was not requested by Buyer, pursuant to the Dispatch Protocol.

The Contract Price for each MWh of Dispatched Energy shall be:

<b>Contract Year</b>	<b>Contract Price (\$/MWh)</b>

# ***Dispatchable Product: Capacity Price***

The Capacity Price for each kilowatt of Contract Capacity in each Contract Year shall be:

<b>Contract Year</b>	<b>Capacity Price (\$/kW-year)</b>

# ***Dispatchable Product: Availability Factor***

- **X** = Number of Hours in any month that the Unit(s) are fully capable of producing Delivered Energy in the amount of the Contract Capacity, but not dispatched, pursuant to the dispatch protocol.
- **Delivered Energy during each Dispatched Hour** =  $Y_i$  MWh, for 1 to n Dispatched Hours
- **Dispatched Energy for each Dispatched Hour** =  $Z_i$  MWh, for 1 to n Dispatched Hours
- **Available Hours** =  $X + \sum_{i=1}^n (Y_i / Z_i)$  where for each hour  $Y_i / Z_i \leq 1$ , for 1 to n Dispatched Hours

**"Availability Factor"** is the percentage amount resulting from dividing the number of Available Hours for a given month by the total number of hours in that month. The Availability Factor can never be greater than 100 percent.

# *Dispatchable Product: Capacity Payment*

## **Time of Availability (TOA) and Minimum Availability Factors**

<b>Month</b>	<b>TOA Factor</b>	<b>Minimum Availability</b>	<b>Availability Penalty Factor</b>
January	10.0%	95%	4.0
February	2.8%	75%	1.5
March	2.8%	75%	1.5
April	2.8%	75%	1.5
May	2.8%	75%	1.5
June	12.0%	95%	4.0
July	15.0%	95%	4.0
August	15.0%	95%	4.0
September	12.0%	95%	4.0
October	12.0%	95%	4.0
November	2.8%	75%	1.5
December	10.0%	95%	4.0
<b>TOTAL</b>	<b>100.0%</b>		

# *Capacity Payment (cont'd)*

The “**Monthly Capacity Payment**” shall be the amount resulting from multiplying the Capacity Price times the TOA Factor applicable for such month times the Contract Capacity:

**Monthly Capacity Payment =**

**Capacity Price x TOA Factor x Contract Capacity**

The table on the prior slide allocates the Annual Capacity payment among the 12 months of the Contract Year by a Time of Availability (TOA) Factor that allocates the annual value of capacity to each month.

# *Capacity Payment (cont'd)*

To receive the full Monthly Capacity Payment for a given month, the Unit(s) must demonstrate an Availability Factor for that month equal to or greater than the applicable Minimum Availability Factor.

To the extent that Seller fails to demonstrate the Minimum Availability Factor for any month, Seller shall be liable for and pay to Buyer "Availability Performance Penalties" for such month, as defined herein.

# ***Dispatchable Product: Performance Penalties***

For each month in which the Minimum Availability Factor is 95 percent, for each one (1) percent, or fraction thereof, by which the actual Availability Factor in such month is less than 95 percent, Seller shall pay to Buyer four (4) percent of the applicable Monthly Capacity Payment.

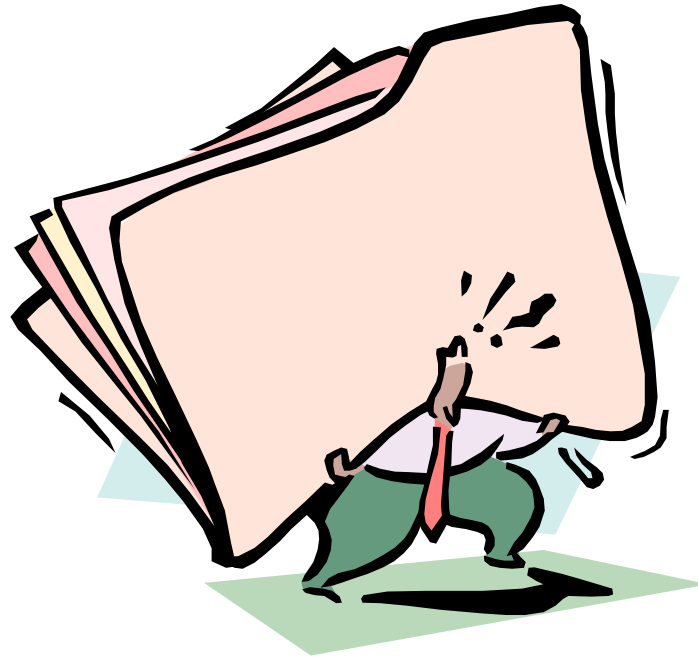
For each month in which the Minimum Availability Factor is 75 percent, for each one (1) percent, or fraction thereof, by which the actual Availability Factor in a month is less than 75 percent, Seller shall pay to Buyer 1.5 percent of the applicable Monthly Capacity Payment.

In no event shall the amount of the Availability Performance Penalty in a given month exceed the amount of the applicable Monthly Capacity Payment.

## **Example**

For the purpose of illustration, the Minimum Availability Factor in June is 95.0 percent. If the actual Availability Factor in that month were 90.0 percent, then Seller would pay to Buyer the following Availability Performance Penalty =  $(95.0\% - 90.0\%) \times 4 = 5\% \times 4 = 20\%$  of the Monthly Capacity Payment for the month of June.

# ***Attachment D: Offer Form***



# *Transmission*

# *Transmission*

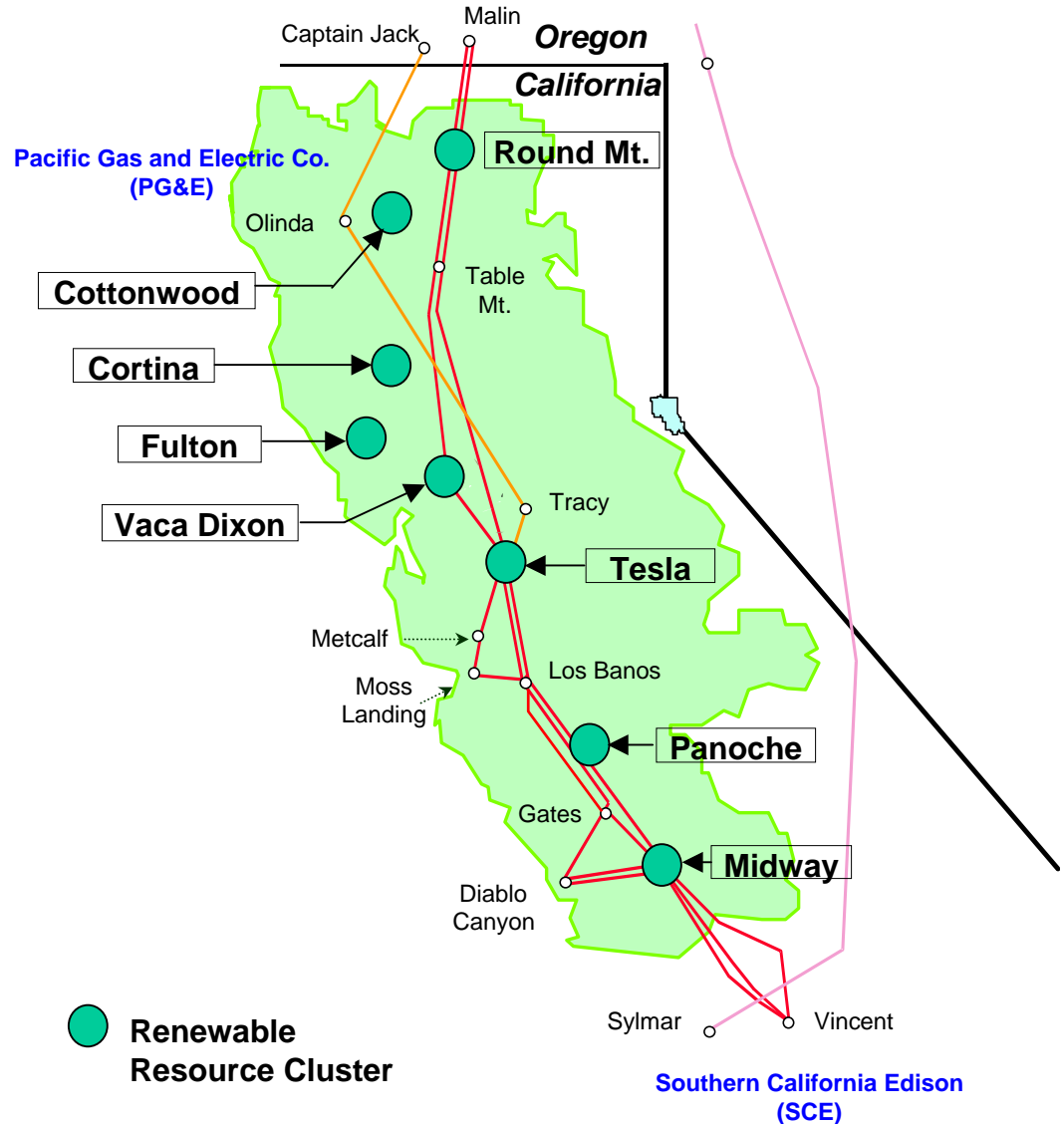
- Transmission Availability and Cost - Part of RFO Evaluation
- Purpose – Provide information for bidders to adjust proposals
  - Least Cost Best Fit

# ***Consideration of Transmission Cost in Bid Ranking (D.04-06-013)***

- Generator Cost Responsibility - Include in bid price
  - Direct Assignment Facilities (Gen-tie)
    - ❖ Identify if desire PG&E to evaluate potential for sharing
  - Wheeling Charges in non-PTO systems
  
- Cost Responsibility – Ratepayer
  - Network Upgrades
  - Transmission Adders at Clusters from:
    - ❖ CAISO Interconnection Process (SIS/FS)
    - ❖ Transmission Ranking Cost Report

# PG&E Substations

*Associated  
with  
Renewable  
Resource  
Clusters*



# *Transmission Ranking*

## *Cost*

- For Projects that have **not** completed the SIS/FS
- Solely for bid ranking in this solicitation
- Based on Proxy facilities
- Successful bidders must complete the ISO Interconnection Process

# ***Transmission Ranking***

## ***Cost Tables IX.1 – IX.2***

- Table IX.1 – Generation online date 2005-2009
- Table IX.2 – Generation online date 2010 and beyond
- North of PG&E Service Area – Round Mt.
- South of PG&E Service Area – Midway

# Table IX.1

Substation Associated with Cluster of Potential Generation	Level	Super-Peak & Shoulder			Night			Baseload & As-Available		
		January, 2005 – December, 2009			January, 2005 – December, 2009			January, 2005 – December, 2009		
		Maximum MW of Potential Generation in each Level	Cost of Proxy Network Upgrades to accommodate MW Level of Potential Generation (\$ millions in 2003 dollars)		Maximum MW of Potential Generation in each Level	Cost of Proxy Network Upgrades to accommodate MW Level of Potential Generation (\$ millions in 2003 dollars)		Maximum MW of Potential Generation in each Level	Cost of Proxy Network Upgrades to accommodate MW Level of Potential Generation (\$ millions in 2003 dollars)	
Proxy Voltage Support Devices*	Other Proxy Transmission Upgrades		Proxy Voltage Support Devices*	Other Proxy Transmission Upgrades		Proxy Voltage Support Devices*	Other Proxy Transmission Upgrades			
Round Mountain 230 kV	1	300	15	0	200	10	0	200	10	0
	2	200	10	232						
	3	200	10	101						

*\*Cost of Proxy Voltage Support Devices are prorated in proportion to the size of the project*

# Example

- Two bids received:
  - A: 200 MW
  - B: 200 MW
- Bid A has lower cost (or higher point total for value)

## Transmission Adder to be used in Evaluation

<b>Bid</b>	<b>Level</b>	<b>Gen Capacity (MW)</b>	<b>Proxy VAR Support (\$Million)</b>	<b>Other Proxy Network Upgrades (\$Million)</b>
A	1	200	\$10	0
B	1	100	\$5	0
B	2	100	\$5	\$232

# *Solicitation Documents*

# ***Solicitation Process***

- Offers must be received by PG&E **on Monday, August 23, 2004 at 2:00 p.m. (PPT)**
- Both Electronically and Hard Copies
  - Electronic copies via email to: [RenewableRFO@pge.com](mailto:RenewableRFO@pge.com)
  - Hard copies (2 Bound & 1 Unbound) overnighted or hand-delivered to:

RPS Solicitation  
Power Contracts Department  
Attn: Dave Landes  
Pacific Gas & Electric Company  
245 Market Street, Room 1245B, Mail Code N12E  
San Francisco, CA 94105  
Tel: (415) 973-9326

# ***Bidding Forms and PPA***

- Bid Deposit (Sec. IV.C, pp 5-6)
  - \$5/kW
  - Cash Deposit, or
  - Letter of Credit (Attachment B, Form Letter of Credit)
  - Coordinate with and notify Mr. Jack Foley via email at [JRFC@pge.com](mailto:JRFC@pge.com) or call (415) 973-0004

# ***Bidding Forms and PPA (cont'd)***

- Required Forms (Sec. VII.B, pp 11-15)
  - Signed RPS Solicitation Protocol Agreement (Attachment A)
  - Fully Completed Offer Form (Attachment D)
  - Participant Credit-Related Information Form (Attachment F)
  - Attachments to Offer Form Required by Sections VII.B.4.-VII.B.12

# ***Bidding Forms and PPA***

## ***(cont'd)***

- Required Forms (Sec. VII.B, pp 11-15)
  - PPA and Confirmations (Attachments H, IA & IB) and their exhibits and attachments. Bidders are required to thoroughly review these documents and specifically note and identify any proposed exceptions or modifications to these documents (Sec. VII.B.13)
  - Revenue Calculator (Attachment E) does **NOT** need to be returned to PG&E

# ***CEC Requirements***

- RPS Eligible Renewable Energy Resources (ERR) must be CEC Certified
  - CEC Certification/Pre-Certification should be applied for/obtained now - prior to bidding
- Supplemental Energy Payments (SEPs) are awarded by the CEC
  - Apply to CEC for SEPs when PPAs are executed
- ERRs must report their renewable generation to a CEC Generation Tracking System

# ***Communications, Website Interaction***

- All RFO documents are available and can be downloaded from PG&E's website at: [www.pge.com/renewableRFO](http://www.pge.com/renewableRFO)
- All announcements, updates and Q&As will also be posted on the website
- PG&E prefers that communications be in the form of an email directed to: [RenewableRFO@pge.com](mailto:RenewableRFO@pge.com)
- For procedural and administrative matters, call Dave Landes at (415) 973-9326

<http://www.pge.com/renewableRFO>

# Q & A