STATE OF CALIFORNIA Edmund G. Brown Jr., *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

February 3, 2014

Advice Letters 4238-E/E-A/E-B

Brian K. Cherry
Vice President, Regulation and Rates
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177

Subject: PG&E's 2012 Renewables Portfolio Standard Shortlist Report and Supplemental Filings

Dear Mr. Cherry:

Advice Letters 4238-E/E-A/E-B are effective December 19, 2013 per Resolution E-4631.

Sincerely,

Edward Randolph

Edward F. Randolph, 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

June 7, 2013

Advice 4238-E
(Pacific Gas and Electric Company ID U39 E)

Public Utilities Commission of the State of California

Subject: Pacific Gas and Electric Company's 2012 Renewables Portfolio Standard Shortlist Report

I. Purpose

In compliance with Decision ("D.") 12-11-016, as amended on April 9, 2013,[1] Pacific Gas and Electric Company ("PG&E") hereby submits its 2012 Renewables Portfolio Standard ("RPS") Shortlist Report. The 2012 RPS Shortlist Report is comprised of PG&E's description of its 2012 RPS Solicitation Evaluation Criteria and Selection Process and the Independent Evaluator's Report for PG&E's 2012 RPS Solicitation (jointly the "Report").

II. Attachments

In support of this advice letter, PG&E is attaching the following documents:

Section 1:	Confidential Independent Evaluator Report
Section 2:	Public Independent Evaluator Report (Confidential Data Redacted)
Section 3:	Public Least-Cost, Best-Fit Report
Section 4:	Confidential Solicitation Overview
Section 5:	Confidential 2012 RPS RFO Workpapers

III. Confidentiality

PG&E submits the confidential Appendices 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.

[1] Letter from Paul Clannon to Maria Vanko (granting extension to deadlines associated with the 2012 RPS Solicitation, including the filing of the Tier 2 Shortlist Report to June 7, 2013).

III. Protests

Anyone wishing to protest this filing may do so by letter sent via U.S. mail, facsimile or E-mail, no later than June 27, 2013, which is 20 days after the date of this filing. Protests must be submitted to:

CPUC Energy Division
ED Tariff Unit
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102

Facsimile: (415) 703-2200
E-mail: EDTariffUnit@cpuc.ca.gov

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

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

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

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

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 96-B, Section 7.4). The protest shall contain the following information: specification of the advice letter protested; grounds for the protest; supporting factual information or legal argument; name, telephone number, postal address, and (where appropriate) e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

IV. Effective Date

PG&E submits this Advice Letter as a Tier 2 filing and requests that it be approved effective on July 7, 2013.

V. 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.11-05-005 and R.10-05-006. 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 and electronic approvals should be directed to PGETariffs@pge.com. Advice letter filings can also be accessed electronically at: http://www.pge.com/tariffs.

Sincerely,

Brian Cherry

Vice President - Regulatory Relations

cc: Paul Douglas – Energy Division
Jason Simon – Energy Division
Cheryl Lee – Energy Division
Service Lists: R.11-05-005 and R.12-03-014

Attachments:

Section 1: Confidential Independent Evaluator Report
Section 2: Public Independent Evaluator Report (Confidential Data Redacted)
Section 3: Public Least-Cost, Best-Fit Report
Section 4: Confidential Solicitation Overview
Section 5: Confidential 2012 RPS RFO Workpapers

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 E)**

Utility type:

☑ ELC ☐ GAS

☐ PLC ☐ HEAT ☐ WATER

Contact Person: Anupama Vege and Kimberly Chang

Phone #: (415) 973-7600 and (415) 972-5472

E-mail: PGETariffs@pge.com, a1vb@pge.com and kwcc@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) #: **4238-E** **Tier:** 2

Subject of AL: **Pacific Gas and Electric Company's 2012 Renewables Portfolio Standard Shortlist Report**

Keywords (choose from CPUC listing): Contracts, Portfolio

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: ☐ Yes ☐ No All members of PG&E's Procurement Review Group who have signed nondisclosure agreements 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: Sandra Burns (415) 973-1627

Resolution Required? ☐Yes ☑No

Requested effective date: **July 7, 2013** 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: N/A

Service affected and changes proposed: N/A

Pending advice letters that revise the same tariff sheets: N/A

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:

California Public Utilities Commission
Energy Division
EDTariffUnit
505 Van Ness Ave., 4th Flr.
San Francisco, CA 94102
E-mail: EDTariffUnit@cpuc.ca.gov

Pacific Gas and Electric Company
Attn: Brian 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 SANDRA J. BURNS
SEEKING CONFIDENTIAL TREATMENT
FOR CERTAIN DATA AND INFORMATION CONTAINED IN
ADVICE LETTER 4238-E
(PACIFIC GAS AND ELECTRIC COMPANY - U 39 E)

I, Sandra J. Burns, declare:

1. I am presently employed by Pacific Gas and Electric Company ("PG&E"), and have been an employee at PG&E since 1985. I am a principal in the Renewable Energy group in the Energy Procurement department within PG&E. I am responsible for managing PG&E's Renewables Portfolio Standard solicitation and negotiating power purchase agreements with counterparties. In carrying out these responsibilities, I have acquired knowledge of such sellers in general and, based on my experience in dealing with facility owners and operators, I am familiar with the types of data and information about their operations that such owners and operators 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 Sections 1, 4 and 5 of PG&E's Advice Letter 4238-E, submitted on June 7, 2013.

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, if applicable; (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 submittal.

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 June 7, 2013, at San Francisco, California.

Sandra J. Burns

Sandra J. Burns

PACIFIC GAS AND ELECTRIC COMPANY
Advice Letter 4238-E
June 7, 2013

IDENTIFICATION OF CONFIDENTIAL INFORMATION

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 (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**
Documents: Section 1, 4, and 5							
Section 1 – Confidential Independent Evaluator Report	Y	Item VII (un-numbered category following VII G) Score sheets, analyses, evaluations of proposed RPS projects. Item VIII A) Bid information and B) Specific quantitative analysis involved in scoring and evaluation of participating bids. General Order 66-C.	**Y**	**Y**	**Y**	This confidential version of the Independent Evaluator's report summarizes and evaluates confidential information concerning the Shortlisted Projects from the 2012 RPS Solicitation. Disclosure of this report would provide business and financial information to participating bidders' competitors and prospective sellers to PG&E and would most likely influence their business conduct to the detriment of PG&E's customers. This information is therefore considered to be market sensitive information. In addition, to the extent not covered by the Matrix, the IE Report contains certain information that PG&E understands the developers consider proprietary and confidential and should be redacted pursuant to General Order 66-C.	For information covered under Item VII (un-numbered category following VII G), remain confidential for three years. For information covered under Item VIII A), remain confidential until after final contracts submitted to CPUC for approval. For information covered under Item VIII B), remain confidential for

PACIFIC GAS AND ELECTRIC COMPANY
Advice Letter 4238-E
June 7, 2013

IDENTIFICATION OF CONFIDENTIAL INFORMATION

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 (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
							three years after winning bidders selected. For information covered under General Order 66-C, remain confidential indefinitely.
Section 4 – Solicitation Overview	Y	Item VII (un-numbered category following VII G) Score sheets, analyses, evaluations of proposed RPS projects. Item VIII A) Bid information and B) Specific quantitative analysis involved in scoring and evaluation of participating bids.	Y	Y	Y	This section contains summaries of bid information, quantitative analyses, and evaluations of bids from the 2012 RPS Solicitation. Disclosure of this information would provide valuable market sensitive information to competitors. Release of this information would be damaging to negotiations with other counterparties and should remain confidential. In addition, to the extent not covered by the Matrix, Section 4 contains certain information that PG&E understands the developers consider proprietary and confidential and should be	For information covered under Item VII (un-numbered category following VII G), remain confidential for three years. For information covered under Item VIII A), remain confidential until after final contracts

PACIFIC GAS AND ELECTRIC COMPANY
Advice Letter 4238-E
June 7, 2013

IDENTIFICATION OF CONFIDENTIAL INFORMATION

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 (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
		General Order 66-C.				redacted pursuant to General Order 66-C.	submitted to CPUC for approval. For information covered under Item VIII B), remain confidential for three years after winning bidders selected. For information covered under General Order 66-C, remain confidential indefinitely.
Section 5 - 2012 RPS RFO Workpapers	Y	Item VII (un-numbered category following VII G) Score sheets, analyses, evaluations of proposed RPS projects.	Y	Y	Y	This section contains bid information, quantitative analyses, and evaluations of bids from the 2012 RPS Solicitation. The trend of renewable energy offers received by PG&E and the near term prices would provide strategic market information to potential sellers and	For information covered under Item VII (un-numbered category following VII G), remain confidential for

PACIFIC GAS AND ELECTRIC COMPANY
Advice Letter 4238-E
June 7, 2013

IDENTIFICATION OF CONFIDENTIAL INFORMATION

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 (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
		Item VIII A) Bid information and B) Specific quantitative analysis involved in scoring and evaluation of participating bids. General Order 66-C.				would therefore constitute market sensitive information. Disclosure of this information would provide valuable market sensitive information to competitors. Release of this information would be damaging to negotiations with other counterparties and should remain confidential. In addition, to the extent not covered by the Matrix, Section 5 contains certain information that PG&E understands the developers consider proprietary and confidential and should be redacted pursuant to General Order 66-C.	three years. For information covered under Item VIII A), remain confidential until after final contracts submitted to CPUC for approval. For information covered under Item VIII B), remain confidential for three years after winning bidders selected. For information covered under General Order 66-C, remain confidential

PACIFIC GAS AND ELECTRIC COMPANY
Advice Letter 4238-E
June 7, 2013

IDENTIFICATION OF CONFIDENTIAL INFORMATION

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							indefinitely.

Section 2
Independent Evaluator Report
(PUBLIC Version)

Pacific Gas and Electric Company®

June 7, 2013

ARROYO SECO CONSULTING

PACIFIC GAS AND ELECTRIC COMPANY 2012 RENEWABLES PORTFOLIO STANDARD SOLICITATION

REPORT OF THE INDEPENDENT EVALUATOR ON THE OFFER EVALUATION AND SELECTION PROCESS

JUNE 7, 2013

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report provides an independent evaluation of the process by which the Pacific Gas and Electric Company (PG&E) undertook a competitive solicitation in 2013[1] to procure energy eligible to meet Renewables Portfolio Standard (RPS) goals. An independent evaluator (IE), Arroyo Seco Consulting (Arroyo), conducted a range of activities to review, test, and check PG&E's processes as the utility conducted outreach to renewable power developers and operators, solicited Offers, evaluated Offers, and selected a short list of Offers with which to pursue negotiations.

The high-level findings of this independent evaluation are that

- PG&E undertook adequate outreach to the renewable generation community and succeeded in conducting a robust competitive solicitation;
- The utility's Least-Cost, Best-Fit (LCBF) methodology was designed such that, for the most part, Offers were fairly evaluated, though Arroyo disagreed narrowly with one element of the evaluation method;
- Overall, PG&E administered its LCBF methodology fairly when evaluating the 2012 Offers. Arroyo disagreed with a few of PG&E's choices but believes that such choices are reasonable and justifiable and within the range of subjective business judgment that an investor-owned utility may apply; and
- Arroyo's opinion is that PG&E's proposed RPS short list merits Commission approval.

The report details the basis for these findings, following the 2012 version of the RPS Independent Evaluator Template provided by the Energy Division (ED) of the California Public Utilities Commission (CPUC). The public version of this report has had confidential information redacted.

[1] While the Offers were due on February 6, 2013 and were evaluated in 2013, the solicitation was issued on December 10, 2012 and is considered to be a 2012 Request for Offers.

1. ROLE OF THE INDEPENDENT EVALUATOR

Pacific Gas and Electric Company issued a Request for Offers (RFO) on December 10, 2012, a competitive solicitation for power generation qualifying as eligible renewable energy resources (ERRs) under the California Renewables Portfolio Standard Program. The RPS Program was established by state law to ensure that retail sellers of electricity meet targets for procurement from ERRs as a percentage of annual retail sales. In its solicitation protocol for the 2012 RPS RFO, PG&E announced its intent to procure approximately 1.25% of its retail sales volume through the 2012 process, or about 1,000 GWh annually.[2]

The CPUC had conditionally approved PG&E's 2012 RPS procurement plan in its Decision 12-11-016 issued on November 14, 2012. This chapter elaborates on the prior CPUC decisions that form the basis for an Independent Evaluator's participation in the 2012 RPS RFO, describes key roles of the IE, details activities undertaken by the IE in this solicitation to fulfill those roles, and identifies the treatment of confidential information.

A. CPUC DECISIONS REQUIRING INDEPENDENT EVALUATOR PARTICIPATION

The CPUC first mandated a requirement for an independent, third-party evaluator to participate in competitive solicitations for utility power procurement in Decision 04-12-048 on December 16, 2004 (Findings of Fact 94-95, Ordering Paragraph 28). The CPUC required 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 establishing an IE role would serve as a safeguard against anti-competitive conduct in the process of evaluating IOU-built or IOU-affiliated projects competing against Power Purchase Agreements (PPAs) with independent power developers.

In approving the IOUs' 2006 RPS procurement plans, the CPUC issued Decision 06-05-039 on May 25, 2006. This Decision expanded the CPUC's requirements, ordering that each IOU use an IE to evaluate and report on the entire solicitation, evaluation, and selection process, for the 2006 RPS RFO and future competitive solicitations. This requirement now applies whether or not IOU-owned or IOU-affiliate generation participates in the solicitation (Finding of Fact 20, Conclusion of Law 3, and Ordering Paragraph 8). This was intended by the CPUC to increase the fairness and transparency of the Offer selection process.

Decision 06-05-039 required the IE to report separately from the utility on the bid solicitation, evaluation, and selection process. Based on that Decision, the IE should provide a preliminary report along with the IOU submitting its short list. This document represents that shortlisting report for PG&E's 2012 renewable solicitation.

[2] Pacific Gas & Electric Company, "Renewables Portfolio Standard: 2012 Solicitation Protocol", November 29, 2012, page 5.

B. KEY INDEPENDENT EVALUATOR ROLES

To comply with the requirements ordered by the CPUC, PG&E retained Arroyo Seco Consulting to serve as IE for the 2012 RPS solicitation, providing an independent evaluation of the utility's Offer evaluation and selection process.

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."[3] More specifically, the Energy Division of the CPUC has provided a template to guide how IEs should report on the 2012 RPS competitive procurement process, outlining five specific issues that should be addressed:

- Describe the IE's role;
- Did the IOU do adequate outreach to participants, and was the solicitation robust?
- Was the IOU's LCBF methodology designed such that offers were fairly evaluated?
- Was the LCBF offer evaluation process fairly administered?
- Does the proposed RPS short list merit Commission approval?

The structure of this report, setting out detailed findings for each of these issues, is organized around the template provided by the Energy Division of the CPUC.

C. IE ACTIVITIES

To fulfill the role of evaluating PG&E's 2012 solicitation, several tasks were undertaken, both prior to Offer Opening and subsequently. Prior to the Offer Opening window of January 29 through February 6, 2013[4], Arroyo performed several tasks to assess PG&E's methodology for evaluating Offers:

- Reviewed the solicitation and its attachments including PG&E's 2012 Form Agreements and description of the LCBF methodology and criteria.
- Examined the utility's non-public protocols detailing how PG&E would evaluate Offers against various criteria.

[3] CPUC Decision 06-05-039, May 25, 2006, "Opinion Conditionally Approving Procurement Plans for 2006 RPS Solicitations, Addressing TOD Benchmarking Methodology", page 46.

[4] The solicitation protocol originally fixed January 29, 2013 at noon PST as the deadline for submitting Offers; subsequently PG&E extended this deadline to a window to submit Offers from January 29 to February 6, 2013 at 5:00 PST. The motivation for the change was the awkward timing in which Phase I interconnection reports for projects in the CAISO's Cluster 5 were expected to be issued on or around January 31. PG&E chose to accommodate sellers with such projects by allowing all Participants (not just those with Cluster 5 projects) to submit Offers within the window. Arroyo agreed that allowing all Participants to meet the later deadline seemed fair to both groups.

- Attended PG&E's Bidders' Webinar on December 20, 2012 to evaluate information provided to potential Participants, and how that information was distributed.

- Reviewed the list of registered attendees of the Bidders' Webinar against PG&E's master list of RFO contacts (used for outreach to potential Participants).

- Checked the posting of questions and answers from the Bidders' Webinar on PG&E's public website to see whether information that was made available in-person to conference attendees was also provided to other potential Participants.

- Examined PG&E's 2012 RFO master contact list; performed an analysis of contacts with respect to industry and technology representation.

- Interviewed members of PG&E's evaluation committee regarding details of the 2012 version of the utility's LCBF methodology and its inputs, with a focus on the use of PG&E's Portfolio-Adjusted Valuation ("PAV") method, which the CPUC for the first time authorized PG&E to employ in selecting Offers in the 2012 solicitation.

During the period between Offer Opening and PG&E's development of a final short list for submittal to the CPUC, Arroyo's activities included:

- Participating in opening Offers. Arroyo observed the opening of nearly all Offers.[5] The IE took an electronic copy of each Offer package, and independently built a database for tracking Offers.

- Observing discussions of the PG&E evaluation team about additional information that should be requested from individual Participants to address material deficiencies, such as missing interconnection studies, to ensure that each Offer included sufficient information to complete an evaluation and to minimize the number of Offers disqualified as non-conforming to the requirements of the solicitation protocol.

- Reviewing the outbound correspondence ("deficiency letters") to Participants identifying issues with the completeness of the Offers and requesting clarification or additional information. Arroyo monitored other e-mail communications between PG&E and Participants to check for fairness in how information was provided.

- Reading portions of each Offer. Arroyo focused on offer forms stating project descriptions and price and on text descriptions relevant to project viability.

- Observing PG&E evaluation team discussions about which Offers to disqualify for nonconformance with the requirements of the Solicitation Protocol, and why.

[5] Because Offers trickled in to PG&E's General Office over the course of several business days during the window for Offer opening, the IE did not observe all Offer packages being opened but instead was present on the first and last days of the window, when nearly all the Offers arrived.

- Spot-checking Offer-specific data inputs to PG&E's valuation model, including assignments to Locational Marginal Price (LMP) zones.

- Building an independent valuation model (and its inputs) and using it to value Offers. This served as a cross-check against PG&E's LCBF model. The IE model used independent inputs and a different methodology than PG&E's. It was much simpler and lacked detail and granularity used in the PG&E model. However, an independent valuation was useful for testing the robustness of PG&E team's ranking of Offers using alternate assumptions.

- Attending PG&E's evaluation team discussions of Offers, criteria, issues, etc.

- Scoring Offers independently for viability, using the ED's 2011 version of the Project Viability Calculator. The independently developed Offer valuations and viability scores provided part of the basis for developing an independent view of the relative merit of Offers that the PG&E team selected or rejected.

- Reviewing PG&E's scoring of Offers for the criteria other than market valuation and project viability, testing for consistency and fairness in the treatment of projects.

- Attending meetings of PG&E's steering committee, as it made decisions about the logic for selecting a short list and approved proposed selections for the short list.

- Attending meetings of PG&E's Procurement Review Group (PRG), including answering questions about the solicitation and the Offers, and presenting an independent commentary and observations about the RFO.

- Offering PG&E's evaluation team and steering committee commentary based on independent opinion.

Arroyo's focus going forward will be on assessing the fairness of project-specific negotiations for shortlisted Offers and the merit of individual agreements.

D. TREATMENT OF CONFIDENTIAL INFORMATION

The CPUC's Decision 06-06-066 detailed guidelines for treating confidential information in IOU power procurement and related activities, including competitive solicitations. The Decision provides for confidential treatment of "Score sheets, analyses, evaluations of proposed RPS projects",[6] vs. public treatment (after submittal of final contracts) of the total number of projects and megawatts bid by resource type. Where the IE's reporting on the fairness of PG&E's selection of Offers requires explicit discussion of such analyses, scores, and evaluations, these are redacted in the public version of this document.

[6] California Public Utilities Commission, Decision 06-06-066, "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. ADEQUACY OF OUTREACH TO PARTICIPANTS AND ROBUSTNESS OF THE SOLICITATION

In its 2012 RPS solicitation, PG&E sought to meet a goal of procuring approximately 1.25% of retail load (or 1,000 GWh/year) by selecting Offers that will lead to some negotiated, executed contracts and to some new commercially operating generating facilities. This section assesses the degree to which PG&E adequately conducted outreach activities to drum up sufficient participation in the RFO process, and the degree to which the resulting solicitation may be judged robust enough to be fully competitive.

A. CLARITY AND CONCISION OF SOLICITATION MATERIALS

PG&E's 2012 RPS solicitation protocol is modestly sized for a document of its type (it totals 33 pages excluding attachments, vs. SDG&E's 30 pages), and is more concise than protocols PG&E used in prior years. This is part because some of the bulky text specifying detailed requirements for Offers' contents has been shifted into Attachment J from the main body of the protocol. Arroyo regards this as an improvement over prior years.

Arroyo believes that the contents of PG&E's 2012 RPS RFO solicitation protocol generally provided clear and comprehensible direction to Participants on how to prepare and submit complete Offer packages that could be accepted and evaluated. Here are a few observations about the clarity of the guidance provided in the protocol:

- Nearly all Offers were submitted as complete and conforming packages. The most common deficiency that needed to be remedied was a failure to include interconnection studies. This requirement was stated in two points within the solicitation protocol, so the fact that about a dozen Offers were submitted that failed to include the studies suggests that some Participants were inattentive. Perhaps greater emphasis needs to be placed on this specific requirement in future pre-offer conference presentations. Arroyo does not see how PG&E could have edited the solicitation protocol to make it plainer to see that this was a requirement.

  The proportion of Offers that needed to be corrected for deficiencies in the offer packages was fairly modest and lower than in some prior years' renewable RFOs. This suggests that PG&E's solicitation materials were clear enough for the majority of Participants to understand and follow.

- The 2012 solicitation protocol stated some preferences of the utility:

  1. Offers that begin delivery in 2019 or 2020 (when the utility currently forecasts an RPS compliance need, in contrast to earlier years);

2. Projects considered bundled, in-state resources or out-of-state resources scheduled into a California balancing authority without substituting electricity from another source, or using a dynamic transfer agreement ("Category 1"), over projects whose output will be considered renewable energy credits (RECs) for RPS compliance purposes ("Category 3") and over out-of-state resources whose output is shaped and firmed using substitute electricity and scheduled into a CAISO interface point ("Category 2");

3. Among Category 2 Offers, a delivery pattern that is flat in all hours except with no off-peak delivery in the second quarter of each year;

4. Projects within the PG&E service territory, as opposed to sites within the territories of other utilities (CAISO participating members or otherwise);

5. Offers with a delivery term of ten to fifteen years, as opposed to longer or shorter delivery periods;

6. Projects that offer flexibility in scheduling generation, such as Offers that provide for buyer curtailment beyond the minimum requirements of PG&E's Form Agreement.

Based on comments provided in feedback sessions after the RFO, it appeared that most Participants were aware of these stated preferences, with a small minority of developers having missed, for example, the preference for projects in PG&E's service territory, or PG&E's disinclination to select Offers with 25-year delivery terms. One exception was that it appeared that many Participants did not appreciate the fact, stated clearly in the public description of the evaluation methodology, that offering more than the minimum number of hours of buyer curtailment would increase their Offer's valuation. This may be due to the novelty of the Portfolio-Adjusted Valuation methodology; repeated emphasis on this component of valuation may attract future Participants' notice.

When the utility solicited feedback from non-shortlisted Participants after closing the solicitation, the sense of the commentary about the clarity of RFO materials was neutral to quite positive. Some developers indicated that PG&E's written requirements were "fairly easy to follow" and that PG&E "did a great job in communications with Participants before, during, and after" the due date. The solicitation materials were characterized as "complete – we were not shooting in the dark". There were far fewer complaints about the burdensome nature of preparing Offer packages than in PG&E's prior RFOs, perhaps because some of the requirements have been pared down in the 2012 solicitation. Also, while some Participants struggled with entering their project data into the MS Excel offer form and had to seek guidance before the due date, this affected fewer developers than in prior years.

Overall, Arroyo believes that PG&E's solicitation materials were clear and concise.

B. ADEQUACY OF OUTREACH

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

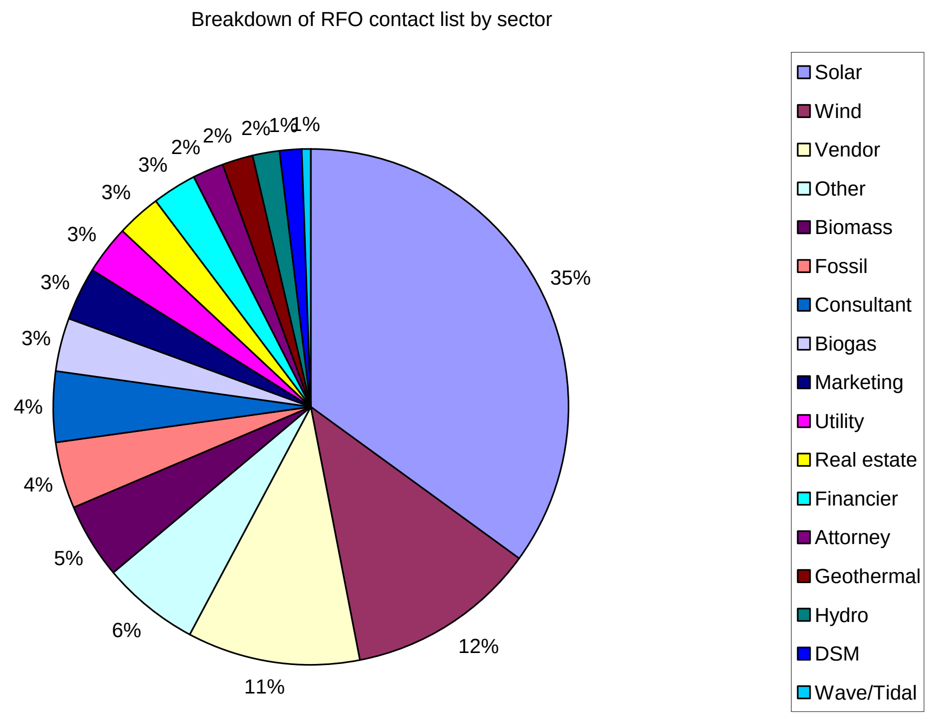
- How many individuals were contacted?
- To what extent were these contacts in companies that develop and/or own renewable power projects or market unbundled RECs?
- Was a diverse set of renewable technologies covered in the contacts, or was the outreach excessively focused on one or two technologies?
- 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?

By December 2012, PG&E had compiled a general contact list for use in publicizing its RFOs, totaling more than 1,900 individuals; this is an increase from the version of the list used in the 2011 RPS solicitation, with closer to 1,600 contacts. PG&E appears to have been actively compiling contacts for outreach, including sublists for the biogas industry, operators of combined heat and power facilities, and developers of smaller photovoltaic projects appropriate for the utility's solar photovoltaic and RAM RFOs.

When analyzed to attempt to assess which industries the contacts represented, the largest segment was made up of individuals active in the solar power sector, followed by wind power. The third largest segment of RFO contacts was composed of vendors, including equipment vendors and engineering and construction firms. The fourth largest segment was made up of individuals that Arroyo classified as "Other", including regulators, municipal government staff, non-profit associations, transmission developers, and individuals and firms with no obvious direct connection to any specific sector of the renewable power generation industry, such as potato chip manufacturers. Figure 1 displays the estimated shares by industry sector of these contacts.

Inspection of the contact list reveals that many of the major developers of renewable energy in North America are included, particularly among solar, wind, and geothermal developers. About 60% of the individual contacts represented organizations that could develop renewable generation or sell from existing facilities, or market RECs. Other contacts were with entities that provide services to renewable energy developers, such as attorneys, financing providers, consultants, and equipment vendors; it is unclear whether these providers sought inclusion on PG&E's RFO contact list in order to keep abreast of the solicitation or to develop business with renewable energy developers.

Figure 1. Composition of RFO contact list



PG&E did not issue a press release to announce the issuance of the 2012 RPS RFO. News of the solicitation was picked up and reported in the electric power trade press, including Megawatt Daily; journalistic reportage of the release of the RFO was less widespread than in prior years. Also, the detailed solicitation protocol and its attachments, the schedule, and other informational items were posted on PG&E's public website.

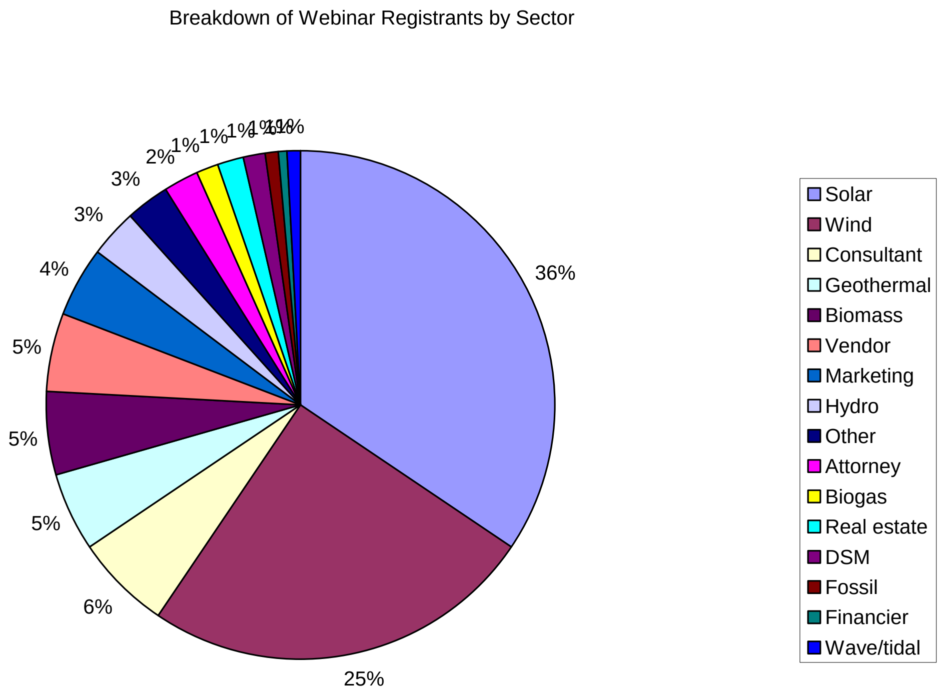
Arroyo notes that news of PG&E's RPS RFO was publicized not only in the trade press but also on the public websites of law firms whose practices include a focus on renewable energy contract law, such as Allen Matkins and Davis Wright Tremaine. The news of the RFO was also disseminated by the Geothermal Resources Council and the National Renewable Energy Laboratory.

Another indicator of the adequacy of outreach for the RFO was the response of attendees for the bidders' conference. Figure 2 displays a count of organizations, by sector, with individuals who registered for the conference (some companies had several registrants). A turnout of 170 individual registrants and 167 actual attendees represents a strong response and expression of industry interest, though it is about one-third the number of registrations for the 2011 RPS RFO bidders' conference. The largest share of attendees represented the solar and wind sectors.

Arroyo estimates that out of the firms represented at the 2012 bidders' conference, about three-quarters were companies directly involved with developing or owning and operating renewable energy generation. About 37% of these were firms that later submitted

Offers. It appears to Arroyo that most of the companies that chose to participate in the 2012 RPS RFO took the solicitation seriously and endeavored to understand how the RFO would be conducted by attending the conference.

Figure 2. Composition of registration for bidders' conference



PG&E posted condensed version of questions posed by Participants at the conference and the utility's answers on its public website. This enhanced the fairness of the solicitation overall by ensuring that attendees did not unfairly benefit from information not made available to their competitors.

Arroyo's conclusion is that PG&E conducted substantial outreach to renewable power developers active in North America. The number of individuals contacted, the distribution of the news of the solicitation in the electric power trade press, the attendance at the bidders' conference, and the decent yield of Offers submitted by conference attendees all suggest that PG&E's overall outreach effort was strong and effective.

C. ROBUSTNESS OF THE SOLICITATION

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 expect to achieve its goal of procuring 1,000 GWh/year, given the likely attrition of Offers between short list and commercial operation, without having to accept a majority of Offers?

- Was the response to the solicitation diverse with respect to technologies?

- Was the distribution of responses broadly represented by projects that were assessed as moderately or highly viable, or was there an excess of less viable Offers?

The response to the solicitation was robust; contracting with all Offers would provide almost half of all the energy required to serve PG&E's customers. The response exceeded the stated goal for the solicitation (1,000 GWh/year of renewable energy) by a factor of [redacted] The volume of bundled energy Offers proposed, [redacted] represented a decrease by about 60% from the 2011 RPS solicitation's response, which had massive participation. The total capacity of proposed projects for in-state, bundled generation was [redacted], which is about 30% of the response in PG&E's 2011 RPS RFO.

One would expect PG&E to be easily able to meet its volume goal for the solicitation from such a robust response. [redacted] This should be adequate for PG&E to achieve the targeted volume even with attrition from Participants who fail to complete negotiations to execute a contract, or projects that succumb to risks that could prevent a facility from achieving successful operation.

Arroyo speculates that the lower volume of Offers in PG&E's 2012 RPS RFO compared to the 2011 solicitation stems in part from the newly imposed minimum requirement for new projects to have an active interconnection application that has obtained a Phase I interconnection study. In the more robust 2011 RPS RFO, roughly half of all Offers were for the output of proposed projects that had not yet applied for an interconnection or had not yet obtained a completed Phase I study report. Such projects would have been ineligible to participate if the 2012 requirement had been in place. Also, some developers might have chosen not to offer projects that they would rather bring on line before PG&E's preferred 2019 and 2020 dates.

The technology that represented the largest share of offered bundled energy production was solar photovoltaic power, [redacted] This was followed by geothermal generation [redacted] wind [redacted] solar thermal [redacted] and biomass and biogas [redacted]. In contrast to PG&E's 2011 RPS RFO, proposals to sell the utility unbundled renewable energy credits made up only a modest portion of total Offers; [redacted]

The share of geothermal Offers increased from PG&E's 2011 RPS RFO. Arroyo speculates that this is due in part to Edison's choice not to hold an RPS RFO this year. [redacted] In contrast, the portion of proposals from wind developers declined from 2011. It is hard to tell whether this may have been caused by the uncertainty in the wind industry in 2012 about whether federal production tax credits for wind energy would be extended or by the California legislation that places shaped-and-firmed deliveries of out-of-state wind generation into a less favored category.

PG&E's protocol explicitly stated a preference for Category 1 deliveries from in-state generators.

Offers for biomass-fueled projects declined [redacted] in this year's RPS solicitation from the 2011 RPS RFO total [redacted]

D. IMPERIAL VALLEY OFFERS

The CPUC has stated a public interest in obtaining a robust response to the IOUs' RPS solicitations from developers in the Imperial Valley, and in the 2009 RPS solicitations required that the utilities hold special Imperial Valley bidders' conferences. This focus is "in order to provide all reasonable opportunities for optimal use of the Sunrise transmission project."[7] For the 2012 RPS solicitations, the CPUC did not specifically require special Imperial Valley bidders' conferences (and treated such conferences as optional) but required continued monitoring of the investor-owned utilities' renewable procurement activities in the Imperial Valley area. PG&E chose not to conduct a special Imperial Valley conference.

PG&E received [redacted] Offers for output of Imperial Valley facilities, [redacted] of all proposals for bundled energy delivery. This was the same number of Imperial Valley project proposals received in PG&E's 2011 RFO, and more as a percent of the total. [redacted] In this year's solicitation the total capacity of Offers for Imperial Valley projects, [redacted], totaled about [redacted] of all capacity offered. The total annual volume of Imperial Valley projects, about [redacted] This representation of Imperial Valley projects seems to be quite robust, [redacted]

E. ADEQUACY OF FEEDBACK FROM PARTICIPANTS

In its communications notifying Participants that their Offers had not been shortlisted, PG&E offered an opportunity to discuss the outcome. Several of the non-shortlisted Participants expressed an interest in follow-up discussions.[9] Arroyo observed [redacted] of these sessions [redacted] this is a higher representation of

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7 California Public Utilities Commission, Decision 11-04-030, "Decision Conditionally Accepting 2011 Renewables Portfolio Standard Procurement Plans and Integrated Resource Plan Supplements", April 20, 2011, page 24.

[redacted]

9 In the 2011 RFO PG&E did not formally solicit feedback from Participants in its communications to non-shortlisted parties, but many took the opportunity to request a debriefing session anyway.

Participants than in PG&E's 2011 RPS RFO). Arroyo' opinion is that PG&E sought adequate feedback from Participants about the bidding and evaluation process.

These feedback sessions were welcomed by the Participants who requested them. They created an opportunity for Participants to ask more questions about the merits and demerits of their proposals for future improvements. Many Participants, when prompted to offer feedback on PG&E's solicitation materials and process, had generally positive commentary. For example, several developers compared PG&E's handling of its solicitation quite favorably against San Diego Gas & Electric's simultaneous RFO, commenting on greater transparency, more straightforward handling of responses, and timelier and clearer feedback on rejections by PG&E than SDG&E.

This year for the first time PG&E provided guidance on the value ranking of rejected Offers by quartile, which some developers found useful as a means of improved transparency. Several developers noted that PG&E has had sufficient experience holding renewable solicitations that the basic process runs smoothly and Participants know what to expect, and that the RFO process compares favorably to that in other states. Another theme was that PG&E does a "great job" in communicating to Participants before, during, and after the shortlisting process. For example, PG&E was quite clear about its 1,000 GWh/year volume goal for the 2012 solicitation, while SDG&E did not state what amount of renewable energy it sought in the public documents for its 2012 RFO, which led at least one developer to compliment PG&E on "being very transparent". Participants also appreciated the switch in the 2012 RFO to electronic submittal of most Offer documents from the requirement for duplicate hardcopies in the past.

Various critiques of PG&E's RFO were also offered. Some themes included:

- Even more transparency in feedback about rejected Offers would be appreciated, such as identifying the size of the gap between individual rejected Offers and the pricing of shortlisted Offers;

- Some Participants would prefer even more transparency on how PG&E estimates the value of capacity and of intermittent vs. firm energy;

- PG&E's collateral requirements, especially the standard project development security for new projects, seem high compared to other utilities;

- The selection process is perceived as skewed towards selection on best price, so that developers with highly viable projects and a solid track record of success expressed a concern that they are disadvantaged compared to riskier "low-bid" proposals with a greater likelihood of failure. These developers hoped that the regulator would take the viability or firmness of the cost estimates underlying the lowest bids into account when assessing the merits of PPAs.

- Owners of existing generators expressed a concern that the process favors new projects that will displace operating generation that has proven itself viable.

- A desire was expressed for the regulator to force the three investor-owned utilities to converge to using a common offer form, thus reducing the effort required of developers to participate in multiple solicitations. Also, a desire was stated for the regulator to match the timing of the RPS RFO cycle to the CAISO's interconnection study cycle better, making it possible to have studies in hand before Offers are due and to have short list selection known before deposits are due in the interconnection process.

- Some elements of PG&E's requirements are perceived as excessively inflexible, such as the limit of no more than four variants per Offer.

Arroyo's opinion is that PG&E's efforts to give and receive feedback after the close of the solicitation were adequate and helpful both to the utility and to those Participants who were willing to take part in a debriefing session. There remain opportunities to obtain more detailed feedback from the shortlisted parties in coming weeks as the utility and these Participants begin negotiations.

3. FAIRNESS OF OFFER EVALUATION AND SELECTION METHODOLOGY

The key finding of this chapter is that PG&E's evaluation and selection methodology for identifying a short list for the 2012 RPS RFO was designed fairly, overall. Arroyo has some specific but narrow disagreements with the utility's approach.

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

A. PRINCIPLES FOR EVALUATING THE METHODOLOGY

The Energy Division of the CPUC has usefully suggested a set of principles for evaluating the process used by IOUs for selecting Offers in competitive renewable solicitations, within the template intended for use by IEs in reporting. These include:

- There should be no consideration of any information that might indicate whether the participant is an affiliate.
- Procurement targets and objectives were clearly defined in the IOU's solicitation materials.
- The IOU's methodology should identify quantitative and qualitative criteria and describe how they will be used to rank offers. These criteria should be applied consistently to all offers.
- The LCBF methodology should evaluate offers in a technology-neutral manner.
- The LCBF methodology should allow for consistent evaluation and comparison of offers of different sizes, in-service dates, and contract length.

Some additional considerations appear relevant to PG&E's specific situation. Unlike some utilities, PG&E does not rely on weighted-average calculations of scores for evaluation criteria to arrive at a total aggregate score. Instead, the team ranks Offers by Portfolio-Adjusted Value ("PAV"), after which, "Final shortlisting decisions are made with judgment using the scores and assessments from the other evaluation criteria"[10] The application of judgment in bringing the non-valuation criteria to bear on decision-making, rather than a predetermined, mechanical, quantitative means of doing so, implies an opportunity to test the fairness and consistency of the method using additional principles:

[10] Pacific Gas and Electric Company, "Renewables Portfolio Standard, 2012 Solicitation Protocol: Attachment K, PG&E's Description of its RPS Bid Evaluation, Selection Process and Criteria", November 29, 2012, page 13.

- The methodology should identify how non-valuation measures will be considered; non-valuation criteria used in selecting Offers should be transparent to Participants.
- The logic of how non-valuation criteria or preferences are used to reject higher-value Offers and select lower-value Offers should be applied consistently and without bias.
- The valuation methodology should be reasonably consistent with industry practices.

B. STRENGTHS AND WEAKNESSES OF PG&E'S METHODOLOGY

PG&E's evaluation methodology for renewable energy solicitations has been revised over the course of several years, and its evolution has benefitted from input from IEs, the utility's PRG, and internal review. It has thus achieved a certain degree of refinement that has strengthened the process in terms of fairness and reasonableness. This section discusses the methodology in greater depth, and addresses a set of specific issues that are called out in the Energy Division's 2012 template for IE reports.

1. CONSISTENCY WITH 2012 RPS PROCUREMENT PLAN

This section discusses whether PG&E's evaluation and selection methodology is consistent with its final 2012 renewable energy procurement plan. The finding is that, overall, the methodology as documented in the 2012 RPS solicitation protocol is consistent with the approved plan.

- The procurement goal for the 2012 solicitation is consistent with that stated in the plan of adding 1,000 GWh/year through new long-term contracts;

- The solicitation accepts Offers both from new projects and from existing, operating facilities, and does not apply an explicit preference to either. (An existing, operating facility that does not propose major modifications will score higher than a proposed new resource using the Project Viability Calculator, but that is a natural attribute of the project as opposed to an intentional selection bias.) As stated in the approved plan, PG&E is not seeking short-term transactions that will fail to contribute to RPS needs beyond 2020. The RFO protocol states a minimum contract term of ten years and used an adjustment to valuation that advantaged proposals with delivery terms of ten to fifteen years. Also, as stated in the plan, PG&E envisaged long-term Offers from existing contracted RPS facilities whose PPAs do not expire in the near term; a portion of the outreach for the solicitation targeted such existing projects.

- The plan indicates that the 2012 RFO would seek products that enable PG&E to comply with its Resource Adequacy requirements. The public protocol states PG&E's preference for project that are fully deliverable (as opposed to energy-only or partially deliverable). The valuation methodology rewards fully deliverable projects with higher values, as long as the delivery network upgrade cost to achieve full capacity deliverability status does not exceed the estimated value of RA capacity.

- The plan expresses a preference for long-term contracts that begin deliveries in 2019-2020, which is when PG&E current anticipates a need to augment its existing

RPS portfolio. The valuation methodology has an adjustment which discounts the benefit of projects that commence deliveries earlier than the beginning of 2019.

- The plan also states that PG&E will be procuring long-term volumes with initial delivery dates "no later than the latter part of the third compliance period." This element of the plan is intended to help ensure RPS compliance both within the third compliance period and after 2020. However, there is no specific element of PG&E's methodology that deters selection of or discounts the value of Offers whose delivery starts after the end of the third compliance period. To the contrary, Arroyo believes that the tendency of the valuation methodology, with the inputs that PG&E has chosen, is to assign higher values to long-term Offers with even later on-line dates, all else being equal. In the actual event, as described in a later chapter, [redacted] and PG&E chose not to shortlist such Offers.

- The plan also states a preferences for projects sited within PG&E's service territory. The valuation methodology has adjustments which discount the value of Offers from projects sited outside the service territory.

- New in 2012, the plan calls for an adjustment to the value of contracts whose projects provide intermittent generation that varies over time. The valuation methodology now applies a discount for intermittent resources such as wind and solar photovoltaic generation. The effect is to assign a premium to firm resources that more reliably match their stated daily delivery profile. In prior RFOs this was addressed within a standalone metric for portfolio fit. That metric has been eliminated and replaced with adjustments to calculate Portfolio-Adjusted Value. Arroyo believes that the new approach adequately takes into account a project's characteristics related to portfolio fit preferences regarding RPS compliance needs, energy firmness, and geographical location.

- The plan states a preference for Offers from projects with characteristics meriting a higher viability score. The solicitation protocol indicates that Project Viability Calculator score will serve as one of the criteria for evaluation and selection and that the utility will evaluate the viability of each Offer using the Calculator.

- The final procurement plan identifies the integration cost assumption as zero as directed by the CPUC; the methodology assumes a zero integration cost adder.

- The plan states a preference for Category 1 product over Category 2 product and that over Category 3 product. This preference is stated in the solicitation protocol; the valuation methodology itself does not specifically distinguish Offers by category so the PG&E team must consciously make separate decisions about selections within each category.

- The plan states PG&E's preference for projects that have less uncertainty about their cost impact, such as new generators that have a completed Phase II interconnection study. The evaluation methodology assigns projects with an executed SGIA or completed Phase II study a higher project viability score than those with only a completed Phase I study or equivalent, and this year PG&E required all Offers for new projects to have at least a Phase I study. The solicitation protocol states that project viability has the greatest qualitative impact on Offer ranking (among non-quantitative criteria).

- Both the plan and the solicitation protocol convey PG&E's expectation that the team will use project-specific cost estimates drawn from interconnection studies to estimate transmission adders in the valuation process, but that PG&E reserves the possibility of using Transmission Cost Ranking Report estimates if appropriate.

In summary, PG&E's methodology aligns very closely with its 2012 RPS procurement plan, and is overall consistent with the plan's stated needs and preferences, requested products, and specification of portfolio fit. The one exception noted above is the plan's suggestion that initial delivery dates for long-term contracts would not be allowed beyond 2020, which is not explicitly stated in the solicitation protocol or addressed specifically in the methodology. In implementing its methodology, PG&E dealt with this by omitting from its final short list any proposals with initial delivery after 2020.

2. MARKET VALUATION

General strengths and weaknesses. PG&E's valuation methodology has several advantages over methods used by other utilities:

- It is rooted in a comparison to market forward prices rather than to model outputs for hypothetical future market price based on inputs such as forecast demand, modeled supply increases, and fuel price scenarios.

- It is relatively rapid to turn around several valuations at once, in contrast to the burdensome nature of running multiple cases of traditional utility production cost models with dozens of cases for each generating unit assumed built vs. assumed not built to calculate system cost differences between scenarios with each unit in vs. out.

- Net Market Value is a valuation concept that is generally accepted in the electric power industry.

- It provides an intuitive valuation based on the degree to which generating units are "in the money" with respect to market price.

There are some drawbacks with this approach, some of which are common to any valuation methodology for long-term PPAs:

- Because western power forward markets are not liquid and transparent beyond a limited time horizon, PPAs that last for up to 20 or 25 years must rely on extrapolation of market forward curves rather than on direct observation of traded prices for power two decades hence. Such extrapolated prices are unlikely to be accurate forecasts, but the ranking of Offers using extrapolated inputs might still be directionally correct.

- A certain degree of interpolation or projection is required to achieve hourly granularity in price assumptions. The diurnal shape of California power market pricing is changing in response to the addition of new renewable resources, and it is rather difficult to forecast with accuracy how hourly price profiles might evolve over three decades.

- In the absence of functioning, liquid, transparent markets in California for Resource Adequacy, the valuation must rely on fundamental forecasts for the value of capacity rather than on traded forward curves. These forecasts peg the value of RA at rather high and monotonically increasing levels in future years, whereas the record so far in deregulated wholesale power markets is one of boom and bust cycles where the value of capacity flies up in years of scarcity then collapses for extended periods after a burst of overbuilding new plants.

- There are challenges in estimating what Net Qualifying Capacity will be assigned by the CAISO to a project that does not yet exist, and at a point in time when changes to the currently approved methodology are anticipated but not fully confirmed. PG&E's approach to estimating NQC in the 2012 RPS RFO relies on its own assumptions about what the CAISO and CPUC will adopt.

- The methodology, given its inputs from forward curves, RA value assumptions, and discount rate, sometimes gives results that might appear counterintuitive, such as preferring higher-priced but longer-term contracts to lower-priced but shorter-term contracts, or preferring PPAs with 25- or 30-year delivery terms over those with 10- or 15-year terms, all else being equal. Such outcomes can be explained by inspection of the data and input parameters and are consistent with the methodology. If the results run counter to the utility's or ratepayer's preferences, issues can be addressed through PG&E's flexibility to apply business judgment to its decisions. Also, in the 2012 RPS RFO PG&E has chosen to use adjustments to value that may compensate for the specific effect of valuing long-duration PPAs more than short ones.

<u>Price vs. Value.</u> PG&E's LCBF methodology takes into account both proposed price and estimated net value of each Offer, in the narrow sense that price is a key input to the utility's valuation model. However, PG&E ranks Offers by Portfolio-Adjusted Value to make a primary screening for selection purposes, and does not construct or review a separate ranking by contract price. The valuation ranking takes into account the total cost to ratepayers of a PPA by including the contract payments (or purchase price) for a project and the transmission rate impact of required network upgrades and the effect of differing market prices across zones on the attractiveness of a project's output.

When reviewing Offers to make a short list, PG&E does include information on LCBF-based net value and pricing, but the focus is on value, including transmission network upgrade cost impacts, rather than on contract price. As a result, the methodology will not systematically select the lowest-priced Offers, particularly when those projects would incur large upgrade costs. Arroyo views this use of value rather than price as the primary metric for ranking as appropriate given the potentially vast cost to ratepayers of network upgrades.

Financial Benefits and Costs. Overall, PG&E's LCBF methodology adequately takes into account nearly all financial benefits and costs of proposed Offers (see below for one exception). There are some areas that would be challenging for the evaluation team to quantify in financial terms, so that their omission seems reasonable. For example:

- Environmental externalities relating to the impact of new projects on wildlife or scarce water supplies are difficult to quantify as financial costs. A sub-team of PG&E's evaluation team reviews such aspects of proposed projects as their potential impact on threatened and endangered species. While these concerns are not translated into estimates of financial costs, PG&E's selection of a short list is informed by these data.

- Some local areas of PG&E's grid could suffer from deficiencies in local capacity resources compared to requirements identified to maintain local reliability. For example, the CAISO has identified potential deficiencies in the Humboldt, Stockton, and Sierra local areas within PG&E's territory using the more stringent of two tests for adequacy.[11] It is difficult to quantify as financial benefits the extra benefit to grid reliability that would be provided by contracting with new resources in local sub-areas with such deficiencies. Some of the deficiencies seem likely to be resolved by debottlenecking investments in the medium term, but future generator retirements could create issues in the future.

- The California IOUs assume that the cost of integrating new resources into the electric system is zero, consistent with current CPUC policy. Utilities in other jurisdictions apply estimated costs of integration for intermittent resources when ranking the value of potential new projects, based on estimates of such components as obtaining sufficient load-following resources and voltage/frequency regulation. One might anticipate that at some point as load grows and as intermittent resources make up a greater proportion of the resource mix within the CAISO the price of increasingly scarce but required load-following and regulation may increase.[12] This potential effect is not included in PG&E's valuation; there is no CEC-approved methodology for such an estimate. Arroyo's concern is that continuing to assume zero integration costs in RPS solicitations may skew renewable procurement and new construction towards investments that some day will in hindsight seem imprudent from a system operability and reliability viewpoint.

Transmission upgrade costs. As described above, PG&E's LCBF methodology includes the costs of transmission upgrades in its value calculations of all Offers involving projects that propose to interconnect directly to the CAISO. In the protocol for market valuation for this RFO, PG&E proposed to use the estimates of network upgrade costs from interconnection studies including CAISO Cluster 4 Phase II studies and Cluster 5 Phase I

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[11] California Independent System Operator, "2013 Local Capacity Technical Analysis: Draft Report and Study Results", April 9, 2012, page 2.

[12] Resources well-suited for providing these capabilities include hydroelectric plants and aging gas-fired steam units; the latter are increasingly uneconomic to continue operating as energy providers.

studies (the latter freshly issued just before the offer opening deadline). However, PG&E also reserved the alternative of using proxy cost estimates from the IOUs' Transmission Ranking Cost Reports, "if more appropriate." The public and non-public protocols leave unstated under what circumstances the utility would consider it appropriate to use proxy costs from TRCRs rather than estimates from interconnection studies as the basis for valuing the network upgrade costs associated with new projects. The next chapter discusses how PG&E implemented its protocol in the selection process.

PG&E's methodology omits consideration of these network upgrade costs in situations where the project proposes to interconnect outside the CAISO balancing authority area and the network costs are ultimately borne by transmission customers of that other balancing authority area. In Arroyo's opinion, these costs should have been included in PG&E's LCBF calculation but were not. This issue is discussed further in the next section.

Congestion charges. Arroyo believes that the current implementation of the LCBF methodology does not appropriately count the congestion charges between certain distant CAISO delivery points such as the Palo Verde hub or Mead substation and the EZ hubs internal to CAISO service territories. Arroyo recommends that the PG&E team develop estimates of LMP multipliers appropriate for these delivery points as it has done for zones within the main body of the CAISO grid. Arroyo's concern is that the LCBF methodology overvalues Offers for delivery at Palo Verde because it does not adequately take into consideration the difference between the value of power delivered at the periphery of the CAISO and the value of power delivered in the core of Edison's territory; [redacted]

REC-only Offers. The energy value, capacity value, and ancillary services value of unbundled REC-only Offers is assumed to be zero. As a result, the Net Market Value of such Offers is the levelized price multiplied by -1. The utility's 2012 protocols are clear on how to calculate NMV for REC-only Offers but do not provide much guidance on how or whether to compare the valuations to competing alternatives comprised of bundled deliveries or how to select such Offers for the short list.

3. EVALUATION OF TRANSMISSION COSTS

The valuation methodology assigns estimated transmission costs to the contract price of generation in order to compare Offers fairly, taking into account the full cost of generating power including both the price paid for the PPA and the cost of upgrades required to achieve reliable deliverability for new generation. Many features of the transmission cost methodology are specified by regulatory decisions.

The methodology has clear virtues:

- It provides a view of full costs of a project rather than only the energy procurement cost. This is a truer representation of the full cost to society of a new project.

- It provides a means to level the playing field between Offers that deliver directly into PG&E's service territory at uncongested locations and those whose proposed facilities will require expensive new transmission upgrades and new substation facilities to maintain grid reliability.

- Relying on estimates from interconnection studies provides a clearer view of the project-specific impacts on grid costs. Even when new facilities are sited in the same transmission cluster, the project-specific network upgrade scope can be dramatically different from project to project.

- Using interconnection studies provides a view of whether a new project will be fully deliverable upon commercial operation or whether it will likely start deliveries with an energy-only interconnection, reducing its value to ratepayers. This estimate is not available when using TRCRs.

- PG&E is able to weigh the total cost of transmission upgrades for a project against the relative value of Resource Adequacy that the upgrades will provide. The methodology calls for Offers that propose full-capacity PPAs to be valued counting both the value of capacity and the cost of upgrades, while Offers proposing energy-only deliveries are valued counting only the cost of reliability network upgrades. In the 2012 RPS RFO, PG&E followed each Participant's specification of whether a proposal is full-delivery vs. energy-only, rather than testing both and picking the higher-valued alternative.

The transmission cost methodology also has some drawbacks:

- The process of estimating transmission adders can be analytically burdensome. It requires checking of Participant's information by transmission experts

- TRCR adders are a generalized, regional proxy for the actual cost of a particular project at a specific interconnection point. There can be rather large deviations between the final cost of network upgrades written into an interconnection agreement and a TRCR estimate. While the April 5, 2012 Assigned Commissioner's Ruling on 2012 RPS procurement proposed using CAISO interconnection studies for evaluation when available, rather than TRCRs, the Decision approving 2012 RPS procurement plans made no changes regarding the use of TRCRs. PG&E's 2012 RPS procurement plan kept open the utility's option to use TRCR data in evaluations rather than CAISO interconnection studies if appropriate.

- CAISO Phase I studies have been known to provide gross early overestimates of the actual network upgrade costs. In some transmission clusters, excessive numbers of new projects have applied for interconnections; their aggregate new capacity is so large that Phase I estimates of work required to accommodate such a large new build are massive. When posed with the obligation to finance hundreds of millions of dollars of network upgrades for their projects, many developers choose to drop out of the CAISO queue, leaving sufficiently fewer new projects moving through the Phase II study to result in much smaller estimates of network upgrade costs. If this scenario plays out, the methodology disadvantages projects that have received a

Phase I study but not yet a Phase II study, even though the analysis in hand is the best currently available estimate of project-specific upgrade requirements. This seems less than fully fair to some projects caught in that early stage of analysis, but is likely to be unavoidable when relying on project-specific information.

- Arroyo expressed a concern in its IE report on PG&E's 2011 RPS solicitation that PG&E applied transmission adders to projects that interconnect to the CAISO but did not include any estimate of network upgrade costs for projects that interconnect to the Imperial Irrigation District. Arroyo believes that excluding network upgrade costs when valuing Offers located in California in non-CAISO balancing authority areas could unfairly bias selection towards Imperial Valley projects that will interconnect to the grid of the Imperial Irrigation District. In those cases California ratepayers would end up bearing the upgrade costs in their rate base, but they happen to be businesses and households whose transmission rate base is outside the CAISO grid, so these costs are not taken into account when PG&E estimates the value of the contract offer.

  In its Decision approving PG&E's 2012 RPS procurement plan, the CPUC stated that "the Commission agrees with PG&E that no preferences should be given to CAISO-interconnected projects or to projects otherwise interconnected."[13] By loading the valuation of CAISO-interconnected projects with required network upgrade costs but not considering such costs when valuing IID-interconnected projects, the methodology creates the potential for a systematic preference for the latter. In Arroyo's opinion, PG&E's calculation of net value is not a neutral metric for comparing CAISO- and non-CAISO-interconnected projects. This methodological quirk results in a selection bias which is the opposite of the concern previously expressed by stakeholders including IID, fearing discrimination against IID-interconnected projects.

  Not only does PG&E's method for calculating transmission adders omit network upgrades on the IID grid that are caused by new projects, it also omits the cost of network upgrades that could or would be required in the CAISO grid for new generation built in IID's territory. Specifically, San Diego Gas & Electric Co. has estimated the impact of new "external" generation built to interconnect onto IID's grid upon SDG&E's network reliability. At some level of new build within IID's territory, SDG&E estimates that it would have to construct new 69-kV transmission lines in its territory in order to accommodate flows from those projects into its Imperial Valley substation and westward into the core of its territory without overloads.[14] Because projects that interconnect to IID's grid do not obtain an analysis of such reliability network upgrades to SDG&E's grid in their interconnection studies, PG&E is unable to obtain project-specific information about how to estimate CAISO upgrade costs driven by such effects. The only

[13] CPUC Decision 12-11-016, "Decision Conditionally Accepting 2012 Renewables Portfolio Standard Procurement Plans and Integrated Resource Plan Off-Year Supplement", November 14, 2012, page 17.
[14] San Diego Gas & Electric Company, "Draft Transmission Ranking Cost Report of San Diego Gas & Electric Company (U 902 E)", June 27, 2012, page 24.

publicly visible source of such analysis would be SDG&E's Transmission Ranking Cost Reports.

The PG&E team conducted conformance checks of transmission study results. Arroyo notes that some offer forms misstated the estimated network upgrade costs provided by CAISO or PTO studies. Arroyo believes that PG&E did a thorough job of checking the original source materials when conducting its analysis of transmission adders for CAISO-interconnecting projects. Part of the challenge was that many Participants omitted the required copy of the latest interconnection study, requiring the utility team to seek this information for deficient Offer packages.

4. EVALUATION OF BIDS' PROJECT VIABILITY

The implementation of the Project Viability Calculator as a screening tool for use in the evaluation of Offers has brought several advantages:

- The Calculator is a step in the direction of more standardized evaluation of viability across all three IOUs.
- The Calculator provides a broader set of criteria by which projects are assessed than was the case with PG&E's prior approach to scoring viability.
- The range of scores from zero to 100 gives more visibility to differences between projects than prior methods that use single-digit scores.
- The methodology allows PG&E the flexibility to use both the more standardized tool as well as its subjective business judgment in taking project characteristics into account when making short list decisions.

There are still opportunities to improve the use of the Calculator.

- Some of the scoring guidelines for the Calculator are sufficiently ambiguous that reasonable individuals scoring the same project can arrive at different results. For example, when an offer for a full-capacity project requires delivery network upgrades estimated to take several years beyond the proposed on-line date to complete, one scorer might assign zero points to "Reasonableness of COD" by observing that the PPA cannot deliver the proposed product on time, and another might assign 10 points, observing that the project can likely start energy-only deliveries on time.

  When the scores rated by Arroyo and the PG&E team for the 2012 RPS RFO were compared, the variance between scores had a standard deviation of 9 points. This suggests that the Calculator is a somewhat crude screening tool with a lot of noise in the scoring process, and that differences of only two or three points between projects should not be regarded as determinative in selecting one and rejecting the other, because the difference falls within the error of the analysis. PG&E took this characteristic of the Calculator into account when using the tool.

- Some Participants appear to have a poor understanding of how the utility interprets the scoring guidelines. Also, some Participants choose to self-score their proposals in grossly inflated ways that overstate the Offer's viability beyond any reasonable measure. Arroyo believes this renders the self-scored Calculators submitted with offer packages too unreliable to use without review and correction, despite the fact that many or most Participants appear to fill out the form accurately.

PG&E's public solicitation protocol states that the utility "will evaluate the project viability of each offer" using the currently adopted version of the CPUC's Project Viability Calculator, and that "PG&E will review all submissions and adjust self-scores as appropriate." Similarly, PG&E's presentation in its Participants' Webinar indicated that "All offers will be scored" using the Calculator.

5. OTHER STRENGTHS AND WEAKNESSES

Participants' viewpoints on strengths and weaknesses. Feedback from Participants provided some insight into other strengths of PG&E's approach compared to other utilities'.

- PG&E took the extra step this year of providing Participants information about how their Offers ranked in value by quartile; developers found this to be an improvement, as it gave some insight about what was needed to achieve competitiveness. There was however a common desire for even more specific feedback on pricing and on the composition of the short list.

- Some Participants expressed an appreciation for the PG&E's use of the project viability criterion as an evaluation criterion, stating a concern that other solicitations base selection strictly on low pricing regardless of viability, which in their view disadvantages more experienced developers who might have a firmer view of what the costs of developing a new project will be.

C. FUTURE LCBF METHODOLOGY IMPROVEMENTS

The methodology employed by PG&E has undergone repeated refinement, motivated both by internal choices within the utility and external impetus by the regulator. This process has provided incremental improvements to the methodology over time. Arroyo can at this point only suggest a few modest possible improvements.

ENSURING FAIRNESS OF TREATMENT

As described previously in this chapter, PG&E applies a transmission adder for new projects interconnecting to the CAISO grid, and does not apply such an adder for new projects interconnecting to the grids of other balancing authority areas. In Arroyo's opinion this results in disparate treatment of the two classes of seller that is not neutral. While it seems legitimate that PG&E could be less focused on grid costs when they do not directly affect PG&E's customers, in the case of projects interconnecting to the Imperial Irrigation District the costs are ultimately borne by California ratepayers who reside outside the CAISO's boundaries. PG&E's approach does not optimize energy investment from the vantage of what is the least-cost solution for society overall, but rather from the more parochial perspective of what is best for PG&E's ratepayers.

There seems to be an opportunity for the CPUC (which does not have jurisdiction over IID's rates) to provide guidance on whether such non-CAISO network upgrade costs should be counted when comparing and ranking proposals. Selection of Offers from projects that will be built in and connecting to IID's system has the odd effect of having IID customers subsidize deliveries to Northern Californians from projects that superficially appear highly competitive only when consideration of required transmission expansion costs is omitted.

This issue also exists in the situation of new projects proposed to be interconnected to other "foreign" balancing authority areas outside California. It is less clear to Arroyo how great a concern it should be that part of the cost of delivering RPS-eligible energy from a new project is ignored because it is being subsidized by Arizona or Nevada customers, as opposed to by California residents within IID's service territory or California municipal utilities' territories.[15]

<u>IMPROVING VALUATION INPUTS</u>

Arroyo has some suggestions for improving the valuation methodology:

- Use a discount rate based on an estimate of the cost of capital for power developers, rather than PG&E's authorized cost of capital. Arroyo believes that given the risks that face renewable project development (permitting, site control, interconnection, equipment procurement, financing, etc.) it is more appropriate to discount future benefits and costs of the projects using a higher discount rate representative of the riskier independent power industry, rather than that of a regulated monopoly.

- Undertake analysis to form a more solid basis for valuing the benefits of the buyer curtailment option embedded in proposed PPAs. While PG&E has made a good first step in this direction, it would be helpful to refine its view on how valuable the option to curtail RPS-eligible generation might be over the delivery term of these projects. While there are many uncertainties about what the impact of increasing the share of California electric supply from solar resources might be, it seems likely that having the ability to mitigate the incidence of overgeneration episodes will be increasingly valuable.

- Develop LMP multipliers for CAISO interconnection points such as Four Corners, Palo Verde, Moenkopi, Mead, Mohave, Parker Dam, and the Hassayampa-North Gila line, so that energy from projects that propose such nodes as delivery points can be valued taking congestion costs and losses fully into account. These are CAISO

[15] Another consideration is that PG&E's ratepayers could later bear some of the costs of IID network upgrades. As IID increases its transmission rates to collect the upgrade costs required for this RFO's selected projects, new projects on IID's grid that sell to PG&E under future contracts would need to recover the increased transmission tariffs through higher contract prices borne by PG&E ratepayers. The effect of future increased IID tariffs would likely not affect pricing of shortlisted proposals from this RFO.

delivery points that are at the fringe of the IOUs' service territories and tend to record higher congestion differentials than points within the territories. The current Attachment K provides LMP multipliers only for zones internal to the CAISO grid, not for these far-flung CAISO delivery points. [redacted]

- Review Offers to check whether they might add to Net Qualifying Capacity in local zones identified by the CAISO as deficient. It would be difficult to quantify the benefits to grid reliability of adding generation to subareas that are deficient in local capacity. However, it could be helpful if projects that propose to add RA capacity to deficient local subareas were highlighted in the course of evaluating Offers.

<u>IMPROVING VIABILITY SCORING</u>

The regulator could improve how the Project Viability Calculator is used. The 2011 Calculator scores the project's progress on achieving its transmission requirements in part based on whether required upgrades have obtained CPUC approval. However, the public version of the CPUC's Transmission Project Tracking Spreadsheet (posted on the CPUC's web site) is dated December 2009. Without access to otherwise non-public information about the regulatory status of individual transmission projects (e.g. whether an application for a Permit to Construct has been filed yet, or whether a final decision has been issued) it is difficult to score transmission requirements accurately.

<u>REFINING THE RFO GOALS CRITERION</u>

PG&E's 2012 RPS solicitation protocol narrowed the elements of the RFO Goals evaluation criterion from its definition in prior years. Arroyo suggests that the utility review the changes to assess whether its preferences are fully reflected in the current year's design. As it stands, PG&E should not justify its selection of proposals based on contributing to resource diversity of the utility's supply portfolio; resource diversity was dropped as a component of the RFO Goals criterion. Arroyo believes that resource diversity is a legitimate element of a utility's prudent management of its supply portfolio, and the CPUC included resource diversity as a qualitative attribute that IOUs can use in evaluating proposals in competitive RPS solicitations in its Decision 04-07-029. Omitting resource diversity as a stated evaluation factor in the public solicitation protocol makes it appear less fair if the utility were to invoke that benefit in justifying selection of lower-valued Offers that offer diversity of technology or fuel type or system role (e.g. baseload vs. peaking).

D. ADDITIONAL OBSERVATIONS

One subtle change to prior versions of the methodology was that in the 2012 RPS RFO PG&E agreed to explicitly calculate congestion cost for each Offer. The 2012 solicitation protocol displays the congestion cost multipliers for each load zone, where in prior RFOs an overall LMP multiplier was shown that incorporated the effect of both congestion and losses. Congestion charges estimated for each Offer variant were also displayed in the confidential summaries of valuations provided to PG&E's Procurement Review Group. Decision 12-11-016 ordered the three IOUs to treat congestion cost as a separate variable.

As noted above, the 2012 solicitation protocol now omits resource diversity as a specific component of the RFO Goals criterion. It also omits environmental stewardship and local reliability, which were previously included explicitly as components (though environmental benefits to low-income, high-unemployment, or air pollution-suffering communities is included in the 2012 protocol's statement of the RFO Goals criterion). This appears to reduce the justification the utility might invoke in selecting lower-valued Offers that enhance the technology or fuel diversity of the short list, or that would benefit grid stability in local areas with shortfalls of Local Resource Adequacy. It also appears to reduce the justification PG&E might use as the basis to reject higher-valued Offers that pose significantly higher environmental risks, such as unavoidable impacts to threatened or endangered species.

4. FAIRNESS OF HOW PG&E ADMINISTERED THE OFFER EVALUATION AND SELECTION PROCESS

This section describes the extent to which PG&E's administration of its protocols for Offer evaluation and selection in the 2012 RPS solicitation was conducted fairly. Arroyo's conclusion is that the process was, overall, conducted in a fair and generally consistent manner. Arroyo disagreed with some of PG&E's choices. This chapter discusses how PG&E selected its short list to submit to the CPUC.

A. PRINCIPLES USED TO DETERMINE FAIRNESS OF PROCESS

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

- Were all offers treated the same regardless of the identity of the bidder?
- Were participant questions answered fairly and consistently and the answers made available to all participants?
- Did the utility ask for "clarifications" that provided one participant an advantage over others?
- Was the economic evaluation of the offers fair and consistent?
- Was there a reasonable justification for any fixed parameters that were a part of the IOU's LCBF methodology (e.g., RMR values; debt equivalence parameters)?
- What qualitative and quantitative factors were used to evaluate offers?

Some other considerations appear relevant to reviewing PG&E's administration of its methodology. The use of business judgment in bringing multiple non-valuation criteria to bear on decision-making, rather than a mathematical, objective means of doing so, implies an opportunity to test the fairness of administration using additional principles:

- Were the decisions to reject higher-valued Offers from the short list because of low scores in criteria other than valuation or PG&E's preferences applied consistently across all Offers? Were decisions to select lower-valued Offers in preference to higher-valued ones because of their superior attributes in non-valuation criteria made consistently, or were the higher-valued proposals skipped over unfairly?
- If PG&E did not select the projects for the short list that provide the best overall value while meeting the needs of PG&E's three compliance periods, what factors

prevented those projects from being selected? Was their rejection based on factors that were communicated transparently to Participants in the solicitation protocol?

- Does the resulting short list conform to the needs of PG&E's portfolio?

- Were the judgments used to create the short list based on evaluation criteria and preferences that were publicly disseminated in the solicitation protocol to Participants prior to Offer submittal?

B. REVIEWING PG&E'S ADMINISTRATION OF ITS EVALUATION AND SELECTION PROCESS

PG&E provided Arroyo Seco Consulting with many detailed inputs to its valuation model and with results of market valuation at several steps during the evaluation process, including detailed information about transmission adders applied to Offers. Arroyo also had copies of all Offers and of correspondence between PG&E and Participants during this period, and was able to arrive at independent opinions about the strengths and weakness of individual Offers against the evaluation criteria laid out in PG&E's protocols.

Arroyo was present at evaluation team and steering committee meetings in which draft proposals for the short list of Offers were developed, reviewed, questioned, modified, argued, and finalized. The logic and priorities underlying why specific Offers were rejected and accepted to the short list were made evident in these sessions. Arroyo had access to members of the evaluation team responsible for scoring the Offers against each of the evaluation criteria. Arroyo was able to question decisions that appeared unfair or inconsistent from an independent perspective.

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

- Building an independent valuation model that directly used detailed Offer information, to construct an independent ranking of Offers by net market value;

- Independently scoring Offers using the approved 2011 Project Viability Calculator;

- Developing a separate and independent point of view about which Offers most merited selection;

- Comparing PG&E's valuation ranking to the independent model's ranking, identifying outliers (e.g. where the utility ranked an Offer much higher than the IE or vice versa), 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 Arroyo;

- Checking intermediate analysis and inputs to the valuation model, e.g. assignment of Offers to LMP zones, energy-only vs. full-capacity status, for accuracy and consistency;

- Comparing the question-and-answer information posted on PG&E's public website to ensure that answers provided to any Participant in the course of the bidders' conference and workshop were made available to all Participants;

- Auditing communications between PG&E and Participants to check whether any individual Participant was advantaged by requests posed or information provided;

- Reviewing in detail and discussing PG&E's decisions to reject Offers for nonconformance with the requirements of the solicitation protocol;

- Reviewing PG&E's decisions to reject Offers for low scores in non-valuation criteria, or based on the utility's stated preferences, and identifying whether those rejections were fair and reasonable;

- Assessing PG&E's decisions to select Offers that were less highly valued based on other attributes; and

- Testing these rejection and acceptance decisions for consistency; reviewing whether the logic for rejection and acceptance was consistently applied to all Offers.

C. FAIRNESS OF REJECTION OF OFFERS FOR NONCONFORMANCE TO REQUIREMENTS OF THE SOLICITATION

After Offers were received, PG&E performed a detailed review of the packages in order to identify deficiencies that needed to be addressed and to assess which Offers deviated from the requirements of the solicitation protocol. Most Participants whose Offers were identified as deficient were able and willing to address the missing information. A common deficiency was the failure to submit a copy of all completed interconnection studies as part of the offer package; other deficiencies included failures to fill in required fields in the offer spreadsheet form, to provide evidence of site control, [redacted]

Shortly after offer opening, PG&E identified an error within its offer form spreadsheet, in which facilities that self-identified as repowered projects and that proposed full-capacity PPAs had incorrect time-of-delivery factors applied to pricing. The TOD factors appropriate for energy-only PPAs were inadvertently applied to these full-capacity offers. PG&E notified the affected Participants and provided them an opportunity to update their proposal using a corrected version of the offer spreadsheet.

<u>FULL CAPACITY OFFERS FROM ENERGY-ONLY PROJECTS</u>

Some Participants submitted Offers for full-capacity PPAs, but the record of their projects' interconnection applications and studies included in the offer packages showed that their projects had applied for energy-only interconnections. PG&E communicated to these Participants that in the absence of an application for full capacity deliverability status and of studies of the upgrade costs to achieve full deliverability, PG&E would evaluate these Offers as proposals for energy-only PPAs. The Participants were given an opportunity and a deadline to reprice the proposals as such (many energy-only Offers tend to be lower-ranked in PG&E's valuation and less competitive because they do not provide ratepayer benefits of capacity qualifying to deliver Resource Adequacy attributes). In Arroyo's opinion it was appropriate for the utility to consider these as energy-only Offers rather than rejecting them as non-conforming, and it was fair both to these individual Participants and to their competitors for PG&E to allow a one-time repricing opportunity.

REJECTED OFFERS

[redacted] that were submitted according to instructions for the RFO were rejected by PG&E for nonconformance with the requirements of the Solicitation Protocol; this is a relatively small number compared to rejections in PG&E's prior RPS solicitations.

- Most of these did not meet the requirement, new for PG&E's 2012 RPS RFO, that new projects must have at least a CAISO Phase I interconnection study or its equivalent (such as a Facilities Study from another balancing authority area operator).[16]

- [redacted] projects that propose to interconnect to non-CAISO balancing authority areas outside California did not have means of delivering their energy to a CAISO intertie point as Category 2 resources nor a proposal to arrange to be managed using a pseudo-tie or dynamic transfer agreement. [redacted]

- [redacted]

In each case Arroyo agreed with PG&E's judgment that these proposals did not meet the requirements of the solicitation. In Arroyo's opinion PG&E's rejection of [redacted] proposals was fair to the developers who submitted them and fair to competing developers and owners who submitted conforming Offers.

TARDY OFFERS

[redacted]

PG&E could have deemed Offers to fail to conform to the RFO's requirements because they were delivered after the offer deadline. [redacted] had been shipped by Participants on February 5 for overnight delivery via the U.S. Postal Service, but arrived a day late when the USPS failed to deliver on time. [redacted] PG&E judged that these packages, though delivered after the deadline, should be accepted for evaluation.

While some might consider it unfair to competing Participants for the utility to accept late-delivered Offers, Arroyo agrees that the failure for the USPS packages to arrive on time was not the fault of the Participants, was not caused by negligence on the part of the Participants, could not reasonably be foreseen, and did not affect PG&E's timely evaluation of all conforming Offers. In Arroyo's view [redacted] Participants relying on the postal service were unaware that their Offers were tardy[redacted] Arroyo considers PG&E's choice to accept them as if they were delivered by the deadline to be reasonable[redacted]

SHORT-TERM OFFERS

PG&E accepted [redacted] Offers that proposed delivery terms of five years, despite the statement in the public solicitation protocol that "PG&E is seeking offers with a term of at least 10 years. Short-term offers will not be considered." These [redacted] were Offers to extend existing contracts for delivery of power [redacted]

PG&E's motivation for imposing the minimum 10-year delivery term was to ensure that the RPS-eligible energy would qualify as Category 1 deliveries and be "bankable" for purposes of counting towards PG&E's future compliance needs. However, if [redacted] proposals were to qualify as extensions of existing contracts rather than as new contracts, PG&E [redacted] believed that the energy sold during the contract extension would receive grandfathered treatment and be available to use to meet later RPS compliance needs. On that basis PG&E chose to accept [redacted] Offers for evaluation under the theory that if they do qualify for grandfathered treatment as contract extensions then the motive for imposing the 10-year minimum term would not be relevant.

In Arroyo's opinion the logic for this choice to deem [redacted] Offers conforming to the requirements of the solicitation rather than rejecting them seems somewhat reasonable, if uncomfortable. If PG&E had, with perfect foresight, stated in its public protocol that

Offers to extend existing RPS agreements would not be subject to the 10-year limit, it is possible that other sellers who have such existing agreements due to expire later in this decade would have submitted short-term proposals. Or sellers who have existing agreements who did submit Offers for 10-year delivery terms might have proposed shorter term contract extensions. However, there is no evidence that any other sellers were disadvantaged by PG&E's acceptance of [redacted] Offers for evaluation, and neither PG&E nor Arroyo envisaged the possibility that 5-year proposals would be submitted when reviewing the protocol's text. In future RFOs it may be appropriate for PG&E to publicly state an exception for existing, contracted projects to its 10-year minimum term requirement.

[redacted]

<u>SUMMARY OF REJECTION DECISIONS</u>

In the days immediately following Offer Opening, some Participants sent PG&E corrections and changes to their previously submitted Offers. Some of these were prompted by deficiency notices e-mailed to the Participants by PG&E, while others were unprompted voluntary efforts of the Participants to address errors they recognized only after shipping the original Offers. Arroyo does not consider the changes, even improvements, in these Offers to have been prompted by "signaling" by PG&E or by an unfair request for "clarifications".

Overall, Arroyo's opinion is that PG&E's decisions about which Offers to reject based on failure to conform to the stated requirements of the solicitation protocol were fair both to Participants submitting non-conforming proposals and those submitting conforming Offers. A few of the Participants whose Offers were rejected could make an argument that they have been accepted for evaluation, and Participants who delivered their proposals on time could make a case that those Offers delivered after the deadline should be rejected. On balance Arroyo considers PG&E's logic for rejecting and accepting proposals to be fair and reasonable, though the solicitation materials for future RFOs might benefit from editing to accommodate special cases such as short-term extensions of existing contracts.

D. REASONABLENESS AND FAIRNESS OF PARAMETERS AND INPUTS

Nearly all parameters and inputs that PG&E used in its evaluation of the 2012 RPS RFO Offers were reasonably and fairly chosen, in Arroyo's opinion. Arroyo identified only one issue regarding the choices PG&E made about parameters and inputs that merits discussion.

PG&E constructed the inputs to its calculation of the value of the buyer curtailment option using its business judgment about the size of the CAISO imbalance charges, ancillary services costs, and similar costs that would be avoided by exercising the option. While Arroyo agrees that these categories are benefits of the curtailment option and that PG&E's inputs seem to be within the ballpark of the magnitude of such benefits, the inputs are based on assumptions requiring subjective judgment about the value of curtailments. These specific inputs would likely benefit from more analytic work by PG&E to assess how the CAISO market might behave over a contract delivery term and how large the avoided costs of imbalance charges and ancillary services costs might be.

Also, it would be helpful for PG&E to review its approach to explain why these benefits are company-specific to PG&E's supply portfolio as opposed to benefits that would accrue to any load-serving entity with such a PPA. Or, PG&E could refine the distinction so that curtailment benefits of value to any LSE are counted in the net market valuation instead of the adjustment to PAV. Arroyo is not convinced that these specific benefits of a curtailment option belong as a portfolio-specific adjustment to value as opposed to belonging with the option valuation of CAISO energy market benefits that are included in PG&E's Net Market Value calculation. If it were clearly the case that the benefits calculated for the buyer curtailment option were PG&E-specific, then one might think the value assigned to the option would be lower for projects sited in SP-15 and higher for projects in NP-15, which was not the case. PG&E later assumed (described in a later section) that the curtailment option would be more valuable for projects in NP-15 than elsewhere, which seems to imply that the adjustment to NMV for these benefits should be higher for NP-15 projects.

PG&E has a variety of internal controls in place to ensure that its selection of inputs and parameters are reasonable and fair. The Energy Supply organization relies on a separate and independent risk management function for oversight of power market assumptions used in valuation, and on a corporate financial function for oversight on financial assumptions. The choice of parameters is described in internal nonpublic protocols available to the RFO evaluation committee and its management. Some of the inputs are based on estimates made by the CEC and CPUC. Additionally, Arroyo had the opportunity to review the inputs to the valuation model in detail and to raise specific questions about or objections to inputs with the PG&E team as appropriate.

E. THIRD-PARTY ANALYSIS

In its 2012 RPS RFO PG&E did not outsource any portion of the evaluation of Offers.

F. TRANSMISSION COST ADDERS AND INTEGRATION COSTS

PG&E closely followed its public and nonpublic protocols in administering its procedures for transmission adders. The team relied on data from Phase I or Phase II interconnection studies or interconnection agreements to estimate the cost of network upgrades for new projects. PG&E did not make use of transmission adders from the IOUs' Transmission Ranking Cost Reports, though its solicitation protocol provided the utility the latitude to use TRCR adders "if more appropriate". The need did not arise, in part because PG&E extended its offer due-date to accommodate developers awaiting Cluster 5 Phase I interconnection studies at the end of January 2013, and these Participants were thus able to provide copies of those analyses as the basis for estimating project-specific adders.

As stated in the discussion of PG&E's LCBF methodology, there is a narrow subset of cases in which Arroyo disagrees with how PG&E applies transmission cost adders.

- In Arroyo's opinion, transmission cost adders should be calculated and applied when valuing projects that interconnect within California outside the CAISO's balancing authority area, using the estimates of network upgrade costs provided in those other Transmission Owners' interconnection studies. Arroyo considers the valuations of these PPAs to understate the full cost of power from the projects, and the evaluation methodology to be less than fully fair to competing projects that interconnect to the CAISO grid. PG&E chooses to ignore network upgrade costs that are borne by the ratepayers of other balancing authority areas and that do not affect the rates of PG&E customers.

  PG&E's public and non-public protocols do not specifically address how to calculate transmission adders for new projects with non-CAISO delivery points, and do not explicitly call for excluding these transmission costs. However, the non-public protocol for market valuation specifies that transmission network upgrade costs will be subtracted in calculating Net Market Value. In future solicitations it would be better for the procurement plan and solicitation protocol to state explicitly that transmission adders will be set to zero for non-CAISO-interconnecting projects so that this element of the methodology is transparent to regulators and developers.

- In Arroyo's opinion, the lack of estimated LMP multipliers or congestion and loss factors for CAISO intertie points that fall outside the main body of the BAA presents a gap in data inputs. Arroyo's concern is that projects that propose to interconnect to these points may be unfairly advantaged vs. projects assigned to recognized LMP zones. Arroyo's opinion is that projects interconnecting to some far-flung outposts of the CAISO grid in other states should be evaluated with a recognition that average nodal prices there are on average materially lower than those within the core of the CAISO due to congestion and losses. This is not an issue with transmission adders but rather with estimates of congestion costs.

In contrast to PG&E's practice, Arroyo would have applied transmission adders to projects that will interconnect to the Imperial Irrigation District's grid, using IID facility studies as the basis for network upgrade cost adders. [redacted]

With the narrow exception of the projects interconnecting outside the CAISO, Arroyo's opinion is that PG&E properly assessed and applied transmission adders to Offers. PG&E applied no integration cost adder to Offers, consistent with the CPUC's Decision approving the 2012 RPS procurement plans.

G. AFFILIATE PROPOSALS AND BUYOUT OR TURNKEY OFFERS

PG&E chose to drop eligibility of Offers for utility buy-out of projects or turnkey construction of projects for utility-owned generation from its 2012 RPS RFO, focusing instead on seeking Offers for Power Purchase Agreements or for unbundled RECs. No affiliates of PG&E submitted Offers so the issue of conflicts of interest in selecting proposals from affiliates did not arise.

H. PG&E'S USE OF ADDITIONAL CRITERIA AND ANALYSIS IN CREATING A SHORT LIST

PG&E's overall approach to creating a short list was to rank PPA Offers for delivery of bundled energy by Portfolio-Adjusted Value and to select highest-valued Offers. However, the choice of specific Offers for the short list was also strongly influenced by PG&E applying its seller concentration criterion, and placing an extra emphasis on the buyer curtailment option value component of PAV. Other criteria did not play much of a role affecting selection of the 2012 RPS RFO short list given the circumstances.

1. SELLER CONCENTRATION

Taking into account the criterion for seller concentration, in an initial pass the highest-ranked Offers were selected for the short list (regardless of technology) [redacted] The seller concentration criterion was applied to screen out Offers that would lead to shortlisting a total [redacted] from any individual developer or development consortium.[17]

The implementation of the seller concentration criterion had some uneven effects:

- [redacted]

[17] [redacted] PG&E's protocols do not state a fixed MW cutoff defining excess concentration, and the utility's team has discretion to apply its best judgment in screening for excess concentration.

[redacted]

- [redacted]

[redacted]

2. BASELOAD GENERATORS AND MAXIMUM BUYER CURTAILMENT

After the initial selection of the highest-PAV Offers (as constrained by avoiding excess seller concentration), PG&E selected lower-valued Offers outside of strict economic ranking, in two categories:

- [redacted]

---

18 [redacted]

- [redacted]
- [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

- [redacted]

    - [redacted]

[redacted]

By selecting these [redacted] out of strict value rank order based on other evaluation criteria, PG&E increased the size of its initial short list [redacted]

3. WITHDRAWALS BY PARTICIPANTS

After notifying Participants of rejection and selection decisions, [redacted] that PG&E had selected were withdrawn by their developers: [redacted]

[21] [redacted]

[redacted]

This left PG&E with a total short list of [redacted] Offers for bundled energy delivery. This is a relatively shorter short list by comparison to PG&E's 2009 and 2011 RPS solicitations', [redacted] While Arroyo's criticism of PG&E's 2011 RPS short list was that it appeared to be too large, the IE's opinion is that the length of the 2012 short list is reasonable.

In administering its methodology, PG&E evaluated some or all Offers on the other evaluation criteria listed in its protocol, but these generally did not affect the actual selection:

4. PROJECT VIABILITY

Overall, PG&E followed the methodology stated in its solicitation protocol:

> "PG&E will evaluate the project viability of each offer using the June 2, 2011 CPUC adopted version of the PVC. Participants are requested to self-score each of their offers using the PVC…PG&E will review all submissions and adjust self-scores as appropriate."

The PG&E team used the Project Viability Calculator to score the projects considered for selection as well as some others; [redacted][22]. PG&E did not score every single Offer variant for project viability, and left the self-scores intact for lower-valued Offers that were rejected based on lower value. PG&E's decision that its team would not score the project viability of each and every Offer did not affect selection of a short list. All the shortlisted Offers were scored by the team, [redacted][23] Arroyo agrees that the task of scoring every Offer variant is tedious and burdensome, and that scoring the lowest-valued proposals for viability does not contribute much to the selection process.[24] PG&E did perform data conformance checks on the Offer variants it scored, including using outside data sources to confirm the accuracy of the scores.

Very few Offers were explicitly rejected by the utility because of the low viability of a proposed project; PG&E judged that nearly all proposals selected for the short list had a

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[22] The PVC scores for different Offer variants can differ because variants proposing larger MW capacity may score lower in development experience, ownership and O&M experience, etc. than smaller-sized variants.

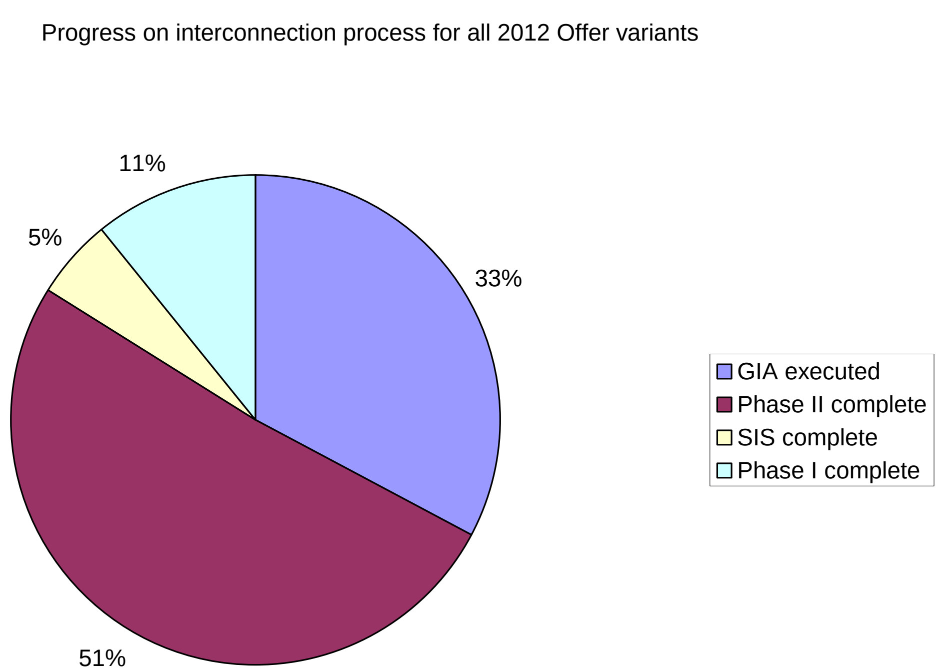
[23] [redacted]

[24] Arroyo independently scored at least one variant (the highest-valued variant) of each conforming Offer, in order to rank projects on their project viability when later reporting on the merit of PPAs for CPUC approval, as prescribed by the Energy Division's template for IE reports.

profile that offered sufficient likelihood of success to merit selection. The high viability of existing, operating projects currently delivering energy to PG&E was cited as support for the utility's decision to select proposals [redacted]

A new requirement for Offers to PG&E's 2012 RPS solicitation was for proposed projects to have completed at least a Phase I interconnection study or its equivalent. Figure 3 shows the status of interconnection progress for Offer variants submitted. This distribution is strikingly different than that for PG&E's 2011 RPS RFO, in which about half the Offers were from projects that had not yet obtained a Phase I study or its equivalent. The new requirement seems to have led to 2012 Offers that on average are more advanced.

Figure 3.



5. RFO GOALS AND ENVIRONMENTAL RISKS

Appendix K to PG&E's 2012 solicitation protocol stated three specific subcomponents of the RPS Goals evaluation criterion. These included adherence to legislative direction, consistency with the CPUC's Water Action Plan, and support for Executive Order S-06-06 regarding biomass-fueled generation.

In the 2012 RFO, PG&E's evaluation team reviewed and scored [redacted] for consistency with RFO goals and for environmental risks, focusing on projects considered for shortlisting. All of these Offers, including those on the final short list, were deemed to be consistent with RFO goals. Most of the shortlisted projects were scored as having low-to-moderate or moderate environmental risks. [redacted][25]

Two of the shortlisted Offers were categorized by PG&E's environmental subteam as "lacking information", i.e. sufficiently incomplete that it was difficult to assess environmental risks:

- [redacted]
- [redacted]

PG&E did not judge the risks associated with the incompleteness of the profile of these projects as sufficient to warrant their Offers' rejection.

Arroyo agrees that conducting a preliminary assessment of environmental risk for projects considered for selection is prudent both to identify proposed facilities that would likely encounter permitting challenges to viability and those whose impact would fail to align with the utility's environmental values. This screening seems more useful for checking whether new projects are likely or not to succeed in obtaining required permits, as an indicator of project viability, rather than whether they meet the RFO Goals criterion.

6. DELIVERY POINT

PG&E stated in its 2012 solicitation protocol a preference for projects that deliver in PG&E's service territory. The calculation of Portfolio-Adjusted Value for each Offer included adjustments that reduce the value of projects located in SP-15 or outside the

[25] [redacted]

CAISO. Based on an inspection of the Offers ranked highest based on Net Market Value vs. those ranked highest based on Portfolio-Adjusted Value, Arroyo believes that the short list contains significantly more projects that deliver in NP-15 and fewer projects that deliver in SP-15 than would have been the case had PG&E continued to use Net Market Value as its key metric for valuing proposals. In that sense the adjustments to calculate PAV accomplished the intent of its design of incorporating PG&E's preference regarding siting in its service territory into a quantitative measure. Also, PG&E was able to justify its selection of [redacted] out of value ranking in part because of their siting in NP-15.

The short list is geographically diverse in the location of projects. The proportion of shortlisted projects located in PG&E's territory [redacted] is higher than those of PG&E's 2011 RPS RFO [redacted] and 2009 RPS RFO (10 of 29). Figure 4 displays a histogram of the distribution of Offers received and shortlisted Offers by location of delivery point.[26] The representation of NP-15 projects is proportionately higher than that of SP-15 projects, despite generally higher net market values for SP-15 projects and the higher expected capacity factor of solar photovoltaic projects proposed for SP-15 [redacted] vs. NP-15 [redacted]

Figure 4.

[redacted]

[26] [redacted]

7. COMMERCIAL OPERATION DATE

The solicitation protocol clearly stated PG&E's preference to select Offers that begin delivery term in 2019-2020. This preference aligns with the utility's current view of when its RPS portfolio will need increased deliveries to meet compliance goals.

In contrast to PGE's 2011 RPS RFO, it appears that most of the community of developers paid attention to PG&E's publicly stated preferences about timing. Most of the Offer variants received in the 2012 RPS RFO proposed 2019 or 2020 on-line dates. Many of the variants with earlier on-line dates had alternatives with 2019 and/or 2020 on-line dates. Several developers suggested an intent to bring projects into commercial operation earlier than 2019 and to sell to other off-takers until a PPA with PG&E would begin deliveries. Figure 5 displays a distribution of Offer variants by the year of initial deliveries. Many of the proposals for a 2016 start date were for solar projects that presumably sought to take advantage of the federal investment tax credit, currently scheduled to expire that year.

Figure 5.

[redacted]

With [redacted] exceptions, the Offers that PG&E selected for its short list proposed initial deliveries in 2019 or 2020. The exceptions are projects that are currently contracted to deliver RPS-eligible energy to PG&E that proposed to commence their deliveries upon the termination date of the current PPAs: [redacted]

8. SUPPLIER DIVERSITY

One of the components of the RPS Goals evaluation criterion is whether an Offer will contribute towards PG&E's supplier diversity goals. The solicitation protocol states that

> "It is the policy of PG&E that Women-, Minority-, and Disabled Veteran-owned Business Enterprises (WMDVBE) shall have the maximum practicable opportunity to participate in the performance of Agreements resulting from this Solicitation. PG&E encourages Participants to carry out PG&E's policy and contribute to PG&E's goal by reaching greater than 30% of all procurement with WMDVBEs…The Supplier Diversity evaluation will take into account the Participant's status as a WMDVBE, intent to subcontract with WMDVBEs, and the Participant's own Supplier Diversity Program."[27]

PG&E's evaluation committee scored Offers based on the submittal of Attachment L, a Supplier Diversity Questionnaire that the utility routinely uses in solicitations.

Among developers submitting to the 2012 RPS RFO, none were WMDVBEs that have been certified by the CPUC Clearinghouse. Some developers proposed to set up project entities that would qualify as diverse enterprises and later be certified by the CPUC as diverse, but no Offers were received from entities that are currently CPUC-certified WMDVBEs. This compares unfavorably to prior years in which PG&E received proposals from development companies that are already CPUC-certified diverse business enterprises. [redacted]

Figure 6.

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[27] Pacific Gas and Electric Company, "Renewables Portfolio Standard: 2011 Solicitation Protocol, May 11, 2011 (Updated June 7, 2011), page 42.

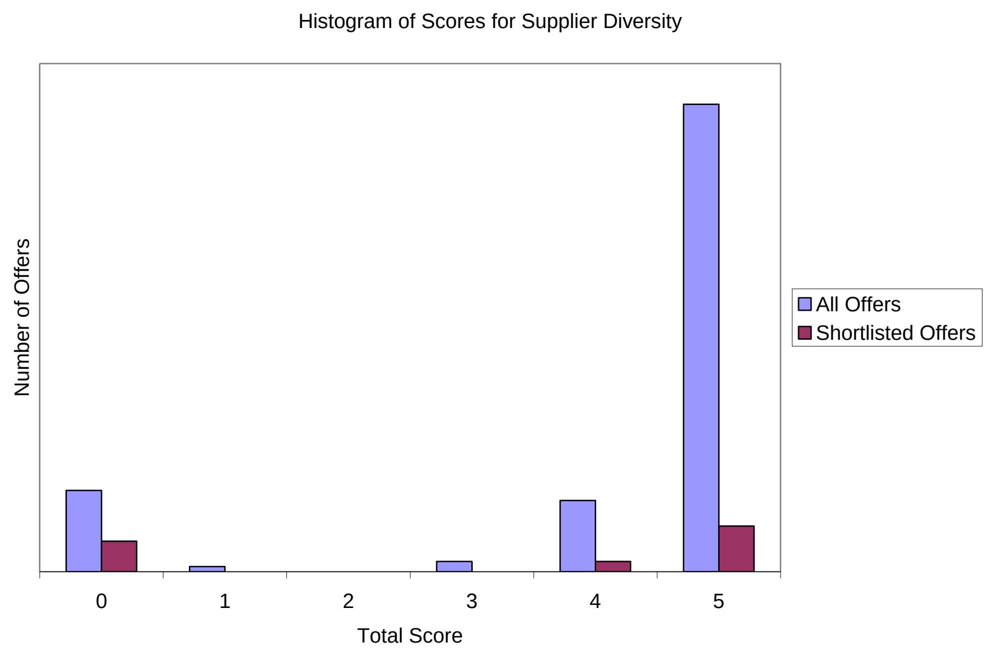


Figure 6 displays a histogram of numerical supplier diversity scores assigned to all Offers and to shortlisted Offers. The distribution was bimodal; either proposals scored quite high or quite low against PG&E's subcriteria for supplier diversity. Some of the proposals scored at zero for supplier diversity were from existing plants that might face challenges achieving a numerical target for subcontracting or employing a diverse workforce given modest needs for subcontracting and the non-diverse composition of an existing workforce. However, some developers proposing new projects, [redacted] declined to propose a numerical objective for construction subcontracting with diverse suppliers or to complete the Supplier Diversity questionnaire at all, resulting in a zero score.

9. <u>REC-ONLY OFFERS</u>

PG&E received conforming REC-only Offers from [redacted] PG&E chose to select [redacted] for its short list; the utility views procurement of a bank of unbundled RECs as a useful means of managing around uncertainty in achieving RPS compliance over the next several years.

I. ANALYSIS OF PG&E'S SHORT LIST RESULTS

This section provides a review of instances in which Arroyo Seco Consulting disagreed with PG&E's decisions in the administration of its evaluation and selection methodology, and a discussion of the fairness of the decisions.

1. SOURCES OF DISAGREEMENT

Arroyo disagreed with one aspect of how PG&E applied its methodology and with a few of the choices made in the selection process. Specific areas of disagreement included:

- Imperial Irrigation District Transmission Adders. In Arroyo's opinion it would have been fairer to apply transmission adders for network upgrade costs in the Imperial Irrigation District's grid, even though those costs are not directly borne by PG&E ratepayers. In Arroyo's opinion, PG&E's methodology advantages projects within IID's territory whose net valuations are uncompetitive when full costs, including required grid upgrades, are taken into account. This disparate treatment seems less than fully fair. [redacted]

  Arroyo acknowledges that PG&E's logic for its selection is sound when based on the utility's sole focus on direct costs to PG&E ratepayers, because the deliveries from these projects to PG&E customers would be subsidized by IID ratepayers. Arroyo's concern here is that it seems less than fair for an evaluation methodology to so strongly favor one class of projects (new IID-interconnecting generators) over another (new CAISO-interconnecting generators) and it seems undesirable from a public policy standpoint to select projects that are far from the least-cost alternatives when all costs to society, including costs to IID customers residing in California, are considered.

- Offers Ranked Low for Project Viability. Arroyo ranked [redacted] in the bottom quartile among all Offers for project viability, using the Project Viability Calculator. On that basis Arroyo would not have selected such a project for the short list[redacted]

  [redacted]

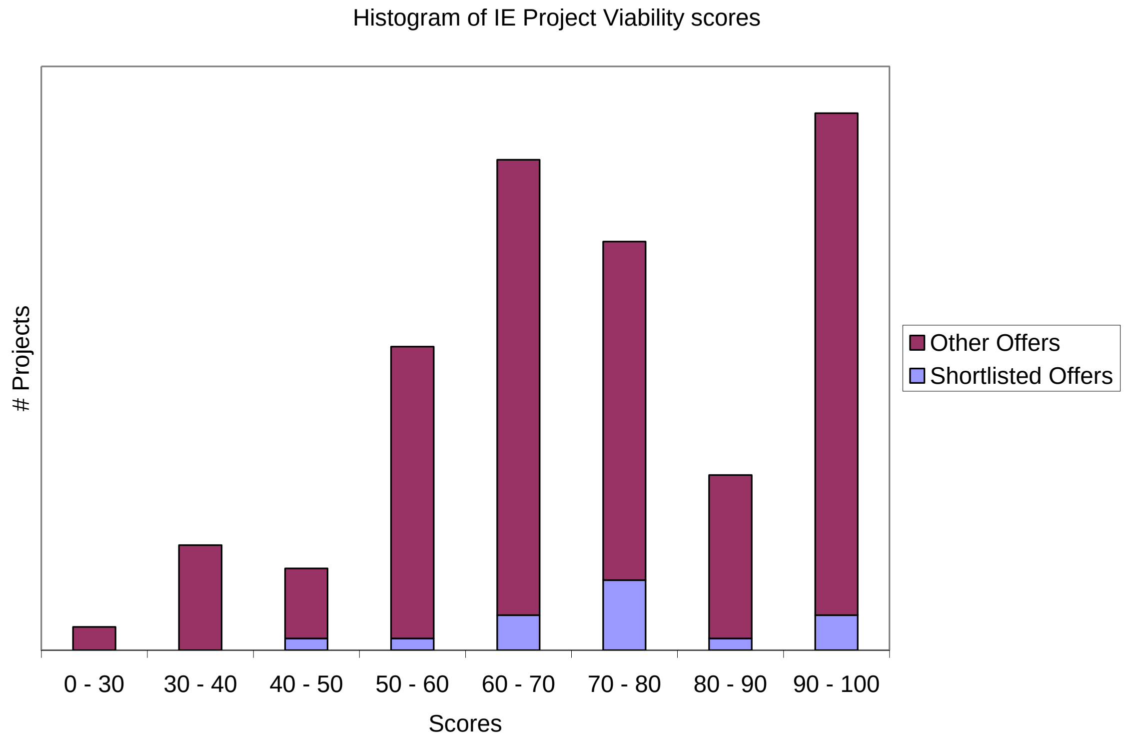
[redacted]

Also, Arroyo ranked [redacted] in the bottom quartile in project viability among all Offers. On that basis Arroyo would not have selected such a project for a short list, [redacted]

[redacted]

Figure 7 displays a histogram of the independent scores Arroyo assigned to the projects offered in the RFO and to the shortlisted Offers. Most of the shortlisted proposals were scored above median, [redacted]

Figure 7.



- [redacted]

Figure 8 displays a histogram of PG&E's estimated PAV for all Offer variants and for the short list. PG&E picked proposals that mostly ranked in the top-valued quartile, [redacted]

[redacted]

[redacted]

Figure 8.

[redacted]

The RPS solicitations were intended to be competitive mechanisms to achieve least-cost solutions for ratepayers, without favor for any individual technology or fuel type. [redacted] creates an appearance that PG&E has violated the principle of technology-neutral evaluation and selection that the regulator has suggested in its IE template.[28] [redacted]

- Screening for Seller Concentration. In Arroyo's opinion, it would have been preferable if PG&E had set the cutoff for total MW capacity awarded to any individual developer or consortium to [redacted]

[28] Similarly, the CPUC has previously stated that "IOUs are directed to evaluate bids for renewable energy using a transparent, technology neutral least cost/best fit methodology". California Public Utilities Commission, "Progress of The California Renewable Portfolio Standard as Required by the Supplemental Report of the 2006 Budget Act", Report to the Legislature, April 2007, page 6.

[redacted]

[redacted]

[redacted]

Arroyo views the choice of [redacted] as within the latitude for PG&E to exercise its business judgment. [redacted]

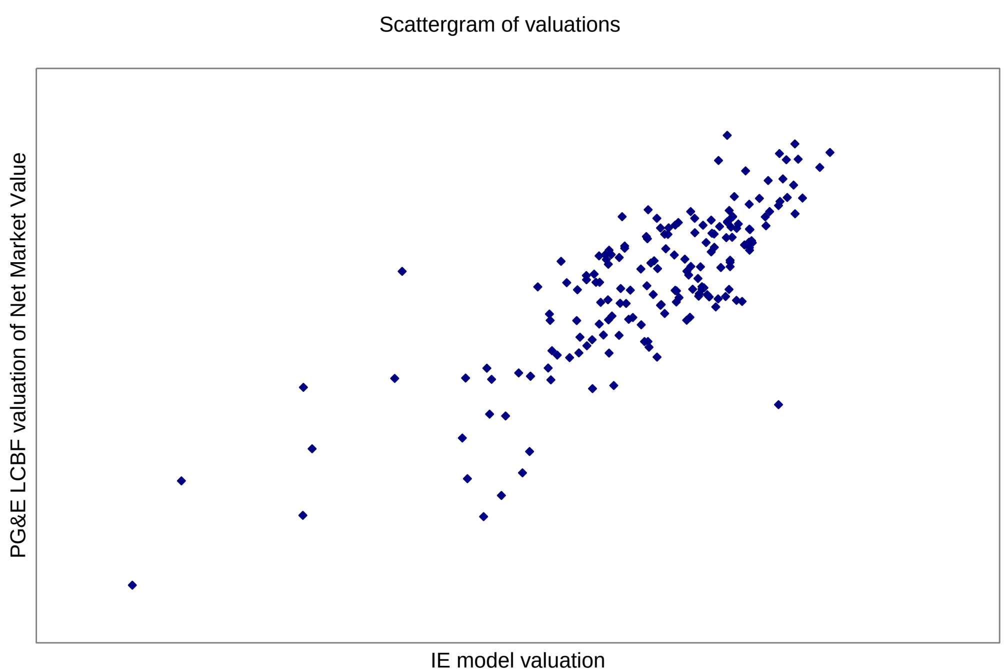
- Maximum Buyer Curtailment. PG&E chose to select [redacted] in NP-15 that offered the maximum hours of buyer curtailment. Arroyo is uncertain whether PG&E's belief that NP-15 project curtailments offer the most benefit to its ratepayers is accurate, or whether ZP-26 projects might provide comparable benefits. It might be the case that in future scenarios with high solar energy build in SP-15, overgeneration issues could occur most frequently in Edison's territory and that curtailing projects in ZP-26 could have comparable benefits in helping PG&E ratepayers avoid losses. [redacted] Arroyo admits that without more analysis of the scenarios in which buyer curtailment becomes valuable it is hard to tell how best to screen based on the curtailment option.

Although Arroyo disagreed with these particular choices that PG&E made, the basis for most of these disagreements centers on differences in business judgments about relative priorities, not on choices made contrary to the solicitation protocol. Arroyo believes that nearly all choices the PG&E team made were reasonable, justifiable, and internally consistent. For example, it is a matter of priorities how low in viability a project might rank before it is rejected for the risk of failure it poses. If PG&E ultimately executes a contract [redacted] it will likely be because the utility prefers to trade off some greater risk of project failure with a less experienced developer in exchange for a contract that ranks low in price and high in value compared to competing alternatives. If PG&E ultimately executes a contract [redacted], it would likely be because PG&E is willing to accept higher ratepayer costs in exchange for higher project viability [redacted] While Arroyo's relative preferences differ, Arroyo believes that PG&E's relative priorities reflected in its selections of lower-valued Offers, based on its subjective business judgment, are reasonable.

2. INDEPENDENT OFFER ANALYSES

Arroyo conducted its own rather simplified valuation analysis. Arroyo's valuations generally correlated well with PG&E's Net Market Value analysis for many Offers, but with a fair amount of noise in the comparison, as shown in Figure 9 that compares the two sets of valuations. The mediocre quality of the correlation is less interesting than the outliers and the underlying reasons for some of the divergences:

Figure 9.



- PG&E assigned a higher value to new projects interconnecting in non-CAISO balancing authority areas because no transmission adders are applied; Arroyo estimates an adder for network upgrades for these projects. This is most clearly seen in the two shortlisted projects interconnecting into IID's grid.

- PG&E assigned network upgrade costs to projects for an interconnection even if the developer reports that the costs will be borne by another project using a share of the interconnection capacity, on the logic that the costs should still be allocated to the project making an Offer.

- Some scatter is due to the difference in discount rates applied to future years' cash flows; PG&E uses its own authorized weighted cost of capital as a regulated utility, Arroyo uses a higher estimate of merchant generators' cost of capital.

The adjustments have a considerable impact on the value rankings of Offers. Figure 10 shows a plot of Offers' NMV vs. PAV, showing visually how for some Offers the adjustments can reduce the PAV by as much as [redacted], substantially altering their ranking.

Figure 10.

[redacted]

Overall, if Arroyo had used its valuation and viability scores to identify high-value candidates for selection, more Offers in SP-15 would have been chosen, including more existing geothermal and wind projects. Fewer Offers in NP-15 would have been chosen[redacted] and projects that Arroyo scored below median for project viability would have been rejected, [redacted]. This simply reflects the strength of PG&E's preference for projects in its own service territory, its disinterest in counting IID network upgrade costs that do not directly affect PG&E's rates, and its greater willingness to select lower-viability proposals.

Arroyo also scored each Offer for viability independently of PG&E's analysis, using the final version of the 2011 Project Viability Calculator, anticipating a later need to rank projects that obtain executed PPAs against a peer group made up of all RFO proposals.

3. RECTIFYING DEFICIENCIES OF REJECTED OFFERS

PG&E communicated early to several Participants about basic deficiencies in their Offer packages and provided them with an opportunity to correct these deficiencies by completing or correcting their original submissions. None of these original deficiencies caused rejection from consideration for the short list once corrected. Most of the deficiencies concerned omissions of required documents from the offer packages, such as interconnection study reports. In a very few cases the deficiencies were clearly beyond remedy, [redacted]

In the case of Offers that PG&E rejected for non-compliance with the requirements of the solicitation, Arroyo believes that little could have been done by PG&E to help Participants rectify deficiencies in their proposals. [redacted]

4. OVERALL FAIRNESS OF ADMINISTRATION

Despite a handful of disagreements, Arroyo Seco Consulting's overall judgment is that PG&E's decisions to select or reject Offers to arrive at a short list for the 2012 RPS RFO were reasonable and justifiable, overall.

Most disagreements between Arroyo and the PG&E team fall into the category of choices that Arroyo would have not made if it were designing and administering the solicitation, but that Arroyo agrees are choices a reasonable person could make if that person had different priorities or emphases regarding the weights assigned to evaluation criteria. The choices with which Arroyo disagrees reflect (1) PG&E's view of which utilities' network upgrade costs should be counted in valuing Offers, (2) the relative priority PG&E assigns to some of the non-quantitative evaluation criteria (such as RFO Goals) vs. valuation, and (3) PG&E's judgment about how much risk of project failure from viability issues to accept in making short list selections.

Arroyo believes that in each case, PG&E's preferences and its choices are within the realm of "reasonable business judgment" that the CPUC allows IOUs to exercise in energy procurement. Arroyo's subjective judgment would differ from PG&E's in making these choices, as might the judgment of some policymakers and other observers. Participants whose high-value Offers were rejected while lower-valued proposals were shortlisted might perceive PG&E's choices as unfair, but the utility's choices were in most cases rooted in evaluation criteria stated in the public solicitation protocol. Arroyo doubts however that an

IOU should reject a high-valued Offer simply because the size of the proposed project is small, while selecting lower-valued Offers.

While Arroyo believes that PG&E may be justified in its choice to omit transmission adders when valuing Offers for IID-interconnecting projects because those costs do not directly affect PG&E ratepayers, in Arroyo's opinion the practice is not particularly fair. Also, nothing in PG&E's public or non-public protocols suggests that the transmission network upgrade cost will <u>not</u> be applied for such projects, so this choice lacks transparency. On that basis, Arroyo's opinion is that PG&E's administration of its methodology was overall reasonable and justifiable but that the treatment of IID-interconnecting projects was less than fully fair.

J. IMPERIAL VALLEY OFFERS

PG&E received [redacted] for renewable generation either already operating in or proposed to be sited in the Imperial Valley, or 14% of the total number of conforming Offers for bundled RPS-eligible energy. The PG&E team generally applied the same steps and processes to evaluate these Offers as it did with others. As previously described, PG&E's methodology appears biased in favor of Offers for new projects that interconnect within the Imperial Irrigation District (or other non-CAISO balancing authority areas) over projects interconnecting within the CAISO; the PG&E team did not apply transmission adders to the former proposals. Projects sited in the Imperial Valley comprise [redacted]

Overall, the response of the developer community to propose Imperial Valley projects was robust and PG&E's selection of Imperial Valley Offers was representative of that strong response. Arroyo perceives no evidence that PG&E failed in any way to perform outreach to generation developers and owners active in the Imperial Valley or that there was any structural impediment in the RFO process that materially hindered the selection of competitively priced Offers for projects in the Imperial Valley.

5. MERIT FOR CPUC APPROVAL

This chapter addresses the issue of whether PG&E's proposed short list merits CPUC approval.

A. BEST OVERALL VALUE

Because PG&E's initial screening of Offers focused primarily on their ranking in Portfolio-Adjusted Value, the final short list is mostly composed of Offers that provide high value. The aggregate value of the short list might have been even higher if PG&E had not rejected some Offers based on concerns about seller concentration and project viability. [redacted] Arroyo believes that the choices to reject these high-valued Offers were justified by PG&E's concern about excess seller concentration, and viewed some of the rejected Offers as weak in project viability as well.

PG&E's choice to augment its short list with some lower-valued Offers that provide some specific benefits in evaluation criteria other than market value, instead of continuing to pick the next highest-PAV Offers, also tended to reduce the aggregate value of the short list slightly. [redacted]

[redacted]

The timing of deliveries proposed by the shortlisted Offers aligns quite well with PG&E's expected compliance needs. The utility currently does not expect a net short position in RPS-eligible energy deliveries until 2019, and does not expect to fall short in the first and second compliance periods. All the shortlisted projects except [redacted] proposed to start deliveries in 2019 or 2020. [redacted]

[redacted]

B. CONFORMANCE TO NEEDS

The short list conforms quite well to PG&E's RPS compliance needs in the timing of deliveries, and negotiating PPAs with some of the selected Offers should advance the utility towards meeting its RPS compliance goals in the third compliance period and in the years after 2020. The list would be expected to lead to high-value executed contracts that bring the state closer to meeting RPS goals at lowest cost given the current state of the renewable market.

It is less clear whether the short list fits well with PG&E's supply portfolio in more traditional measures such as contributing to filling net energy needs in time of day or season. Much of the short list is made up of proposed new solar and wind projects whose construction might contribute in the long term to heavier reliance on intermittent generation that could raise integration costs and to greater needs for ramping resources in summer afternoons. Only a modest portion of the short list would provide firm generation and none of the shortlisted Offers are for dispatchable contracts, though all provide some degree of buyer curtailment option.

The short list conforms well to PG&E's 2012 RPS procurement plan. With a total volume of [redacted] of bundled energy proposals selected, the utility should have within its grasp an opportunity to negotiate and execute the targeted 1,000 GWh/year of new long-term contracts. Most of the shortlisted Offers are for Category 1 deliveries, identified as preferred product in the plan; [redacted]. Most of the shortlisted Offers are existing, generating resources or have obtained their Phase II interconnection studies, stated as a preference in the plan; [redacted] As stated in its 2012 RPS procurement plan, PG&E has selected only long-term Offers (10 years or more in contract term) whose initial energy deliveries propose to begin no later than the end of the third compliance period.

With the exception of [redacted], the selected proposals rank high in Portfolio Adjusted Value. The procurement plan states that "the offers selected will have the best combination of net market value (NMV), portfolio adjusted value (PAV), viability, and qualifications". While this is generally true for PAV, it is less the case with NMV. The short list includes two Offers that rank in the second quartile for NMV [redacted] and one that ranks in the third quartile for NMV [redacted]. In other words, these three projects benefited from PG&E switching from using NMV as its primary metric for value to using PAV this year, where the calculation of PAV discounts the value of projects in SP-15 and assigns a premium to projects such as [redacted] in NP-15.

[redacted]

[redacted]

Regarding the qualifications of the Participants whose Offers were shortlisted, Arroyo agrees that all are qualified to enter into PPAs with PG&E. [redacted]

As described in the prior chapter, Arroyo believes that, overall, PG&E followed the methodology described in its 2012 RPS solicitation protocol in developing and finalizing a short list. While Arroyo disagreed with some selection and rejection decisions that PG&E made, most of PG&E's decisions were fully consistent with the protocol and the disagreements were simply based on differences in subjective judgments about the attractiveness of the attributes of Offers. Possible exceptions in which PG&E may have diverged from its protocols include PG&E's choice not to apply a transmission network upgrade cost in the valuation of IID-interconnecting projects [redacted]

Overall, Arroyo's opinion is that PG&E's short list merits CPUC approval. PG&E selected high-PAV Offers while meeting the needs of the three compliance periods. The short list generally conforms to the compliance needs of PG&E's portfolio, to PG&E's RPS requirements, to the utility's 2012 RPS procurement plan, and to the 2012 solicitation protocol. To the extent PG&E's short list fails to conform to the procurement plan and the protocol, these narrow issues were spelled out in the prior chapter.

6. DETAILS ON THE SHORT LIST

Figures 11 and 12 display the breakdown of total Offers and shortlisted Offers by renewable technology.

Figure 11.

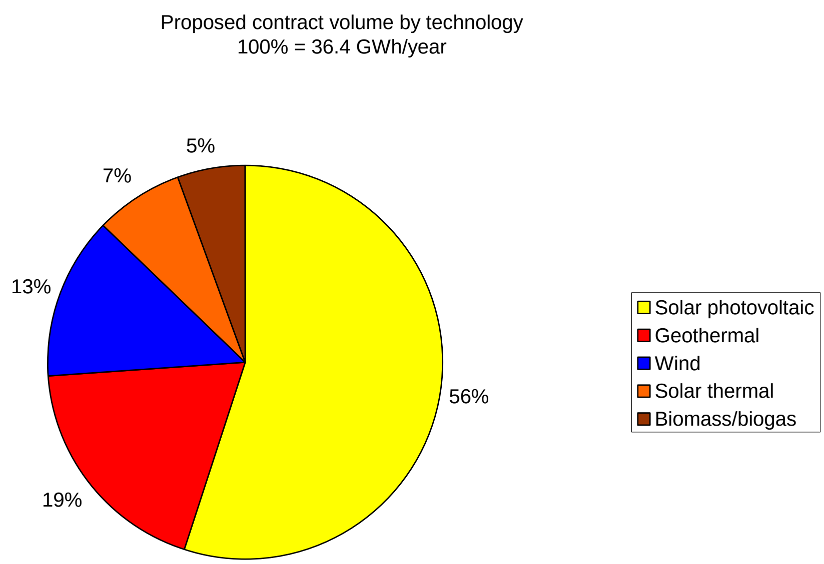


Figure 12.

[redacted]

[redacted][redacted] [redacted]

[redacted] [redacted]

Figure 13.

[redacted]

Table 1 summarizes PG&E's short list.

Table 1. PG&E's proposed short list

[redacted]

[redacted]

[redacted]

Section 3
Least-Cost Best-Fit Report
PUBLIC

Pacific Gas and Electric Company®

June 7, 2013

Section 3. Least-Cost Best-Fit Report (Public)

I. Introduction

A. Note relevant language in statute and CPUC decisions approving LCBF process and requiring LCBF Reports

Section 399.13(a)(4)(A) of the California Public Utilities Code requires the CPUC to adopt a " process that provides criteria for the rank ordering and selection of least-cost and best-fit eligible renewable energy resources to comply with the California Renewables Portfolio Standard Program obligations on a total cost basis." The statute also sets forth the following factors that must be taken into account in the LCBF process:

(i) Estimates of indirect costs associated with needed transmission investments and ongoing electrical corporation expenses resulting from integrating and operating eligible renewable energy resources.

(ii) The cost impact of procuring the eligible renewable energy resources on the electrical corporation's electricity portfolio.

(iii) The viability of the project to construct and reliably operate the eligible renewable energy resource, including the developer's experience, the feasibility of the technology used to generate electricity, and the risk that the facility will not be built, or that construction will be delayed, with the result that electricity will not be supplied as required by the contract.

(iv) Workforce recruitment, training, and retention efforts, including the employment growth associated with the construction and operation of eligible renewable energy resources and goals for recruitment and training of women, minorities, and disabled veterans.

Decision ("D.") 03-06-071 and D.04-07-029 adopted criteria for the rank ordering and selection of least cost, best fit renewable resources for use in Renewables Portfolio Standard ("RPS") solicitations. In addition, D.05-07-039 directed the Investor-Owned Utilities ("IOUs") to make their bid evaluation process transparent to their Procurement Review Groups ("PRG") and the California Public Utilities Commission ("Commission").

In D.06-05-039, the Commission required "each utility to provide a report when it submits its short list of bids. Each utility should also serve a copy on the service list, and make the report available to the fullest extent possible to any other person or party expressing interest, subject to confidential treatment of protected information. The report shall explain each utility's evaluation and selection model, its process, and its decision rationale with respect to each bid, both selected and rejected." D.06-05-039 also required each IOU to hire an Independent Evaluator ("IE") "to separately evaluate and report on the IOU's entire solicitation, evaluation and selection process for this and all future solicitations. This will serve as an independent check on the process and final selections. The Independent Evaluator's preliminary report should be provided with the IOU's shortlist, and a final report with the Advice Letter (AL) for approval of selected bids." D.06-05-039 further required that each IOU include certain elements, subject to confidential treatment of protected information, in each report. These elements include bid-specific price information, the evaluation and scoring of each bid, and the decision rationale with respect to each bid, both selected and rejected.

The Scoping Memo for Resolution ("R.") 06-05-027, issued August 21, 2006, required the IOUs to submit their first written report describing their bid evaluation criteria and selection process on September 29, 2006. In the RPS Transparency Workshop held on December 15, 2006, the Commission's Energy Division staff proposed, pursuant to D.06-05-039, a template to be used for future evaluation criteria and selection reports ("LCBF Written Report").

On May 10, 2013, the CPUC's Energy Division provided templates to PG&E for use in preparing this and the other attachments to this Advice Letter.

B. Describe goals of IOU's offer evaluation and selection criteria and processes

The goal of the 2012 RPS Solicitation bid evaluation and selection criteria and processes is to produce a short list of viable, competitively priced offers for negotiations which will ultimately result in renewable energy procurement of approximately 1,000 gigawatt hours (GWh) of PG&E's load.

> **1. Describe how "need" was determined for this solicitation. Comment specifically on whether, and to what extent, you considered other procurement options (e.g. UOG, solar PV program, feed-in tariffs, RAM, etc.), total energy portfolio needs, and other utility requirements to meet IOU's overall need stated in its Procurement Plan.**

PG&E's goal for its 2012 RPS RFO was to add to its RPS portfolio approximately 1,000 GWh per year of RPS-eligible deliveries through long term contracts. This goal was additional and incremental to any volumes PG&E has procured or intends to procure through the Renewable Auction Mechanism (RAM) program, Feed-in Tariff (FIT) programs, the Qualifying Facility (QF) program, and PG&E's Photovoltaic (PV) program. To determine its "need" from the 2012 RPS Solicitation, PG&E employed a deterministic approach, consistent with the Energy Division Staff methodology for calculating the renewable net short (RNS), to develop a risk-adjusted forecast of RPS-eligible deliveries from its existing portfolio. The result from this approach is presented as the High Need Portfolio Scenario(s) in the 2012 RPS Solicitation Net Short Summaries.

PG&E's forecast of deliveries from its portfolio of executed contracts includes all contractual obligations entered into on or before March 31, 2013 (accounting for any deterministic risk adjustment) and generic volumes for all pre-approved procurement programs, including projects resulting from the RAM, FIT, and PG&E's Solar PV programs. Neither shortlisted projects (from the 2012 RPS Solicitation, or any possible bilateral offers should they arise), nor retained deliveries from expiring contracts (re-contracting) are included in this forecast because there is not yet a contractual commitment for these resources.

The results of the Base Need Portfolio Scenario(s) in the 2012 RPS Solicitation Net Short Summaries rely on the same assumption set used for the High Need Scenario(s), with one exception. In the Base Need Portfolio Scenario(s), PG&E did not employ its deterministic approach; all projects under contract are assumed to be successful.

In both scenarios, annual energy volumes (2011 – 2020) are modeled based on PG&E's best estimate for project start dates/initial energy delivery date (current as of early April 2013). PG&E continually reviews project delivery assumptions based on the latest data from project developers and its Construction Monitoring & Performance Testing group, which inspects all projects under construction on a regular basis. A detailed summary of scenario assumptions is included in Table 1 in PG&E's response to question #2 below.

While the Portfolio Scenarios in the 2012 RPS Solicitation Net Short Summary reflect PG&E's RNS based on the Energy Division Staff methodology, PG&E also monitors an ***Alternate*** RNS, replacing the blended Long-Term Procurement Plan (LTPP) bundled retail sales forecast with its internal projection. Accounting for this change, the Portfolio Scenarios in the ***Alternate*** 2012 RPS Solicitation Net Short Summary reflect a RNS beginning in 2019.

2. Explain any assumptions made regarding expiring projects, projects under contract but not online, projects still shortlisted from previous solicitations, bilaterals under negotiation, and distributed generation programs (e.g. RAM, solar PV program, etc.).

PG&E's Base Case and High Need Scenario assumptions are summarized in the following table. Different assumptions between the Base Case and High Need Scenario assumptions have been highlighted in **bold**:

TABLE 1
Base Case and High Need Scenario Assumptions

	Base Case	High Need
Operational Projects *Contracts Executed Post-2002*	• Forecast is based on contract volumes or three year historical average output (for projects with at least a full calendar year of deliveries if more than 12 months of actual delivery data is available). • Year 2013 deliveries: Recorded meter data replaces forecasted deliveries for all projects as it becomes available.	• Same as Base Case
Baseline Non-Hydro *Pre-2002, QF Contracts*	• PG&E forecasts non-hydro QF projects at 95% of their 3-year average output, with the slight reduction based on the observation that, for a variety of reasons, these older resources (as a portfolio) have tended to under-deliver when compared to their average historical performance. • Year 2013 deliveries: Recorded meter data (as available) replaces forecasted deliveries for all projects.	• Same as Base Case

	Base Case	High Need
Baseline Small Hydro *Pre-2002 QF, Irrigation District, and legacy utility-owned assets*	• Projects are forecast at 82% of normal for 2013 (based on internal hydro forecast as of early April 2013), and approximately 100% of normal for 2014 and other future years. • Year 2013 deliveries: Recorded deliveries are used in place of forecasts as they become available.	• Same as Base Case
Re-contracting	• For the following reasons this risk-adjusted forecast does not assume that expiring volumes are retained: 1. PG&E does not yet have contractual commitments for these expiring volumes; 2. A number of the expiring contracts are with aging generating facilities with limited remaining useful life; 3. Contract-renewal bids may not be competitive with offers for new projects received in the current or future solicitations; and 4. Assuming re-contracted volumes obscures PG&E's current real need for additional energy in later years. • Re-contracting is not precluded by this assumption, but rather it reflects that re-contracting will be considered in the future side-by-side with procurement of other	• Same as Base Case

	Base Case	High Need
	new resources. • This forecasting methodology (i.e. not assuming any re-contracting) is consistent with PG&E's semi-annual RPS compliance filing that only shows PG&E's current contractual commitments.	
Signed Contracts *Excluding Baseline Categories Previously Described*	• All signed contracts are assumed to deliver at 100% of contract volumes, and deliveries start at current best estimate of commercial operation date, or expected commercial operation date ("ECOD").	• **Using its deterministic approach to risk-adjust its forecast, PG&E excludes projects that are determined to be high risk during its review of project development statuses. Consistent with Energy Division direction to include all contracts executed through March 31, 2013, PG&E's review reflects its risk-adjustment based on project development statuses known in early April 2013.** All other signed contracts are assumed to deliver at 100% of contract volumes, and deliveries start at current best estimate of commercial operation date, or expected commercial operation date ("ECOD").
Shortlisted Projects *From 2012 Solicitation or Bilateral Offer*	• No shortlisted projects are included in PG&E's forecast.	• Same as Base Case

	Base Case	High Need
Future Volumes from Pre-Approved Programs	**Renewable Auction Mechanism (Auction 3)** • For planning purposes PG&E assumed a project start date equal to 12/1/2015, creating a 30 month start date from an assumed June 2013 contract approval date. • Technology mix assumed to be 13.5 MW of baseload, 13.5 MW of as-available non-peaking, and 105 MW of as-available peaking. • All deliveries from executed contracts are assumed at 100% of contract volumes. **Renewable Auction Mechanism (Auction 4)** • For planning purposes PG&E assumed a project start date equal to 5/1/2016, creating a 30 month start date from an assumed November 2013 contract approval date. • Technology mix assumed to be 10 MW of baseload, 10 MW of as-available non-peaking, and 85 MW of as-available peaking. • All deliveries from executed contracts are assumed at 100% of contract volumes.	• Same as Base Case

	Base Case	High Need
	Solar PV Program • Consistent with PG&E's request in Advice Letters 4160-E and 4161-E, PG&E assumed that the Renewable Auction Mechanism accommodates the remaining 252 MW of PG&E's PV Program volumes. • For planning purposes, PG&E assumed that 52 MW starts on 1/1/2017, 100 MW on 1/1/2018, and 100 MW on 1/1/2019 (30 months from contract approvals in 7/1/2014 through 7/1/2016, respectively). • All deliveries from executed contracts are assumed at 100% of contract volumes.	• Same as Base Case
Feed-in Tariffs *(E-SRG, E-PWF, E-ReMAT and SB1122)*	• Annual energy volumes are modeled based on PG&E's best estimate for project start dates/initial energy delivery date. • All deliveries from executed contracts are assumed at 100% of contract volumes. **E-ReMAT** • Modeled start date for generic volumes assumed to begin 3/1/2016 and ramp up linearly until 1/1/2018, reaching a total of ~118 MW.	• Same as Base Case

	Base Case	High Need
	SB1122 (Bioenergy Feed-in Tariff Program) • Modeled start date for generic volumes assumed to begin 7/1/2016 and ramp up linearly until 5/1/2018, reaching a total of 110 MW.	
Compliance Period Procurement Quantity Requirements	As implemented by D.11-12-020, SB 2 1X requires retail sellers of electricity to meet the following RPS procurement quantity requirements beginning on January 1, 2011: • An average of twenty percent of the combined bundled retail sales during the first compliance period (2011-2013). • Sufficient procurement during the second compliance period (2014-2016) that is consistent with the following formula: (.217 * 2014 retail sales) + (.233 * 2015 retail sales) + (.25 * 2016 retail sales). • Sufficient procurement during the third compliance period (2017-2020) that is consistent with the following formula: (.27 * 2017 retail sales) + (.29 * 2018 retail sales) + (.31 * 2019 retail sales) + (.33 * 2020 retail sales). • 33 percent of bundled retail sales in 2021 and all years thereafter.	• Same as Base Case

	Base Case	High Need
Bundled Retail Sales *RNS*	• Forecasts of retail sales for the first five years of the forecast are generated by PG&E's *Load Forecasting and Research* team every January, and may be updated throughout the year as additional data becomes available. • Forecasts of retail sales beyond the first five years are sourced from the 2010 LTPP sales forecast, per the August 2, 2012 ALJ Ruling in R.11-05-005 regarding the methodology for calculating the renewable net short. • Monthly recorded sales replace forecasts as 2013 progresses.	• Same as Base Case
Bundled Retail Sales *Alternate RNS*	• Forecasts of retail sales are generated by PG&E's *Load Forecasting and Research* team every January, and may be updated throughout the year as additional data becomes available. • Monthly recorded sales replace forecasts as 2013 progresses.	• Same as Base Case

3. If size of shortlist is not equivalent to determined need, provide a detailed explanation of why it differs.

The shortlist is larger than the procurement goal for the RFO. PG&E shortlists bids representing greater volumes of energy than its RFO goal for several reasons. First, not all shortlisted bids will result in an executed contract. Second, PG&E's experience is that different counterparties are willing to negotiate more readily, and on quicker timetables, than others. Third, it is in customers' interest that projects continue to be competitive throughout the negotiation process. If a bidder withdraws, delays, or refuses to agree to reasonable terms, PG&E is able to turn to other counterparties on the shortlist and still attain its RFO goal.

II. Offer Evaluation and Selection Criteria

A. Description of Criteria

1. List and discuss the quantitative and qualitative criteria used to evaluate and select offers. This section should include a full discussion of the following:

a. Net Market Valuation

- **energy**
- **resource adequacy / capacity**
- **integration costs**
- **congestion cost adders**
- **transmission cost adders (discussed below)**

Solicited bids were evaluated using the following step-by-step process:

The Net Market Value (NMV), described more fully in the following section, was computed for each Offer. NMV was adjusted by other attributes, such as location, RPS portfolio need, energy firmness, contract term length (tenor) and curtailment, to arrive at the Portfolio-Adjusted Value (PAV). After the calculation of PAV was complete, PG&E considered project viability, contribution to RPS goals, and supplier diversity. The set of highest ranked Offers which allow for a reasonable probability of satisfying PG&E's procurement goal was selected for the Shortlist.

1. Market Valuation

a. Overview of the Market Valuation Criterion

Market valuation considers how an Offer's costs compare to its market benefits. Costs include estimated transmission network upgrade costs, congestion costs, integration cost, and contract payments. Benefits include energy, capacity, and ancillary services values. Each of these components is described more fully below. Consistent with CPUC Decision ("D.") 12-11-016, NMV is computed according to the following formula:

Net Market Value: R = (E + C) – (P + T + G + I)
Adjusted Net Market Value: A = R + S
Where
E = Energy Value
C = Capacity Value
P = Post-Time-Of-Delivery (TOD) Adjusted Power Purchase Agreement (PPA) Price
T = Transmission Network Upgrade Cost
G = Congestion Costs
I = Integration Costs
S = Ancillary Service Value

Costs and benefits are each quantified and expressed in terms of levelized dollars per MWh. NMV is benefits minus costs, and is expressed in terms of levelized dollars per MWh.

Offers are classified into two types based upon how they are financially modeled: 1) forward contracts and 2) dispatchables. How benefits and costs were calculated varies with each of the two types of Offers, as described in the following section.

b. Calculation of Benefits and PPA Costs

• **Forward Contracts**

The term "forward contract" is used to describe an Offer that provides energy with no dispatch flexibility. This type of Offer includes Baseload, As-Available, and REC plus Energy (Product Category 2) products.

Energy benefit (E), for each hour of delivery, is the quantity of energy delivery for an hour multiplied by the forward energy price at the corresponding Trading Hub (NP15, SP15, or ZP26), adjusted for losses for that hour. The quantity of energy delivery for each hour is determined by the hourly generation profile of the Offer. Losses vary by location of the project and are assessed using the Locational Marginal Price (LMP). The Loss Multipliers were calculated from the Loss and Energy component of the historical MRTU LMP data (Day-ahead Market for the period July 2009 to August 2012). For each Offer, the Loss Multipliers for the corresponding load zone are multiplied by the LMP price of the corresponding Trading Hub to produce energy benefit per MWh for each hour. The average Loss Multipliers for On peak and Off-peak are provided in Table 1. A higher Loss Multiplier implies less loss, thus more value associated with a project located in the corresponding load zone.

Discounted hourly energy benefit is summed across hours of delivery, and summed across years. The total discounted benefit is then divided by total discounted MWh of energy and expressed in terms of levelized dollars per MWh.

For offers providing Buyer Curtailment, **energy benefit** includes the expected value of the difference between the (presumably negative) wholesale market spot price avoided when Buyer Curtailment occurs and the contractual payments to the Seller when Buyer Curtailment occurs.

Capacity benefit (C) for Resource Adequacy (RA), for year of availability, is the projected monthly quantity of qualifying capacity multiplied by the projected monthly capacity price, discounted to 2013 dollars and summed across years. The total discounted capacity benefit is then divided by total discounted MWh of energy and expressed in terms of levelized dollars per MWh. There currently exists significant uncertainty regarding design of RA markets in California, especially for delivery years beyond 2015. Therefore, the calculation of capacity benefit may evolve as more information is known about market design or as uncertainty lingers.

Ancillary Services benefit assumed to be zero for offers classified as forward contracts.

PPA Payments (P) are the expected payments under each Offer. For forward contracts, an Offer's price for each hour is multiplied by the appropriate Time of Delivery (TOD) factors if applicable, as specified in the 2012 RPS Solicitation Protocol. The PPA Payment for each hour is then calculated by multiplying expected delivery quantity to the Offer's price. The hourly PPA Payment is summed over the contract term and then divided by the discounted MWh to be expressed in units of levelized dollars per MWh.

- **Dispatchables**

The term "Dispatchables" is used to describe Offers which provide some flexibility in their dispatch.

Energy benefits (E) of a dispatchable type of Offer are calculated as a daily exercise of European call options. Additional details depend on the nature of the particular characteristics of a specific Offer.

Capacity benefit (C) for a dispatchable type of Offer is calculated the same way as described above for the forward contracts type of Offer. The projected monthly quantity of qualifying capacity is determined by the performance requirements of the Offer and the characteristics of a specific Offer.

Ancillary services benefit for a dispatchable type of Offer depends on the characteristics of a specific Offer.

PPA Payments (P) represented by a dispatchable type of Offer is calculated the same way as described above for the forward contracts type, except that PG&E's capacity payments for each Offer are determined by the Offer's pricing multiplied by the appropriate Time Of Availability (TOA) factors. Cost is measured in units of levelized dollars per MWh.

c. Calculation of Transmission Network Upgrade Costs

The Transmission Network Upgrade Costs (T) is the projected cost, if any, of bringing the power from the generating facility to PG&E's network. For the 2012 RPS RFO, PG&E used results from Participants' completed interconnection studies rather than the Transmission Ranking Cost Report ("TRCR") study results used in the past.

A Present Value Revenue Requirement (PVRR) is calculated from the interconnection study for each evaluated bid. If the Seller is offering an energy-only resource, PG&E used the reliability network upgrades identified in the interconnection study for calculation of the transmission adder. If the Seller is offering a full deliverability resource, PG&E used both the reliability network upgrades and delivery network upgrades in the calculation.

The PVRR captures from a ratepayer perspective the risk and cost to construct and maintain transmission upgrades to accommodate the generation from the renewable resource.

This PVRR of the costs of the Network Upgrades is converted into levelized dollars per MWh by dividing the PVRR by the Discounted MWh.

d. Congestion Costs

Congestion cost (G) for each hour is calculated by multiplication of 1) a Congestion Cost Multiplier for the corresponding time period and load zone, 2) the Locational Marginal Price (LMP) of the corresponding Trading Hub, and 3) expected energy delivery. The hourly congestion costs are net present valued over the contract period and then divided by the present value of expected energy quantity (MWh) to arrive at the Congestion Cost in levelized dollars per MWh.

A summary of Congestion Cost Multipliers for each load zone is included in Table 1. These Congestion Cost Multipliers were obtained from historical MRTU LMP data (Day-ahead Market for the period July 2009 to August 2012) by taking a ratio of negative of the Congestion component of LMP in each load zone to the LMP of the corresponding Trading Hub. A higher Congestion Cost Multiplier indicates a higher Congestion Cost (G). Specifically, a Congestion Cost Multiplier greater than zero indicates that generation in the corresponding area serves load outside of the area by congested lines and thus a new generator in the corresponding area is expected to increase the congestion. A zero Congestion Cost Multiplier implies there is no congestion in the transmission lines connecting the area. A Congestion Cost Multiplier less than zero indicates that loads in the corresponding area are served by the constrained transmission line(s) and thus a new generation in the area may reduce congestion.

TABLE 1
Congestion Cost Multipliers and Loss Multipliers[1]

			Loss Multipliers for E		Congestion Cost Multipliers for G		LMP Multipliers for E-G	
	Descriptive Names	CAISO APNodes	On Peak	Off Peak	On Peak	Off Peak	On Peak	Off Peak
1	PG&E Central Coast	PGCC	102.2%	101.9%	1.7%	1.7%	100.4%	100.2%
2	PG&E East Bay	PGEB	101.5%	101.1%	1.5%	1.1%	100.0%	100.0%
3	PG&E Fresno	PGF1	101.2%	101.7%	1.6%	1.1%	99.5%	100.6%
4	PG&E Fulton Geysers	PGFG	101.2%	100.1%	1.7%	1.1%	99.5%	98.9%
5	PG&E Humboldt	PGHB	103.1%	105.1%	-0.4%	-0.5%	103.5%	105.7%
6	PG&E Los Padres	PGLP	99.3%	98.5%	1.6%	1.1%	97.7%	97.4%
7	PG&E North Bay	PGNB	101.7%	100.9%	1.6%	1.1%	100.1%	99.8%
8	PG&E North Coast	PGNC	103.7%	101.1%	2.6%	1.3%	101.1%	99.8%
9	PG&E North Valley	PGNV	97.6%	98.3%	1.3%	0.8%	96.3%	97.5%
10	PG&E Peninsula	PGP2	102.7%	102.0%	1.6%	1.1%	101.1%	100.9%
11	PG&E Sacramento Valley	PGSA	99.7%	100.2%	0.5%	0.4%	99.3%	99.8%
12	PG&E South Bay	PGSB	102.3%	101.8%	1.5%	1.1%	100.7%	100.7%
13	PG&E San Francisco	PGSF	104.6%	103.2%	1.1%	0.7%	103.4%	102.4%
14	PG&E Sierra	PGSI	98.9%	99.4%	-0.3%	0.9%	99.2%	98.5%
15	PG&E San Joaquin	PGSN	96.0%	96.9%	1.7%	1.4%	94.3%	95.5%
16	PG&E Stockton	PGST	100.4%	100.4%	1.1%	1.0%	99.3%	99.4%
17	So Cal Edison Core	SCEC	98.0%	98.8%	-0.8%	-0.7%	98.9%	99.5%
18	So Cal Edison North	SCEN	97.2%	98.7%	-1.5%	-0.6%	98.7%	99.3%
19	So Cal Edison West	SCEW	99.9%	100.1%	-2.0%	-0.8%	101.9%	100.9%
20	So Cal Edison High Desert	SCHD	93.0%	94.2%	-0.1%	-0.5%	93.1%	94.7%
21	So Cal Edison Low Desert	SCLD	97.2%	97.7%	-0.9%	-0.7%	98.1%	98.4%
22	So Cal Edison North West	SCNW	98.5%	99.6%	-1.0%	-0.6%	99.5%	100.2%
23	San Diego Gas & Electric Core	SDG1	99.4%	99.4%	-2.3%	-2.0%	101.7%	101.4%

[1] Congestion multipliers shown are a simple average over hours and months. Contract valuations use disaggregated values for different months and peak and off-peak periods.

The overall locational value of a project should be assessed by looking at the LMP multipliers provided in Table 1. The LMP multipliers imply the relative value of 1 MWh in each load zone compared with the corresponding Trading Hub (NP15, SP15, or ZP26) price. For example, PG&E could consider Offer A located in the Central Coast and Offer B located in San Francisco, with everything else the same. Offer B will have higher Energy Value (E) because the Loss Multipliers in San Francisco are higher than for the Central Coast. On the other hand, Offer A has lower Congestion Cost (G) because the Congestion Cost Multiplier for the Central Coast is lower than San Francisco. Overall, Offer B scores higher than Offer A, because E-G will score higher due to higher LMP Multipliers in San Francisco compared with the Central Coast.

e. Integration Costs

Pursuant to D.12-11-016, integration costs were assumed to be zero.

2. Portfolio Adjusted Value

Portfolio Adjusted Value (PAV) adjustments included the following components: Location, RPS Portfolio Need, Energy Firmness, Contract Term Length (Tenor), and Curtailment.

a. Location

PG&E has a preference for projects in its service territory. This preference is influenced by constraints (either in the marketplace or imposed on PG&E by regulatory agencies) that may limit the amount of capacity in SP15 that PG&E can count toward its RA requirement. Capacity located in PG&E's service territory is likely to deliver energy that has more value for PG&E's bundled electric portfolio, even when market forward prices indicate that energy delivered farther away has greater Market Value. The long-term need for new resources in PG&E's service territory is also more likely to be mitigated by a new resource in NP15 than a new resource located in SP15. The calculation of PAV effectuates this by adjusting the value of energy and capacity for offers from resources in SP15.

The PAV Energy Benefit for offers from resources in SP15 was calculated using the minimum of the SP15 energy forward price and the NP15 energy forward price, for each period the value of energy is calculated. This adjustment is not intended to adjust for congestion—that is accounted for in the calculation of Net Market Value in the Congestion Multipliers. This adjustment is intended to account for the relative value, to PG&E's portfolio, of energy that may be used to serve PG&E's bundled customer load. This adjustment is not duplicative of the Energy Value component of Net Market Value. Whereas PG&E's calculation of Energy Value in Net Market Value represents an offer's value of energy to any wholesale market participant, including investor-owned utilities in southern California and purely financial traders, the locational adjustment described here is specific to PG&E's portfolio and would not be made by investor-owned utilities in southern California, financial traders, and wholesale market participants in general (although the locational adjustment described here might be made by other load-serving entities with load heavily concentrated in northern and central California).

The PAV Capacity Benefit for offers from resources in SP15 was calculated using a short-run avoided cost of capacity rather than a long-run avoided cost of capacity, even when the PAV Capacity Benefit for offers from resources in NP15 was calculated using a long-run avoided cost of capacity. This adjustment is intended to account for the relative value, to PG&E's portfolio, of capacity that may be used to meet future resource adequacy requirements to serve PG&E's bundled electric customers. This adjustment is not duplicative of the Capacity Value component of Net Market Value. Whereas PG&E's calculation of Capacity Value in Net Market Value represents an offer's value of capacity to any wholesale market participant, including investor-owned utilities in southern California and purely financial traders, the locational adjustment described here is specific to PG&E's portfolio and would not be made by investor-owned utilities in southern California, financial traders, and wholesale market participants in general (although the locational adjustment described here might be made by other load-serving entities with load heavily concentrated in northern and central California).

As a consequence of these adjustments to the value of energy and capacity, offers from resources in NP15 tended to have higher PAV and rank better than equivalent offers from resources in SP15.

b. RPS Portfolio Need

PG&E has a preference for offers with deliveries beginning in 2019-2020. PG&E considered how an offer contributes to PG&E's overall portfolio need for RPS energy. For each delivery year in which PG&E's portfolio (augmented by the offer) is projected to be short RPS-eligible energy, the Energy Benefit of that offer's RPS-eligible energy will be increased using PG&E's forward price curve for Renewable Energy Credits (RECs). However, for each delivery year in which PG&E's portfolio (augmented by the offer) is projected to be long RPS-eligible energy, no additional value will be attributed to the offer's RPS-eligible energy; in other words, that RPS-eligible energy will be valued using an energy price curve for non-renewable energy. This RPS portfolio need adjustment is not duplicative of the Energy Value component of Net Market Value. Whereas PG&E's Net Market Value calculation reflects the value of generic energy in the marketplace, the RPS portfolio need adjustment described here reflects the incremental value of RPS-eligible energy to PG&E's portfolio in those years, and only those years, when the energy actually is projected to be needed to meet the portfolio's RPS requirement.

Thus, offers that deliver RPS energy only in periods when PG&E's portfolio needs RPS energy have higher PAV and rank better than equivalent offers that deliver RPS energy in periods when PG&E's portfolio does not need RPS energy.

c. Energy Firmness

PG&E's Net Market Value calculation of Energy Value uses energy forward price curves that are associated with firm energy. Offers in the 2012 RPS RFO were typically not for firm energy. To value the energy benefit for an offer from a resource that has uncertainty in the minute-by-minute production of energy, a risk-adjusted multiplier was used in calculating PAV. PAV is calculated as the product of an offer's Energy Benefit (as calculated in the Energy Value component of Net Market

Value and then adjusted by the locational adjustment and RPS portfolio need adjustment described above) and the PAV risk-adjusted multiplier for that offer. The PAV risk-adjusted multiplier took on values between 0.8 and 1.0. A multiplier of 1.0 represents an offer's Energy Benefit is the same as if the offer were to provide firm energy. A multiplier of 0.8 represents substantial reduction in an offer's Energy Benefit because of the offer's significant uncertainty in energy production from its resource. The multiplier for an offer from a solar thermal resource is higher than the multiplier for an offer from a wind resource or a solar PV resource. An offer for a solar thermal resource with storage has a higher multiplier than a solar thermal resource without storage. The particular PAV risk-adjusted multiplier applied to an offer will be a function of the relative firmness of the offer's energy and not simply a function of the renewable technology being offered.

The energy firmness adjustment itself did not result in any PAV increase or better ranking for offers providing dispatchability. For offers providing dispatchability, PG&E either: (1) used option-based approaches to calculate the Energy Value component of Net Market Value, and/or (2) calculated PAV using the curtailment adjustment described below. Nonetheless, offers providing dispatchability have higher PAV and rank better than equivalent offers that do not provide dispatchability.

The energy firmness adjustment is not duplicative of the Energy Value component of Net Market Value. Whereas PG&E's Net Market Value calculation reflects the value of firm energy in the marketplace, the energy firmness adjustment described here reflects PG&E's assessment of the reduction in offer value that results from measuring and managing a position with uncertainty in energy production. For the same particular offer, other wholesale market participants might assess lower or higher reductions in offer value, resulting from each wholesale market participant's different portfolio positions and different capabilities, opportunities, and constraints for wholesale market activities.

The energy firmness adjustment is also not a proxy or substitute for a nonzero integration cost adder. The energy firmness adjustment is strictly in the context of PG&E's portfolio. In contrast, an integration cost adder is in the context of the system. The PG&E portfolio perspective and the physical transmission system perspective are two distinct and separate perspectives.

Thus, offers that deliver RPS energy with greater firmness will have higher PAV and rank better than equivalent offers that deliver RPS energy with less firmness.

d. Contract Term Length (Tenor)

PG&E prefers long-term transactions to match the portfolio's long-term RPS need, and so sought contracts with delivery periods 10 years or greater. A countervailing consideration is that longer-term transactions may pose greater project risk because of uncertainty in market conditions. PG&E therefore expressed a preference for offers with delivery periods of 10 to 15 years rather than delivery periods lasting 20 years or more.

In calculating PAV, the value of an offer was adjusted for the length of the delivery period being offered (i.e., the “contract term length” or “tenor”) using an adder. The adder takes on values between -10 and +10 dollars per MWh. Provided that an offer has contract term length at least 10 years, the shorter is the contract term length, the higher is the value of the adder, and consequently the higher is the PAV of the offer and the better is the ranking of the offer.

The contract term length adjustment is not duplicative of the Net Market Value calculation. PG&E’s Net Market Value calculation is not directly affected by contract term length. Net Market Value is determined by the year-by-year differences between an offer’s contract price (including the time-of-delivery factors) and the forward curves for energy and capacity. The present value of these year-by-year differences matter, but contract term length itself does not matter. PG&E’s Net Market Value calculation is an expected value calculation. In contrast, the PAV calculation quantifies, in the context of PG&E’s portfolio, how contract term length affects the riskiness of an offer.

Thus, offers with shorter contract term lengths (but contract term length at least 10 years) would have higher PAV and would rank better than equivalent offers with longer contract term lengths.

e. Curtailment Hours Offered

PG&E prefers offers that provide PG&E flexibility in scheduling a resource’s generation. PG&E values the flexibility associated with Buyer Curtailment. The PPA requires a Seller to offer at least 250 hours of Buyer Curtailment, for which the Seller will be compensated. The PPA also allows a Seller to offer more hours of curtailment, and to specify the price the Seller would be paid for energy deemed delivered in those hours.

For offers providing additional hours of Buyer Curtailment beyond the 250 required hours, PG&E’s Net Market Value calculation of Energy Value includes, for the additional hours of Buyer Curtailment, the expected value of the difference between the (presumably negative) wholesale market spot price avoided when Buyer Curtailment occurs and the contractual payments to the Seller when Buyer Curtailment occurs. This expected value is anticipated to be realized by any wholesale market participant and is not specific to the particular composition or positions of PG&E’s portfolio or PG&E’s particular capabilities, opportunities, and constraints for wholesale market activities.

However, additional hours of Buyer Curtailment provide incremental value to PG&E’s portfolio, above and beyond the expected value included in Net Market

Value. Such incremental value may include reducing the portfolio's costs for imbalance energy charges from the CAISO, avoiding involuntary curtailment orders issued by the CAISO to PG&E, avoiding extreme volatility in spot market prices for ancillary services, and similar benefits associated with managing the portfolio. The PAV curtailment adjustment is the estimated value of these incremental benefits to PG&E's portfolio, minus the estimated value of contractual payments to the Seller for any incremental curtailment situations not already included in the Net Market Value calculation. Defined in this way, the PAV curtailment adjustment is therefore not duplicative of PG&E's calculation of Net Market Value.

The PAV curtailment adjustment is also not duplicative of any integration cost adder that might be used in the future. The curtailment adjustment is strictly in the context of PG&E's portfolio. In contrast, an integration cost adder is in the context of the system. The PG&E portfolio perspective and the physical transmission system perspective are two distinct and separate perspectives.

The PAV curtailment adjustment is also not duplicative of the PAV energy firmness adjustment. The curtailment adjustment reflects a flexibility or dispatchability (emanating from hours of Buyer Curtailment) that is a quality superior to must-take firm energy, whereas the energy firmness adjustment reflects uncertain generation that is typically inferior to must-take firm energy and at best is the same quality as must-take firm energy.

Thus, offers that provide greater amounts of additional hours of Buyer Curtailment with lower contractual payments to the Seller have higher PAV and rank better than equivalent offers that provide lesser amounts of additional hours of Buyer Curtailment with higher contractual payments to the Seller.

3. Credit and collateral requirements

Following Shortlisting, PG&E may consider the Participant's capability to perform all of its financial and financing obligations under the Agreements and PG&E's overall credit concentration with the Participant, including any of Participant's affiliates. Participants were requested to indicate what level of project development and delivery term security they would meet. PG&E did not score Participants' credit and collateral requirements during the 2012 RPS Solicitation.

4. Project Viability

The CPUC developed a Project Viability Calculator (PVC) with stakeholder participation from utilities, renewable project developers and ratepayer advocates. The CPUC's PVC, along with background on its development, instructions for use, and criteria scoring guidelines can be found on http://www.cpuc.ca.gov/PUC/energy/Renewables/procurement.htm and in the PVC itself.

PG&E evaluated the project viability of each offer using the June 2, 2011 CPUC PVC. Participants were asked to self-score each of their offers using the PVC in Attachment D and provide supporting documentation for each score. PG&E reviewed all submissions and adjusted self-scores as appropriate.

For background, a project's viability score is based on weighted scores in three categories: 1) Company / Development Team, 2) Technology, and 3) Development Milestones. The Project Viability assessment results in a score ranging from 0 to 100 points with 100 being the highest possible score. Offer information required by PG&E for evaluation of project viability is described in Section VI of the 2012 RPS Solicitation Protocol. The Participant's claims in all three categories were verified to the extent possible using publicly available data and/or PG&E data.

4. RPS Goals

PG&E assessed the Offer's consistency with and contribution to California's goals for the RPS program and the Offer's support of PG&E's supplier diversity goals (collectively "RPS Goals"). Determination of the extent to which the proposed development supports RPS Goals is based on the information provided in the Offer as well as PG&E's assessment of the project (see RPS Solicitation Protocol Section VI). The RPS Goals assessment considers the factors described below.

1. Legislative direction implemented in 399.13(a)(7):

"In soliciting and procuring eligible renewable energy resources for California-based projects, each electrical corporation shall give preference to renewable energy projects that provide environmental and economic benefits to communities afflicted with poverty or high unemployment, or that suffer from high emission levels of toxic air contaminants, criteria air pollutants, and greenhouse gases."

2. Consistency with the CPUC's Water Action Plan adopted on December 15, 2005 and updated October 2010.

To the extent a project uses water on site, its impact on California's water quality and consistency with the CPUC's recommended water conservation practices and goals was reviewed.

3. Executive Order S-06-06, signed on April 25, 2006.

In this executive order, Governor Schwarzenegger described the benefits of biomass resources in electricity production and established a goal that the state would meet 20% of its renewable energy needs with electricity produced from biomass. Bidders were encouraged to describe whether and how their respective facilities could support the 20% goal.

5. Supplier Diversity

In support of PG&E's supplier diversity goals, the good faith efforts of Participants to subcontract with Women-, Minority-, and Service- Disabled Veteran-owned Business Enterprises (WMDVBEs),or the Participant's status as a certified WBE, MBE, or DVBE are factors that are considered in the bid evaluation process.

b. Transmission Cost Adders

- **Discuss how much detailed transmission cost information the IOU requires for each project**
- **Discuss whether cost adders are always imputed for projects in transmission-constrained areas, or whether and how costs for alternative commercial transactions (i.e. swapping, remarketing) are substituted.**

Sellers were required to have at least a Phase I interconnection study, or equivalent, to bid into the RFO. PG&E required bidders to submit the latest interconnection study, or interconnection agreement, with each offer. PG&E also requested supplemental transmission information from developers for each Offer. This information included the proposed project's current interconnection queue position and form of interconnection applied for (e.g energy only vs. full capacity deliverability status), application status and expected timing for execution of any interconnection agreements, and transmission provider. Details of the current or proposed interconnection were requested for the projects, including voltage level, transmission or distribution service level, transmission line, and interconnecting substation.

PG&E assigned each Offer an estimated amount of transmission network upgrade costs using project-specific interconnection studies.

If the proposed Project is located outside the CAISO-controlled grid and offered delivery outside the CAISO grid, the Seller was asked to deliver the energy onto or to an intertie with the CAISO grid. PG&E accepted offers for power at a CAISO interface point from projects that interconnect within a non-CAISO control area. Since these projects do not go through the CAISO interconnection process and are not assigned network upgrades, PG&E assumed the transmission adder is zero. For example, projects interconnecting to another control area go through an interconnection process where the generation facility is located (*e.g.*, Imperial Irrigation District "IID"). The Seller is responsible for paying any upgrade costs with its interconnecting utility and all transmission costs to get to the CAISO. Since these costs are built into the offer price, PG&E did not assign additional transmission costs.

A Present Value Revenue Requirement ("PVRR") is calculated from the interconnection study for each evaluated bid. This PVRR captures from a ratepayer perspective the risk and cost to construct and maintain transmission upgrades to accommodate the generation from the renewable resource.

This PVRR of the costs of the Network Upgrades was converted into a present value per MWh (2012 $ and 2012 MWh) by dividing the PVRR by the Discounted MWh. These present value per MWh (2012 $ and 2012 MWh) values, one for each Offer, are returned to the database for a recalculation of the Market Valuation.

B. If a weighting system is used, please describe how each LCBF component is assigned a quantitative or qualitative weighting compared to other components. Discuss the rationale for the weightings.

PG&E does not apply a weighting system to the LCBF components in the overall evaluation and selection of Offers.

C. Describe role of quantitative and qualitative factors on the LCBF ranking process.

PG&E's selection process, including project-specific trade-offs between the qualitative and quantitative factors, is documented in the workpapers supporting this filing that have been populated according to Energy Division's template and are being concurrently sent to the Energy Division. Final shortlisting decisions are made based on best professional judgment using the scores and assessments from the portfolio-adjusted value and the other evaluation criteria. PG&E also solicits feedback from its Procurement Review Group ("PRG") and the Independent Evaluator ("IE") regarding the shortlist before it is finalized.

D. **Discuss how the evaluation process differs, if at all, for operating and new projects, different expected portfolio content categories, and varying term lengths (e.g. incorporating costs of delivering energy from out-of-state facilities).**

PG&E received offers for operating and new projects. PG&E evaluates new and existing resources using the same PAV components. Existing resources, all else being equal, may be preferred because they have no project development risk, and so have higher project viability. In addition, existing resources may be able to offer shorter delivery terms, which are preferred.

In this RFO, PG&E received a limited number of category 2 and 3 offers. PG&E created separate rankings for projects in Product Content Categories 1, 2 and 3.[1] This distinction is based on the fact that projects in each category have different limitations on how they can be used for RPS compliance.

PG&E indicated a minimum term length of at least ten years. See the discussion above for the treatment of contract length (tenor) in developing the Portfolio-Adjusted Value for each Offer.

See subsection A, above, for a discussion regarding how PG&E evaluated the costs of delivering energy from out-of-state facilities.

E. Evaluation of utility-owned, turnkey, buyouts, and utility-affiliate projects

1. Describe how utility-owned projects are evaluated against PPAs

[1] *See* Cal. Pub. Util. Code §399.16(a)(1)-(3).

PG&E's solicitation did not include utility-owned projects.

2. Describe how turnkey projects are evaluated against PPAs

PG&E's solicitation did not include turn-key projects.

3. Describe how buyout projects are evaluated against PPAs

PG&E's solicitation did not include PPAs with buyout options.

4. Describe how utility-affiliate projects are evaluated against non-affiliate projects

PG&E does not have an affiliate that offered a renewable energy project into this solicitation.

F. Conformance and Confirmation of Bid Information

1. **Describe process for determining bid conformance**

The eligibility criteria for bidding into this RFO were: 1) PPA of 10 years or more, 2) Phase I interconnection study or better and 3) location within the CAISO or delivery to CAISO. Bidders were asked to submit a variety of offer documents, including an Excel-based offer form.

The most frequent reasons for bid non-conformance were lack of an interconnection study or lack of delivery arrangements to the CAISO.

PG&E first checked to see if all offer documents had been provided. If documents were missing, PG&E notified Sellers by e-mail and asked them to provide the documents within two days. If Sellers still did not provide a CAISO interconnection study, PG&E contacted the Seller to get more information about their interconnection status, and then made a determination, in conjunction with the IE, on whether the offer should be considered ineligible. For Sellers that provided a non-CAISO interconnection study, PG&E reviewed the other materials provided to confirm that Seller was offering delivery to the CAISO and that appropriate transmission arrangements were in place.

Sellers' compliance with the delivery term requirement was determined by reviewing the data in the Excel offer form.

2. **Describe process, if any, for determining accuracy of information provided in bids**

PG&E generally expects a bidder to provide true, accurate information. If PG&E identifies apparent anomalies in the quantitative data, PG&E contacts the Seller to confirm the information is correct and that the Seller has not misunderstood the offer form.

In terms of project viability, PG&E requests that the Seller document its self-score with references to supporting data. PG&E reviews that data to evaluate the accuracy of the higher-ranking offers.

III. Offer Evaluation and Selection Process

A. What is the process by which offers are received and evaluated, selected or rejected for shortlist inclusion, and further evaluated once on the shortlist?

When Offers are received and opened, a processing team reviews each Offer to identify and summarize key characteristics, and to note any major areas of missing or unclear information. PG&E has set up evaluation teams for each of the evaluation criteria, as described above. Each team reviews a subset of Offers in its evaluation area in order to ensure consistency in scoring across Offers. A lead person for each Offer ensures that the scores for that Offer make sense across evaluation teams. If there are any additional information needs from a bidder, the PG&E lead makes such requests. Responses are taken into account prior to ranking Offers. The IE is actively involved in the shortlisting process. PG&E also keeps the PRG updated regarding its progress toward shortlisting.

A PG&E evaluation committee oversees the integrity of the evaluation process and makes a shortlist recommendation to the PG&E steering committee. The steering committee has the authority to approve the shortlist and additionally to rule on issues of eligibility. Following shortlisting, the steering committee approves the priority of negotiations. Offers and their respective valuations are updated as new information becomes available in the course of negotiations. As part of the updating of Offer valuation after shortlisting, PG&E may make refinements to its valuation methodology.

B. What is the typical amount of time required for each part of the process?

For the 2012 RPS Solicitation, the interval between the issuance of the request for Offers to the receipt of Offers was approximately eight weeks; from the date of bid receipt until notification of bidders eligible for shortlisting, the interval was approximately ten weeks; from the date of notification to transmission of the short list to the Commission was three weeks. In PG&E's experience, negotiations can take from three to six months, or longer, once active negotiations have begun, depending on the complexity of the transaction and the differences between the seller and the IOU. The time from contract execution until Commission approval is generally six to twelve months.

C. Were any offers rejected for non-conformance? If so, how many and what were the non-conforming characteristic(s)?

There were 5 offers rejected for non-conformance. The offers were rejected because 1) the offer was for an out-of-state project that did not include clear plans for delivery to the CAISO, as required by the 2012 RPS Solicitation Protocol or 2) the offer did not meet the requirement for an interconnection study, either because the project had withdrawn from the queue or did not have a completed study.

D. Describe involvement of the Independent Evaluator.

The IE reviews the evaluation criteria, detailed protocols, and the market valuation models prior to Offer opening. The IE provides feedback on potential areas for improvement. The IE is present at Offer opening and receives a copy of all Offer documents. The IE monitors all email communications with bidders. PG&E uses email exclusively to make supplemental information requests, and all responses are provided to the IE upon receipt. The IE may submit additional questions that are not raised by the PG&E team. The IE participates in all meetings of PG&E's RPS steering committee and in all PRG meetings related to PG&E's RPS solicitation. The IE performs an independent evaluation of the Offers. If any substantive differences exist between the IE's evaluation and PG&E's evaluation, the IE discusses these areas with PG&E to determine the reason and to correct the difference. Finally, the IE issues the report attached as Sections 1 and 2 of this Advice Letter, evaluating the fairness of the RFO and conformance to the Protocol.

E. Describe involvement of the Procurement Review Group.

For the 2012 RPS Solicitation, PG&E presented a high-level summary of offers approximately 5 weeks after offer receipt. Then PG&E presented a detailed summary and preliminary shortlist to the PRG two weeks later. Key project characteristics were discussed. The PRG raised questions and provided initial feedback. PG&E solicited and incorporated the PRG's feedback into its selection of the final shortlist about ten weeks after bid receipt.

F. Discuss whether and how feedback on the solicitation process is requested from participants (both successful and unsuccessful) after the solicitation is complete.

PG&E gets feedback from both successful and unsuccessful bidders after the shortlist is complete. For successful (shortlisted) bidders, PG&E solicits feedback as part of its ongoing discussions with the counterparty. PG&E also offered a feedback call to all non-shortlisted bidders. PG&E explained where the project fell in the PAV ranking by quartile, and the primary reasons why bidders' projects were not successful. PG&E responded to requests for feedback from a large number of unsuccessful bidders. As part of those conversations, PG&E asked bidders for their feedback on the solicitation process. This year, PG&E sent out a survey to its email distribution list. PG&E is still compiling survey responses.

IV. Final Shortlist

A. How was the size of the shortlist determined?

The shortlist is sized to create a population of Offers large enough to satisfy PG&E's procurement target of approximately 1,000 GWh of load. PG&E takes into account that Offers may be withdrawn and that negotiations with others may not result in executed contracts.

B. Describe how certain project characteristics (e.g. online date, location, and project size) factor in to your shortlisting decisions as to which projects contribute towards meeting your determined need (or net short).

Online date: As described above, PG&E expects to have limited need for projects until the third compliance period. PG&E considered offer variations with different online dates, and scored each one relative to the PAV adjustment for contract online date, as described above.

Location: PG&E evaluated each project based on the value of the energy at the proposed project delivery point. PG&E uses location-differentiated prices, based on historical market price differentials, as described above. In addition, location may affect the transmission adder.

Project Size/Seller Concentration: PG&E's LCBF evaluation does not differentiate projects purely on the basis of size. However, project size may impact the following factors in the selection process: (1) viability; (2) seller concentration; and (3) compatibility between output and PG&E's RFO goal. With respect to viability, smaller projects score better if the developer has successful experience with projects of that same size and technology. With respect to Seller concentration, PG&E considered the overall megawatts goals under this solicitation, and did not want to assign an overly large percentage of the total volume to a single counterparty.

See Section 4 for additional detail.

Curtailment: With the increasing renewable generation coming online, PG&E is increasingly concerned about potential operational challenges that may be imposed by additional intermittent renewable generation, and the potential for over generation. PG&E has asked Sellers to provide offers that went beyond minimum PPA requirements for curtailment. This was considered in the PAV calculation, as described above.

C. Describe how project viability affected your shortlist results. Did LCBF rankings or your proposed shortlist change based on project viability and/or project viability scores?

PG&E scored projects on viability and value. PG&E shortlisted projects that had high market value and acceptable viability scores. PG&E did not set a minimum viability threshold. Rather, PG&E reviewed the top-ranked PAV offers to determine qualitatively whether the offers had significant enough viability concerns to warrant exclusion from the shortlist.

See Section 4 for more detail.

D. Describe what role price had in determining your proposed shortlist. Were offer prices examined relative to other offers or other procurement options? Was there a certain price point cut off? Was rate impact considered for individual offers or on a portfolio or shortlist level? What were the primary reasons for not shortlisting a project (e.g. price, online date, viability, environmental concerns, seller concentration, non-conforming, other)?

PG&E evaluated projects' PAV, which takes into account the price offered by a Seller. PAV compares the cost of the project's energy with the benefit of that energy (the avoided cost of purchasing the energy in the market), plus RA value and other portfolio attributes. There was not a price cut-off, but a value cut-off. Projects were considered relative to each other and ranked relative to each other.

Although rate impact did not factor directly into the ranking, projects with a higher net value are likely to have a lower rate impact.

The primary reason for not shortlisting projects that otherwise offered value above the cut-off was seller concentration. A significant number of the highest ranked offers were from the same counterparties, and as described above. If the Seller offered multiple projects with similar value, PG&E selected the projects that appeared most viable.

E. Describe how offers' locations affected your proposed shortlist. Was being located in or near certain areas (e.g. RETI CREZs) a factor in your decisions? Was being located in the Tehachapi or Sunrise transmission areas a factor in your decisions? How were adders or costs incorporated to take into account a project's location (e.g. firming/shaping costs, adder for Sunrise region, etc.)

See Section II.B.2 (Transmission Adders) above for a general description of how offers outside the CAISO were evaluated.

Being located in a CREZ was not a direct consideration, nor was being located in Tehachapi or Sunrise transmission areas.

F. Describe any policy issues or other strategies (e.g. seller concentration, technology diversity, operational flexibility, etc.) that affected your proposed shortlist.

See Section IV.B above.

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

1st Light Energy
AT&T
Alcantar & Kahl LLP
Anderson & Poole
BART
Barkovich & Yap, Inc.
Bartle Wells Associates
Bear Valley Electric Service
Braun Blaising McLaughlin, P.C.
CENERGY POWER
California Cotton Ginners & Growers Assn
California Energy Commission
California Public Utilities Commission
Calpine
Casner, Steve
Center for Biological Diversity
City of Palo Alto
City of San Jose
Clean Power
Coast Economic Consulting
Commercial Energy
Crossborder Energy
Davis Wright Tremaine LLP
Day Carter Murphy
Defense Energy Support Center
Dept of General Services
Douglass & Liddell
Downey & Brand
Ellison Schneider & Harris LLP
G. A. Krause & Assoc.
GenOn Energy Inc.
GenOn Energy, Inc.
Goodin, MacBride, Squeri, Schlotz & Ritchie
Green Power Institute
Hanna & Morton
In House Energy
International Power Technology
Intestate Gas Services, Inc.
Kelly Group
Linde
Los Angeles Dept of Water & Power
MAC Lighting Consulting
MRW & Associates
Manatt Phelps Phillips
Marin Energy Authority
McKenna Long & Aldridge LLP
McKenzie & Associates
Modesto Irrigation District
Morgan Stanley
NLine Energy, Inc.
NRG Solar
Nexant, Inc.
North America Power Partners
Occidental Energy Marketing, Inc.
OnGrid Solar
Pacific Gas and Electric Company
Praxair
Regulatory & Cogeneration Service, Inc.
SCD Energy Solutions
SCE
SDG&E and SoCalGas
SPURR
San Francisco Public Utilities Commission
Seattle City Light
Sempra Utilities
SoCalGas
Southern California Edison Company
Spark Energy
Sun Light & Power
Sunshine Design
Tecogen, Inc.
Tiger Natural Gas, Inc.
TransCanada
Utility Cost Management
Utility Power Solutions
Utility Specialists
Verizon
Water and Energy Consulting
Wellhead Electric Company
Western Manufactured Housing Communities Association (WMA)