Pacific Gas and Electric Company

Long-Term Power Procurement
Request for Offers

Introduction and Overview

Participant Conference
October 15, 2004

Agenda

1. Overview
2. Products, Eligibility, and Protocols
3. Electric Transmission & Interconnection
4. Gas Interconnection
5. Purchase & Sale Agreement (Ownership)
6. Power Purchase Agreement

   Lunch
7. Evaluation of Offers
8. Credit and Financing

   Break
9. Q&A

Overview

- Meet resource requirements by implementing the preferred loading order:
  - Customer Energy Efficiency Programs
  - Customer Demand Response Programs
  - Distributed Generation Programs
  - Renewable Power
  - Power to Fill Residual Needs

Overview

- Plan to meet residual needs through portfolio of:
  - Short-term contracts
  - Medium-term contracts
  - Hybrid market for longer-term commitments
    - Long-term contracts
    - Utility owned generation

Overview

- PG&E will issue 2 long-term solicitations to fill longer term commitments:
  - Power Purchase
  - PG&E Facility Ownership
- Net Open Needs:
  - 1,200 MW in 2008, 1,000 MW in 2010
  - Minimize long off-peak position
- Products that PG&E seeks in this solicitation:
  - Dispatchable
  - Peaking and shaping

Overview

- CPUC's Decision on Integrated Resource Plan
  - PG&E will issue RFOs prior to decision
    - Development and construction lead time considerations
  - Decision expected on December 16, 2004
  - PG&E will conform solicitation process, evaluation and short list Offers to CPUC decision

Schedule

November 1	Interconnection Applications Due
	RFO Publication (target)
December 1	Initial Offers Due (target)
December 16	CPUC Long Term Plan Decision (target)
January	Shortlist Offers
March	Final Offers Due
April	Execute Agreements
	Submit Agreements for CPUC Approval
Jun - Dec	CPUC Issues Decision Granting Regulatory Approval

- Final Offer binding for 8 months past filing date

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Products, Eligibility and Protocols

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Products, Eligibility and Protocols
Products/Operating Characteristics

- High degree of operating flexibility
  - Preference for dispatchable products
  - Baseload need is not a priority
- Integrated Resource Plan identified need for peaking and shaping capacity
- Preferred on line dates first five months of 2008, 2009 and 2010
  - Preference for peaking capacity in 2008
- Satisfy anticipated Resource Adequacy requirements

Products, Eligibility and Protocols
Power Purchase RFO Products

- **Shaping Capacity**
  - Typically expected to provide flexible operating capacity with energy production that will vary on a daily, seasonal and annual basis. Annual Capacity Factor anticipated to vary from 35% - 95%
- **Peaking Capacity**
  - Typically expected to have low annual capacity factors, and usually have relatively higher variable costs or higher heat rates and lower fixed costs Annual Capacity Factor anticipated to vary from 1% - 40%
- **Includes Ancillary services**
  - Both Products should provide (spinning, quick start, and regulating reserves)

Products, Eligibility and Protocols
Facility Ownership – Operating Characteristics

- Peaking Generation
  - Each will be operated to provide peaking power as needed to the system. This is expected to entail multiple daily starts and stops, rapid turndown and ramp up within the unit's capabilities and full compliance with environmental permit conditions throughout the operating envelope.

- Shaping Generation
  - Flexibility to provide both energy and ancillary services products
  - Capable of continuous operation at full load and in a load following mode over its full turn down and ramp up capabilities
  - High reliability re-start capability with high confidence that each unit will be able to shut-down over night with restart each morning for most of the year.

Products, Eligibility and Protocols
Eligibility

- Common Criteria for Both RFOs
  - New Generating Facilities
    - Earliest online date of January 1, 2007
    - Either new construction on a project site or replacement of all major components on an existing project
    - Strong preference for Initial Power Delivery and project completion during the first 5 months of 2008, 2009, 2010
  - Firm physical delivery to delivery point in NP15, as presently defined
  - Minimum offer size of 25MW
  - Demonstrate site control no later than the Final Offer Date
  - Electric and Gas Interconnection studies initiated by November 1
  - Submit Offer Deposit

Products, Eligibility and Protocols Eligibility

- Additional PPA Criteria
  - Unit Specific with PG&E possessing exclusive rights to capacity, energy ancillary services, and Environmental Attributes
  - Minimum offer term of 5 years
  - Existing QFs larger than 1 MW may bid into the PPA RFO

- Additional Facility Ownership Criteria
  - Compliance with functional specifications

Products, Eligibility and Protocols
Offer Deposit

- All Participants must provide a $5\KW offer deposit with each offer
  - PPA based off of the maximum monthly Capacity
  - Facility Ownership based off of Guaranteed Electrical Output
- Offer deposit increases $5\kW to $10\kW once agreements are filed for regulatory approval
- Participants may provide an Offer for the same project with the same size and location into the Ownership RFO and PPA RFO under one bid deposit.
- Separate Offers and additional Offer Deposits are required for each project proposal differs in terms that include:
  - Term (contract life), size, location, delivery point, operational characteristics, on-line date, price alternatives except those permitted under the Facility ownership RFO

Products, Eligibility and Protocols
Offer Delivery Requirements

Initial Offers:

- Provide Required Information set forth in VII. B.
- Signed Long Term RFO Agreement (Appendix A)
- Cash Deposit or a Letter of Credit in the form of Appendix B
- A Marked Term Sheet (Appendix D)
- A completed Offer Data Form (Appendix E),
- A completed Generation Facility Information Form (Appendix F).
- A completed Credit and Finance Information Form (Appendix G).
- A completed Electronic Transmission Data Information Form (Appendix H).
- A completed Gas Interconnection Information Form (Appendix I).

Final Offers:

- Detailed Project Plan
- Marked Agreements
- Other information as specified

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Electric Transmission and Interconnection

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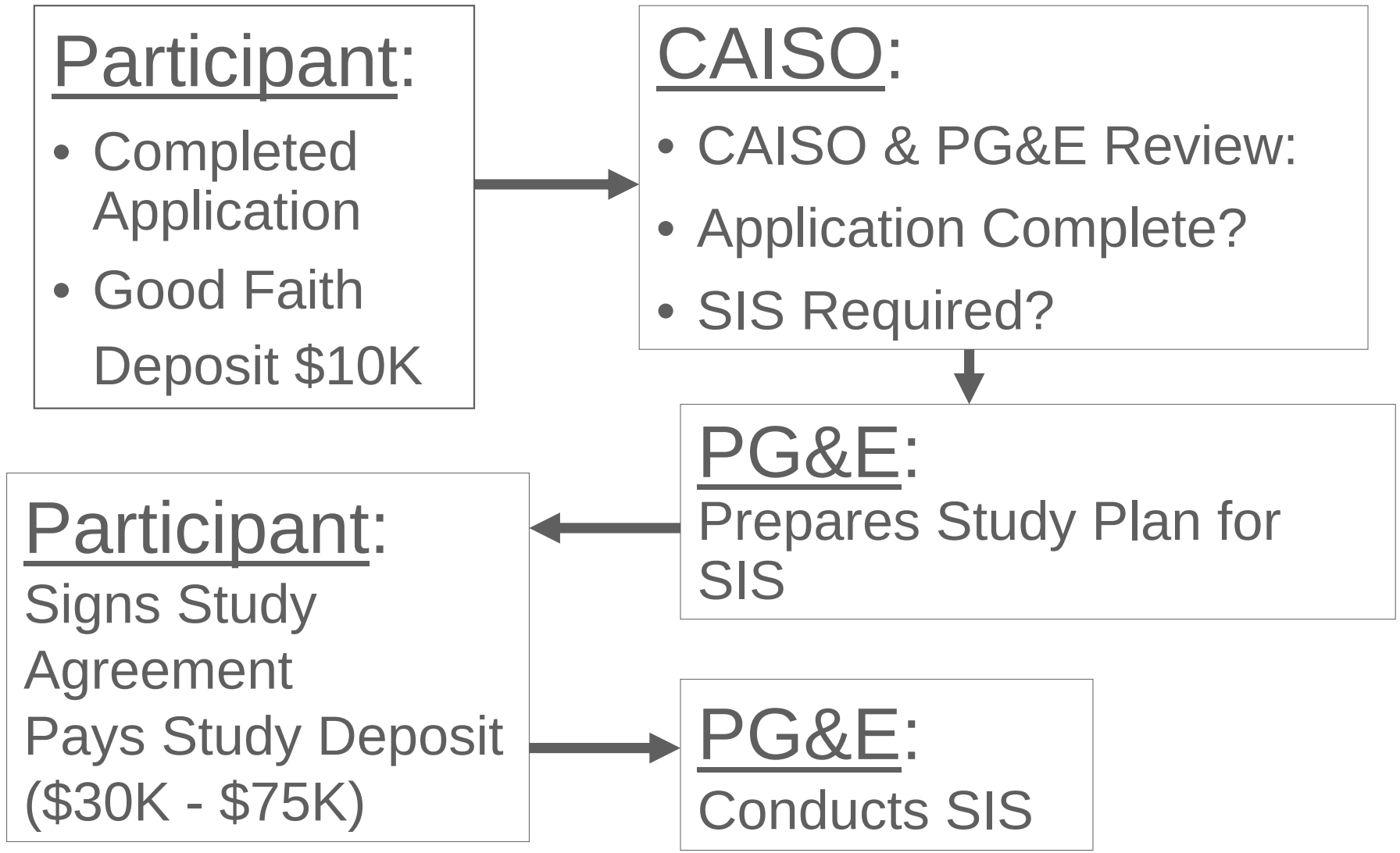
Electric Transmission and Interconnection Assessing Transmission Impacts

- ALL Facilities MUST meet requirements of:
  - North American Electric Reliability Council (NERC)
  - Western Electricity Coordinating Council (WECC)
  - PG&E Interconnection Handbook (PIH)
- Deliver Full Output of Generators from first point of Interconnection with CAISO Grid towards Load
- Insufficient Transmission Capacity results in need for Network Upgrades
- CAISO Amendment 39
  - Specific Network Upgrades >>> System Impact Study (SIS)
  - Specific Network Upgrade Costs >>> Facility Study (FS)

Electric Transmission and Interconnection Transmission Impact Costs

- Use cost estimates based on ONE of the following:
  - SIS/FS complete: use cost estimates from FS
  - SIS/FS started, but NOT completed: use any available preliminary results of the SIS/FS for cost estimates
  - No SIS/FS: use Transmission Proxy Costs (TPC)
- SIS/FS is a three step process:
  - Application: 4-5 weeks
  - SIS: 2-3 months
  - FS: 2-3 months

ISO Amendment 39 Process
Step 1- Application (4-5 weeks)



ISO Amendment 39 Process
Step 2- SIS (2-3 months)

Objective: Identify system impacts and network upgrades

PG&E conducts the SIS:

- Powerflow
- Short Circuit
- Dynamic Stability
- Mitigation Plan

Must meet:
NERC/WECC/PIH Requirements

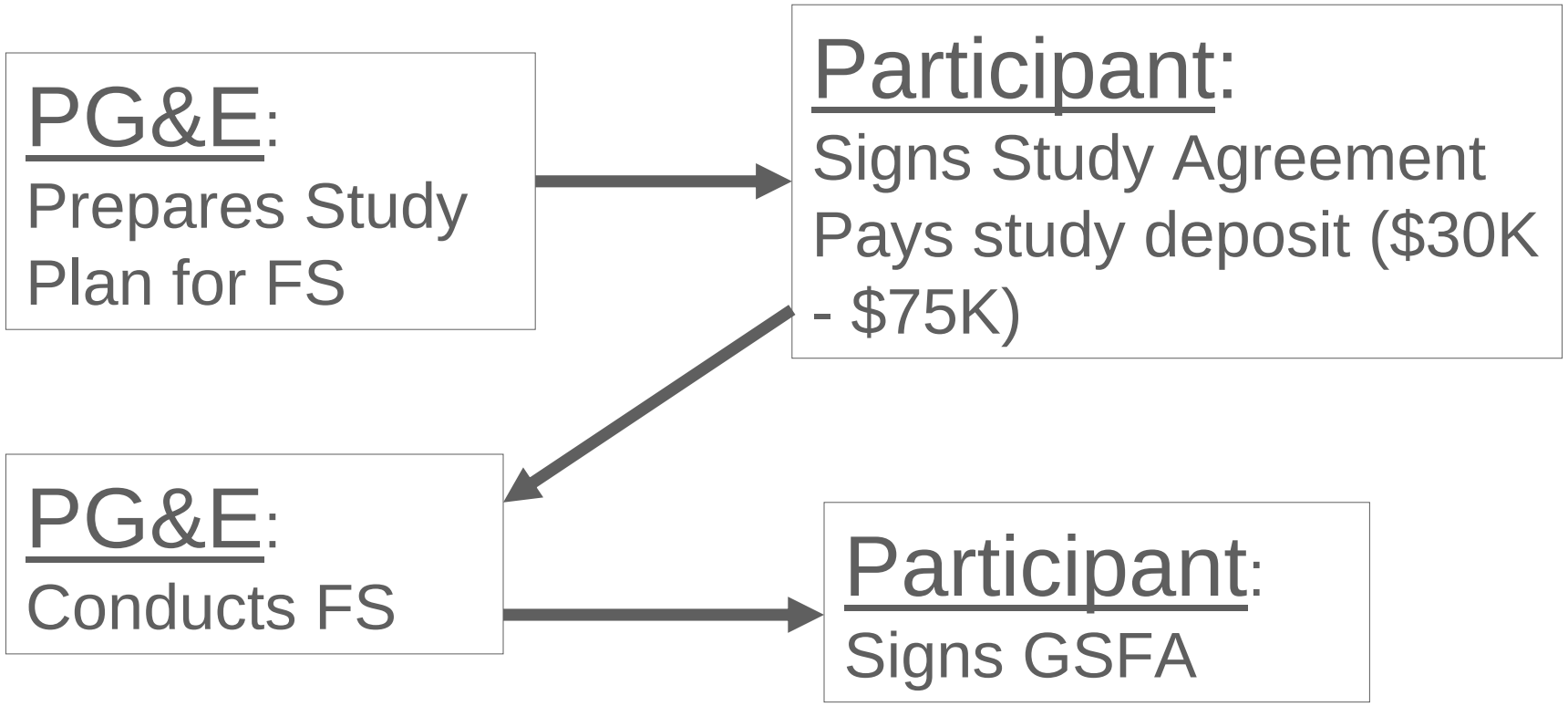
→ CAISO and Participant: Review and comment on draft SIS

← CAISO and Participant: Review and comment on draft SIS

→ PG&E finalizes Report

ISO Amendment 39 Process
Step 3 - FS (2-3 months)

Objective: Provide non-binding +/- 25% cost estimates for interconnection facilities installed by PG&E and network upgrades, if required



Electric Transmission and Interconnection Resources

- ISO Website has application form and complete description of the process.
  - http://www1.caiso.com/docs/2002/06/11/20020611103004272l4.html
- PG&E Wholesale Generator Website has contact information
  - http://www.pge.com/suppliers_purchasing/new_generator/wholesale_generators/

Electric Transmission and Interconnection Funding of Electric Transmission Facilities

- Interconnection Facilities (Direct Assignment Facilities)
  - Participant advances funds to PG&E for any Interconnection facilities to be constructed by PG&E
  - Advance includes ITCC (income tax contribution component)
    - Federal and State: presently 22% (increasing to 34% on 1/1/2005)
- Network Upgrades
  - Participant advances funds to PG&E for Network Upgrades
  - ITCC is not included in advance for Network Upgrades
  - After generating facility is operative, cost advance is refunded to Participant in accordance GSFA
    - Quarterly payments with interest (as established by FERC) over 5-year period

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Long-Term Power Procurement Request for Offers

Gas Interconnection

Participant Conference
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Gas Interconnection

- Information on gas service requested with bid submittal:
  - Physical connection
  - Gas load
  - Gas connection costs
- Submittal information found in Appendix I

Gas Interconnection
Data required (Appendix I)

- Physical Information on Gas System Connection:
  - Transmission Pipeline & Reinforcement
  - Transmission tap location
  - Service line
  - Meter set location
  - Delivery pressure
- Peak Gas Load
  - Annual gas load
  - Peak hourly use for seasonal profile
- Cost Allocations
  - Connection costs will be allocated under current Gas Tariffs
  - Typically, PG&E is responsible for reinforcing existing gas systems, and Participant is responsible for extending gas service.

Gas Interconnection
PG&E Gas Service

- Standard power plant connection process has 4 steps:
  - 1) Preliminary Request for Information Review (PRFI)
  - 2) Preliminary Application for Gas Service (PAGS)
  - 3) Formal Application for Gas Service
  - 4) Contracts, Construction, and Release to Service

- To expedite the process, we will skip the first step, and go directly to an expedited PAGS

Gas Interconnection
Preliminary Application for Gas Service (PAGS)

- System Impact Study
  - System capabilities
  - Size gas service pipeline
  - Expected pressure
- Preliminary Facilities Study
  - Tap location
  - Service pipeline alternatives & routes
  - Standard or Special Facilities Designs
  - Order-of-magnitude costs
- Time Requirements
  - Normally requires 12 weeks
  - Modified to meet expedited schedule - Target delivery of Nov. 24

Gas Interconnection
Expedited PAGS

- In engineering queue when all information complete and cash advance received:
  - Cogen/Power Plant Interconnection Information Sheet
  - Site map
  - Gas Usage (annual, and seasonal hourly peak)
  - Cash Advance $10,000 & Agreement to Perform Tariff Related Work
  - Cover letter requesting study
- Cover letter request:
  - Expedited study and response date of Nov. 24
  - By-pass the PRIR and proceed immediately with PAGS

Gas Interconnection Process and Timing

- Complete PAGS required no later than November 1, 2004
- PG&E will proceed with expedited response and deliver a preliminary report, with costs of +/- 50%
- Balance of cash advance will be returned for projects not on short list
- If a project is accepted by PG&E for placement on the RFO short list, the PAGS will be completed

Gas Interconnection PAGS Submittal

- Request for PAGS can be submitted prior to November 1
- To discuss details of the process, contact
  - Mike O'Brien
  - (415) 973-5652
  - mdo1@pge.com

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Long-Term Power Procurement
Request for Offers

Purchase and Sale Agreement (Facility Ownership)

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Facility Ownership
The Base Transaction

- In this RFO, PG&E is seeking to enter into a Purchase and Sale Agreement to acquire dispatchable generation.
- Seller will develop, permit, design, finance and construct a power plant on a turnkey basis.
- Seller will prepare plant for commercial operation, then sell to PG&E.
- Regulatory approval of transaction required before PG&E is obligated to purchase plant.
- We are looking for two forms of plant:
  - Peaking
  - Shaping

Facility Ownership
Facility Characteristics

- Peaking Generation
  - 25 MW or larger; 30 year design life
  - Minimum 4000 operating hours per year
  - AGC capable
  - 10 minute grid synchronization
  - Complete shutdown/restart cycle in less than one hour
  - Perform three start/stop cycles per day with no maintenance penalty
  - Minimum 15 minute run time per start

Facility Ownership
Facility Characteristics

- Shaping Generation
  - 25 MW or larger; 30 year design life
  - Frequent stops and starts:
    - 300 starts per year
      - 25 cold starts
  - Minimum run time 4 hours or less per start
  - Outstanding cycling capabilities:
    - Turndown to at least 55% of full load
    - AGC capable
    - High ramp rate
    - Comply with emission limits on all load cycling

Facility Ownership
Operational Requirements

- Key Functional Requirements:
  - Fully functioning and reliable plant
  - Meets modern plant design standards
  - Functional Specifications (Appendix J) generally describes types of plant PG&E is interested in owning.
  - Tier 1 vs. Tier 2

Facility Ownership
Key Terms And Conditions

- Fixed purchase price
  - Seller responsible for all change orders needed to meet specification
  - PG&E will only pay for expansion in project scope
- Date certain
- Seller guarantees (pre-sale):
  - Completion date (Commercial Availability Date)
  - Output
  - Reliability
  - Emissions
  - Heat Rate
  - Functional Specifications (Appendix J)

Facility Ownership
Key Terms And Conditions

- PG&E oversight and approval rights during construction
  - Full inspection and approval rights
    - Approve EPC contractor and contract
    - Establish hold points
    - Approve all change orders
    - Establish Performance Test criteria
- Seller to provide warranties after sale:
  - General Warranty – one year
  - Design Warranty – two years

Facility Ownership
Key Terms And Conditions (continued)

- Purchase price paid in two parts:
  - 95% paid at Closing
  - 5% deferred for one year
- Deferred portion paid on achieving extended guarantees after one year:
  - Reliability (Equivalent Availability Factor)
  - Output
  - Heat Rate
- Alternative pricing arrangements
- PG&E to have option to enter into LTSA

Facility Ownership Information Forms

- Offer Data Form (Appendix E)
- Generation Facility Information Form (Appendix F)

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Long-Term Power Procurement Request for Offers

Power Purchase Agreement

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Power Purchase
The Base Transaction

- In this RFO, PG&E is seeking to enter into one or more Power Purchase Agreements to contractually acquire dispatchable generation that can provide peaking or shaping power.

- Seller will be responsible for constructing commercially operable generating unit(s) and selling entire output to PG&E for term of contract.

- Regulatory approval of transaction is required before PG&E is obligated to purchase power.

Power Purchase Products/Eligibility

- Products
  - Peaking Capacity
  - Shaping Capacity
  - Whole units
    - Must meet current and future Resource Adequacy requirements
- Must deliver to NP15
- Minimum size of 25 MWs
  - Exception QFs down to 1 MW in size
- Contract Life of five years or greater
- Start date 2008 through 2010
  - January through May

Power Purchase
Key Terms and Conditions

- Conditions Precedent to Commencement of Service.
  - Seller must post collateral to secure obligations between effective date and start of services term.
    - Total collateral requirements = maximum sum of Liquidated Damages and Termination fees.
  - Seller must complete construction and demonstrate operation.

Power Purchase
Key Terms and Conditions

- Electric Transmission Service
  - Seller is responsible for generation interconnection costs and system network upgrade costs.
- Natural Gas Interconnection (if applicable)
  - Seller is responsible for all interconnection costs needed to provide sufficient natural gas to plant.

Power Purchase
Key Terms and Conditions

- PG&E will be Scheduling Coordinator (SC)
  - Buyer will have day-ahead, hour-ahead, and real-time scheduling rights.
    - Subject to operational constraints
- Fuel Supply
  - For gas-fired units, PG&E will provide gas
    - PG&E responsible for procuring commodity and delivering it to plant.

Power Purchase
Key Terms and Conditions

- Compensation Structure
  - Capacity
    - $/kW-year
    - Allocated across month with allocation table (Term Sheet Attachment 1)
    - Defined yearly
  - Fixed O&M
    - Structured as Capacity Payments
    - Defined yearly
  - Variable
    - O&M and Energy (if applicable)
      - $/MWh structure
      - Defined yearly
  - Payment for startup costs

Power Purchase
Key Terms and Conditions

- Maintenance Scheduling
  - Seller required to notify and coordinate with PG&E
  - No maintenance outages allowed during summer (June through Sept) and December and January on-peak without prior consent of PG&E
- Heat Rate (if applicable)
  - Heat rate Testing
    - Minimum of annual test
  - Heat Rate Guarantee
    - Full load and partial load
    - Payment to PG&E if heat rate is greater than guarantee
    - Bonus to Seller if heat rate is lower than guarantee

Power Purchase
Key Terms and Conditions

- Availability
  - Calculated as equivalent availability on a monthly basis after approved maintenance outages
    - Summer months (June-Sept.) at 98%
      - 2% reduction in capacity and fixed O&M payments for each 1% below 98% when monthly availability falls below 97% for summer
    - Non-summer months at 94%
      - 2% reduction in capacity and fixed O&M payments for each 1% below 94% when monthly availability falls below 93% for non-summer
  - No Payment of Capacity and Fixed O&M will result if availability
    - is below 70% in any Summer month
    - is below 60% in any non Summer month
  - Bonus
    - Available during summer months
      - 102% of capacity payment with availability of 99% or greater

Power Purchase Offer Data Forms

- Seller to provide information on:
  - Compensation
    - Capacity ($/kw-year)
    - Fixed O&M ($/kw-year)
    - Variable O&M ($/MWh)
    - Variable Energy ($/MWh) (if applicable)
  - Heat Rate
    - At 100%, 90%, 75%, 50%, and 25% if applicable
      - At ISO and peak summer conditions
  - Capacity by Month and Year
  - Ancillary Service Amounts by Year
  - Operating flexibility
    - Start-up time, shutdown time, ramp rate, etc.

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Evaluation of Offers

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Evaluation of Offers
Evaluation Criteria

- Market Valuation
- Portfolio Fit
- Credit
- Reliability / Technology
- Transmission Impact
- Debt Equivalence
- Air Emissions
- Participant Qualifications

Evaluation of Offers
Market Valuation

- Focus is not an Offer's cost, but cost compared to value.
- Value of energy, capacity, and ancillary services.
- Value is determined using an option model.
- Risk is a consideration: realized value is represented probabilistically.
- PG&E positions don't matter.

Evaluation of Offers
Portfolio Fit

- PG&E positions do matter.
- Compare an Offer's features to PG&E portfolio needs.
- Value is adjusted for PG&E positions.
- Considers interactions between operating flexibility, PG&E positions, and cost.

Evaluation of Offers
Credit

- To be discussed later.

Evaluation of Offers
Reliability / Technology

- Will the Offer be available to provide capacity, energy, and/or ancillary services when called upon?
- A probability.

Evaluation of Offers
Transmission Impact

- Effects on electric transmission system
  - Network upgrade costs
  - Congestion risk
  - RMR costs

Evaluation of Offers
Debt Equivalence

- PPA only
- Will be consistent with forthcoming CPUC decision on Long-term Plan

Evaluation of Offers
Air Emissions

- CO_2
- NO_X
- SO_2
- Particulates

- Potential costs to PG&E
- Potential costs to society

Evaluation of Offers
Participant Qualifications

- Experience
- Technical expertise

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Credit and Financing

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Credit and Financing
Features Which are the Same for Both RFOs

- **Offer Deposit**
  (Section VI of RFO)
  - $5/kW with Initial Offer – December 04
  - Additional $5/kW upon Submittal for Regulatory Approval – April 05
  - Cash or Letter of Credit

- **Financing and Credit Up to Initial Delivery Date**
  (Section XII of RFO)
  - Participants to fund network upgrades, subject to refund of costs over 5 years
  - Developer/Seller must demonstrate capability to perform all of its financial and other obligations

Credit and Financing
PPA Specific Credit Items – Appendix D

- **Credit Prior to Delivery**
  - Upon Regulatory approval of agreements, offer deposit returned.
  - Seller then posts collateral of approximately $61/kW to cover delay damages and potential termination fees

- **Credit During Delivery Term**
  - Seller only - Independent Amount - $30/kW for peaking technology and $60/kW for shaping technology
  - Buyer or Seller - Mark-to-market (2 to 5 years) – time horizon selected to match the estimated time it takes to physically replace the technology.
  - Seller would *not* post collateral if the sum of the collateral threshold and seller posted collateral is greater than the *sum* of the Independent Amount and MtM and accrual exposures.