

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298



October 15, 2010

**Advice Letter 3544-E**

Jane K. Yura  
Vice President, Regulation and Rates  
Pacific Gas and Electric Company  
77 Beale Street, Mail Code B10B  
P.O. Box 770000  
San Francisco, CA 94177

**Subject: PG&E Power Purchase Agreement with Geysers Power Company, LLC**

Dear Ms. Yura:

Advice Letter 3544-E is effective May 6, 2010 per Resolution E-4326.

Sincerely,

A handwritten signature in blue ink that reads "Julie A. Fitch".

Julie A. Fitch, Director  
Energy Division



**Pacific Gas and  
Electric Company™**

**Brian K. Cherry**  
Vice President  
Regulatory Relations

Pacific Gas and Electric Company  
77 Beale St., Mail Code: B10C  
P.O. Box 770000  
San Francisco, CA 94177

Fax: 415.973-7226

October 30, 2009

**Advice 3544-E  
(Pacific Gas and Electric Company ID U 39 E)**

Public Utilities Commission of the State of California

**Subject: PG&E Power Purchase Agreement with Geysers Power Company, LLC**

**I. INTRODUCTION**

Pacific Gas and Electric Company (“PG&E”) seeks with this advice letter California Public Utilities Commission (“Commission” or “CPUC”) approval of a power purchase agreement (“PPA”) that PG&E has executed with Geysers Power Company, LLC (“Geysers”), a Calpine Corporation (“Calpine”) subsidiary that holds Calpine’s geothermal system assets.

The Commission’s approval of the PPA will authorize PG&E to purchase incremental Renewables Portfolio Standard (“RPS”) eligible energy from Geysers’ 725 megawatt (“MW”) geothermal generation system located in Sonoma and Lakes Counties, California (“Geysers System”). In addition, approval of the PPA will allow PG&E to extend deliveries received under two existing PPAs with the Geysers that would otherwise expire on December 31, 2012 and on December 31, 2014, respectively.

The PPA is a result of bilateral negotiations between PG&E and Geysers. Consistent with the protocol used for review of RPS contracts resulting from the 2008 RPS Solicitation and contracts resulting from bilateral negotiations, PG&E has included confidential Appendices A through H, which demonstrate the reasonableness of the PPA.

PG&E requests that the Commission issue a resolution no later than **May 20, 2010** approving the PPA and payments to be made by PG&E under the PPA and containing the

findings required by the definition of CPUC Approval adopted in Decision (“D.”) 07-11-025 and D.08-04-009.<sup>1</sup>

## II. DETAILED DESCRIPTION OF THE PROJECT

PG&E currently has two PPAs with the Geysers. The first PPA, executed in October 2006 (“PPA1”) is for 200 MW baseload deliveries for a 6 year term starting January 1, 2007 and ending December 31, 2012. PPA1 was approved by the Commission on December 14, 2006 in Resolution E-4046. PG&E entered into the second PPA with Geysers in February 2008 (“PPA2”). PPA2 was for 175 MW baseload with deliveries commencing in February 2008 and expiring December 31, 2014. PPA2 was approved by the Commission on April 24, 2008 in Resolution E-4164.

The contract quantity of the new PPA varies over the term of the agreement. Initially, when the new PPA is approved by the Commission and becomes effective, PG&E will receive 50 MWs of incremental deliveries from the Geysers Facility. In addition, when the new PPA becomes effective, PPA1 will terminate. The 200 MWs associated with PPA1 will become part of the new PPA. PPA2 for 175 MWs will remain in place and expire on its own terms on December 31, 2014.

Thus, the contract quantity for the new PPA is a total of 250 MWs between January 1, 2010 and December 31, 2012, which includes the 200 MWs that would have been delivered under PPA1 through 2012 and 50 MWs of new, incremental deliveries. From January 1, 2013 to December 31, 2014, the entire 250 MW contract quantity is incremental.

Starting on January 1, 2015, the new PPA contract quantity will increase from 250 MWs to 425 MWs, which represents the 250 MWs already being provided under the new PPA plus an additional 175 MWs which extends deliveries from PPA2 which has expired. Under the new PPA, the 425 MW contract quantity will remain in effect through December 31, 2017.

Finally, on January 1, 2018, the new PPA contract quantity will be reduced from 425 MWs to 250 MWs. The new PPA contract quantity of 250 MWs will continue through December 31, 2021, at which time the new PPA will expire. Deliveries from the two existing PPAs and the new PPA subject for this advice letter are summarized in the table below:

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<sup>1</sup> As provided by D.07-11-025 and D.08-04-009, the Commission must approve the PPA and payments to be made thereunder, and find that the procurement will count toward PG&E’s RPS procurement obligations.

| Year        | Incremental deliveries <sup>1)</sup> | Existing PPAs deliveries <sup>1)</sup> |            | Total annual deliveries <sup>1)</sup> |
|-------------|--------------------------------------|--|------------|---------------------------------------|
|             | New PPA (GWh)                        | PPA1 (GWh)                             | PPA2 (GWh) | (GWh)                                 |
| 2010 - 2012 | 416                                  | 1,664 <sup>2)</sup>                    | 1,456      | 3,537                                 |
| 2013 - 2014 | 2,080                                |  | 1,456      | 3,537                                 |
| 2015 - 2017 | 3,537                                |  |            | 3,537                                 |
| 2018 - 2021 | 2,080                                |  |            | 2,080                                 |

- 1) All deliveries assume a 95% capacity factor.
- 2) With the approval of the new PPA, the existing PPA1 will terminate, but the 1,664 GWh annual deliveries will continue under the terms and conditions of the new PPA, thereby securing these deliveries for an additional 9 years.

The following table summarizes the substantive features of the PPA:

|  |   |
|--|---|
| Owner / Developer  | Geysers Power Company, LLC  |
| Technology   | Geothermal  |
| Capacity (MW)  | Up to 425 MW  |
| Capacity Factor  | 95%   |
| Expected Generation (MWh/Year)   | Between 2,080,000 MWh and 3,537,000 MWh                             |
| Online Date (if existing, the contract delivery start date)            | Deliveries under the new PPA will commence upon Commission approval |
| Contract Term  | 12 Years  |
| New or Existing Facility   | Existing  |
| Location (include in/out-of-state) and Control Area (e.g., CAISO, BPA) | In-state, within the CAISO control area, in the NP 15 zone          |
| Price relative to MPR (i.e. above/below)                               | Price is above the 2008 MPR for a 15-year contract starting in 2010 |

### III. CONSISTENCY WITH CPUC DECISIONS

#### A. Consistency with PG&E's Adopted RPS Plan and Solicitation

PG&E's 2008 Renewable Procurement Plan ("2008 Plan") was conditionally approved in D.08-02-008 on February 14, 2008. As required by statute, the 2008 Plan included an assessment of supply and demand to determine the optimal mix of renewable generation resources, consideration of compliance flexibility mechanisms established by the Commission, and a bid solicitation setting forth the need for renewable generation of various operational characteristics.<sup>2</sup> The goal of PG&E's 2008 Plan was to procure approximately one to two percent of PG&E's retail sales volume, or between 800 GWh and 1,600 GWh per year. Projects capable of providing actual deliveries with only a short or no delay are especially valuable to PG&E. The PPA is consistent with PG&E's approved 2008 Plan because it was evaluated consistent with the review protocol in the 2008 RPS Solicitation and it will add to PG&E's deliveries of eligible renewable power from an existing facility.

#### B. Consistency with PG&E's Long Term Procurement Plan

PG&E's 2006 long-term procurement plan ("LTPP") stated that PG&E would aggressively pursue procurement of RPS-eligible renewable resources. In approving PG&E's 2006 LTPP, the Commission noted that development of renewable energy is "of great importance to the Governor, the State of California, and the Commission."<sup>3</sup>

The PPA is consistent with PG&E's 2006 LTPP and with Commission policy regarding renewable energy expressed in the decision approving PG&E's 2006 LTPP.

#### C. Consistency with Commission Guidelines for Bilateral Contracting

The Commission has developed guidelines pursuant to which the utilities may enter into bilateral RPS contracts. In D.03-06-071, the Commission authorized entry into bilateral RPS contracts provided that such contracts did not require Public Goods Charge funds and were "prudent."<sup>4</sup> Later, in D.06-10-019, the Commission again held that bilateral contracts were permissible provided that they were at least one month in duration, and also found that such contracts must be reasonable and submitted for Commission

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<sup>2</sup> Pub. Util. Code § 399.14(a)(3).

<sup>3</sup> D.07-12-052 at 73.

<sup>4</sup> D.03-06-071 at 57-58.

approval by advice letter.<sup>5</sup> Also in that decision, the Commission stated that bilateral contracts were not eligible for supplemental energy payments.<sup>6</sup>

Based on D.03-06-071 and D.06-10-019, the Commission set forth the following four requirements for approval of bilateral contracts in a recent Resolution approving a bilateral RPS contract executed by PG&E: (1) the contract is submitted for approval by advice letter; (2) the contract is longer than one month in duration; (3) the contract does not receive above market funds (“AMFs”); and (4) the contract is deemed reasonable by the Commission.<sup>7</sup> The Commission noted that it would be developing evaluation criteria for bilateral contracts, but that the above four requirements would apply in the interim.<sup>8</sup>

On June 19, 2009, the Commission issued D.09-06-050 establishing price benchmarks and contract review processes for short-term and bilateral RPS contracts. Decision 09-06-050 provides that bilateral contracts should be reviewed using the same standards as contracts resulting from RPS solicitations.

The PPA satisfies the four requirements listed above from D.03-06-071 and D.06-10-019, and the requirements of D.09-06-050. The PPA is being submitted for approval via this Advice Letter and is not eligible for AMFs because it resulted from bilateral negotiations. The PPA duration is 12 years. Finally, the PPA is reasonable when considered against the standards used for evaluating contracts resulting from PG&E’s 2008 RPS Solicitation, both with respect to price and other terms, as PG&E explains in this Advice Letter and in the attached Confidential Appendices. The Commission should therefore approve the PPA.

#### **D. Consistency of Bid Evaluation Process with Least-Cost Best Fit Decision**

The RPS statute requires PG&E to procure the “least cost, best fit” (“LCBF”) eligible renewable resources.<sup>9</sup> The LCBF decision directs the utilities to use certain criteria in their bid ranking.<sup>10</sup> It offers guidance regarding the process by which the utility ranks bids in order to select or “shortlist” the bids with which it will commence negotiations. The renewables bid evaluation process focuses on four primary areas:

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<sup>5</sup> D.06-10-019 at 29.

<sup>6</sup> *Id.* at 31.

<sup>7</sup> Resolution E-4216 at 5.

<sup>8</sup> *Id.*

<sup>9</sup> Pub. Util. Code § 399.14(a)(2)(B).

<sup>10</sup> D.04-07-029.

1. Determination of market value of bid,
2. Calculation of transmission adders and integration costs,
3. Evaluation of portfolio fit, and
4. Consideration of non-price factors.

PG&E evaluated the PPA in the same manner that PG&E evaluated bids received in the 2008 RPS Solicitation. The reasonableness of the PPA was examined considering many factors, including the applicable LCBF factors and market value comparisons with other RPS transactions currently being offered to PG&E. The general finding is that this opportunity is competitive with other offers received in the 2008 RPS Solicitation and with other opportunities recently executed or under negotiation. A more detailed discussion of PG&E's evaluation of the PPA is provided in Confidential Appendix D.

### **1. Market Valuation**

In a "mark-to-market" analysis, the present value of the bidder's payment stream is compared with the present value of the product's market value to determine the benefit (positive or negative) from the procurement of the resource, irrespective of PG&E's portfolio. This analysis includes evaluation of the bid price and indirect costs, such as transmission and integration costs. PG&E's analysis of the market value of the PPA is addressed in Confidential Appendix D.

### **2. Portfolio Fit**

Portfolio fit considers how well an offer's features matches PG&E's portfolio needs. This analysis includes the anticipated transaction costs involved in any energy remarketing (i.e., the bid-ask spread) if the contract adds to PG&E's net long position. Because the deliveries under the PPA are anticipated to occur at a time when PG&E is experiencing a medium to high need for baseload energy, the acceptance of these baseload deliveries should not result in significant remarketing costs. Since most of the energy delivered under this PPA is already part of PG&E's portfolio, renewal of existing baseload deliveries, it fits the portfolio in a satisfactory manner.

### **3. Consistency with the Transmission Ranking Cost Decision**

Under the RPS program, the potential customer cost to accept energy deliveries from a particular project must be considered when determining a project's value. Under the PPA, Geysers proposes to deliver generation from existing facilities already connected to the transmission system with no anticipated need for transmission upgrades. Hence, no additional costs to accept deliveries were included in the evaluation of the PPA's net benefits.

#### **4. Consistent Application of TODs**

Time of Delivery (“TOD”) factors are applied to a non-time differentiated purchase price in order to weight payments according to the value of electricity delivered during various periods. The project is expected to deliver like a baseload resource and therefore should have deliveries in all periods. Consequently, the TOD factors have significantly less impact on total payments compared to other projects that operate at lower capacity factors and have deliveries in primarily the high TOD periods. TOD factors are further discussed in confidential Appendix D.

#### **5. Qualitative Factors**

PG&E considered qualitative factors as required by D.04-07-029 and D.07-02-011 when evaluating the PPA, including benefits associated with local reliability and resource diversity.

#### **E. PRG Participation and Feedback**

PG&E informed its PRG of the proposed transaction on August 14, 2009.

The PRG for PG&E consists of: California Department of Water Resources, the Commission’s Energy Division and Division of Ratepayer Advocates, Union of Concerned Scientists, the Utility Reform Network, the Coalition of California Utility Employees, and Jan Reid, Coast Economic Consulting.

#### **F. RPS Goals**

Senate Bill (SB) 1078 established the California RPS Program, requiring an electrical corporation to increase its use of eligible renewable energy resources to 20 percent of total retail sales no later than December 31, 2017. The legislature subsequently accelerated the RPS goal to reach 20 percent by the end of 2010. In addition, California is actively considering increasing its renewable goals beyond the current 20 percent renewable energy target. The California Air Resource Board’s Scoping Plan, adopted in December 2008, identifies an increase in the renewables target to 33 percent by 2020 as a key measure for reducing greenhouse gas emissions and meeting California’s climate change goals. More recently, the Governor signed Executive Order No. S-21-09, which orders the California Air Resources Board, pursuant to its authority under the 2006 Global Warming Solutions Act (AB 32), to adopt a regulation by July 31, 2010 that requires all California load-serving entities, including PG&E, to deliver at least 33 percent renewable energy by 2020 at the latest. As discussed above, the PPA contributes to these RPS goals in the years beyond 2010.

### **G. Consistency with Standard Terms and Conditions**

The Commission set forth standard terms and conditions to be incorporated into contracts for the purchase of electricity from eligible renewable energy resources in D.04-06-014, D.07-02-011 as modified by D.07-05-057, and D.07-11-025. These terms and conditions were compiled and published by D.08-04-009. Additionally, the non-modifiable term related to Green Attributes was finalized in D.08-08-028. The non-modifiable terms in the PPA conform to the non-modifiable terms set forth in Attachment A of D.07-11-025 and Appendix A of D.08-04-009, as modified by D.08-08-028.

Modifications have been made to terms in the PPA designated as modifiable in D.07-11-025 and D.08-04-009 based upon mutual agreement reached during negotiations. A comparison of the modifiable terms in the PPA against the modifiable terms in PG&E's 2008 RPS Baseload PPA form in the Solicitation Protocol issued on March 12, 2008 is provided in Confidential Appendix H.

Each provision in the PPA is essential to the negotiated agreement between the parties, and the Commission should therefore not modify any of the provisions. The Commission should consider the PPA as a whole, in terms of its ultimate effect on utility customers. PG&E submits that the PPA protects the interests of its customers while achieving PG&E's and the Commission's goal of increasing procurement from eligible renewable resources.

### **H. Consistency with Minimum Quantity**

In D.07-05-028, the Commission determined that in order to count energy deliveries from short-term contracts with existing facilities toward RPS goals, RPS-obligated load-serving entities must contract for deliveries equal to at least 0.25 percent of their prior year's retail sales through long-term contracts or through short-term contracts with new facilities.

The PPA is a long-term contract with an existing facility and thus counts toward PG&E's contracting obligation for 2009 under D.07-05-028.

### **I. Compliance with the Interim Emissions Performance Standard**

In D.07-01-039, the Commission adopted an Emissions Performance Standard ("EPS") that applies to new and renewal contracts for a term of five or more years for baseload generation with an annualized plant capacity factor of at least 60 percent. D.07-01-039 determined that certain renewable resources and technologies are pre-approved as EPS-compliant. This includes geothermal facilities, like Geysers:

“Based on the record in this proceeding, it is reasonable to make an upfront determination that the following renewable resources and technologies are EPS-compliant:

- (a) Solar Thermal Electric (with up to 25% gas heat input)
- (b) Wind
- (c) Geothermal, with or without reinjection
- (d) Generating facilities (e.g., agricultural and wood waste, landfill gas) using biomass that would otherwise be disposed of utilizing open burning, forest accumulation, landfill (uncontrolled, gas collection with flare, gas collection with engine), spreading or composting.”<sup>11</sup>

**J. MPR and AMFs**

The actual price under the PPA is confidential, market-sensitive information. The price under the PPA exceeds the 15-year MPR for a project with a 2010 commercial online date adopted in Resolution E-4214, December 18, 2008. Since the PPA is a bilateral contract it is not eligible for AMF.

**IV. PROJECT DEVELOPMENT STATUS**

The Geysers facility is an existing geothermal generation system and no project development is expected.

**A. Site Control**

The Geysers facility is an existing and operating facility with no site control issues.

**B. Resource and/or Availability of Fuel**

Information provided in Confidential Appendix D.

**C. Transmission**

The Project is operational and no additional transmission issues are expected.

**D. Technology Type and Level of Technology Maturity**

Geysers uses a well know and proven geothermal technology and Calpine has owned and operated the Geysers since 1999. This is a mature technology.

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<sup>11</sup> D.07-01-039 at 18 and Conclusions of Law 35(c).

**E. Permitting**

The Project is fully permitted.

**F. Production Tax Credit/Investment Tax Credit**

The terms of the PPA do not address whether the Project is eligible for tax credits.

**V. CONTINGENCIES AND MILESTONES**

Performance criteria are described in Confidential Appendix D.

**VI. REGULATORY PROCESS****A. Requested Effective Date**

PG&E requests that the Commission issue a resolution approving this advice filing no later than **May 20, 2010**.

**B. Earmarking**

PG&E reserves the right to earmark future, incremental deliveries from Geysers for purposes of RPS compliance.

**C. RPS-Eligibility Certification**

The PPA includes the non-modifiable representation and warranty that during the delivery period, the Project will constitute an eligible renewable energy resource certified by the California Energy Commission (“CEC”).

**D. Request for Confidential Treatment**

In support of this Advice Letter, PG&E has provided the following confidential attachments, including the PPA and other information that more specifically describes the rights and obligations of the parties. This information is being submitted in the manner directed by D.08-04-023 and the August 22, 2006 Administrative Law Judge’s Ruling Clarifying Interim Procedures for Complying with D.06-06-066 to demonstrate the confidentiality of the material and to invoke the protection of confidential utility information provided under either the terms of the IOU Matrix, Appendix 1 of D.06-06-066 and Appendix C of D.08-04-023, or General Order 66-C. A separate Declaration Seeking Confidential Treatment is being filed concurrently with this Advice Letter.

**Confidential Attachments:****Appendix A – Overview of 2004 – 2008 Solicitation Bids****Appendix B – 2008 Bid Evaluations****Appendix C – Independent Evaluator Report (Confidential)****Appendix D – Contract Terms and Conditions Explained****Appendix F – Project’s Contribution Toward RPS Goals****Appendix G – Power Purchase Agreement****Appendix H – Standard Terms and Conditions Comparison – Modifiables****Public Attachment:****Appendix I – Independent Evaluator Report (Public)****VII. REQUEST FOR COMMISSION APPROVAL**

PG&E requests that the Commission issue a resolution no later than **May 20, 2010**, that:

1. Approves the PPA in its entirety, including payments to be made by PG&E pursuant to the PPA, subject to the Commission’s review of PG&E’s administration of the PPA.
2. Finds that any procurement pursuant to the PPA is procurement from an eligible renewable energy resource for purposes of determining PG&E’s compliance with any obligation that it may have to procure eligible renewable energy resources pursuant to the California Renewables Portfolio Standard (Public Utilities Code Section 399.11 et seq.) (“RPS”), Decision (“D.”) 03-06-071 and D.06-10-050, or other applicable law.
3. Finds that all procurement and administrative costs, as provided by Public Utilities Code section 399.14(g), associated with the PPA shall be recovered in rates.
4. Adopts the following finding of fact and conclusion of law in support of CPUC Approval:

- a. The PPA is consistent with PG&E's 2008 RPS procurement plan.
  - b. The terms of the PPA, including the price of delivered energy, are reasonable.
5. Adopts the following finding of fact and conclusion of law in support of cost recovery for the PPA:
- a. The utility's costs under the PPA shall be recovered through PG&E's Energy Resource Recovery Account.
  - b. Any stranded costs that may arise from the PPA are subject to the provisions of D.04-12-048 that authorize recovery of stranded renewables procurement costs over the life of the contract. The implementation of the D.04-12-048 stranded cost recovery mechanism is addressed in D.08-09-012.
6. Adopts the following findings with respect to resource compliance with the Emissions Performance Standard ("EPS") adopted in R.06-04-009:
- a. The PPA is pre-approved as meeting the EPS because it is for an existing geothermal facility covered by Conclusion of Law 35(c) of D.07-01-039.

**Protests:**

Anyone wishing to protest this filing may do so by sending a letter by **November 19, 2009**, which is **20** days from the date of this filing. The protest must state the grounds upon which it is based, including such items as financial and service impact, and should be submitted expeditiously. Protests should be mailed to:

CPUC Energy Division  
Attention: Tariff Unit, 4<sup>th</sup> Floor  
505 Van Ness Avenue  
San Francisco, California 94102

Facsimile: (415) 703-2200  
E-mail: [mas@cpuc.ca.gov](mailto:mas@cpuc.ca.gov) and [jjn@cpuc.ca.gov](mailto:jjn@cpuc.ca.gov)

Copies should also be mailed to the attention of the Director, Energy Division, Room 4005 and Honesto Gatchalian, Energy Division, at the address shown above.

The protest also should be sent via U.S. mail (and by facsimile and electronically, if possible) to PG&E at the address shown below on the same date it is mailed or delivered to the Commission.

Pacific Gas and Electric Company  
Attention: Brian Cherry  
Vice President, Regulatory Relations  
77 Beale Street, Mail Code B10C  
P.O. Box 770000  
San Francisco, California 94177

Facsimile: (415) 973-7226  
E-Mail: PGETariffs@pge.com

**Effective Date:**

PG&E requests that the Commission issue a resolution approving this advice filing no later than **May 20, 2010**.

**Notice:**

In accordance with General Order 96-B, Section IV, a copy of this Advice Letter excluding the confidential appendices is being sent electronically and via U.S. mail to parties shown on the attached list and the service lists for R.06-02-012, R.08-02-007 and R.08-08-009. Non-market participants who are members of PG&E's Procurement Review Group and have signed appropriate Non-Disclosure Certificates will also receive the Advice Letter and accompanying confidential attachments by overnight mail. Address changes should be directed to PGETariffs@pge.com. Advice letter filings can also be accessed electronically at <http://www.pge.com/tariffs>.

*Brian K. Cherry (sc)*

Brian K. Cherry  
Vice President - Regulatory Relations

cc: Service List for R.08-08-009  
Service List for R.08-02-007  
Service List for R.06-02-012  
Paul Douglas - Energy Division  
Sean Simon - Energy Division

Attachments

**Limited Access to Confidential Material:**

The portions of this Advice Letter marked Confidential Protected Material are submitted under the confidentiality protection of Section 583 of the Public Utilities Code and General Order 66-C. This material is protected from public disclosure because it consists of, among other items, the contract itself, price information, and analysis of the proposed RPS contract, which are protected pursuant to D.06-06-066 and D.08-04-023. A separate Declaration Seeking Confidential Treatment regarding the confidential information is filed concurrently herewith.

**Confidential Attachments:**

**Appendix A – Overview of 2004 – 2008 Solicitation Bids**

**Appendix B – 2008 Bid Evaluations**

**Appendix C – Independent Evaluator Report (Confidential)**

**Appendix D – Contract Terms and Conditions Explained**

**Appendix F – Project’s Contribution Toward RPS Goals**

**Appendix G – Power Purchase Agreement**

**Appendix H – Standard Terms and Conditions Comparison – Modifiables**

**Public Attachment**

**Appendix I – Independent Evaluator Report (Public)**

# CALIFORNIA PUBLIC UTILITIES COMMISSION

## ADVICE LETTER FILING SUMMARY ENERGY UTILITY

MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No. **Pacific Gas and Electric Company (ID U39 M)**

Utility type:

ELC       GAS  
 PLC       HEAT     WATER

Contact Person: David Poster and Sally Cuaresma

Phone #: (415) 973-1082; (415) 973-5012

E-mail: DXPU@pge.com; A2C7@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric      GAS = Gas      
 PLC = Pipeline      HEAT = Heat    WATER = Water

(Date Filed/ Received Stamp by CPUC)

Advice Letter (AL) #: **3544-E**

Tier: **[3]**

Subject of AL: **PG&E Power Purchase Agreement with Geysers Power Company, LLC**

Keywords (choose from CPUC listing): Contracts; Agreements

AL filing type:  Monthly  Quarterly  Annual  One-Time  Other \_\_\_\_\_

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #: Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL:

Is AL requesting confidential treatment? If so, what information is the utility seeking confidential treatment for: Yes. See the attached matrix that identifies all of the confidential information.

Confidential information will be made available to those who have executed a nondisclosure agreement: All members of PG&E's Procurement Review Group who have signed nondisclosure agreement will receive the confidential information.

Name(s) and contact information of the person(s) who will provide the nondisclosure agreement and access to the confidential information: Gary Jeung, (415) 973-5481

Resolution Required?  Yes     No

Requested effective date: **May 20, 2010**

No. of tariff sheets: N/A

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected:

Service affected and changes proposed:

Protests, dispositions, and all other correspondence regarding this AL are due no later than 20 days after the date of this filing, unless otherwise authorized by the Commission, and shall be sent to:

**CPUC, Energy Division**  
**Tariff Files, Room 4005**  
**DMS Branch**  
**505 Van Ness Ave., San Francisco, CA 94102**  
**jn@cpuc.ca.gov and mas@cpuc.ca.gov**

**Pacific Gas and Electric Company**  
**Attn: Brian K. Cherry, Vice President, Regulatory Relations**  
**77 Beale Street, Mail Code B10C**  
**P.O. Box 770000**  
**San Francisco, CA 94177**  
**E-mail: PGETariffs@pge.com**

**DECLARATION OF GARRETT P. JEUNG  
SEEKING CONFIDENTIAL TREATMENT  
FOR CERTAIN DATA AND INFORMATION  
CONTAINED IN ADVICE LETTER 3544-E  
(PACIFIC GAS AND ELECTRIC COMPANY - U 39 E)**

I, Garrett P. Jeung, declare:

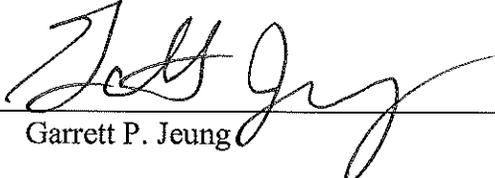
1. I am presently employed by Pacific Gas and Electric Company ("PG&E"), and have been an employee at PG&E since 2003. My current title is Senior Director within PG&E's Energy Procurement organization. In this position, my responsibilities include managing a department that negotiates power purchase agreements and manages electric portfolio risk. In carrying out these responsibilities, I have acquired knowledge of PG&E's contracts with numerous counterparties and have also gained knowledge of the operations of electricity sellers in general. Through this experience, I have become familiar with the type of information that would affect the negotiating positions of electricity sellers with respect to price and other terms, as well as with the type of information that such sellers consider confidential and proprietary.

2. Based on my knowledge and experience, and in accordance with Decision ("D.") 08-04-023 and the August 22, 2006 "Administrative Law Judge's Ruling Clarifying Interim Procedures for Complying with Decision 06-06-066," I make this declaration seeking confidential treatment of Appendices A, B, C, D, F, G, H, and I to Advice Letter 3544-E, submitted on October 28, 2009. By this Advice Letter, PG&E is seeking this Commission's approval of a geothermal energy purchase agreement that PG&E has executed with Geysers Power Company, LLC ("Geysers").

3. Attached to this declaration is a matrix identifying the data and information for which PG&E is seeking confidential treatment. The matrix specifies that the material PG&E is seeking to protect constitutes the particular type of data and information listed in Appendix 1 of

D.06-06-066 and Appendix C of D.08-04-023 (the "IOU Matrix"), or constitutes information that should be protected under General Order 66-C. The matrix also specifies the category or categories in the IOU Matrix to which the data and information corresponds, and why confidential protection is justified. Finally, the matrix specifies that: (1) PG&E is complying with the limitations specified in the IOU Matrix for that type of data or information; (2) the information is not already public; and (3) the data cannot be aggregated, redacted, summarized or otherwise protected in a way that allows partial disclosure. By this reference, I am incorporating into this declaration all of the explanatory text in the attached matrix that is pertinent to this filing.

I declare under penalty of perjury, under the laws of the State of California, that to the best of my knowledge the foregoing is true and correct. Executed on October 30, 2009 at San Francisco, California.

  
Garrett P. Jeung

| PACIFIC GAS AND ELECTRIC COMPANY<br>Advice Letter 3543-E<br>October 22, 2009 |   | IDENTIFICATION OF CONFIDENTIAL INFORMATION PER DECISION 06-066-066 AND DECISION 08-04-023   |   |   |   |  | Length of Time |
|--|---|---|---|---|---|--|----------------|
| Redaction Reference  | 1) The material submitted constitutes a particular type of data listed in the Matrix, appended as Appendix 1 to D.06-06-066 and Appendix C to D.08-04-023 (Y/N) | 2) Which category or categories in the Matrix the data correspond to:   | 3) That it is complying with the limitations on confidentiality specified in the Matrix for that type of data (Y/N) | 4) That the information is not already public (Y/N) | 5) The data cannot be aggregated, redacted, summarized, masked or otherwise protected in a way that allows partial disclosure (Y/N) | PG&E's Justification for Confidential Treatment  |                |
| 1 Document: Advice Letter 3543-E   | Y   | Item VIII A) Bid information and B) Specific quantitative analysis involved in scoring and evaluation of participating bids.  | Y   | Y   | Y   | For information covered under Item VIII A), remain confidential until after final contracts submitted to CPUC for approval<br>For information covered under Item VIII B), remain confidential for three years after winning bidders selected   |                |
| 2 Appendix A   | Y   | Item VIII A) Bid information and B) Specific quantitative analysis involved in scoring and evaluation of participating bids.  | Y   | Y   | Y   | For information covered under Item VIII A), remain confidential until after final contracts submitted to CPUC for approval<br>For information covered under Item VIII B), remain confidential for three years after winning bidders selected   |                |
| 3 Appendix B   | Y   | Item VIII A) Bid information and B) Specific quantitative analysis involved in scoring and evaluation of participating bids.  | Y   | Y   | Y   | For information covered under Item VIII A), remain confidential until after final contracts submitted to CPUC for approval<br>For information covered under Item VIII B), remain confidential for three years after winning bidders selected   |                |
| 4 Appendix C   | Y   | Item VIII A) Bid information and B) Specific quantitative analysis involved in scoring and evaluation of participating bids. Item VII G) Renewable Resource Contracts under RPS program - Contracts without SEPs. Item VII (un-numbered category following VII G) Score sheets, analyses, evaluations of proposed RPS projects. General Order 66-C, | Y   | Y   | Y   | This Appendix contains bid information and bid evaluations from the 2007 solicitation, discusses, analyzes and evaluates the Project and the terms of the PPA, and contains confidential information of the counterparty. Disclosure of this information would provide valuable market sensitive information to competitors. Since negotiations are still in progress with bidders from the 2005, 2006, 2007, and 2008 solicitations and with other counterparties, this information should remain confidential. Release of this information would be damaging to negotiations. Furthermore, the counterparty to the PPA has an expectation that the terms of the PPA will remain confidential pursuant to confidentiality provisions in the PPA. I am informed and believe that General Order 66-C provides a basis for confidential treatment. General Order 66-C includes in its category of records not open to public inspection "Information obtained in confidence from other than a business regulated by this Commission where the disclosure would be against the public interest." (Paragraph 2.8). It is in the public interest to treat such information as confidential because if such information were made public, it would put the counterparty at a business disadvantage, could create a disincentive to do business with PG&E and other regulated utilities, and could have a damaging effect on current and future negotiations with other counterparties. |                |

| Redaction Reference | 1) The material submitted constitutes a particular type of data listed in the Matrix, appended as Appendix 1 to D.06-066 and Appendix C to D.08-04-023 (Y/N) | 2) Which category or categories in the Matrix the data correspond to:   | 3) That it is complying with the limitations on confidentiality specified in the Matrix for that type of data (Y/N) | 4) That the information is not already public (Y/N) | 5) The data cannot be aggregated, redacted, summarized, masked or otherwise protected in a way that allows partial disclosure (Y/N) | PG&E's Justification for Confidential Treatment  | Length of Time   |
|---------------------|--|---|---|---|---|--|--|
| 4                   | Appendix D   | Item VII (G) Renewable Resource Contracts under RPS program - Contracts without SEPs, Item VII (un-numbered category following VII G) Score sheets, analyses, evaluations of proposed RPS projects. General Order 66-C. | Y   | Y   | Y   | This Appendix discusses, analyzes and evaluates the Project and the terms of the PPA. Disclosure of this information would provide valuable market sensitive information to competitors. Since negotiations are still in progress with bidders from the 2005, 2006, 2007, and 2008 solicitations and with other counterparties, this information should remain confidential. Release of this information would be damaging to negotiations. Furthermore, the counterparty to the PPA has an expectation that the terms of the PPA will remain confidential pursuant to confidentiality provisions in the PPA. I am informed and believe that General Order 66-C provides a basis for confidential treatment. General Order 66-C includes in its category of records not open to public inspection "Information obtained in confidence from other than a business regulated by this Commission where the disclosure would be against the public interest." (Paragraph 2.8). It is in the public interest to treat such information as confidential because if such information were made public, it would put the counterparty at a business disadvantage, could create a disincentive to do business with this Appendix contains information that, if disclosed, would provide valuable market sensitive information to competitors and allow them to see PG&E's remaining RPS net open energy position. Since negotiations are still in progress with bidders from the 2005, 2006, 2007, and 2008 solicitations and with other counterparties, this information should remain confidential for three years. | For information covered under Item VII F) and Item VII (un-numbered category following VII G), remain confidential for three years after the commercial operation date |
| ##                  | Appendix F   | Item VII (un-numbered category following VII G) Score sheets, analyses, evaluations of proposed RPS projects. Item VI B) Utility Bundled Net Open Position for Energy (MWh).  | Y   | Y   | Y   | This Appendix contains the PPA. Disclosure of the PPA would provide valuable market sensitive information to competitors. Since negotiations are still in progress with bidders from the 2005, 2006, 2007 and 2008 solicitations and with other counterparties, this information should remain confidential. Release of this information would be damaging to negotiations. Furthermore, the counterparty to the PPA has an expectation that the terms of the PPA will remain confidential pursuant to confidentiality provisions in the PPA.  | Remain confidential for three years  |
| ##                  | Appendix G   | Item VII (G) Renewable Resource Contracts under RPS program - Contracts without SEPs.   | Y   | Y   | Y   | This Appendix contains certain terms of the PPA. Disclosure of certain terms of the PPA would provide valuable market sensitive information to competitors. Since negotiations are still in progress with bidders from the 2005, 2006, 2007 and 2008 solicitations and with other counterparties, this information should remain confidential. Release of this information would be damaging to negotiations. Furthermore, the counterparty to the PPA has an expectation that the terms of the PPA will remain confidential pursuant to confidentiality provisions in the PPA.  | Remain confidential for three years after the commercial operation date  |
| 8                   | Appendix H   | Item VII (G) Renewable Resource Contracts under RPS program - Contracts without SEPs.   | Y   | Y   | Y   | This Appendix contains certain terms of the PPA. Disclosure of certain terms of the PPA would provide valuable market sensitive information to competitors. Since negotiations are still in progress with bidders from the 2005, 2006, 2007 and 2008 solicitations and with other counterparties, this information should remain confidential. Release of this information would be damaging to negotiations. Furthermore, the counterparty to the PPA has an expectation that the terms of the PPA will remain confidential pursuant to confidentiality provisions in the PPA.  | Remain confidential for three years after the commercial operation date  |

## **Appendix I**

### **Public Independent Evaluator Report**

ARROYO SECO CONSULTING

PACIFIC GAS AND  
ELECTRIC COMPANY  
BILATERAL CONTRACT  
EVALUATION

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ADVICE LETTER REPORT OF THE  
INDEPENDENT EVALUATOR ON THE  
PROPOSED AGREEMENT WITH GEYSERS  
POWER COMPANY, LLC

OCTOBER 24, 2009

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# EXECUTIVE SUMMARY

This report provides an independent evaluation of the process by which the Pacific Gas and Electric Company (“PG&E”) negotiated and executed a Power Purchase Agreement (PPA) with Geysers Power Company, LLC (“Geysers”), a subsidiary of Calpine Corporation (“Calpine”) to procure renewable energy from the Geysers system of geothermal generation facilities in Sonoma and Lake Counties, California. An independent evaluator (IE), Arroyo Seco Consulting (Arroyo), conducted activities to review and assess PG&E’s processes as the utility evaluated this PPA.

The structure of this report follows the 2008 Independent Evaluator Report Template provided by the Energy Division of the California Public Utilities Commission (CPUC). Topics covered include:

- The role of the IE;
- The fairness of the design of PG&E’s least-cost, best-fit (LCBF) methodology;
- The fairness of PG&E’s administration of its LCBF methodology;
- Adequacy of outreach and robustness of the prior competitive solicitation;
- Fairness of project-specific negotiations; and
- Merit of the PPA for CPUC approval.

The independent review revealed an issue regarding the fairness of the terms and conditions of the proposed agreement; however Arroyo’s opinion is that, overall, the negotiations appear to have been fair. Overall, Arroyo agrees with PG&E that the proposed new Geysers PPA merits CPUC approval, based on the high project viability of the Geysers system and the moderate estimated net valuation of the contract.

# 1. ROLE OF THE INDEPENDENT EVALUATOR

This chapter elaborates on the basis for the participation of an Independent Evaluator in the review of bilaterally negotiated contracts for renewable energy, describes the role of the IE, and details review activities performed by the IE regarding the proposed Geysers PPA.

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## A. CPUC DECISIONS REQUIRING INDEPENDENT EVALUATOR PARTICIPATION

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The CPUC first mandated a requirement for an independent, third-party evaluator to participate in competitive solicitations for utility power procurement in its Decision 04-12-048 on December 16, 2004 (Findings of Fact 94-95, Ordering Paragraph 28). In that Decision, which addressed the approval of three utilities' long-term procurement plans, the CPUC required the use of an IE when participants in a competitive procurement solicitation include affiliates of investor-owned utilities (IOUs), IOU-built projects, or IOU-turnkey projects. The Decision envisaged that use of an IE would serve as a safeguard in the process of evaluating IOU-built or IOU-affiliated projects competing against PPAs with independent developers, a safeguard to protect consumers from any anti-competitive conduct between utilities and their corporate affiliates or from anti-competitive conduct by utilities developing their own generation.

Later, in approving the IOUs' 2006 Renewables Portfolio Standard (RPS) procurement plans and solicitation protocols, the CPUC issued Decision 06-05-039 on May 25, 2006. In that Decision, the CPUC expanded its requirement, ordering that each IOU use an IE to evaluate and report on the entire solicitation, evaluation, and selection process, for the 2006 RPS Request for Offers (RFO) and all future competitive solicitations. Subsequently, as part of Rulemaking 08-08-009 to continue implementation of the RPS program, the CPUC issued Decision 09-06-050 on June 19, 2009. In that decision, the Commission concluded that long-term bilaterally negotiated contracts (e.g. those with term of ten years or more) should be reviewed according to the same processes and standards as contracts that arise through competitive solicitations, including review by an independent evaluator. The proposed Geysers agreement would have a term of about twelve years, depending on the effective date.

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## B. KEY INDEPENDENT EVALUATOR ROLES

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To comply with the requirements ordered by the CPUC in Decision 09-06-050, PG&E retained Arroyo Seco Consulting to serve as IE for the bilateral contract that was being negotiated between PG&E and Geysers.

The CPUC stated its intent for participation of an IE in competitive procurement solicitations to "separately evaluate and report on the IOU's entire solicitation, evaluation

and selection process”, in order to “serve as an independent check on the process and final selections.”<sup>1</sup> More specifically, the Energy Division (ED) of the CPUC has provided a template to guide how IEs should report on the 2008 RPS competitive procurement process, outlining five specific issues that should be addressed:

- Was the IOU’s methodology for RPS bid evaluation and selection designed fairly?
- Was the IOU’s RPS bid evaluation and selection process fairly administered?
- Did the IOU do adequate outreach to potential bidders, and did its outreach activities result in an adequately robust solicitation to promote competition? (This aspect of the IE role does not apply directly to the Geysers contract, which resulted from bilateral discussions rather than a public solicitation.)
- Were project-specific negotiations fair?
- Does the proposed contract merit CPUC approval?

The structure of this report, setting out detailed findings for each of these key questions, is organized around the template provided by the ED.

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### C. IE OVERSIGHT ACTIVITIES

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To fulfill the role of evaluating the proposed Geysers PPA, several tasks were undertaken. Arroyo Seco had performed several of these tasks within its work scope of serving as IE for PG&E’s 2008 and 2009 RPS competitive solicitations; these prior activities were directly relevant to the evaluation of the Geysers PPA.

- Reviewing the 2008 RPS RFO Solicitation Protocol and its various attachments including the Forms of Power Purchase Agreement and PG&E’s detailed LCBF evaluation criteria;
- Examining the confidential protocols detailing how PG&E evaluates PPAs against various criteria, including market valuation, portfolio fit, transmission adders, credit, project viability, and RPS goals. These nonpublic internal protocols were evaluated to test whether they were consistent with the approved public Solicitation Protocol and whether the procedures, inputs, parameters, and standards were fair and reasonable’
- Examining PG&E’s RFO master contact list; performing a detailed analysis of contacts added in 2008 with respect to industry and technology representation;
- Interviewing members of PG&E’s evaluation committee and evaluation sub-committees regarding the process, data inputs and parameters, background industry and utility information, quantitative models, and other considerations

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<sup>1</sup> CPUC Decision 06-05-039, May 25, 2006, “Opinion Conditionally Approving Procurement Plans for 2006 RPS Solicitations, Addressing TOD Benchmarking Methodology”, page 46

taken into account in evaluating PPAs against non-quantitative criteria and in performing market valuation of PPAs;

- Interviewing PG&E middle-office staff regarding the internal review process that serves as a check on market valuation modeling and its inputs;
- Reviewing in detail various data inputs and parameters used in PG&E's market valuation methodology;
- Spot-checking offer-specific data inputs to PG&E's valuation model;
- Developing a simpler but independent market valuation model for the purpose of checking results from PG&E's LCBF methodology;
- Providing independent advice and suggestions to the PG&E team as needed, such as input on contract size issues and possible inclusion of non-shortlisted parties;
- Participating in meetings of PG&E's Procurement Review Group in which short-listed offers from the 2008 RPS RFO or specific bilaterally negotiated contracts were discussed.

Because the final CPUC decision requiring utilities to engage an Independent Evaluator for oversight of and reporting about long-term bilateral contracts was not issued until June 19, 2009, a point in time at which PG&E had already negotiated a draft agreement with Geysers, Arroyo Seco Consulting did not participate directly in or observe discussions between the two parties, as would ordinarily be the case for the IE role in a negotiation following a competitive solicitation. The findings of this report regarding the fairness of negotiations are based indirectly instead on (1) interviewing the key PG&E transactor negotiating the contract, (2) a review of detailed final contract terms and conditions of the Geysers PPA and comparison of these to those of other PPAs, executed or under negotiation, from the 2008 RPS RFO or from other recent bilateral negotiations, and (3) a comparison of detailed executed contract terms to the terms of PG&E's 2009 Form Agreement that would have served as the starting point for negotiations if the Geysers PPA had originated in a competitive solicitation.

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#### **D. TREATMENT OF CONFIDENTIAL INFORMATION**

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The CPUC's Decision 06-06-066, issued on June 29, 2006, detailed specific guidelines for the treatment of information as confidential vs. non-confidential in the context of IOU electricity procurement and related activities, including renewable power contracts that result from bilateral negotiations rather than competitive solicitations. For example, the Decision provides for confidential treatment of "Score sheets, analyses, evaluations of proposed RPS

projects”,<sup>2</sup> as opposed to public treatment (after submittal of final contracts for CPUC approval) of the total number of projects and megawatts bid by resource type.

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<sup>2</sup>“Interim Opinion Implementing Senate Bill No. 1488, Relating to Confidentiality of Electric Procurement Data Submitted to the Commission”, June 29, 2006, Appendix 1, page 17

## 2. FAIRNESS OF THE DESIGN OF PG&E'S LEAST-COST, BEST-FIT METHODOLOGY

The key finding of this chapter is that, based on IE data-gathering, reviews, and findings, PG&E's evaluation methodology was designed fairly.

The following discussion identifies principles for evaluating the methodology, describes the methodology, evaluates the strengths and weaknesses of the chosen methodology, and identifies some specific issues with the methodology and its inputs that Arroyo recommends be addressed in the future.

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### A. PRINCIPLES FOR EVALUATING THE METHODOLOGY

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The Energy Division of the CPUC has usefully provided a set of principles for evaluating the process used by IOUs for selecting Offers in competitive solicitations, within the template intended for use by IEs in reporting. This list was previously developed by Jonathan Jacobs of PA Consulting, serving as IE for San Diego Gas & Electric Company (SDG&E).

Mr. Jacobs' principles include:

- The procurement target should be large enough to ensure that the utility has a reasonable chance of meeting its 20% RPS target (taking into account potential contract failures).
- The IOU evaluation should only be based on those criteria requested in the response form. There should be no consideration of any information that might indicate whether the bidder is an affiliate.
- The methodology should identify how quantitative measures will be considered and be consistent with an overall metric.
- There should be no differences in the evaluation method for different technologies that cannot be explained in a technology-neutral manner.
- The methodology does not have to be the one that the IE would independently have selected but it needs to be 'reasonable'.

Some additional considerations appear relevant to the specific situation PG&E finds itself in. PG&E streamlined its evaluation process after the 2007 RPS RFO by dropping its prior approach of "partial ordering." Instead, the team ranks Offers by market value, after which, using "the information and scores from the other evaluation criteria, PG&E will then

apply judgment and PRG feedback to decide which Offers to include or not include on the shortlist.”<sup>3</sup> The application of judgment in bringing the non-valuation criteria to bear on decision-making, rather than a rigorously mathematical, quantitative means of doing so, implies an opportunity to test the fairness and consistency of the method using additional principles:

- The methodology should identify how non-valuation qualitative measures will be considered; non-valuation criteria used in evaluating contracts should be clear and transparent to counterparties.
- The logic of using non-valuation criteria to reject high-value contracts and select low-value contracts should be applied consistently and without bias.
- The valuation methodology should be reasonably consistent with industry practices.

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## **B. DESCRIPTION OF PG&E'S METHODOLOGY**

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PG&E's approach is to assess a proposed contract using a handful of criteria specified by CPUC decisions. PG&E has provided a public version of the description of its methodology in Attachment K to the Solicitation Protocol of its 2009 RPS RFO, most recently revised on August 17, 2009.<sup>4</sup>

Market Valuation. PG&E measures market value as benefits minus costs. Benefits include energy value and capacity value (resource adequacy value); ancillary services value is assumed zero. Costs are PG&E's payments to the counterparty. Costs are adjusted to reflect transmission adders as described below. The costs of integrating an intermittent resource into the electric system, such as load-following and regulation, are assumed to be zero. Both benefits and costs are discounted from the entire contract period to 2010 dollars per MWh in the methodology.

For as-available energy delivery, PG&E measures energy value by projecting a forward energy curve (in hourly granularity) out to the time horizon of the contract period, and multiplying projected hourly energy price by the projected hourly generation specified by the proposed generation profile. This forward curve is constructed by PG&E staff using market data and extrapolation assumptions. For baseload and peaking resources the volume of energy deliveries are based on the performance requirements of the contract. If appropriate, the contract prices are adjusted by time-of-delivery factors. If the power plant emits greenhouse gases (e.g. a hybrid natural gas-solar thermal generator), a greenhouse gas adder is included in costs based on PG&E's assumptions.

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<sup>3</sup> "2008 Renewable Energy Procurement Plan and Draft Solicitation Protocol of Pacific Gas and Electric Company", August 1, 2007, CPUC Rulemaking 06-05-027, page 2

<sup>4</sup> "PG&E's Description of its RPS Bid Evaluation, Selection Process and Criteria", posted on website [http://www.pge.com/includes/docs/word\\_xls/b2b/wholesaleelectricssuppliersolicitation/Attachment\\_K\\_LCBF\\_Eval\\_Criteria081809.doc](http://www.pge.com/includes/docs/word_xls/b2b/wholesaleelectricssuppliersolicitation/Attachment_K_LCBF_Eval_Criteria081809.doc)

PG&E projects capacity value as a nominal dollar per kilowatt-year estimate. For as-available products, capacity quantity is calculated based on the projected generation profile and the approach set forth in CPUC Decision 09-06-028.<sup>5</sup> Capacity benefit is calculated as the product of capacity value and an estimate of net qualifying capacity, and discounted to 2010 nominal dollars. In the case of generation resources that are located so as to support PG&E's Local Capacity Requirement as specified by the California ISO, a premium is assigned to capacity value.

PG&E employs other analytic techniques using real options valuation to assign values to dispatchable resources and to those which provide the utility with a buyout option. These do not apply to the Geysers contract, which is a baseload energy sale without dispatch rights or asset purchase options.

Portfolio Fit. PG&E assesses the fit of a new resource with its generation portfolio by reviewing the resource's delivery characteristics in terms of firmness and time of delivery. The latter includes a view of the resource's profile in time of day as well as seasonality. In the 2009 RPS solicitation, PG&E proposes to use a numerical score to rate the portfolio fit of offers; however, this quantitative scoring approach is not currently applied to bilaterally negotiated contracts.

Credit and Collateral. PG&E has a standing set of policies, articulated in its standard Form Agreement that is part of the RPS RFO solicitation protocol that set requirements for counterparties to post collateral at the various phases of project development of new generators in order to help secure protection for ratepayers, including

- Offer deposit, submitted with an offer in the case of developers participating in a competitive solicitation (not relevant to the Geysers negotiation, a bilateral discussion);
- Project development security, posted after execution of an agreement; in the case of existing resources, pre-delivery term security is posted according to the standard 2009 Form Agreement (also not relevant to the Geysers contract, which proposes to take delivery from existing generation units);
- Post effective date project development security, posted after the agreement becomes effective, e.g. upon CPUC approval (not applicable to the Geysers contract); and
- Delivery term security (DTS), posted upon commencement of commercial operation and continuing during the actual period when power is delivered. The standard amount of DTS required by PG&E is spelled out in the solicitation protocols of the competitive solicitations, and amounts to six months' worth of

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<sup>5</sup> California Public Utilities Commission, "Decision Adopting Local Procurement Obligations for 2010 and Further Refining the Resource Adequacy Program", June 22, 2009. Note that the PG&E team must make assumptions to convert a projected average generation profile into a 70% exceedance level as prescribed by the Decision; this is described in the most recent revision of Attachment K to PG&E's 2009 RPS RFO Solicitation Protocol.

the “minimum expected revenue” of the project for ten-year contracts. The “minimum expected revenue is calculated using the average Contract Price and the average quantity of energy based on contractual Guaranteed Energy Production during the Delivery Term”.<sup>6</sup>

In its competitive solicitations, PG&E evaluates the counterparty’s agreement to provide collateral at the levels required, and assigns a numerical score for the credit evaluation criterion between 0 and 100. Also, PG&E may evaluate the counterparty’s credit quality and consider the degree to which counterparty risk may become excessively concentrated with a few suppliers. While offers in PG&E’s competitive RPS solicitations receive a numerical score for Credit, the contracts that are bilaterally negotiated do not receive this level of formal review, and the Geysers contract did not. However, considerations of credit and collateral clearly enter into PG&E’s internal decisions about such bilateral contracts.

Project Viability. PG&E will employ its own modified version of the CPUC’s Project Viability Calculator (PVC) to evaluate offers received in the 2009 competitive RPS solicitation. For contracts arrived at through bilateral negotiations, PG&E has not yet required the use of the PVC. The modified calculator, described in Attachment K of the 2009 RPS RFO solicitation protocol, scores the project against twelve criteria within 3 major categories of Company/Development Team, Technology, and Development Milestones. PG&E’s modification was to include a criterion of EPC Experience within the Company/Development Team category, rating the experience the developer has had with its engineering, procurement, and construction contractor and the experience that the contractor has had with the project’s technology. PG&E reweighted the various criteria having added this new criterion. While the Calculator could be used to evaluate existing projects such as the Geysers system, many of the criteria appropriate for evaluating proposed new generation facilities are somewhat irrelevant for use in rating the viability of existing plants.

RPS Goals. PG&E rates Offers in competitive solicitations based on specific observations about how the proposed project or transaction would contribute to California’s RPS goals, including

- Non-quantitative factors identified in CPUC Decision 04-07-029;
- Legislative findings about and benefits of the impact of increasing the use of renewable energy;
- Consistency with the CPUC’s Water Action Plan;
- Support for the Governor’s objectives outlined in Executive Order S-06-06 regarding the use of biomass-based energy; and
- Support for PG&E’s goals for supplier diversity.

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<sup>6</sup> “Renewables Portfolio Standard, 2009 Solicitation Protocol”, Pacific Gas and Electric Company, June 29, 2009, page 23

While the offers for competitive RPS solicitations receive a numerical score for the RPS Goals criterion, the formal process of scoring is not employed for bilaterally negotiated contracts, though these sorts of attributes are typically discussed internally when PG&E makes management decisions about bilateral contracts.

Transmission Adders. When evaluating offers from competitive RPS solicitations, PG&E takes into account the expected impact of new generation on the cost of transmission network upgrades by calculating a transmission cost adder applied to the cost of the resource. The adder is based on the lesser of an estimate of upgrade cost drawn from the appropriate utility's Transmission Ranking Cost Report, or an estimate of alternative commercial arrangements for managing the power through such transactions as remarketing and utility swaps. PG&E does not employ the transmission cost adder when evaluating bilaterally negotiated contracts, so this component of its LCBF methodology does not apply to the Geysers PPA. In any case, the transmission adders are used to assess the cost to transmission ratepayers of new generation projects that create a need for transmission system upgrades, not existing generation assets like the Geysers system that are served by the existing grid.

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### C. STRENGTHS AND WEAKNESSES OF PG&E'S METHODOLOGY

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PG&E's evaluation methodology has been revised over the course of several years, and its evolution has benefitted from input from various IEs, the Energy Division, and the utility's Procurement Review Group ("PRG"). Consequently, it has achieved a certain degree of refinement that has strengthened the process from the perspective of fairness and reasonableness.

At a high level, PG&E's methodology has several strengths, particularly when compared to approaches employed by many utilities in other jurisdictions:

- Use of an IE and the PRG for oversight and review, and their particular focus on evaluation of utility-affiliate offers, utility-owned generation, Power Purchase and Sale Agreements, and buyout options, allow for more transparent consideration of the fairness of how affiliate or utility-owned generation is treated vs. independent developers. The lack of such safeguards against anti-competitive behavior in some jurisdictions is strikingly different.
- PG&E's approach allows it to emphasize key non-valuation criteria that have particular current importance, such as project viability, in contrast to a rigid weighting system for price and non-price criteria as employed by other utilities.
- The public issuance of PG&E's evaluation protocols, and the transparency and detail provided to potential counterparties about how, specifically, PPAs will be evaluated, gives renewable power developers clearer and more detailed guidance than typical utility industry practice.
- The methodology does not explicitly incorporate a bias for or against any individual technology per se, but compares the valuation of possible new resource in a manner

that is blind to the technology. In other jurisdictions, for example, utilities apply a wind integration cost adder that burdens new wind projects with a cost associated with ancillary services and operating reserves deemed as necessary to support the projects, even if no such fee exists in current tariffs.

- The use of the Project Viability Calculator allows a more detailed and consistent evaluation of the attributes of a project or transaction that bear upon the likelihood that it will actually lead to delivery of renewable energy. If the PVC were to be used for bilateral contracts, and if the utility's scoring is compared to the IE's scoring, some insights may be gained about the project or transaction's merits.

However, PG&E's methodology has vulnerabilities that come along with these strengths.

- The two-step process for incorporating transmission adders for network upgrade costs into the ranking by market value is complex and time-consuming. It is not employed in evaluating bilaterally negotiated contracts currently but is used primarily for the process of constructing a short list for competitive solicitations. In essence, new resources that are approved through bilateral negotiation are not necessarily scrutinized with the same degree of rigor for their impacts on network upgrade costs as those participating in an RFO.
- The methodology takes into account the cost of potential transmission network upgrades identified by the three California IOUs as necessary when enough new generation is added at a local "cluster" to trigger such a need. However, the evaluation of these costs relies on data provided in Transmission Ranking Cost Reports of the IOUs and on the practices of those utilities in compiling the reports. If the TRCRs provide inconsistent guidance, it can skew or bias the outcome of the valuation with transmission adders.
- PG&E does not currently use the same formal numerical scoring approach for bilaterally negotiated contracts that it requires of offers from its competitive RPS solicitations for the criteria of Project Viability, RPS Goals, Credit and Collateral, and Portfolio Fit, even though observations about the bilateral contract's attributes with respect to these criteria clearly enter into internal decisions about the contract.
- The portfolio fit evaluation does not explicitly estimate the costs to ratepayers of remarketing power procured in off-peak periods when the delivery of energy does not fit with overall portfolio needs.
- In the absence of functioning, liquid, and transparent forward markets for Resource Adequacy and for greenhouse gas emission costs, PG&E must rely on economic projections of the value of these for future years, just as it must rely to some extent on extrapolation of forward curves beyond the time horizon within which broker quotes are available.

The remainder of this section focuses on issues identified in the Energy Division's IE template as specific topics of interest to describe the strengths and weaknesses of PG&E's evaluation methodology.

## 1. COMPARISON OF PG&E'S METHODOLOGY TO THOSE IN OTHER STATES

There is a very wide range of practice among electric utilities in how they conduct competitive procurement for new resources. As noted above, PG&E's methodology is generally more transparent regarding process and criteria, has more safeguards against utility or utility-affiliate self-dealing, and provides an extra degree of outreach to potential Participants. Here are some other general observations:

- As with the PG&E Solicitation Protocol, most utilities specify both a valuation or price criterion and non-valuation criteria for evaluating Offers.
- The range of non-valuation criteria other utilities apply is extremely wide, including attributes employed in PG&E's methodology (credit/collateral, project viability, and their sub-topics) as well as others that PG&E's Solicitation Protocol does not explicitly consider.
- "Portfolio Fit" is seldom used as an explicit non-valuation criterion in offer evaluation outside California.<sup>7</sup> To the extent that valuation methods such as production cost models assign greater value to dispatchable resources and to resources that produce more on peak than off peak, the fit of a resource is captured in that analysis.
- Some utilities have rather narrower criteria for minimum eligibility of offers than required by PG&E.
- Relatively few utilities employ a real-option pricing approach to value generation, as PG&E does for dispatchable resources.<sup>8</sup> More typically, utilities employ production cost or dispatch models, such as PROSYM or STRATEGIST, to evaluate the impact on system operation and cost of a new resource and to identify a least-cost plan. Another common approach is for the utility to value the hourly generation of the new resource using the system marginal cost estimated by such a production cost model. Many utilities, when evaluating renewable resources that are not dispatchable, perform their valuation against an internal, proprietary set of forward curves, as PG&E does.
- It is typical for utilities to use an avoided-cost economics approach to valuing the capacity provided by a new resource, as PG&E does.
- In other jurisdictions, utilities are often allowed to consider integration costs when evaluating intermittent resources such as new wind generation. These cost

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<sup>7</sup> Arizona Public Service is employing "Portfolio Fit" as a non-quantitative evaluation criterion in its 2008 renewable solicitation: "APS 2008 Renewable RFP Bidder's Conference, June 25, 2008", page 7. Duke Energy, Nevada Power, and Sierra Pacific use "Portfolio Fit" as an evaluation criterion in their renewable solicitations, but for these companies the term refers specifically to the timing of the utility's RPS obligation and the offered project's ability to come into operation to meet the scheduled need

<sup>8</sup> Such tools are more often used by wholesale marketing and trading firms for valuing contracts

adders can range from \$3 to \$10/MWh and are considered appropriate by regulators in those jurisdictions to capture the increased system costs needed to accommodate resources with unpredictable generation profiles.

To summarize, when compared to typical practices employed by utilities in other U.S. jurisdictions, PG&E's evaluation methodology appears to be designed to stimulate a more robust response from participants by suppressing some of the constraints applied in other RFPs. One would expect a trade-off that PG&E's more accommodating eligibility requirements may imply more challenges in making projects viable, especially when they are outside the CAISO and need transmission to wheel the power, when the developer is permitting, designing, and constructing a project whose technology is outside his/her experience, and when utility and Participant must negotiate detailed contract terms and conditions that differ considerably from the standard form agreement.

## 2. BIAS AGAINST TECHNOLOGY OR OPERATING CHARACTERISTICS

PG&E's evaluation methodology, unlike those of some other utilities, does not explicitly incorporate a preference for one renewable technology over another (such as for landfill gas over wind power) or for one operating characteristic over another (such as for baseload resources over as-available resources). The market valuation analysis, by which the initial ranking is performed, is designed to be neutral to technology.

That being said, some technologies should tend to score higher than others in PG&E's non-valuation criteria as defined in this solicitation. Offers that use technologies that are well-commercialized and which have been built and placed into operation by the dozens should score higher on "technology viability" than technologies that have only undergone trial in the laboratory or in experimental pilot tests on the scale of kilowatts. Intermittent resources such as wind generation which have relatively poor forecast accuracy on a day-ahead basis should score lower on "portfolio fit" than baseload resources that are relatively firm, such as geothermal or landfill gas projects. PG&E's methodology assigns a higher score for portfolio fit for resources whose energy "PG&E is sure to receive."<sup>9</sup>

These attributes of PG&E's protocol do not appear to be biases intended to tilt towards one technology or one operating regime. Reasonable business judgment should favor resources with energy production that is highly predictable on a day-ahead basis over those with poor firmness and uncertain predictability. To increase the likelihood that PG&E customers will benefit from renewable projects that are built on schedule and deliver the promised levels of generation, the methodology should on average favor projects with well-commercialized technology. If the methodology is administered fairly these attributes of the market valuation and non-valuation scoring process should not result in short list decisions biased towards one technology or operating regime.

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<sup>9</sup> "Attachment K – Detailed Least Cost Best Fit Evaluation Criteria", attachment to PG&E's 2008 RPS Solicitation Protocol, page 7

### 3. THE ROLE OF “PORTFOLIO FIT” IN PG&E’S OFFER EVALUATION

In the 2008 renewable solicitation, PG&E chose to represent portfolio fit with a numerical score based on a qualitative evaluation of firmness of energy delivery and of the time of delivery of energy delivery. In 2007 and previously PG&E used a quantitative measure to evaluate the hourly and seasonal timing of energy delivery, and this quantitative approach is proposed again for the 2009 solicitation.

One issue with the design of PG&E’s methodology is the challenge of capturing the impact of adding new renewable resources on remarketing costs. To the extent new must-take resources are generating in periods when the utility might otherwise be net long power anyway, such as in the early hours of the morning in springtime, adding the resource may exacerbate the challenge of either dispatching down other resources or remarketing that extra power in a market that does not value it, creating opportunity costs or increasing total system costs to accommodate redispatch.<sup>10</sup> Utilities that employ a production cost or utility dispatch model have the ability to assess quantitatively how the thermal unit commitment may change, how units may need to be redispatched, and what the cost of that may be when a new must-take renewable resource is added.

On an unrelated note, new renewable resources that have poor day-ahead predictability may add to total system costs (relative to new resources that have a firm generation profile or good day-ahead predictability). All else being equal, a risk-averse system operator may choose to commit more dispatchable resources to take into account the volume uncertainty associated with unpredictable resources. More units committed, operating at lower load points, on average may increase total system cost.

PG&E’s methodology for market valuation does not have the specific means to review such impacts on unit commitment and dispatch. PG&E’s approach to valuing as-available renewable generation basically attributes a low value to the new project’s production in those springtime off-peak periods because the forward curve assigns low prices to those hours. However, absent a tool that looks at unit commitment decisions, redispatch decisions, and remarketing costs, these impacts of building intermittent, poorly predictable, must-take generation aren’t captured by the analysis (this is not meant to imply that production cost models do an excellent job of capturing the real costs of these impacts). Also, the methodology is required to treat integration costs as zero, even if intermittent wind generation were to increase as a major portion of the overall portfolio.

Consequently, there would seem to be a role for the use of portfolio fit as a criterion in addition to the market valuation step. To the extent that the portfolio fit criterion is designed to capture a sense of the costs or opportunity losses the customer bears when a new must-take resource affects remarketing costs and other system costs when it is added, this criterion may be helpful in the overall RFO evaluation, at the margin.

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<sup>10</sup> Hypothetically, a system operator may choose to commit more small thermal units in those hours instead of a few big ones in order to decrease the system minimum load point, increasing system fixed costs that day. The utility that takes delivery of poorly predicted must-take power may need to sell it to other parties at short notice, driving down its price in an illiquid market.

#### 4. GENERATION PROJECT TIMING VS. TRANSMISSION PROJECT TIMING

There are clearly situations in the California power market where the commercial operation date (COD) of a new renewable generation project is dependent on the COD of a major transmission network upgrade, as when a project proposes to interconnect to a yet-to-be-built substation or transmission line of SCE's Tehachapi Renewable Transmission Project or of SCE's proposed Devers-Palo Verde 2 transmission project. Alternatively, there are situations where a new project can come into commercial operation prior to the COD of a major transmission project, but the value of the project will be harder to realize and the operation and output of the project may be constrained until a major transmission upgrade is completed, as with generators proposing to interconnect in Imperial County and to inject power to IID or SDG&E substations prior to completion of the Sunrise Powerlink project.

In such situations, if the timing of the transmission project's COD is uncertain, it poses additional risks to the renewable power project to the extent that a delay in completing the network upgrade could prevent the utility from taking delivery of the renewable generation, or reduce the value and/or volume of that generation because of transmission congestion. Sadly, in the California market there are uncertainties about the timing of the completion of major transmission upgrades; even though transmission owners can make estimates for how long construction will take once all regulatory approvals are obtained, estimating when approvals are likely to be completed is challenging when the merits or impacts of proposed transmission projects are contentious, as with Devers-Palo Verde 2 and Sunrise Powerlink. The PG&E evaluation committee likely has no better insight into the timing of regulatory approvals than other industry observers.

The modified Project Viability Calculator that PG&E will employ in scoring Offers for the 2009 RPS RFO includes scoring of the subcriterion of Transmission Requirements against specific guidelines. This does not actually score the project based on the degree of the specific mismatch, if any, between generation COD and transmission COD. The criteria scoring guidelines for Transmission Requirements simply score based on how long it is expected for transmission access to be available.

However, the information developed by the evaluation team regarding timing and viability of transmission upgrades can be used in subjective decision-making to select a short list. Therefore the methodology allows the PG&E team to make a judgment about whether or not to short-list a project for which the proposed COD is threatened by potentially adverse outcomes in the timing of a closely-related transmission upgrade, even if that threat is not reflected in the numerical score for Project Viability.

Is it fair to reject from the short list an Offer in such a situation, where concerns about the timing of a transmission project put into question the value of the project prior to transmission COD? One could argue that it is likely that locations that are currently constrained, in which new generation will suffer lower prices and/or reduced volume because of transmission congestion, will eventually be debottlenecked by network upgrades so that a proposed new renewable project in such a location will sooner or later be freed from the constraint. Allowing the PG&E team to use its judgment in making tradeoffs between market value and the risk of a mismatch between transmission upgrade timing and project COD is a reasonable approach.

## 5. TRANSMISSION COST ANALYSIS

The PG&E methodology provides for four major sources of transmission cost information to be used in valuing Offers when making a short list for a competitive solicitation<sup>11</sup>:

1. For some projects, transmission wheeling costs from an Offer's delivery point outside the CAISO grid to the boundary of the CAISO grid must be estimated. For the purposes of making a short list, the methodology calls for the use of the full cost of third-party transmission tariffs as a proxy for this cost (the Participant has the opportunity to propose a price premium to move its power to a CAISO delivery point in its Offer).
2. Transmission adders published in the IOUs' Transmission Ranking Cost Reports are used as proxies for those network upgrade costs potentially needed to accommodate incremental renewable generation in locations that may become congested. These are not used for evaluating bilateral contracts.
3. If a project has already progressed to an advanced state of development or construction, the specific cost of network upgrades needed to accommodate its incremental production have been estimated in a System Impact Study and/or Feasibility Study through the CAISO interconnection process. This information can enter into negotiations of bilateral contracts.
4. The methodology affords PG&E an opportunity to estimate the cost of "alternative commercial arrangements", such as remarketing the project's power, undertaking swaps, or purchasing non-firm transmission rights, to avoid network upgrades. These estimated cost adders are not employed in evaluating bilateral contracts.

PG&E had procedures in place to obtain publicly available third-party transmission tariffs to apply adders for Offers proposing to deliver at points outside the CAISO. PG&E also had the capability to estimate the feasibility and cost of alternative commercial arrangements. Under the protocol, a Participant should submit the estimated cost of network upgrades if a System Impact Study and/or Feasibility Study have been completed. The TRCR data for both PG&E and the other California IOUs are publicly available.

## 6. WEIGHTINGS APPLIED TO EVALUATION CRITERIA

The PG&E methodology does not use quantitative weights to apply to evaluation criteria. In its current form, the methodology does not provide for, say, an assignment of a 60% weight to market valuation and a 20% weight to project viability in ranking Offers. Instead, a valuation-based ranking is the starting point for decision-making, and PG&E uses subjective judgment to reject or include Offers from the short list using information and scoring of the non-valuation criteria.

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<sup>11</sup> The cost of transmission facilities needed to connect the project to the first point of interconnection in the grid, or "gen-tie" costs, are supposed to be incorporated into the price of the Offer

## 7. POTENTIAL IMPROVEMENTS TO PG&E'S METHODOLOGY

The methodology employed in PG&E's 2008 and 2009 renewable energy solicitations has benefitted from several iterations over the years with input from IEs, guidance from PG&E's PRG, and internal discussions on how to improve the approach. Consequently significant progress has been made to streamline the Offer evaluation process, to encourage participation, to enlarge the pool of possible Participants, and to make the process flexible enough to accommodate a wide range of Offers. Still, incremental improvements are still possible, and this section suggests areas where these may be made.

- Transparency of evaluation criteria: emerging technologies. The CPUC decision that conditionally approved PG&E's 2008 RPS Procurement Plan explicitly stated that "We [the Commission] also expect utilities to consider projects which employ emerging technologies." To the extent that such projects are evaluated in RPS solicitations, "utilities may need to develop slightly different evaluation criteria for emerging, pilot and demonstration projects."<sup>12</sup>

For the 2008 RPS solicitation, PG&E had not as yet modified its Solicitation Protocol to accommodate this concept of setting up different evaluation criteria for emerging technologies within the RPS RFO than for mainstream renewable projects. Indeed, the criterion for project viability explicitly includes a consideration of technology viability: a project that uses an "established technology in wide commercial use" will score higher than one that is based on a technology "still in R&D stage" or "in demonstration phase or early commercialization."<sup>13</sup>

The CPUC's guidance to consider projects using emerging technologies directly contradicts the overall imperative for utilities to select commercially viable Offers with the greatest likelihood of coming into operation and serving the policy objective of meeting RPS goals. Going forward, the regulator and utility could identify an alternative procurement process than the RPS RFO solicitation for selecting commercial-scale projects based on emerging technologies and awarding contracts.<sup>14</sup>

In the absence of such an alternate process, PG&E should revise its Solicitation Protocol in the next RPS RFO to carve out, set aside, or otherwise target a portion of the short list for Offers based on emerging technologies, a carve-out of candidate Offers for which the technology viability sub-criterion does not apply in the evaluation. Such a revision should include specific guidelines for how PG&E would decide which emerging technologies are deserving of short-listing despite weaker

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<sup>12</sup> CPUC Decision 08-02-008, "Opinion Conditionally Accepting Procurement Plans for 2008 RPS Solicitations", February 14, 2008, pages 31-32

<sup>13</sup> "Attachment K – Detailed Least Cost Best Fit Evaluation Criteria", attachment to PG&E's 2008 RPS Solicitation Protocol, page 10

<sup>14</sup> For example, the Emerging Renewable Resource Program, which serves as a vehicle for confirming the commercial feasibility of technologies that have been tested only in a preliminary manner, could possibly form the basis for awarding utility procurement contracts for commercialized projects using these technologies

project viability and what portion of volumes in the solicitation should be targeted for these less viable technologies.

- Eligibility criteria: hybrid renewable/fossil technology. In future RPS solicitations, PG&E should give explicit guidance to potential participants about the conditions under which a hybrid renewable/fossil project can be evaluated vs. will be rejected as non-conforming. A few Participants offered multi-fuel projects in this RFO.

For example, the 2008 RPS Solicitation Protocol is explicit in stating that the objective of this solicitation is to procure RPS-eligible generation from eligible renewable resources. But Section X.B, which describes eligible resources, is silent on the subject of multi-fuel generators which include nonrenewable fuels, whereas the CEC explicitly sets guidelines for how a portion of their production can be RPS-eligible. Section IX, which describes Offer Pricing, does not explicitly call for the Offer to provide proposed prices for the renewable portion of generation alone, and it should. PG&E should improve the transparency of its guidance to developers by explicitly describing the conditions, if any, under which Offers from multi-fuel projects that include nonrenewable fuels will be considered in an RPS RFO or not.

- Inputs to market valuation: extrapolating forward curves. The valuation analysis relies on PG&E making a forward energy curve and volatility curve that stretches far into the future, to the termination date of the longest proposed PPA. This requires extrapolation of gas and electric forwards beyond the furthest date of what is observable based on market transactions or broker quotes; the power market is illiquid beyond a reasonably short time horizon.

In extrapolating so far into the future, the PG&E team must assume escalation rates for both gas and power forwards. The gas forwards serve as input to the calculation of projected RA value. Escalating forward gas and power prices at different rates has an effect on the predicted RA price. For example, if the power forward price is extrapolated to escalate faster than gas price, the implied market heat rate increases. This would be consistent with a future in which the gas-fired unit needed at the margin to serve peak demand will be increasingly inefficient. It implies that no technological improvements in unit efficiency are anticipated. It would also imply that a new marginal generating unit's utilization increases over time. This result would affect the projected capacity value used in the market valuation protocol.

Arroyo Seco Consulting suggests that the gas and power forward prices be extrapolated to increase at about the same escalation rate beyond the point in time when the California power market is assumed to be in capacity equilibrium. That would tend to reduce effects on the capacity valuation caused by disparate assumptions about gas and power price escalation.

- Inputs to market valuation: adjustment assumptions. The current market valuation protocol includes adjustments to take into account the likely impact of transmission congestion. The data used to make these adjustments are obsolete and need to be updated. Sadly, the redesigned CAISO market does not have enough of a history yet to provide meaningful data on which to base new adjustments.

Because this step of the market valuation analysis can play a major role affecting the ranking of projects that interconnect in historically congested locales, Arroyo recommends that in future years the public market valuation protocol be expanded to discuss the methodology at a summary level. This would improve the transparency of the solicitation and evaluation process so that potential Participants would better understand the means by which the ranking of their projects in the selection process may be affected by their choice in siting.

### 3. FAIRNESS WITH WHICH PG&E ADMINISTERED THE CONTRACT EVALUATION PROCESS

This section describes the extent to which PG&E's administration of its protocols for evaluation of the Geysers transaction was fair. The overall conclusion is that the process in this case was conducted in a fair and consistent manner, with some attributes of the proposed contract worthy of comment.

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#### A. PRINCIPLES USED TO DETERMINE FAIRNESS OF PROCESS

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The Energy Division has provided a set of principles proposed to guide IEs in determining whether an IOU's evaluation and selection process was fair:

- Were affiliate Offers treated the same as non-affiliate?
- Were Participants' questions answered fairly and consistently and the answers made available to all?
- Did the utility ask for "clarifications" that provided the Participant an advantage over others?
- Were Offers given equal credibility in the economic evaluation?
- Was there a reasonable justification for any fixed parameters that enter into the methodology (e.g., RMR values; debt equivalence parameters)?
- What qualitative and quantitative factors were used to evaluate bids?

Another few considerations apply to this specific situation where PG&E is evaluating a contract developed through bilateral negotiations. Questions about the fairness of the administration of the process include:

- Were the same exact procedures used to evaluate this bilaterally negotiated contract used that would have applied if it had been received in a competitive solicitation?
- If not, were the differences in how the bilateral contract was evaluated, compared to how Offers in a competitive solicitation are evaluated, sufficiently material to warrant concerns about the fairness with which Participants in an RFO are treated compared to counterparties to bilateral negotiations?

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## **B. REVIEWING PG&E'S ADMINISTRATION OF ITS EVALUATION PROCESS**

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PG&E provided Arroyo Seco Consulting with many detailed inputs to its valuation model and with results of market valuation of the proposed new Geysers contract.

Additional elements of Arroyo's approach for evaluating fairness of the process include:

- Building an independent valuation model to construct an independent ranking of RFO short-listed offers by net market value, as the basis of comparison of the proposed Geysers contract to other competing alternatives for PG&E to procure renewable energy
- Comparing PG&E's valuation ranking to the IE model's ranking in detail, identifying outliers (e.g. where PG&E ranked an Offer much higher than the IE), identifying the root cause for variances, and determining whether variances were justified by different inputs and methodology or stemmed from errors by either PG&E or IE
- Checking intermediate analysis and inputs to the valuation model, e.g. assignment of Offers to nodes and weighted-average TOD factors, for accuracy and consistency

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## **C. FAIRNESS OF REJECTION OF OFFERS FOR NONCONFORMITY**

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Only two Offers from the 2008 RPS RFO were rejected by PG&E for nonconformity to the Solicitation Protocol. Arroyo agreed that PG&E's decision to reject these Offers was fair and reasonable. The bilaterally negotiated Geysers contract is not subject to the terms of PG&E's solicitation protocols. However, Arroyo judges that it could have easily been submitted as a conforming offer to the 2009 RPS RFO had the parties agreed that this would have been a preferable course.

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## **D. REASONABLENESS OF PARAMETERS AND INPUTS**

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The vast majority of the many parameters and inputs that PG&E used in its evaluation of the Geysers contract were reasonably chosen, in the opinion of Arroyo Seco Consulting. There is a minor issue regarding the choices PG&E made about inputs that merit discussion.

PG&E used a discount rate of 7.6% to bring future Offer costs and benefits to a 2009 present value. Members of the PG&E evaluation committee indicated that this value is based on PG&E's approved cost of capital proceeding. It represents the approved weighted average after-tax cost of capital (WACC) for PG&E.

A public filing by PG&E Corporation described the approval by the CPUC, on December 20, 2007, of the utility's capital structure and authorized rate of return for 2008, at the same levels as had been approved for 2007.<sup>15</sup> As reported in the filing, the "adopted cost

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<sup>15</sup> PG&E Corporation, Form 8-K, filed December 21, 2007

of capital” on a weighted return basis was 8.79%; this is a pre-tax weighted average cost of capital. Applying an assumption for marginal tax rate of 40.75% to the debt component of this adopted pre-tax WACC yields an after-tax WACC of about 7.66%, close to the value used as discount rate.

An open issue is whether it is appropriate to use a regulated utility’s authorized cost of capital as the discount rate for net revenues from PPAs with renewable generation developers. These developers are generally not regulated utilities but are rather private or public companies in the independent power producer (IPP) sector. The cost of equity and cost of debt for the riskier IPP sector are both considered higher than for regulated utilities. For example, the cost of debt assumed into the California Energy Commission’s (CEC’s) 2007 analysis of the Market Price Referent (MPR), an analysis that represents the risks of an IPP developer building a proxy plant under a long-term PPA, was 7.72%<sup>16</sup> compared to PG&E’s authorized 6.05%, and the assumed cost of equity underlying the proxy plant developer was 13.28% compared to PG&E’s authorized 11.35%.

One could argue that the flow of net benefits of power deliveries from IPPs contracting in long-term PPAs has more risk associated with it than PG&E’s risk (e.g. higher credit risk, bankruptcy risk, liquidity risk) that merits discounting the net benefits at the higher WACC associated with the IPP industry. That suggests that the appropriate WACC to be used when evaluating Offers in this solicitation should be closer to the 8.93% pre-tax WACC for the proxy plant cited in the 2007 MPR spreadsheet than to 7.6%. Arroyo Seco Consulting suggests that PG&E use the pre-tax WACC of the proxy plant in the 2008 MPR as the discount rate for the next renewable solicitation.<sup>17</sup>

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#### **E. OUTSOURCING OF EVALUATION ANALYSIS**

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PG&E did not outsource any portion of the evaluation of the Geysers contract.

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#### **F. TRANSMISSION ANALYSIS AND TRANSMISSION INFORMATION**

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PG&E did not apply Transmission Ranking Cost Report adders or estimates of the cost of alternative commercial arrangements to the analysis of the Geysers contract, even though the power from the Geysers system will be delivered to points in the California ISO within the Fulton transmission cluster identified in PG&E’s TRCR. Transmission adders are relevant for evaluating new generation projects that contribute to a need for transmission system upgrades, not for existing units like the Geysers system that already deliver their power through the existing grid.

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<sup>16</sup> Resolution E-4118, Energy Division of the Public Utilities Commission of the State of California, October 4, 2007, page 24

<sup>17</sup> Note that Arroyo does not suggest the use of a pre-tax IPP WACC as an input parameter to the Black option pricing model utilized for valuing dispatchable generation, described in Attachment K. Arroyo suggests using traditional proxies for the “risk-free rate” input to Black’s model, such as U.S. Treasury securities. This discussion of pre-tax IPP WACC applies only to use of a rate for discounting pre-tax benefits and costs of as-available, baseload, and peaking Offers.

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## **G. PG&E'S USE OF OTHER NON-QUANTITATIVE CRITERIA OR ANALYSIS**

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PG&E's LCBF evaluation methodology involves five non-quantitative criteria that are described in its 2009 RPS RFO solicitation protocol: Credit, Project Viability, RPS Goals, Modifications, and Counterparty Concentration.

PG&E considered how the Geysers contract performed against each of these criteria. However, the team did not use exactly the same methodology to evaluate the contract as it prescribes in the 2009 RPS RFO protocol. Specifically, the team did not rate the Geysers contract on a numerical score on a scale of 0 to 100 for Credit, and RPS Goals. It did not develop a Project Viability Calculator score for the Geysers system.

While one might perceive the less rigorous evaluation of a bilaterally negotiated contract against these non-quantitative criteria to be unfair to the participants who submit their offers through a competitive solicitation, Arroyo does not consider this to be a concern in the case of the Geysers contract. The utility clearly reviewed the portfolio fit of the contracted energy without developing a numerical score. The contract was reviewed for acceptance by PG&E's Credit Department, though a numerical score was not generated. Many of the subcriteria that are used to score offers with the Project Viability Calculator are very much on point for evaluating the likelihood of successful completion of proposed new projects (e.g. "project development experience"), but not particularly relevant for reviewing the viability of continued deliveries from existing facilities.

In Arroyo's opinion, the company's decision to not use exactly the same scoring systems to evaluate the Geysers contract against non-quantitative criteria as it uses in competitive solicitations creates a minor inconsistency, and does not represent unfair treatment of participants in competitive solicitations. In an ideal world the procedures would be identical. Furthermore, bilaterally negotiated contracts that feature proposed, as-yet-unbuilt facilities should be evaluated using the Project Viability Calculator if the utility is to conform to the directive of Decision 09-06-050 that the Energy Division review bilateral contracts for renewable energy "by using the same methods and criteria as are used to review contracts that are negotiated as a result of a utility's annual solicitation".<sup>18</sup> But the Geysers system is an existing set of facilities and would have achieved a high project viability score if the utility had filled out the calculator.

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## **H. ANALYSIS OF PG&E'S SHORT LIST RESULTS**

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While the PG&E evaluation committee and Arroyo Seco Consulting have previously disagreed on some specific decisions in the administration of PG&E's evaluation process, most of these minor issues were quickly resolved in the course of discussion during the development of a short list for the 2008 RPS RFO. One unresolved issue was the selection of discount rate for use in the valuation methodology.

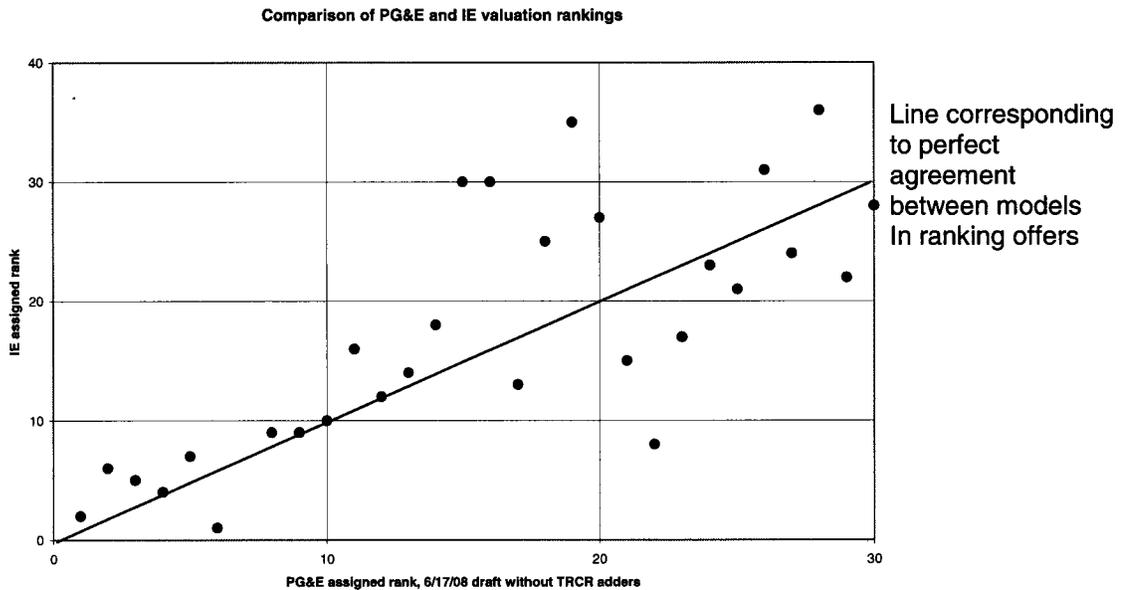
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<sup>18</sup> California Public Utilities Commission, Decision 09-06-050, "Decision Establishing Price Benchmarks and Contract Review Processes for Short-term and Bilateral Procurement Contracts for Compliance with the California Renewables Portfolio Standard", June 19, 2009

Arroyo expressed a concern about using an approved utility WACC as the discount rate for net benefit of Offers<sup>19</sup> as opposed to an IPP WACC. This disagreement was not resolved and Arroyo recommends the future use of an IPP WACC, such as the one used in the CEC's MPR analysis for a proxy plant built by independent power developers. Also, Arroyo raised an objection to elevating one low-valued Offer to the short list, based on the inconsistent treatment of competing Offers that were not selected. This was resolved by PG&E replacing it with a different Offer, so that the logic for including that low-valued Offer was fairly and consistently applied to evaluate competitors' Offers as well.

Arroyo employs a rather simple but independent valuation model as a means to check the results of PG&E's LCBF valuation model. Figure 1 shows a comparison of the ranking of the top Offers from the 2008 RPS RFO between the two models; the diagonal line shows where data points would fall if the two models agreed exactly on valuation rankings. The fit between model rankings is imperfect, but is fairly good considering how simplified the IE model is; the comparison is useful for identifying points of disagreement.

Figure 1



Arroyo used the simple model to compare the ranking of the proposed new Geysers contract to other offers available to PG&E for procuring renewable energy. No issues or concerns were identified in comparing results between the two models.

Arroyo concludes that the administration of PG&E's LCBF methodology to evaluate the proposed new Geysers contract was fair.

<sup>19</sup> Specifically, as-available, baseload, or peaking Offers valued against a forward curve in nominal dollars and discounted to 2009 dollars

## 4. ADEQUACY OF OUTREACH TO PARTICIPANTS AND ROBUSTNESS OF THE 2008 SOLICITATION

In its 2008 renewable solicitation, PG&E undertook to meet a goal of procuring 1 to 2% of its retail load through Offers that lead to successfully negotiated contracts. This section, specified by the Energy Division's long-form template for IE reports, discusses an assessment of the degree to which PG&E adequately conducted outreach activities in that RFO to drum up sufficient participation in the solicitation, and the degree to which the solicitation may be judged robust enough to be competitive.

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### A. PRINCIPLES TO ASSESS ADEQUACY OF OUTREACH

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Here are some considerations used to evaluate whether PG&E performed successfully in reaching out to the community of renewable power developers:

- How many individuals were contacted?
- To what extent were these contacts in companies that develop renewable power?
- Was a diverse set of renewable technologies covered in the contacts, or was the outreach excessively focused on one or two technologies?
- How widely was information about the solicitation disseminated?
- Was information about the solicitation readily available to the public?
- To what extent did Participants appear well-informed about the details of the solicitation?

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### B. PRINCIPLES TO ASSESS ROBUSTNESS OF THE SOLICITATION

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Here are some considerations used to evaluate whether PG&E performed successfully in conducting a robust solicitation:

- Was the response to the solicitation large enough for PG&E to reasonably expect to achieve its goal of procuring 1 – 2% of retail load, given the likely attrition of Offers between short list and actual production, without having to accept a majority of Offers?
- Was the response to the solicitation diverse with respect to technologies?

- Was the distribution of responses tilted towards projects that were assessed as generally viable, or was there an excess of less viable Offers?

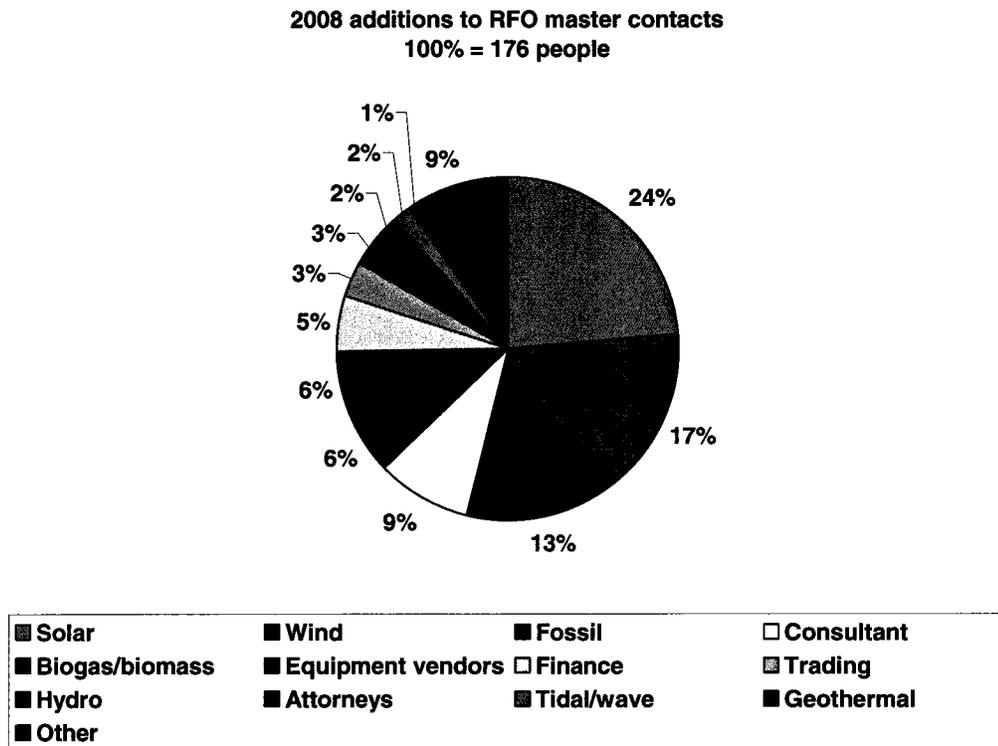
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**C. ADEQUACY OF OUTREACH**

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By the beginning of May 2008, PG&E had compiled a contact list for use in publicizing its 2008 RPS RFO, totaling about 1,022 individuals with unique names and e-mail addresses. Of these, about 176 contacts were clearly identified as having been added in 2008, the period running up to the release of the RPS RFO and through its submittal deadline. When analyzed to attempt to assess which industry the individual contacts represented, the largest segment was made up of individuals in the solar power sector, followed by wind power and fossil-fueled generation. Figure 2 displays the estimated shares by industry sector of these 2008 additions. Note that this contact list is employed not just for renewable solicitations but for all-source RFOs as well.

Figure 2



Inspection of the overall contact list reveals that many of the major developers of renewable energy in North America are included, particularly among solar and wind developers. It cannot be determined from inspecting the contact list whether PG&E proactively sought to add these individuals to the list or whether PG&E reacted to contacts coming to the utility and requesting information about procurement opportunities.

PG&E's press release announcing the issuance of the 2008 RPS RFO was picked up and reported broadly in the electric power trade press, including publications such as:

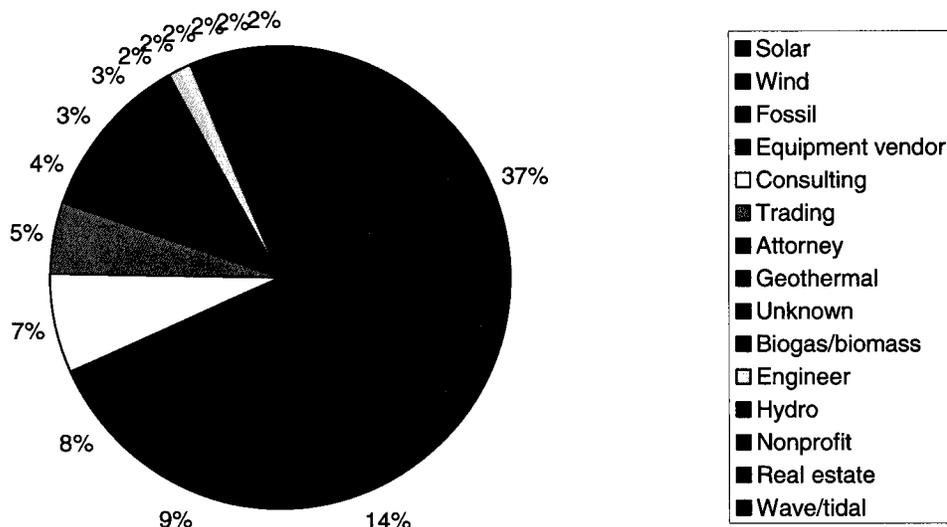
- Platts Power Markets Week
- Global Power Report
- Megawatt Daily
- Power Market Today
- Targeted News Service
- NewsTrak Daily
- Platts Commodity News
- Dow Jones News Service
- PR Newswire

In addition, the detailed solicitation protocol and its attachments, the schedule, and other RFO informational items were posted on PG&E's website for public access.

Another indicator of the adequacy of the outreach for the RFO was the response of attendees for the bidders' conference. Figure 3 shows the breakdown of individuals who registered for the conference (there is no means to check who actually attended) by the sector of the industry their employer represents. A turnout of 126 individuals is a healthy response. As with the contact list's 2008 additions, the largest share of attendees represented the solar and wind sectors of the renewable industries. While several of the attendees appeared to be individuals representing themselves only, or employees of small consulting firms or non-profit organizations, several other attendees represented leading manufacturers of solar and wind generation hardware and developers of wind and geothermal power projects.

Figure 3

Breakdown of attendees for conference  
100% = 126



Inspection of the written Offers submitted for the RFO suggests that, while many Participants (particularly those who attended the bidders' workshop or who had participated in prior RPS RFOs) had developed a strong overall comprehension of what information to submit in order to provide a proposal that conformed to the Solicitation Protocol's requirements, many had substantial weaknesses. Two common themes emerged in deficiencies: (1) Participants failed to fill in the fields on the Proposal Project Description for credit information such as their proposed amounts of Project Development Security and Delivery Term Security, and (2) Participants failed to fill in the field for energy pricing without Production Tax Credit (PTC) or 30% Investment Tax Credit (ITC), or they left pricing without PTC and ITC the same as pricing with PTC and ITC. These errors or omissions had to be corrected by sending Participants deficiency letters.

The bidders' workshop presentation dealt with how to fill in these fields in some detail, so it is hard to fault PG&E for insufficient outreach on these specific points. No Offer was disqualified for an initial failure to fill in these fields properly, and participants generally addressed the defects following issuance of the deficiency letters. A recommendation for future solicitations would be to revise the Instructions page in Attachment D to the Offer to clarify exactly what fields on credit information and energy pricing without PTC and ITC must be filled in, with what information, to achieve compliance.

Arroyo Seco Consulting's conclusion is that PG&E conducted substantial outreach to the community of renewable power developers in North America for the 2008 RPS solicitation. The number of individuals contacted, the breadth of distribution of the news of the solicitation in the electric power trade press, and the substantial participation in the bidders' conference suggest that overall outreach was strong. There may be room for future improvement in one specific area, discussed below.

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**D. ROBUSTNESS OF SOLICITATION**

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The Offers PG&E received for the 2008 RPS solicitation total a large volume of projected generation and capacity. The offered volume totaled a substantial fraction of PG&E's expected retail load, and should provide plenty of opportunity for PG&E to negotiate, contract for, and procure 1 to 2% of retail load, taking into account that a number of the Participants chose exclusive negotiation with other utilities instead of PG&E, some projects are likely to fall out of negotiation, and some projects that are contracted may yet fail to be completed and enter commercial operation. The risks of failure may be high in this year's solicitation if only because many of the submitted proposals are for large solar facilities, larger than any actually constructed in the U.S. in the last decade, which may carry substantial execution risk. However, the ratio of offered volume to targeted procurement volume reflects a healthy, robust response, suggesting a strong likelihood that the target will be achieved at some point in time.

The Offers for solar generation were disproportionately represented in the total compared to solar power's portion of 2008 outreach contacts and bidders' conference attendees. This may be a comment on the attractiveness of the solar resource in the southern part of California and the increasing degree to which photovoltaic, solar trough, and solar tower technologies are expected to capture scale economies.

The representation of wind generation in the Offers is roughly the same as its share of the 2008 additions to the PG&E RFO contact list and attendance at the bidders' workshop. The same is true for biomass/biogas and geothermal generation. However, since the contact list and the workshop attendees include large numbers of attorneys, consultants, equipment manufacturers, wholesale power marketers and traders, and farmers or other real estate owners, who are less likely to directly propose actual generation projects, the representation of wind, biomass, and geothermal Offers is rather lower than their representation among actual developers in the contact list additions and workshop attendees.

This may reflect the increased attractiveness of wind power development in other jurisdictions and markets in the U.S. with the more recent implementation of RPS standards elsewhere than California. Or it may reflect the uncertain status of federal tax credit renewal, the scarcity of wind turbines, the relatively high penetration of wind development in California, the relative challenge of the permitting process in California vs. other states, and/or the burden and delay of obtaining transmission access for new California wind projects. This may also represent the technological challenges and risks of developing new geothermal resources and the burden of obtaining transmission access to the CAISO grid from regions where geothermal resources are most attractive.

Without directly obtaining feedback from developers who did not submit Offers (such as those developers who submitted Notices of Intent to participate but chose not to offer) it is hard to know what factors may be limiting the response to the RFO from these other technologies. Arroyo recommends that PG&E make follow-up contacts to the geothermal, biomass, and wind development companies that submitted Notices of Intent but did not make Offers, in order to obtain feedback on their decisions to pass on this solicitation, and possibly to identify how to alleviate impediments to their making Offers in the future.

Executive Order S-06-06 states a goal for California to obtain 20% of its renewable electric generation from biomass. In PG&E's case, the share of renewable power currently procured from biomass generation is already well above that. However, as PG&E continues to succeed in negotiating large procurement contracts for renewable power using other technologies, a need may eventually emerge to increase the share of new procurement represented by biomass. Individuals associated with biomass and biogas generation made up about 6% of the contacts added to PG&E's list in 2008, and biomass and biogas power made up roughly 4% of the production volume of the Offers (not counting hybrid projects utilizing both biomass and other technologies). PG&E may have an opportunity to increase the extent to which it focuses a portion of its outreach to biomass power developers in its future RPS solicitations, along with the company's other innovative programs to capture biogas for commercial use.

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**E. SOLICITING FEEDBACK FROM PARTICIPANTS**

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After arriving at a final short list for the 2008 RPS RFO, PG&E sent e-mails to Participants whose Offers were not selected for the short list. Each communication included an offer to engage in a discussion of that outcome, if desired. About half of these Participants expressed an interest in such a follow-up discussion.

In a few cases, Participants who were notified that their Offers were included in the short list responded by withdrawing the Offers. In these cases PG&E proactively contacted the Participants to seek to find out the reasons for withdrawal from the solicitation. Arroyo concluded that PG&E's efforts to seek adequate feedback from all Participants about the 2008 RFO process were thorough.

## 5. FAIRNESS OF PROJECT-SPECIFIC NEGOTIATIONS

This chapter details an independent review of the extent to which PG&E's negotiations with Geysers for the extended and increased delivery of renewable power from its geothermal system can be considered to be fair. A more detailed narrative of points of the negotiation and how its fairness can be judged is provided in the confidential appendix to this report.

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### A. INDEPENDENT EVALUATOR'S LACK OF DIRECT OBSERVATION OF NEGOTIATIONS BETWEEN GEYSERS AND PG&E

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As described previously, because of the timing of the Commission's Decision to require an IE role in evaluating bilaterally negotiated contracts, Arroyo did not have an opportunity to participate directly in negotiating sessions between PG&E and Geysers transactors, as has been the case with short-listed parties from the 2008 RPS RFO. As a consequence, Arroyo is unable to base an opinion about the treatment of Geysers in those sessions, or how that treatment compares to the treatment of other counterparties with whom PG&E is negotiating, on direct observation. The limited findings in this section are based more narrowly on a comparison of the resulting executed contract's terms and conditions to those of other draft or executed contracts between PG&E and short-listed participants in the 2008 RPS RFO or resulting from other recent bilateral negotiations, and on a comparison to PG&E's performance assurance standards as articulated in the 2009 RPS RFO solicitation protocol.

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### B. FINDINGS FROM REVIEW OF THE GEYSERS CONTRACT IN COMPARISON TO PG&E'S FORM AGREEMENT

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The starting point for negotiations between the two parties was the existing contractual relationship through which Geysers is already delivering renewable energy to PG&E. Because the two existing contracts that form the basis for those deliveries were completed in the past, and because to a large extent the proposed new contract resembles an extension of those contracts, the terms and conditions of the proposed contract differ in certain ways from PG&E's standard 2009 form agreement that will serve as the starting point for negotiations with short-listed parties from the 2009 RPS RFO.

The variances between the proposed Geysers contract and the 2009 form agreement include a variety of minor differences. For example:

- The contract represents a transaction with an existing set of power plants, so terms and conditions related to new project development were not necessary;

- Language from existing contracts needed to be updated to bring the agreement into consistency with current non-modifiable terms and conditions and with the realities of the California ISO's Market Redesign and Technology Update; the transaction is not from a single delivery point as envisaged in the standard form agreement but from several individual power plants;
- The contract represents not only an extension of renewable energy deliveries from existing contracts, but includes incremental generation to be delivered to PG&E customers. The contract accommodates the continuation of the terms of one existing PPA and replaces the terms of the other upon its effective date.

In general PG&E and Geysers negotiated terms that are consistent with PG&E's 2009 form agreement. To the extent PG&E provided concessions to Geysers, these generally reflected terms that have been granted in the past to other counterparties upon request. Arroyo noted that the contract does include one specific component that might create the appearance of a concession to Geysers Power Company, LLC not generally provided to PG&E's counterparties for long-term renewable energy contracts. However, Arroyo observes that similar but different concessions have been provided in the past by PG&E in negotiations with other renewable energy counterparties and particularly in cases where the contract utilizes a similar pricing structure to the proposed Geysers PPA. Furthermore, Arroyo cannot identify specifically how other counterparties have been harmed by this one contract term. More details regarding this contractual component are described in the confidential appendix to this report.

Arroyo concludes that, despite this interesting variance between the proposed Geysers contract and PG&E's standard treatment of renewable energy contracts as communicated in its 2009 RPS RFO solicitation protocol, the negotiation appears to be fair overall to ratepayers and to competing generators. Again, this opinion is not based on direct observation of negotiating sessions but rather on a review of the resulting contract language.

## 6. MERIT FOR CPUC APPROVAL

This chapter provides an independent review of the merits of the proposed new Geysers contract against the high-level criteria identified in the Energy Division's 2008 IE template.

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### A. CONTRACT SUMMARY

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PG&E and Geysers executed a PPA for a sale of renewable energy, green attributes, and capacity from the Geysers system on September 30, 2009. The contract provides for delivery of scheduled energy to PG&E from the various individual power plants that make up the Geysers system.

The proposed contract would provide baseload energy bundled with green attributes and resource adequacy capacity. Total scheduled energy deliveries would vary based on a predetermined annual schedule, up to about 3.54 TWh per year depending on performance. The proposed new contract may be viewed as a means of extending the term of delivery of renewable energy under two existing contracts as well as providing incremental energy beyond those contracts.

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### B. NARRATIVE OF EVALUATION CRITERIA AND RANKING

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The 2008 template for independent evaluators, provided by the Energy Division, calls for a narrative of the merits of the proposed project on the major categories of contract price, portfolio fit, and project viability. More specific details are provided in the confidential appendix to this report.

#### CONTRACT PRICE AND MARKET VALUATION

Arroyo has compared the estimated cost of the proposed new Geysers contract to peer groups of alternative sources of renewable energy for PG&E, using both PG&E's LCBF methodology and the simpler independent model. Based on those comparisons, in Arroyo's opinion, the net market valuation for the new contract appears likely to rank as moderate.

Arroyo estimates that the levelized price of the new contract will not be less than the 2008 Market Price Referent for generation resource coming on-line in 2010.<sup>20</sup> The confidential appendix to this report provides a more detailed discussion of the pricing of the PPA and the basis for Arroyo's opinion that the net value of the contract is likely to be moderate.

#### PORTFOLIO FIT

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<sup>20</sup> California Public Utilities Commission, Resolution E-4214, December 18, 2008, page 1; the baseload MPR for ten-year resources commencing 2010 is \$101.75/MWh in nominal dollars; the term of the Geysers contract would be about twelve years depending on effective date.

Arroyo ranks the proposed Geysers contract as moderate in portfolio fit. The Geysers system would continue to provide baseload energy to PG&E's customers under the new contract. While PG&E's portfolio does not have an immediate need for incremental new baseload power, the costs of remarketing off-peak power if and when the delivery is not fully required are likely to be low. Furthermore, the new contract has the effect of extending the delivery of currently contracted baseload energy further into the future than is provided by existing contracts, into a period when a portfolio need for additional baseload resources may exist.

### PROJECT VIABILITY

The project viability of existing Geysers generation facilities from which power will be supplied under the contract is high. The facilities already exist. All permitting, interconnection, financing, equipment, and site control issues have been dealt with. Geysers Power Company, LLC has had years of experience operating and maintaining these facilities. The viability of these power plants is clearly superior to that of prospective new facilities that as yet have not been permitted, lack interconnection agreements, will require major transmission network upgrades to deliver power, or rely on technologies that have never been deployed at utility scale of hundreds of megawatts.,

### RPS GOALS

The proposed Geysers contract would advance PG&E towards its RPS goals in the near future by adding to renewable energy deliveries to PG&E customers in calendar 2010, beyond the volume already contracted in existing PPAs. It would advance the utility towards meeting its RPS target for 2020, by extending deliveries from the Geysers system to a new contract termination date at the end of 2021. It would not contribute to the goals set by the Governor's executive order regarding use of biomass or to PG&E's supplier diversity goals.

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## **C. DISCUSSION OF MERIT FOR APPROVAL**

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Arroyo concurs with PG&E management that the proposed Geysers contract merits CPUC approval. The contract offers high project viability and the ability to contribute to PG&E's RPS targets for both 2010 and 2020. The estimated valuation of the contract is moderate. While a specific concern was identified in the contract's terms and conditions that could create the appearance of disparate treatment compared to other RFO participants, Arroyo opines that the negotiation appears (based on indirect evidence rather than on direct observation) to have been fair overall and that there are precedents for PG&E conceding this contract feature of the PPA; Arroyo cannot identify how other counterparties have been harmed by PG&E providing that specific contract feature to Geysers.

## 7. CONCLUSIONS

Arroyo Seco Consulting concludes that the LCBF methodology that PG&E employed in evaluating the proposed new Geysers contract was fair and reasonable. The administration of the methodology was fair and reasonable.

Based on a review of the terms and conditions of the executed PPA (rather than on direct observation of the actual negotiation process), Arroyo infers indirectly that the negotiations were likely conducted fairly overall. In Arroyo's opinion, the proposed new Geysers contract will likely rank as moderate in net market valuation, is moderate in portfolio fit, and is high in project viability, and merits CPUC approval.

**PG&E Gas and Electric  
Advice Filing List  
General Order 96-B, Section IV**

|  |   |  |
|--|---|--|
| Alcantar & Kahl                          | Defense Energy Support Center               | North Coast SolarResources                                 |
| Ameresco                                 | Department of Water Resources               | Northern California Power Association                      |
| Anderson & Poole                         | Department of the Army                      | Occidental Energy Marketing, Inc.                          |
| Arizona Public Service Company           | Dept of General Services                    | OnGrid Solar   |
| BART                                     | Division of Business Advisory Services      | Praxair  |
| BP Energy Company                        | Douglas & Liddell                           | R. W. Beck & Associates                                    |
| Barkovich & Yap, Inc.                    | Douglass & Liddell                          | RCS, Inc.  |
| Bartle Wells Associates                  | Downey & Brand                              | Recon Research   |
| C & H Sugar Co.                          | Duke Energy                                 | SCD Energy Solutions                                       |
| CA Bldg Industry Association             | Dutcher, John                               | SCE  |
| CAISO                                    | Ellison Schneider & Harris LLP              | SMUD   |
| CLECA Law Office                         | FPL Energy Project Management, Inc.         | SPURR  |
| CSC Energy Services                      | Foster Farms                                | Santa Fe Jets  |
| California Cotton Ginners & Growers Assn | G. A. Krause & Assoc.                       | Seattle City Light   |
| California Energy Commission             | GLJ Publications                            | Sempra Utilities   |
| California League of Food Processors     | Goodin, MacBride, Squeri, Schlotz & Ritchie | Sierra Pacific Power Company                               |
| California Public Utilities Commission   | Green Power Institute                       | Silicon Valley Power                                       |
| Calpine                                  | Hanna & Morton                              | Silo Energy LLC  |
| Cameron McKenna                          | Hitachi                                     | Southern California Edison Company                         |
| Cardinal Cogen                           | International Power Technology              | Sunshine Design  |
| Casner, Steve                            | Intestate Gas Services, Inc.                | Sutherland, Asbill & Brennan                               |
| Chamberlain, Eric                        | Los Angeles Dept of Water & Power           | Tabors Caramanis & Associates                              |
| Chevron Company                          | Luce, Forward, Hamilton & Scripps LLP       | Tecogen, Inc.  |
| Chris, King                              | MBMC, Inc.                                  | Tiger Natural Gas, Inc.                                    |
| City of Glendale                         | MRW & Associates                            | Tioga Energy   |
| City of Palo Alto                        | Manatt Phelps Phillips                      | TransCanada  |
| Clean Energy Fuels                       | Matthew V. Brady & Associates               | Turlock Irrigation District                                |
| Coast Economic Consulting                | McKenzie & Associates                       | U S Borax, Inc.  |
| Commerce Energy                          | Merced Irrigation District                  | United Cogen   |
| Commercial Energy                        | Mirant                                      | Utility Cost Management                                    |
| Consumer Federation of California        | Modesto Irrigation District                 | Utility Specialists  |
| Crossborder Energy                       | Morgan Stanley                              | Verizon  |
| Davis Wright Tremaine LLP                | Morrison & Foerster                         | Wellhead Electric Company                                  |
| Day Carter Murphy                        | New United Motor Mfg., Inc.                 | Western Manufactured Housing Communities Association (WMA) |
|  | Norris & Wong Associates                    | eMeter Corporation   |