

November 7, 2011

Advice 3938-E
(Pacific Gas and Electric Company ID U39 E)

Public Utilities Commission of the State of California

Subject: 2011 Renewables Portfolio Standard Shortlist Report

In compliance with Decision (“D.”) 11-04-030, as amended by letters from the California Public Utilities Commission (“Commission”) dated June 7, 2011, and October 7, 2011, Pacific Gas and Electric Company (“PG&E”) submits this Tier 2 Advice Letter, which includes PG&E’s 2011 Renewables Portfolio Standard (“RPS”) Shortlist Report. The 2011 RPS Shortlist Report is comprised of PG&E’s 2011 RPS Solicitation Evaluation Criteria and Selection Process and the Independent Evaluator’s Report for PG&E’s 2011 RPS Solicitation (jointly the “Report”).

PG&E is providing two copies of the Report. First, a public version of the Report will be provided to all parties. Second, a confidential version of the Report will be provided to the Commission. PG&E submits the confidential version of the Report in the manner directed by D.08-04-023 and the August 22, 2006 Administrative Law Judge’s Ruling Clarifying Interim Procedures for Complying with D.06-06-066 to demonstrate the confidentiality of the material and to invoke the protection of confidential utility information provided under either the terms of the IOU Matrix, Appendix 1 of D.06-06-066 and Appendix C of D.08-04-023, or General Order 66-C. A separate Declaration Seeking Confidential Treatment is being filed concurrently with this Advice Letter.

Protests:

Anyone wishing to protest this filing may do so by letter sent via U.S. mail, by facsimile or electronically, any of which must be received no later than **November 28, 2011**, which is 21 days from the date of this filing.¹ Protests should be mailed

¹ Because the protest period ends on a weekend date, PG&E is moving the protest period to the next available business day.

to:

CPUC Energy Division
Tariff Files, Room 4005
DMS Branch
505 Van Ness Avenue
San Francisco, California 94102

Facsimile: (415) 703-2200
E-mail: ijnj@cpuc.ca.gov and mas@cpuc.ca.gov

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

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

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, California 94177

Facsimile: (415) 973-6520
E-mail: PGETariffs@pge.com

Effective Date:

PG&E requests that this Tier 2 filing become effective on **November 7, 2011**.

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,

A handwritten signature in cursive script that reads "Brian Cherry". The signature is written in black ink and is positioned below the word "Sincerely,".

Vice President - Regulation and Rates

cc: Paul Douglas – Energy Division
Jason Simon – Energy Division
Junaid Rahman – Energy Division
Cheryl Lee – Energy Division
Service Lists: R.11-05-005 and R.10-05-006

Attachments:

PG&E's 2011 RPS Shortlist Report (Public Version)
PG&E's 2011 RPS Shortlist Report (Confidential Version) (for
Commission only)

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: David Poster or Greg Backens

Phone #: (415) 973-1082 or (415) 973-4390

E-mail: DxPU@pge.com or gab4@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) #: **3938-E**

Tier: 2

Subject of AL: **2011 Renewables Portfolio Standard Shortlist Report**

Keywords (choose from CPUC listing): Portfolio

AL filing type: Monthly Quarterly Annual One-Time Other _____

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #: D.11-04-030

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: N/A

Summarize differences between the AL and the prior withdrawn or rejected AL: N/A

Is AL requesting confidential treatment? Yes.

If so, what information is the utility seeking confidential treatment for: See attached Confidentiality Matrix

Confidential information will be made available to those who have executed a nondisclosure agreement: All members of PG&E's Procurement Review Group who have signed nondisclosure 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: N/A

Resolution Required? Yes No

Requested effective date: **November 7, 2011**

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

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

CPUC, Energy Division

Tariff Files, Room 4005

DMS Branch

505 Van Ness Ave., San Francisco, CA 94102

jnj@cpuc.ca.gov and mas@cpuc.ca.gov

Pacific Gas and Electric Company

Attn: Brian K. Cherry, Vice President, Regulation and Rates

77 Beale Street, Mail Code B10C

P.O. Box 770000

San Francisco, CA 94177

E-mail: PGETariffs@pge.com

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

AT&T	Dept of General Services	Northern California Power Association
Alcantar & Kahl LLP	Douglass & Liddell	Occidental Energy Marketing, Inc.
Ameresco	Downey & Brand	OnGrid Solar
Anderson & Poole	Duke Energy	Praxair
Arizona Public Service Company	Economic Sciences Corporation	R. W. Beck & Associates
BART	Ellison Schneider & Harris LLP	RCS, Inc.
Barkovich & Yap, Inc.	Foster Farms	Recurrent Energy
Bartle Wells Associates	G. A. Krause & Assoc.	SCD Energy Solutions
Bloomberg	GLJ Publications	SCE
Bloomberg New Energy Finance	GenOn Energy, Inc.	SMUD
Boston Properties	Goodin, MacBride, Squeri, Schlotz & Ritchie	SPURR
Braun Blasing McLaughlin, P.C.	Green Power Institute	San Francisco Public Utilities Commission
Brookfield Renewable Power	Hanna & Morton	Seattle City Light
CA Bldg Industry Association	Hitachi	Sempra Utilities
CLECA Law Office	In House Energy	Sierra Pacific Power Company
CSC Energy Services	International Power Technology	Silicon Valley Power
California Cotton Ginners & Growers Assn	Intestate Gas Services, Inc.	Silo Energy LLC
California Energy Commission	Lawrence Berkeley National Lab	Southern California Edison Company
California League of Food Processors	Los Angeles Dept of Water & Power	Spark Energy, L.P.
California Public Utilities Commission	Luce, Forward, Hamilton & Scripps LLP	Sun Light & Power
Calpine	MAC Lighting Consulting	Sunshine Design
Cardinal Cogen	MBMC, Inc.	Sutherland, Asbill & Brennan
Casner, Steve	MRW & Associates	Tabors Caramanis & Associates
Chris, King	Manatt Phelps Phillips	Tecogen, Inc.
City of Palo Alto	McKenzie & Associates	Tiger Natural Gas, Inc.
City of Palo Alto Utilities	Merced Irrigation District	TransCanada
City of San Jose	Modesto Irrigation District	Turlock Irrigation District
Clean Energy Fuels	Morgan Stanley	United Cogen
Coast Economic Consulting	Morrison & Foerster	Utility Cost Management
Commercial Energy	NLine Energy, Inc.	Utility Specialists
Consumer Federation of California	NRG West	Verizon
Crossborder Energy	NaturEner	Wellhead Electric Company
Davis Wright Tremaine LLP	Navigant Consulting	Western Manufactured Housing Communities Association (WMA)
Day Carter Murphy	Norris & Wong Associates	eMeter Corporation
Defense Energy Support Center	North America Power Partners	
Department of Water Resources	North Coast SolarResources	

**DECLARATION OF GARRETT P. JEUNG
SEEKING CONFIDENTIAL TREATMENT FOR
CERTAIN DATA AND INFORMATION CONTAINED IN
ADVICE LETTER 3938-E
(PACIFIC GAS AND ELECTRIC COMPANY - U 39 E)**

I, Garrett P. Jeung, declare:

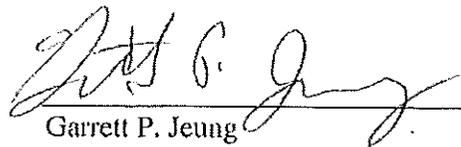
1. I am presently employed by Pacific Gas and Electric Company ("PG&E"), and have been an employee at PG&E since 2003. My current title is Senior Director within PG&E's Energy Procurement organization. In this position, my responsibilities include managing a department that negotiates power purchase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

2. Based on my knowledge and experience, and in accordance with Decision ("D.") 08-04-023 and the August 22, 2006 "Administrative Law Judge's Ruling Clarifying Interim Procedures for Complying with Decision 06-06-066," I make this declaration seeking confidential treatment of certain sections of the 2011 Shortlist Report included in Advice Letter 3938-E submitted November 7, 2011.

3. Attached to this declaration is a matrix identifying the data and information for which PG&E is seeking confidential treatment. The matrix specifies that the material PG&E is seeking to protect constitutes the particular type of data and information listed in Appendix 1 of D.06-06-066 and Appendix C of D.08-04-023 (the "IOU Matrix"), or constitutes information that should be protected under General Order 66-C. The matrix also specifies the category or

categories in the IOU Matrix to which the data and information corresponds, and why confidential protection is justified. Finally, the matrix specifies that: (1) PG&E is complying with the limitations specified in the IOU Matrix for that type of data or information; (2) the information is not already public; and (3) the data cannot be aggregated, redacted, summarized or otherwise protected in a way that allows partial disclosure. By this reference, I am incorporating into this declaration all of the explanatory text in the attached matrix that is pertinent to this 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 November 7, 2011 at San Francisco, California.


Garrett P. Jeung

PACIFIC GAS AND ELECTRIC COMPANY
Advice Letter 3938-E
November 7, 2011

IDENTIFICATION OF CONFIDENTIAL INFORMATION PER DECISION 06-06-066 AND DECISION 08-04-023

	Redaction Reference	1) The material submitted constitutes a particular type of data listed in the Matrix, appended as Appendix I to D.06-06-066 (Y/N)	2) Which categories in the Matrix the data correspond to:	3) That it is complying with the limitations on confidentiality specified in the Matrix for that type of data (Y/N)	4) That the information is not already public (Y/N)	5) The data cannot be aggregated, redacted, summarized, masked or otherwise protected in a way that allows partial disclosure (Y/N)	PG&E's Justification for Confidential Treatment
1	Document: Advice Letter 3938-E						
2	Section 1 - Independent Evaluator Report (Confidential Portion)	Y	Matrix Item VII (Score sheets, analyses, evaluations of proposed RPS projects); VIII-A (Bid Information); and VIII-B (Specific Quantitative Analysis involved in scoring and evaluation of participating bids)	Y	Y	Y	<p>This confidential portion of the independent evaluator's report summarizes and evaluates confidential information concerning proposed energy generating projects from the 2011 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 which is confidential and should remain confidential for three years after winning bidders are selected.</p> <p>This information also falls under Matrix Item VIII-A and B, and should thus be kept confidential for three years after winning bidders are selected. Because bids received in response to the 2011 RPS Solicitation are still under negotiation, the release of bid information would harm the negotiation process. Release of confidential seller information would also prejudice the competitiveness of a future RPS solicitation.</p> <p>In addition, the 2011 RPS Shortlist contains certain information that PG&E understands the developers consider proprietary and</p>

3	<p>Section 3 - Least-Cost Best-Fit Report</p> <p>(Redacted in the public version of the Report, and shown in gray in the confidential version of the Report)</p>	Y	<p>Matrix Item VII (Score sheets, analyses, evaluations of proposed RPS projects);</p> <p>VIII-A (Bid Information); and</p> <p>VIII-B (Specific Quantitative Analysis involved in scoring and evaluation of participating bids)</p>	Y	Y	Y	<p>confidential. G.O. 66 C provides that the Commission will maintain as confidential "Information obtained in confidence from other than a business regulated by this Commission where the disclosure would be against the public interest." (Paragraph 2.8.) It would be against the public interest to make public the developers' confidential and proprietary data because such disclosure could deter developers from participation in PG&E's solicitations.</p> <p>This information presents bid information and bid evaluations from the 2011 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 would therefore constitute market sensitive information that is confidential for at least three years after the winning bidders are selected. PG&E is still engaged in negotiations with bidders from this Solicitation.</p> <p>This information also falls under Matrix Item VIII-A and B, and should thus be kept confidential for three years after winning bidders are selected. Because bids received in response to the 2011 RPS Solicitation are still under negotiation, the release of bid information would harm the negotiation process. Release of confidential seller information would also prejudice the competitiveness of a future RPS solicitation.</p> <p>In addition, the 2011 RPS Shortlist contains certain information that PG&E understands the developers consider proprietary and confidential. G.O. 66 C provides that the Commission will maintain as confidential "Information obtained in confidence from other than a business regulated by this Commission where the disclosure would be against the public interest." (Paragraph 2.8.) It would be against the public interest to make public the developers' confidential and proprietary data because such disclosure could deter developer participation in PG&E's solicitations.</p>
4	<p>Section 4 - Solicitation Overview</p>	Y	<p>Matrix Item VII (Score sheets, analyses, evaluations of proposed RPS projects);</p>	Y	Y	Y	<p>This information presents bid information and bid evaluations from the 2011 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 would therefore constitute market sensitive information that is confidential for at least three years after the winning bidders are selected. PG&E is still engaged in negotiations</p>

			<p>VIII-A (Bid Information); and</p> <p>VIII-B (Specific Quantitative Analysis involved in scoring and evaluation of participating bids)</p>				<p>with bidders from this Solicitation.</p> <p>This information also falls under Matrix Item VIII-A and B, and should thus be kept confidential for three years after winning bidders are selected. Because bids received in response to the 2011 RPS Solicitation are still under negotiation, the release of bid information would harm the negotiation process. Release of confidential seller information would also prejudice the competitiveness of a future RPS solicitation.</p> <p>In addition, the 2011 RPS Shortlist contains certain information that PG&E understands the developers consider proprietary and confidential G.O. 66 C provides that the Commission will maintain as confidential "Information obtained in confidence from other than a business regulated by this Commission where the disclosure would be against the public interest." (Paragraph 2.8.) It would be against the public interest to make public the developers' confidential and proprietary data because such disclosure could deter developer participation in PG&E's solicitations.</p>
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2011 RPS Shortlist Report



November 7, 2011

Section 1
Independent Evaluator Report
Fully Confidential, Not Provided



November 7, 2011

Section 2
Independent Evaluator Report
(PUBLIC Portion)



November 7, 2011

ARROYO SECO CONSULTING

PACIFIC GAS AND
ELECTRIC COMPANY
2011 RENEWABLES
PORTFOLIO STANDARD
SOLICITATION

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

NOVEMBER 7, 2011

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EXECUTIVE SUMMARY

This report provides an independent evaluation of the process by which the Pacific Gas and Electric Company (PG&E) undertook a competitive solicitation in 2011 to procure energy eligible to meet Renewables Portfolio Standard (RPS) goals. An independent evaluator (IE), Arroyo Seco Consulting (Arroyo), conducted a broad 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 remarkably robust competitive solicitation;
- The utility's Least-Cost, Best-Fit (LCBF) methodology was designed such that Offers were fairly evaluated, although Arroyo disagrees with some features of the approach; and
- PG&E's administered its LCBF methodology fairly when evaluating the 2011 Offers, although Arroyo's opinion is that the resulting short list is rather long.

The report details the basis for these findings, following the final 2011 version of the RPS Independent Evaluator Template provided by the Energy Division (ED) of the California Public Utilities Commission (CPUC).

Supporting detail that includes confidential data is provided in an accompanying appendix to this report.

1. ROLE OF THE INDEPENDENT EVALUATOR

Pacific Gas and Electric Company issued a Request for Offers (RFO) on May 11, 2011, a competitive solicitation for power generation that qualifies as eligible renewable energy resources (ERRs) under the California Renewables Portfolio Standard Program.¹ 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 2011 RPS RFO, PG&E announced its intent to procure 1 to 2% of its retail sales volume through the 2011 process, or about 800 to 1,600 GWh annually.²

The CPUC had conditionally approved PG&E's 2011 RPS procurement plan in its Decision 11-04-030 issued on April 14, 2011. This chapter elaborates on the prior CPUC decisions that form the basis for an Independent Evaluator's participation in the 2011 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

¹ The solicitation protocol was amended slightly on June 7, 2011 to alter the schedule for the RFO.

² Pacific Gas & Electric Company, "Renewables Portfolio Standard: 2011 Solicitation Protocol", May 11, 2011 (updated June 7, 2011), page 6.

provide a preliminary report along with the IOU submitting its short list. This document represents that shortlisting report for PG&E's 2011 renewable solicitation.

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 2011 competitive solicitation for renewable resources, 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 2011 RPS competitive procurement process, outlining four specific issues that should be addressed:

- Describe the IE's role;
- Did the IOU do adequate outreach to potential bidders, and was the solicitation robust?
- Was the IOU's LCBF methodology designed such that bids were fairly evaluated?
- Was the LCBF bid evaluation process fairly administered?

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

C. IE ACTIVITIES

To fulfill the role of evaluating PG&E's 2011 solicitation, several tasks were undertaken, both prior to Offer Opening and subsequently. Prior to Offer Opening on June 22, 2011⁴, Arroyo performed several tasks to assess PG&E's methodology for evaluating Offers:

- Reviewed the solicitation and its attachments including PG&E's 2011 Form Agreements and description of the LCBF methodology and 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 In the initial version of the protocol, offers were due June 15, 2011. In early June, PG&E requested and obtained approval from the CPUC's Executive Director to defer Offer Opening to June 22, in part because of feedback from the developer community regarding the time pressure imposed by the short interval between issuing the RFO and the deadline (5 weeks, compared to 8 weeks for PG&E's 2009 RPS RFO). Several Participants expressed concern that the final version of the offer form was not available as of the end of May (because the Project Viability Calculator had not been finalized), fearing that there might not be sufficient time to prepare an Offer for a June 15 deadline.

- Examined the utility’s nonpublic protocols detailing how PG&E would evaluate Offers against various criteria.
- Attended PG&E’s Bidders’ Conference on May 19, 2011 to evaluate the information provided to potential Participants, and how that information was distributed.
- Reviewed the list of registered attendees of the Bidders’ Conference against PG&E’s master list of RFO contacts (used for outreach to potential Participants).
- Reviewed the posting of questions and answers from the Bidders’ Conference on PG&E’s public website to check whether information that was made available in-person to conference attendees was also provided to other potential Participants.
- Examined PG&E’s 2011 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 2011 version of the utility’s LCBF methodology and its inputs.

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 each Offer and observed the PG&E team logging in each Offer. 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, e.g. missing or unreadable electronic versions, missing Attachment D offer forms, missing attachments such as California Independent System Operator (CAISO) interconnection studies, in an effort 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 particularly scrutinized Offers for utility purchase. For PPA Offers, Arroyo focused on pricing, collateral, interconnection, permitting, technology, resource assessment, site control, and development and ownership experience descriptions in detail.
- Observing PG&E evaluation team discussions about which Offers to disqualify for nonconformance with the requirements of the Solicitation Protocol, and why.

- Spot-checking Offer-specific data inputs to PG&E’s valuation model, including assignments to Locational Marginal Price (LMP) zones and to transmission clusters.
- Building an independent valuation model 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, the independent valuation was useful for testing the 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. In a few cases Arroyo provided specific suggestions on particular topics such as the feasibility of specific out-of-state transmission proposals.

Arroyo’s focus going forward will be on assessing the fairness of project-specific negotiations for selected 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”,⁵ 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 handled in greater detail in this report’s confidential appendix.

⁵California 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 2011 RPS solicitation, PG&E sought to meet a goal of procuring 1 to 2% of retail load by selecting Offers that will lead to negotiated contracts and 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 competitive.

A. CLARITY AND CONCISION OF SOLICITATION MATERIALS

While not really concise (it totals 53 pages excluding attachments, vs. Edison's 46 pages and SDG&E's 24 pages), Arroyo believes that the contents of PG&E's 2011 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.⁶ Arroyo has a few observations about the clarity of the guidance provided in the protocol and issues created when Participants failed to understand or follow that guidance:

- Most Offers were submitted as complete and conforming packages. Common deficiencies in other Offers included:
 1. Failure to submit the offer form (Attachment D) for all Offer variants or phases;
 2. Errors in filling in the offer form, such as missing data, incomplete project description, or incomplete self-scored Project Viability Calculator;⁷
 3. Use of a earlier draft version of Attachment D from the original posting of the RFO documents, rather than the one finalized on June 2, 2011 and posted on PG&E's public web site then;⁸
 4. Failure to provide the text and data of the Offer in the requested Microsoft Word 2003 and Excel 2003 formats (as opposed to later versions or to Acrobat .pdf files);

⁶ Some minor opportunities for improvement are provided later in this report.

⁷ Several Participants found it challenging to fill in Attachment D correctly; the 2011 version was designed to provide clearer validation of completion and was more complex in its internal structure than forms of prior years. Participants had to enable macros in Excel before starting to populate fields in the form; this was not explicitly described in the protocol or in the instructions, leading to some difficulties. At least two potential Participants appear to have been deterred from submitting Offers in part because of technical challenges they experienced in correctly filling in the offer form.

⁸ Unfortunately, the offer form had to be updated after the RFO was first published because it includes a Project Viability Calculator for the Participant to self-score; the Calculator was finalized by the ED and released on June 2. This led several Participants to use the draft version in their Offers.

5. Corrupted data files;
6. Failure to submit the hardcopies of the Offer as clearly requested in the protocol;
7. Failure to submit a copy of a completed CAISO or PTO interconnection study in cases where the project had progressed to the point where such a study had been obtained. This requirement was explicitly stated in the solicitation protocol but widely ignored by Participants; and
8. In the case of projects outside California and not directly interconnecting to the CAISO, failure to specify how power would be delivered to a CAISO intertie point with a firm schedule, or what arrangements would be made to deliver to the CAISO. Some Offers incorrectly used the Attachment D1, appropriate for in-state, bundled resources, for their out-of-state resources that lacked a description of how their power would be shaped and firmed to a CAISO delivery point or managed by the CAISO with a pseudo-tie or dynamic scheduling.

Since requirements for the offer form were addressed in the solicitation protocol, in the instruction sheet for the offer form, and in the bidders' workshop presentation, Arroyo can only surmise that many Participants neglected to pay attention to these small but important details. Sending deficiency letters to Participants who failed to provide required information and obtaining corrections was time-consuming for all involved, but in most cases corrected documents were provided by the Participants and were accepted by PG&E. Arroyo cannot identify any specific improvements to the clarity of the RFO materials that might have reduced the incidence of such Participant errors, other than editing the instructions for attachment D (e.g. restating in the offer form instructions the need to Enable Macros in MS Excel) or walking through the form step by step in a section of the bidders' conference.

- The 2011 solicitation protocol stated at least four preferences of the utility that are not specifically among the evaluation criteria, including preferences for:
 1. Projects considered bundled, in-state resources, over projects whose output will be considered renewable energy credits (RECs) for RPS compliance purposes;
 2. Projects that deliver to CAISO nodes within the PG&E service territory, as opposed to the territories of other utilities (CAISO or otherwise) or to an interface point at the boundary of the CAISO;
 3. Projects that contribute to PG&E's Resource Adequacy (RA) requirements, such as CAISO-interconnected projects with full deliverability, as opposed to energy-only projects in the CAISO or projects in other balancing area authorities for which deliverability or import capability of RA capacity throughout the contract term to PG&E has not yet been established.

4. Projects that offer flexibility in on-line date, given regulatory uncertainty affecting PG&E's need for RPS-eligible energy in 2014 and 2015.⁹

Based on comments provided in feedback sessions after the RFO, it appeared that several Participants were not aware of these stated preferences, perhaps because the description of the preference fell outside the chapter of the solicitation protocol that describes how Offers were to be evaluated. Arroyo recommends that in the future PG&E should edit the protocol to clarify that these specific preferences can play an important role in selection, even though they are not among the evaluation criteria. This would improve the transparency of the selection process to Participants.

- The discussions that took place while debriefing non-shortlisted Participants after the RFO suggest that several developers did not understand the role of the Project Viability Calculator as a tool for assessing the likelihood that a proposed project could attain commercial operation and for screening proposals. Also, it is clear from how some Participants self-scored their projects that the Calculator's scoring guidelines provided by the ED are broadly misunderstood or misinterpreted.

Several Participants did not or chose not to understand that the Calculator was designed such that the highest score for "project development experience" or "ownership/O&M experience" is assigned only if the development team has previously brought into operation at least two projects of the same technology and similar or larger MW capacity than that proposed. Some Participants could have improved their scores if they had read the guidelines more carefully and chosen to propose projects that could score higher based on those details. However, guidelines were provided in plain sight in the offer form. It is unclear how PG&E could have provided better guidance on how it uses the Calculator, beyond spending more time in the bidders' workshop walking through each criterion in the Calculator in detail.

Given the bulk of material that PG&E needs to provide in its protocol, it is not surprising that it exceeds fifty pages. Arroyo cannot identify any straightforward way to make the protocol more concise; the material provided is generally needed to provide Participants with a full and transparent view of how the solicitation will function and with full disclosure about obligations and constraints that govern Participants if they choose to proceed. One possibility would be to reduce the information required in Offers to focus more narrowly on data needed to establish eligibility and to perform the evaluation.

When the utility solicited feedback from non-shortlisted Participants after closing the solicitation, the sense of the feedback provided by developers was that PG&E's "solicitation was well organized" and "the most user-friendly of the three IOUs", that "the instructions were pretty clear", that in particular "the bidders' conference was very informative" and that the utility team's handling of questions and answers was responsive and helpful. Criticisms of the solicitation tended to focus on technical problems and burdensome nature of filling

⁹ In PG&E's presentation at the bidders' conference, PG&E also expressed a preference that was not included in the solicitation protocol: "PG&E expects to focus on the latter part of the second (2014-2016) compliance period." It would have been helpful to state this preference clearly within the text of the protocol.

out the offer form, the priorities embedded in the Project Viability Calculator, the lack of transparency on what sort of projects were short-listed at what prices, the large volume and possible redundancy of information requested in the Offers, and that hardcopies of the Offer packages should not be required as opposed to electronic copies.

Overall, Arroyo believes that PG&E's solicitation materials were clear, if not particularly concise, and that improvement opportunities to help ensure that more complete Offer packages are submitted in the future are minor. Improvements could be helpful in streamlining the process and increasing Participants' satisfaction. Arroyo has some specific critiques regarding the solicitation protocol's lack of transparency about Offers for sites for development, described in the next chapter.

B. ADEQUACY OF OUTREACH

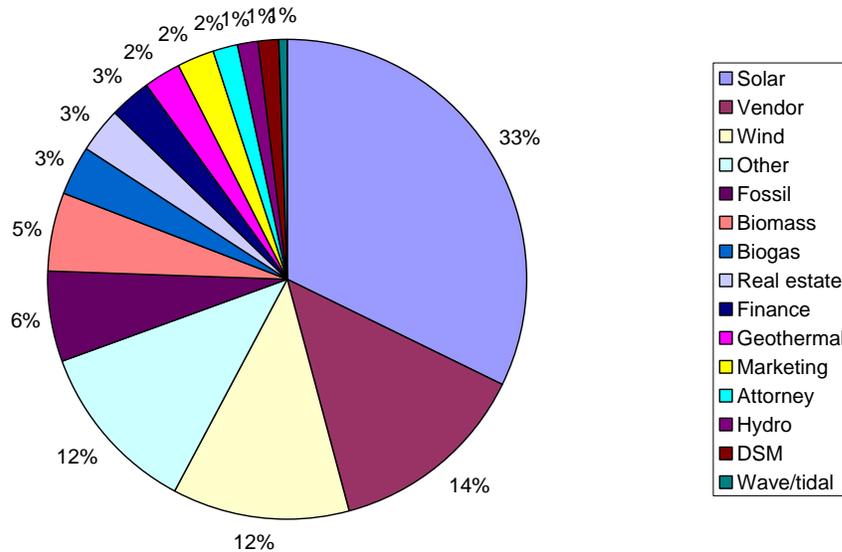
Here are some considerations used to evaluate whether PG&E performed successfully in reaching out to the community of renewable power developers:

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

By May 2011, PG&E had compiled a general contact list for use in publicizing its RFOs, totaling more than 1,600 individuals; this is a significant increase from the version of the list used in the 2009 RPS solicitation, with closer to 1,100 contacts. PG&E appears to have been actively compiling contacts for outreach, including a contact list for the biogas industry.

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 and biomass-based generation. Figure 1 displays the estimated shares by industry sector of these contacts. Note that this contact list is employed not just for renewable solicitations but for all-source RFOs as well.

Figure 1. Breakdown of contact list by sector



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 contracts represented organizations that could develop renewable generation or sell from existing facilities. Other contacts were with entities that provide services to renewable energy developers, such as attorneys, financing providers, consultants, equipment vendors, and wholesale marketers; it is unclear whether these providers sought to be on PG&E’s RFO contact list in order to keep abreast of the solicitation or to develop business with renewable energy developers.

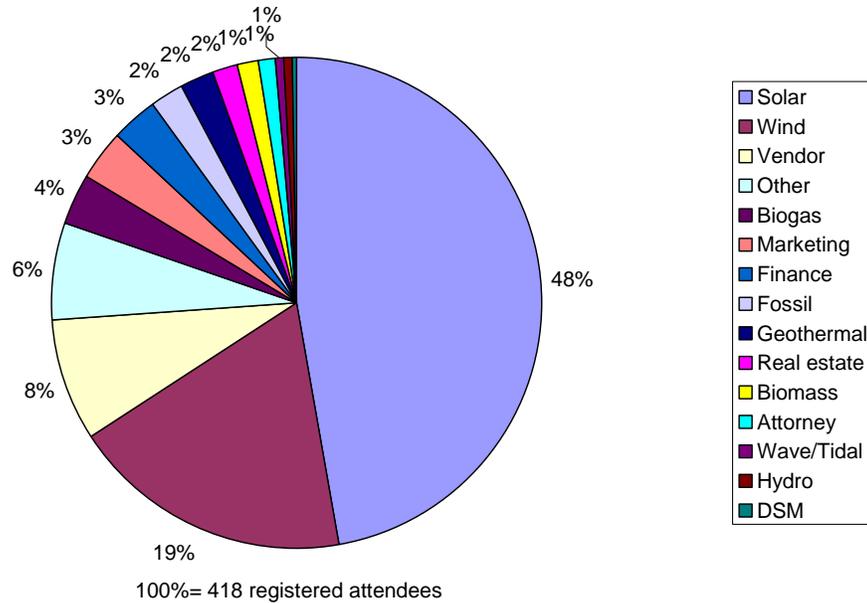
PG&E did not issue a press release to announce the issuance of the 2011 RPS RFO. However, news of the solicitation was picked up and reported in the electric power trade press, including publications such as Global Power Report, Megawatt Daily, Power, Finance, and Risk, and ReCharge. In addition, the 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 several law firms whose practices include a focus on renewable energy contract law, such as Allen Matkins, Davis Wright Tremaine, Stoel Rives, and Wilson Sonsini. 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 counts individuals, by sector, who registered for the conference (there is no means to check who actually attended). A turnout of more than 400 individuals represents a very strong response and expression of industry interest,

and is an increase of about 70% over the registration for the 2009 RPS RFO bidders' conference. The largest share of attendees represented the solar and wind sectors.

Figure 2. Breakdown of registration for bidders' conference



Arroyo estimates that out of the attendees at the 2011 bidders' conference, about 55% were with firms that submitted Offers. This was a higher portion than in the 2009 bidders' conference. This is an indication of successful outreach, in that the audience that registered for the conference was made up mostly of the staffs of developers, owners, or traders that were positioned to submit Offers, as opposed to vendors, attorneys, or consultants to developers, or to small entities that were not really prepared to propose projects.

Arroyo's conclusion is that PG&E conducted substantial outreach to renewable power developers in North America. The number of individuals contacted, the distribution of the news of the solicitation in the electric power trade press, and the strikingly large 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 – 2% of retail load, 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 Offers PG&E received totaled an immense volume of projected generation. If all the Offers were contracted they would total more than PG&E's entire retail load. Such a massive response to the RFO should provide plenty of opportunity for PG&E to negotiate, contract for, and procure the stated objective for the RFO of 1 to 2% of retail load. Total GWh/year volume elicited in Offers exceeded the 2009 RFO's response by more than 80%. This ratio of offered volume to targeted procurement volume reflects a remarkably healthy and robust response. More than 300 in-state projects were proposed for contracts, often with several variants (e.g. varying on-line dates, pricing packages, delivery terms, etc.).

The Offers submitted to the 2011 RPS RFO provided more technology diversity than those submitted to the 2009 RFO. There was a greater volume of 2011 proposals for projects using technologies or resources that were weakly represented in the last solicitation. While it is difficult to attribute this to specific outreach activities by the utility, Arroyo is aware that PG&E staff had actively reached out in order to make potential Participants using these weakly represented technologies aware of the availability of the RPS RFO as a means to obtain long-term PPAs. Given the large number of Offers submitted in 2011 using the well-represented technologies such as solar and wind, Arroyo does not believe that the outreach activities of the utility were in any way unfair to those developer communities.

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 particular focus is "in order to provide all reasonable opportunities for optimal use of the Sunrise transmission project."¹⁰ For the 2011 RPS solicitations, the CPUC did not specifically require special Imperial Valley bidders' conferences but encouraged continued outreach and directed continued special monitoring of Imperial Valley Offers.

PG&E incorporated a section on the Imperial Valley opportunity into its general bidders' conference for the 2011 RFO. In that session, it stated that the utility "encourages offers from projects within the Imperial Valley and projects that may create significant flows on Sunrise." It also noted that offered projects may be within the Imperial Irrigation District or directly interconnected to the CAISO.

The total number of Imperial Valley facilities offered to PG&E in the 2011 RPS RFO was slightly less, as a percentage of total Offers, than in the 2009 RFO. Arroyo does not view this as a failure of outreach. In fact, most of these Offers were submitted by Participants who had not proposed projects to PG&E in the 2008 or 2009 RFOs. And of these, most were from companies represented on PG&E's RFO contact list. This would suggest that PG&E was fairly successful in eliciting proposals from parties with whom it was in contact through its distribution list (or, alternatively, that developers already active in advancing Imperial Valley projects were proactive in seeking to keep abreast of PG&E's

¹⁰ 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.

2011 RFO plans and signed up for the contact list between 2009 and 2011 because they had not pursued opportunities with PG&E in previous solicitations).

D. ADEQUACY OF FEEDBACK FROM PARTICIPANTS

After receiving notification that their Offers had been rejected, several of the non-shortlisted Participants expressed an interest in follow-up discussions to be debriefed on reasons for the decision.¹¹ Arroyo participated in many of these sessions. Based on the number of debriefing sessions that took place (about fifty) and the extent to which the utility team obtained actionable commentary about the RFO from Participants, Arroyo believes that PG&E sought adequate feedback about the bidding and evaluation process.

In general these feedback sessions were welcomed by Participants. They created an opportunity for Participants to obtain a somewhat clearer view of how PG&E's evaluation criteria and preferences applied to their specific Offers, and of what factors played a role in the failure to select the Offers. Many Participants, when prompted to offer feedback on PG&E's solicitation materials and process, had generally positive commentary, including positive ratings for the format of the Offer (such as for the verification checks built into the spreadsheet), for the process and its fairness, for the helpfulness of the bidders' conference, and for the opportunity to debrief on the outcome of PG&E's selection. A variety of specific criticisms were offered, including some constructive suggestions that are summarized later in this report. Some major themes of the criticisms included:

- Data requirements for the written Offers were onerous;
- More transparency in characterizing the price of short-listed Offers would be preferred (often by Participants whose Offers were not short-listed and who aspire to submit their projects to future solicitations with improved pricing);
- The requirement for hardcopies of the Offers should be dropped in favor of electronic-only submittals; and
- More clarity on how the Project Viability Calculator guidelines are applied would be helpful; many Participants disagreed with the Calculator's design because they felt their Offers were unfairly disadvantaged by how scoring criteria are specified.

Arroyo's opinion is that PG&E's efforts to give and receive feedback after the close of the solicitation were adequate and quite 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.

¹¹ 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.

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 2011 RPS RFO was designed fairly, overall. Arroyo has some disagreements with the utility’s approach.

The following discussion identifies principles for evaluating the methodology, describes it, 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:

- The IOU bid evaluation should be based only on information submitted in bid proposal documents.
- There should be no consideration of any information that might indicate whether the bidder 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 bids. These criteria should be applied consistently to all bids.
- The LCBF methodology should evaluate bids in a technology-neutral manner.
- The LCBF methodology should allow for consistent evaluation and comparison of bids 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 net market value, after which, “[u]sing the information and scores in each of the other evaluation criteria, PG&E will decide which Offers to include and which ones not to include on the Shortlist.”¹² The application of judgment in bringing the non-valuation criteria to bear on

¹²Pacific Gas and Electric Company, “Renewables Portfolio Standard, 2011 Solicitation Protocol, May 11, 2011 (Updated June 7, 2011)”, page 40.

decision-making, rather than a mechanical, quantitative means of doing so, implies an opportunity to test the fairness and consistency of the method using additional principles:

- The methodology should identify how non-valuation 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. PG&E'S LEAST-COST BEST-FIT METHODOLOGY

The California legislation that mandated the RPS program required that the procurement process use criteria for selection of least-cost and best-fit renewable resources; in Decisions D.03-06-071 and D.04-07-029 the CPUC issued detailed guidelines for the IOUs to select LCBF renewable resources. PG&E adopted Offer selection and evaluation processes and criteria for its 2011 RPS RFO. These are summarized in Section XI of PG&E's 2011 Solicitation Protocol for its renewable solicitation, and detailed in its Attachment K.

Additionally, PG&E developed non-public documents for internal use that detail the protocols for each individual criterion used in the evaluation process. These include:

- Market valuation
- Portfolio fit
- Project viability
- RPS goals
- Adjustment for transmission cost adders
- Ownership eligibility
- Sites for development

The first five of these are listed as evaluation criteria in the 2011 RPS RFO solicitation protocol (in contrast to prior years, PG&E did not score Offers on Credit). Additionally, the protocol states two other criteria: the materiality and cost impact of Participants' proposed modifications to the RFO's requirements and to the PPA, and the total volume of offers submitted by a single counterparty (considering the volume of energy already under contract as well). In other words, PG&E stated that it will take into account the degree to which Participants have proposed changes to its 2011 RPS Form Agreement for contracting, and the degree of supplier concentration in contracts with individual counterparties.

This section summarizes PG&E's methodology briefly and at a high level; readers are referred to PG&E's 2011 RPS Solicitation Protocol and its Attachment K for a fuller treatment of the detailed methodology.

MARKET VALUATION

PG&E measures market value as benefits minus costs. Benefits include energy value and capacity value (Resource Adequacy); ancillary services value is assumed zero. Costs are PG&E's payments to the Participant, adjusted by Time-of-Delivery (TOD) factors as specified in the solicitation protocol. TOD factors serve as multipliers to the contract price per megawatt-hours (MWh) based on the time of day and season of the delivery, and are intended to reflect the relative value of the energy and capacity delivered in those time periods. Also, costs are adjusted to reflect transmission adders. The costs of integrating an intermittent resource into the electric system, such as load-following, providing imbalance services, operational reserves, and regulation, are assumed zero. Both benefits and costs are discounted from the entire contract period to 2011 dollars per MWh in the methodology.

PG&E measures energy value by projecting a forward energy curve (in hourly granularity) out to the time horizon of the contract period, and multiplying projected hourly energy price by the projected hourly generation specified by the Offer's generation profile. For dispatchable Offers, the protocol uses a real-option pricing model to measure energy benefit.

PG&E develops an outlook for the value of Resource Adequacy capacity as a time series of nominal dollar per kilowatt-year estimates. The CPUC established specific guidelines for estimating RA capacity.¹³ Also, the CPUC decided to base Net Qualifying Capacity on a 70% exceedance level for solar and wind resources whose output is stochastic in nature, in a calculation that takes into account diversity benefits of multiple individual generators with different profiles. In 2011, the PG&E team has adapted its methodology for estimating the RA capacity of as-yet-unbuilt projects to match the CPUC guidance more closely. Capacity benefit is calculated as the product of capacity value and quantity, and discounted to 2011 nominal dollars.

PORTFOLIO FIT

For the 2011 renewable solicitation, PG&E employed a quantitative scoring system to assess the portfolio fit of an Offer into its overall set of energy resources and obligations. The team calculated one score for the firmness of delivery of the offered resource and another score for the time of delivery of the resource (relative to PG&E's portfolio needs). The overall score for portfolio fit is the numerical average of the two.

PROJECT VIABILITY

PG&E employed the Energy Division's final 2011 version of the Project Viability Calculator to assess the likelihood that a proposed generation facility will be completed and enter full commercial operation by the proposed on-line date. The CPUC suggested that the Calculator is intended for use as a screening tool rather than a dispositive means of making

¹³ California Public Utilities Commission, Decision 09-06-028, "Decision Adopting Local Procurement Obligations for 2010 and Further Refining the Resource Adequacy Program", June 18, 2009.

selection decisions.¹⁴ PG&E was also willing to use its business judgment in assessing the relative viability of projects rather than relying solely on Calculator scores to make selections.

The viability score is developed through an assessment of several attributes of the project provided in the detailed Offer, including

- Project development experience,
- Ownership and operating and maintenance experience,
- Technical feasibility,
- Resource quality,
- Manufacturing supply chain (e.g. constraints upon availability of key components),
- Site control,
- Permitting status,
- Project financing status,
- Interconnection progress,
- Transmission requirements, and
- Reasonableness of Commercial Operation Date (COD).

The Energy Division provided a set of scoring guidelines for each of these criteria, in a helpful effort to standardize how a project would be assigned a score between zero and ten for each. The guidelines support the pursuit of consistency and fairness in rating the viability of proposed projects room for judgment; the combination of the Calculator and its guidelines should serve as a guide to developers on how projects will be assessed by IOUs.

More discussion about the utility of the Calculator as a standardized tool as it was applied in PG&E's 2011 RPS RFO is provided below in the section about the administration of the methodology and in the confidential appendix.

RPS GOALS

PG&E assesses the degree to which the Offer is consistent with and will contribute to the state of California's goals for the RPS Program, and the degree to which the Offer will

¹⁴ California Public Utilities Commission, Decision 09-06-018, "Decision Conditionally Accepting 2009 Renewables Portfolio Standard Procurement Plans and Integrated Resource Plan Supplements", June 8, 2009, page 20. Arroyo agrees that it is imprudent to rely excessively on the numerical score to make a judgment about the likelihood a project will come on-line on schedule.

contribute to PG&E's goals for supplier diversity. The CPUC has articulated specific attributes of renewable generation projects which can be considered in utility procurement evaluations, such as benefits to low-income or minority communities, environmental stewardship, and resource diversity, that do not clearly fall within the other evaluation criteria. Similarly, the CPUC has issued a Water Action Plan, and to the extent a renewable energy project makes use of water on site, its proposed use of water is evaluated for consistency or inconsistency with the CPUC's recommended water conservation practices.

Additionally, the state Legislature articulated benefits anticipated for the RPS program in the Legislative Findings and Declarations associated with the laws passed to create the program, and PG&E assesses the degree to which Offers would promote these benefits.

The Governor of California issued Executive Order S-06-06 that, among other things, established a goal that the state will meet 20% of its renewable energy needs with electricity generated from biomass. PG&E assesses the extent to which an Offer supports that goal.

PG&E has well-defined corporate objectives for supplier diversity, and evaluates whether the Participant is, or will make a good faith effort to subcontract with, Women-, Minority-, and Disabled Veteran-owned Business Enterprises (WMDVBEs). In the 2011 RPS RFO PG&E asked Participants to submit a completed Supplier Diversity Questionnaire with information on the Participant's WMDVBE status, its intent to subcontract with diverse entities, and its own supplier diversity program. The PG&E team scored these questionnaires as part of evaluating Offers against the overall RPS Goals criterion. A change in the 2011 RFO is that PG&E stated that it will include in resulting PPAs a contractual requirement to make good-faith efforts towards a contracted supplier diversity target, and to report annual payments to diverse subcontractors. In Attachment L it requested Participants to specify the percentage of subcontracting spending would be to WMDVBEs.

TRANSMISSION COST ADDERS

The cost of transmission to move power from a project offered in the solicitation to PG&E retail customers is considered in valuation. The methodology takes into account the need to upgrade the transmission network in order to accommodate the increment of new renewable generation in locations (clusters) that may require significant capital outlay, either by PG&E or by other IOUs. Each California IOU publishes a Transmission Ranking Cost Report (TRCR) which identifies clusters that require network upgrades to accommodate new generation, and estimates a proxy for the cost of upgrades and the amount of new generation that would trigger the need for upgrades. If a CAISO interconnection study has been completed, the team generally uses the more project-specific estimate of transmission network upgrade costs identified in the study rather than the TRCR-based proxy (assuming that the Participant has included the study as part of its Offer package, as was required).

PG&E takes into account both the cost of upgrades required to achieve a reliable interconnection as well as the cost required to achieve a fully deliverable interconnection, for Offers that propose to obtain a full capacity interconnection. While PG&E did not require Participants to achieve full capacity interconnections in the RFO, Offers that proposed energy-only interconnections were not credited with any Resource Adequacy value.

The Solicitation Protocol and its Attachment K lay out the analysis required to allocate network upgrade costs to individual Offers. This includes the use of a model to calculate the present value of the impact of the network upgrade capital cost on revenue requirement, estimating in 2011 dollars per MWh the impact on customers of the upgrade.

This year, PG&E required Offers to specify a CAISO delivery point and a price at that point, rather than allowing them to propose delivery outside the CAISO. Alternatively, these Participants could propose to use a pseudo-tie arrangement or dynamic scheduling arrangement for the CAISO to manage delivery, despite a project's interconnection in a non-CAISO balancing authority area.

UTILITY OWNERSHIP ALTERNATIVES AND SITES FOR DEVELOPMENT

PG&E developed protocols for evaluating Offers proposing to sell the utility a site for development of renewable generation or to build a facility and transfer it to PG&E ownership. The evaluation of turnkey Offers includes an analysis of the project's value under PG&E ownership and a consideration of the extent to which ownership of such a project is compatible with the utility's core competencies.

There is little specific guidance about how PG&E evaluates the tradeoff between a PPA Offer variant and a Purchase and Sale Agreement (PSA) Offer variant (e.g. build and transfer to utility ownership) for the same project. Nor is there much guidance regarding how the utility evaluates compatibility of owning a project with PG&E's core competencies.

Similarly, both the public solicitation protocol and the non-public protocol give very little specific guidance about how PG&E evaluates Offers for sites for development, and Attachment K is silent on the subject. The protocol does not reveal what technologies PG&E would consider for such an Offer, what term is required, whether site sale or site lease is preferred, or any other requirements or preferences the utility applies when it evaluates proposed sites for development. In the actual event these Offers were evaluated based on criteria that were absent from both the public and non-public protocols, which Arroyo regards as less than fair to Participants. This lack of transparency detracts from the clarity of the RFO materials and contributed to wasted effort on the part of Participants.

COUNTERPARTY CONCENTRATION

In the 2011 RPS solicitation protocol, PG&E stated explicitly that it will consider its total exposure to volume of contracted deliveries from any individual counterparty and the volume already contracted with that party in making selection decisions. Arroyo regards supplier concentration as a legitimate business concern for the utility and its customers, both for credit risk for the utility's supply portfolio as well as risk of development failure.

This year, PG&E made an effort to avoid the prior practices of one or two individual developers that submitted excessively large numbers of Offers, by limiting the total number of Offers per Participant to five, with an exception for small Offers (up to ten Offers per Participant if the total capacity of Offers does not exceed 200 MW). Some developers still submitted more than five large Offers, and others circumvented the restriction by bringing in different part-owners for different groups of projects. Other developers submitted multiple Offers for projects owned by different subsidiaries or initially owned by other

developers while retaining an option to purchase the project if successful. Overall, these tactics used to avoid PG&E's stated limitation do not appear to have benefited those developers at all, but it created excess effort for the utility team; PG&E chose to evaluate all Offers (absent a screening evaluation it would be impossible to know which projects to reject).¹⁵

PG&E'S PREFERENCES REGARDING OFFERS

In addition to the various evaluation criteria, PG&E's solicitation protocol states two preferences regarding selection of Offers. In section III regarding Solicitation Goals, the section on contract term refers to regulatory uncertainty regarding implementation rules on annual compliance goals and states that "PG&E will encourage bids that recognize that uncertainty and offer flexibility toward meeting a range of possible targets (e.g., varied online dates)". Arroyo views this as a reasonable preference to take into account when making a short list given the status of PG&E's RPS compliance position for the next several years.

PG&E also states in its solicitation protocol a preference for projects that deliver power to "a nodal delivery point...within PG&E's service territory" over projects that deliver to CAISO interface points (e.g. the California-Oregon Border, Mead, Palo Verde, or Four Corners substations) or to "California locations outside of the CAISO's control area" (e.g. points within the grids of the Western Area Power Administration, or WAPA, Imperial Irrigation District, or IID, non-CAISO municipal utilities such as the Los Angeles Department of Water and Power, or LADWP, or non-CAISO rural electric cooperatives such as the Plumas-Sierra Rural Electric Cooperative), or to out-of-state locations.

Arroyo regards this as a reasonable preference, and appropriate to state in the protocol. Most of the operators of control areas external to the CAISO have in the past chosen not to provide imbalance service or operating reserves that would be required to enable an intermittent generator in their territory to schedule firm deliveries to a CAISO intertie. Also, contracting with projects that interconnect into PG&E's grid can have other benefits to the utility and its ratepayers, such as enhancing local voltage support. In situations where PG&E is cut off from other service territories (as for example the catastrophic collapse of SDG&E's and IID's systems in September 2011) the robustness of PG&E's system is enhanced by having renewable generation on line in its own territory rather than in other utilities' grids. Consequently Arroyo views PG&E's lower preference for out-of-state power or power delivered into non-CAISO control areas as based on legitimate business concerns.

A third area where PG&E's solicitation protocol does not quite express a preference or an evaluation criterion is in contract language modifications. The protocol states that the utility will assess the materiality and cost impact of the Participant's proposed modifications to PG&E's Form Agreement or standard term sheet. The inference is that the utility will generally prefer Offers where the Participant submits revisions and comments to the Form

¹⁵ Some developers believed that the five-Offer limitation was too constraining in the situation where the company has a large "pipeline" of potential projects of multiple technologies. Other developers praised the five-Offer limitation, observing that "it was very intelligent to limit the size to five projects" because it avoided an even larger proposal response without affecting the short list, under the belief that the limit focuses developers' attention on their lowest-priced and most viable projects.

Agreement with modest or nil proposed changes to PG&E's standard terms and conditions over Offers whose mark-ups demand unfair concessions, such as projects that propose to post Delivery Term Security that is far less than PG&E's standard requirement.¹⁶

While Arroyo views these preferences as legitimate business concerns and as factors that are reasonable for PG&E to consider in deciding which Offers to select or reject for its short list, Arroyo is concerned that the transparency of how such preferences affect Offer selection could be improved. In the debriefing sessions for non-shortlisted Participants it seemed that some were unaware of the expressed preference for projects interconnecting within PG&E's grid, or for projects interconnecting within the CAISO, vs. projects delivering at a CAISO intertie point. Arroyo recommends that in future solicitations PG&E edit the solicitation protocol to help clarify that preference.

Also, it would have improved the clarity of the solicitation protocol if it had explicitly stated that PG&E's preference would "focus on the latter part of the 2014-2016 compliance period" as stated in the bidders' conference presentation. It appears, based on debriefings after the RFO's close, that several Participants missed that point and assumed that Offers with earlier on-line dates were preferred, as had previously been the case in PG&E's 2009 RPS RFO. Arroyo speculates that some Participants could have improved the attractiveness of their Offers had they been aware of this subtly stated preference and acted upon it.

SELECTION OF A SHORT LIST

Having ranked Offers by market valuation, including the impact of transmission adders, and having scored the Offers against the non-valuation criteria, the PG&E team decides which Offers to include on the short list. As stated in the solicitation protocol, the team ranks all conforming offers based on net value, then uses scores and information from the non-valuation criteria to decide which Offers to include on the list, and which to exclude.

In conditionally accepting the 3 California IOUs' procurement plans for 2011 RPS solicitations, the CPUC noted that "each utility may apply its own reasonable business judgment in running its solicitation, within the parameters" and guidance provided by the CPUC.¹⁷ This affords PG&E a certain degree of latitude in making decisions about how to use information about criteria such as Project Viability and RPS Goals and preferences such as service territory and on-line date in selecting Offers. Unlike other utilities that employ a weighted average of scores for all criteria as a determinative measure to make selection and rejection decisions, PG&E can, up to a point, use its judgment to select lower-valued Offers or less-viable Offers that have special attributes in meeting RPS Goals, for example.

A detailed discussion of specific choices the utility made in applying evaluation criteria and preference to selecting a short list is provided in the confidential appendix.

¹⁶ Because PG&E did not numerically score Offers against the Credit criterion in this year's solicitation, the deficiencies of some Offers in their proposed collateral posting needed to be picked up in review against the preference for minimal modifications.

¹⁷ 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 3.

C. 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 from the perspective of fairness and reasonableness.

1. 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 price forwards 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.
- It uses a valuation concept that is generally accepted in the electric power industry.
- It provides an intuitive valuation based on the degree to which a generating unit is "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 25 years must rely on extrapolation of market forward curves for valuation rather than on direct observation of traded prices for power two decades hence.
- A certain degree of interpolation or projection is required to achieve hourly granularity in price assumptions.
- 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.
- There are challenges in estimating what Net Qualifying Capacity will be assigned by the CAISO to a project that does not yet exist. To a large extent PG&E must rely on the generation profiles provided by Participants, some of which appear to be of dubious quality.

- 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 later on-line dates to earlier on-line dates, 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.
- In the 2011 RPS solicitation, PG&E has used historical information about locational marginal price (LMP) to adjust the valuation of Offers based on the historical record. Attachment K to the solicitation protocol displayed the aggregation multipliers used to adjust for LMPs in various zones within the CAISO. Unfortunately, analogous multipliers had not been prepared for delivery points at intertie points of the CAISO; Arroyo recommends that prior to the next RFO the PG&E team investigate how best to make LMP adjustments for Offers that propose to deliver at such points.

Price vs. Value. PG&E's LCBF methodology takes into account both proposed price and estimated net value of each Offer, in the sense that price is a key input to the utility's valuation model. However, PG&E ranks Offers and Offer variants by calculated net 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 net value including transmission cost impacts rather than on contract price.

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. 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 a deficiency of 36 MW of resources in the Sierra local area within PG&E's territory.¹⁸ It is difficult to quantify as financial

¹⁸ California Independent System Operator, "2012 Local Capacity Technical Analysis: Final Report and Study Results", April 29, 2011, page 2.

benefits the extra benefit to grid reliability that would be provided by contracting with new resources in local areas with deficiencies.

- 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.¹⁹ This potential effect is not included in PG&E's valuation; there is no CEC-approved methodology for such an estimate.

Arroyo acknowledges the challenges of quantifying benefits and costs such as these in monetary terms, and opines that the PG&E LCBF methodology incorporates most financial benefits and costs that reasonably can be estimated at this point in time, with the following two exceptions.

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, using proxy costs from TRCRs or estimates of network upgrade costs from interconnection studies or executed interconnection agreements. However, the methodology does not take into account these 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. Arroyo believes that valuing projects in these areas without applying transmission adders while valuing projects within the CAISO with adders is less than fully fair to developers of projects within the territories of the three IOUs.

Arroyo recommends that PG&E incorporate estimates of transmission upgrade costs for Offers where projects propose to interconnect within California to non-CAISO balancing authority areas that are entirely or partially located within California. While Arroyo acknowledges that PG&E's ratepayers will not directly bear the costs of network upgrades in these other BAAs, the California ratepayers served directly by these balancing authorities will. Additionally, to the extent that PG&E procures energy from projects within such BAAs, taking delivery at a CAISO intertie point, PG&E's customers will pay a contract price for that power which recovers the cost of transmitting the project's output to the intertie, and those transmission tariffs will eventually reflect the cost of required network upgrades. However, in the 2011 RFO, Arroyo can identify at most one proposal whose selection or rejection might have differed if non-CAISO network upgrade costs had been counted.

Congestion charges. As described previously, the current implementation of the LCBF methodology does not count the congestion charges between certain distant CAISO delivery points and the EZ hubs internal to CAISO service territories. Arroyo recommends that the

¹⁹ 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.

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.

2. EVALUATION OF PORTFOLIO FIT

The approach PG&E employed in the 2011 RPS RFO to score Offers on portfolio fit differed from that used in prior years. The current approach has specific advantages:

- The numerical score is based on quantitative calculations or on technology-specific attributes, and is objective in its development with little discretion or judgment involved in applying scoring guidelines.
- The scoring for time of delivery is closely related to how PG&E currently perceives its greatest needs for new RPS procurement, an important consideration for compliance strategy.

There are a few drawbacks to this approach:

- The current scoring approach is somewhat black and white; it tends to provide either a high score or a low score with few steps in between.
- In the greater scheme of things, the portfolio fit criterion does not appear to have as much impact as others such as market valuation, project viability, and RPS goals. To Arroyo's awareness there has not yet been a situation where a renewable Offer's superior portfolio fit score has enabled it to be shortlisted by PG&E despite inferior value or viability; nor has there been a situation where an inferior portfolio fit score has led an Offer to be rejected from a short list.

PG&E's revised portfolio fit criterion for the 2011 RPS solicitation is consistent with the utility's current understanding of its generation need for each compliance period under SBX 2. Arroyo has almost no visibility into how PG&E calculates its net short position of RPS-eligible energy procurement vs. RPS goals in the three compliance periods and can therefore have no opinion about whether that calculation was reasonable. To the extent information was made available to the utility's Procurement Review Group, it appears that the portfolio fit methodology aligns well with times when PG&E expects more procurement is needed.

The utility's estimates have considerable potential for error, both because of uncertainty about how the CPUC's implementation rules will set targets for intermediate years like 2014 and 2015, and because of uncertainty about the likelihood that contracted projects will come on-line and the extent to which projects whose PPAs are expiring will be recontracted.

3. EVALUATION OF BIDS WITH VARYING SIZES, IN-SERVICE DATES, AND CONTRACT LENGTH

Offer Size. PG&E's LCBF valuation methodology is essentially neutral to project size; it does not consider extrinsic variables such as MW capacity or GWh volume as positive or negative factors but rather reduces the value of the Offer to a normalized \$/MWh metric. To the extent project size has an impact on valuation, it reveals itself in the proposed

contract price if the technology is one that provides economies of scale and enables developers to propose lower prices for larger projects.

The viability scoring system, however, is not neutral to project size. The larger the proposed project, the less likely it is that the developer has succeeded in the past in developing similar or larger sized projects, owned and operated similar or larger sized projects, or financed similar or larger sized projects. So the Offer is likelier to score lower on Project Development Experience, Ownership/O&M Experience, and Project Financing Status if the project is larger.

From the debriefings after the conclusion of the RFO, it became evident that many developers failed to appreciate that proposing new projects much larger than any they had previously brought into operation will lower their viability score using the Energy Division's Project Viability Calculator. Other developers with deep experience in developing large projects in conventional technologies were unaware that the design of the Calculator did not fully take that experience into account in scoring when they proposed to construct large projects using a renewable technology with which they had no prior experience.

This left some non-selected Participants with a sense that the design of the Project Viability Calculator was unfair to them, arguing that it has a "rich get richer" aspect in which only those developers who have previously brought into operation large renewable energy projects can achieve the highest scores for developer and ownership experience for proposed new large renewable energy projects.

The fact that PG&E's objective for the 2011 solicitation is to procure 1 to 2% of retail load, combined with the RFO Goals non-quantitative factor of resource diversity, makes it difficult for the utility to select the very largest-volume proposals offered. An extreme hypothetical scenario in which the utility selects one Offer only of several TWh/year would be the opposite of pursuing resource diversity. The RFO Goals criterion gives PG&E the basis for preferring to select multiple smaller Offers rather than a very few large projects, in pursuit of greater resource diversity. This tradeoff between the criteria of highest valuation vs. resource diversity requires the utility to exercise business judgment about its priorities.

On-Line Date. PG&E's LCBF valuation methodology, using current inputs, exhibits a propensity to favor projects that start later rather than earlier, all else being equal (this is related to inputs about forward prices, capacity value, and discount rate). It is a modest effect, and is roughly consistent with the stated preference of the utility to focus on the latter part of the 2014-2016 compliance period rather than on the first compliance period.

Because of the focus of PG&E's methodology on selecting projects ranked high for net value and project viability, the process is not designed to provide a short list that fits best with PG&E's net short position for RPS compliance. That would require the most valued and most viable proposals to have offered in-service dates that closely match the compliance periods when the utility has the largest net short position, which would be coincidental if it occurred. Instead, because there are more than three evaluation criteria to pursue, the methodology is designed to construct a short list composed primarily of high-valued and highly viable proposals of which some have on-line dates that fall close to compliance

periods with short positions, but of which others have substantially earlier or far later in-service dates and don't necessarily fit well with compliance periods of the greatest need.²⁰

Similarly, PG&E's methodology is not designed to construct a short list with the highest value to ratepayers while meeting the utility's RPS compliance needs. Such an alternative approach would necessarily disregard the project viability criterion by selecting the highest valued Offers with in-service dates matching RPS compliance periods of greatest need, regardless of whether those low-priced and well-timed projects have progressed at all in permitting, interconnection, and site control processes, and whether or not their technology is well-commercialized or never before demonstrated at utility scale. The IOUs have had bitter experience with low-priced projects that proposed attractive on-line dates but failed to achieve timely commercial operation because of viability issues. PG&E's methodology is designed to screen out high-valued projects that fit well with compliance period needs if they rank low on project viability. If the PG&E had an alternative approach that disregards viability in pursuit of highest value and fit with compliance needs, then one would expect a short list with a significantly higher likelihood of contract failure than the current approach.

Contract Duration. The valuation methodology similarly tends to favor contracts with longer duration to those with shorter terms, all else being equal.²¹ Since few Participants ever seem to propose both a longer and shorter duration contract at the same contract price, this is a very minor effect, typically swamped by price differences between Offer variants.

4. EVALUATION OF BIDS' 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 upgrades required to achieve reliable deliverability for new generation. Many features of the transmission cost methodology are specified by regulatory decisions.

The methodology has a few strengths:

- 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.
- It provides a view of full costs of the project rather than only the energy procurement cost.

The transmission cost methodology also has some drawbacks:

²⁰ PG&E may have an opportunity to seek delivery terms that fit better with its compliance needs in the course of contract negotiations.

²¹ This is a feature of the inputs rather than the algorithm; with a modest discount rate and power market forwards that are extrapolated out several decades, proposed renewable contract prices tend to fall below brown power market prices in the most distant years so that the longer the contract term is, the more valuable the overall contract is.

- The process of estimating transmission adders is analytically burdensome. It requires checking of Participant's information by transmission experts and consumes a considerable portion of the total time for valuation analysis.
- TRCR adders are a generalized, regional proxy for the actual cost of a particular-sized project at a particular interconnection point. There can be rather large deviations between the final cost of network upgrades written into an interconnection agreement and an early TRCR estimate.
- In those cases where the TRCR adder turns out to be an underestimate of actual network upgrade cost, PG&E's prior practice of only performing the full LCBF valuation including transmission adders during solicitations impedes the transparency of decision-making.
- TRCR adders are available only for California IOUs, and only for specific transmission clusters that the IOUs have analyzed. They are not available for other balancing authorities in California or outside the state. It would be challenging for the PG&E team to estimate a proxy for network upgrade cost for projects interconnecting, for example, in the Sacramento Municipal Utility District's or IID's grid unless the project had obtained a system impact study or facilities study or interconnection agreement from that balancing area authority. Given the focus on new renewables in Imperial Valley, this shortage of information is inconvenient.
- 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. In these situations, 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.

Whether the transmission adder methodology relies more on TRCR proxy adders or on interconnection studies or interconnection agreement data depends entirely on what projects Participants submit. In the case of PG&E's 2011 RPS solicitation, roughly half the Offers had not applied for an interconnection or had not yet completed a Phase I study or system impact study. This illustrates how reliant the methodology is on the accuracy of the IOUs' Transmission Ranking Cost Reports.

Most Phase I and Phase II interconnection studies provide estimates of both reliability network upgrades and deliverability network upgrades. In situations in which the project has not yet been studied as a full capacity resource, the studies lack an analysis of required deliverability upgrades. In many cases projects apply for an energy-only resource and later request a deliverability assessment (such as for projects that initiated their application under

the Small Generator Interconnection Process). PG&E's methodology is designed to be internally consistent; either it treats a project as energy-only and takes into account the estimated reliability network upgrades only and doesn't attribute Resource Adequacy value to the facility, or it treats it as full-capacity, takes into account costs of both reliability and deliverability network upgrades, and attributes RA value. In some cases projects were analyzed both ways and the approach that provided the higher valuation was selected, giving the project the benefit of the doubt that of the two the higher-valued approach would be chosen. This would be consistent with the logic of PG&E choosing to contract with a new project as an energy-only resource if the deliverability network upgrade costs would exceed the value of Resource Adequacy the project can provide.

Conformance checks of transmission study results were performed. Arroyo notes that some Offers misstated the estimated network upgrade costs provided by CAISO or PTO studies. In some cases the Participant mistakenly included both network upgrade costs and direct interconnection facilities costs, which if used would overstate the adder. Other Participants substituted their own estimates of what network upgrade costs would be for the CAISO study results, or substituted estimates from privately paid consultant studies. Arroyo believes that PG&E did a thorough job of checking the original source materials when conducting its analysis of transmission adders. Part of the challenge was that many Participants omitted the requested copy of the latest interconnection study, requiring the utility team to seek this information for deficient Offer packages.

5. 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 methods that use single-digit scores.
- The methodology allows PG&E to use both the more standardized tool as well as 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. When the scores rated by Arroyo and the PG&E team were compared, the variance

between scores had a standard deviation of 12 points.²² Even among individual members of the PG&E team there was a need to review and standardize scoring to reduce discrepancies between individuals' practices. This suggests that the Calculator is still a 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.

- As evidenced by feedback from Participants, developers in general have a poor understanding of how the utility interprets the scoring guidelines. Many developers, for example, claimed not understand that their project cannot obtain a score of 10 out of 10 for project development experience if their team has never brought at least two projects of equal or larger size with similar technology into operation...even though that is explicitly what the scoring guidelines in the Calculator state.
- Some scoring criteria would be difficult for a layperson to interpret, such as the Transmission System Upgrade Requirements criterion that requires some basic knowledge of what components of an upgrade require or don't require a CPUC Permit to Construct or Notice of Construction. Many or most developers lack on-staff experts in the regulatory landscape for new transmission build in California.
- Some of the Offers were scored low simply because the Participants omitted basic information about their projects, even though upon debriefing it became clear that full disclosure would have resulted in a higher viability score. It is unclear to Arroyo how this could be improved in the future, since the solicitation materials clearly stated what information was required.

In Arroyo's opinion, PG&E reasonably measured the viability of every project that submitted a conforming proposal for bundled energy, out-of-state power attached to renewable energy credits, or biogas. The evaluation team did not use the Calculator to evaluate Offers for RECs only or sites for development; some Participants for the former did not submit data needed to evaluate their viability, and proposals of land sales or leases are not amenable for scoring as power projects with the information requested or supplied.

The Participants' self-scoring was uneven in quality. While the PG&E team agreed with the self-scored Calculator scores for about a quarter of Offers, on average PG&E gave the Participant-estimated scores a "haircut" of eleven points. This is somewhat distorted by a few developers who scored their own projects by more than 40 points higher than the PG&E team; Arroyo agreed with PG&E that these projects had been assigned grossly inflated scores by any objective standard.

PG&E conducted conformance checks of viability assessments for Offers, in part to ensure quality control and consistency in how multiple scorers applied the scoring guidelines.

²² Arroyo found the comparison between PG&E and IE scores to be helpful to diagnose issues with specific projects and to identify errors made by either scorer, as opposed to stimulating arguments about which score was "right".

Particular attention was paid to Offers that were considered for short listing in early drafts, in order to confirm the quality and consistency of the assessments.

In some cases factors not assessed by the Calculator were taken into consideration when the PG&E team made selections; this is consistent with the direction provided by the CPUC about the use of the Calculator as a screening tool.

6. OTHER STRENGTHS AND WEAKNESSES

Evaluation of different technologies. PG&E's protocol tends to avert selecting Offers for utility ownership for which the utility lacks particular core competencies, so there is a bias against purchasing projects that the company is less well-suited to own and operate. This seems reasonable and appropriate, since it is not in ratepayers' interest for the utility to own generating facilities that require specific skills PG&E lacks.

The Project Viability Calculator was designed to be technology-neutral as well. However, the Calculator will return a lower score for a project that relies on a technology that is not well-commercialized, or that the developer lacks prior experience developing, owning, operating, or financing, all else being equal. The methodology will tend to discount projects based on emerging technologies or on those that have not been implemented broadly at utility scale, and will tend to promote projects that rely on technologies with widespread market acceptance and many examples of operating 100+ MW installations. It became evident from debriefing Participants that some developers were unaware that the Calculator's design tends to disfavor emerging technologies, and that other competitive venues than the IOUs' RPS RFOs that do not require the use of the Calculator might be more appropriate for projects that employ poorly-commercialized technologies.

PG&E's protocol for RFO Goals includes a provision allowing the utility to consider the non-quantitative factor of resource diversity benefits in the selection process; this is stated in Attachment K and supported by regulatory decisions. This feature allows the utility to consider such things as its resource need for baseload vs. peaking or intermittent generation in selecting Offers. To the extent some technologies are operated as baseload in the California market and there is a resource need for baseload resources this may tilt Offer selection towards those projects over technologies that provide intermittent or peaking generation. Similarly, the RFO Goals criterion accommodates the non-quantitative factor of continuing to meet the goal stated by Executive Order S-06-06 for biomass-fueled renewable energy, which could tilt Offer selection towards biomass or biogas-fueled generation.

Out-of-state projects. One issue regarding both value and viability concerns Offers for out-of-state projects that propose not to actually deliver power to the CAISO but instead intend to be managed through a pseudo-tie or dynamic scheduling. There are only a very few projects to date where these have been implemented by the CAISO. Because such approaches require the assent of both the CAISO and the foreign balancing area authority to which the project will interconnect (and PTOs in between), it is difficult for PG&E to judge the likelihood of whether such arrangements will actually be achieved. It was evident from reviewing out-of-state Offers that several Participants do not comprehend how their projects will be treated by the CPUC for RPS compliance purposes, with several assuming that their PPAs will be treated as bundled in-state delivery of power, despite failing to specify how

they will obtain dynamic scheduling by the CAISO. One hopes that more experience with dynamic scheduling will make it clearer what can and cannot be achieved with these arrangements and that future solicitation protocols can clarify how PG&E will assess them.

Similarly, Arroyo considers it risky for the utility to value out-of-state projects that assume that the import of their power at a CAISO intertie will provide full Resource Adequacy value to PG&E ratepayers. The CAISO process for allocation of RA import capability at intertie points does not currently accommodate long-term dedication of that capability to IOUs, putting at risk the delivery of RA value to ratepayers. Simply assuming that full RA benefits of the capacity of these out-of-state projects will be realized for the entire delivery term of a PPA may overstate the value of these projects. However, in the actual selection of projects Arroyo can identify at most one Offer whose selection or rejection might have differed if PG&E had taken a different approach in evaluating pseudo-ties or RA import capability.

Sites for development. Another weakness is the evaluation of sites for development, which does not employ PG&E's valuation tool. The public solicitation protocol does not provide Participants with clear guidance on what the eligibility requirements for sites are. The non-public internal protocol governing evaluation of these sites states several factors to consider when evaluating sites for development, but does not state any clear criteria for selection or specific eligibility requirements, leaving a large degree of subjective discretion to the ownership subcommittee of PG&E's evaluation team. Arroyo's opinion is that the team that evaluated most of these Offers documented its decisions poorly and failed to communicate what criteria it would actually use to select site proposals to Participants.

Utility-owned generation. While PG&E uses the same LCBF methodology to value both PPAs and proposals to construct generation projects and transfer them to utility ownership, it is not clear to Arroyo that this approach fully captures the difference in risk profile between PPAs and PSAs. When valuing ownership Offers, PG&E uses the forecasted outlook for revenue requirement as input for cash flows. However, there is no specific adjustment in the valuation for the heightened risk of failure to achieve expected performance when PG&E directly bears risks for performance, as opposed to a developer absorbing costs and risks rather than passing them to ratepayers. For example, there is no Monte Carlo simulation of possible outcomes for O&M cost or generation performance, which have some degree of uncertainty.

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

- The bidders' conference was cited as being "very helpful" by several Participants, in clarifying solicitation objectives, evaluation process, and requirements. The ability to ask questions about the RFO and to obtain answers quickly and spontaneously was particularly cited as useful.
- The solicitation materials were regarded as clear, straightforward, and "user-friendly", with the exception of the Attachment D offer form, with which some Participants had technical difficulties. (Others found the verification process built into this year's Attachment D to be quite helpful and fully functional.) Participants

who submitted less commonly pursued approaches (e.g. projects outside the CAISO or sites for development) tended to be more frustrated with their perception that the solicitation materials lacked clarity about their Offers would be evaluated.

- While some Participants clearly did not understand how the scoring guidelines in the Project Viability Calculator were intended to be used and were frustrated that their early-stage projects were disfavored by the design of the Calculator, others expressed opinions that the Calculator was “fair and relevant” and straightforward.
- While frustrated by PG&E’s policy of not disclosing detailed information about the nature of the short list, and the utility’s unwillingness to provide second chances to improve rejected Offers, Participants appreciated the opportunity to be debriefed about the reasons why their Offers were rejected because they could gather useful information on how to make their projects more competitive in future solicitations. Some Participants particularly appreciated that PG&E provided timely responses about whether their Offers were selected or rejected, in contrast to another IOU.
- Some Participants felt disadvantaged compared to rivals who, they feared, could propose unreasonably low pricing, obtain a PPA, then sell the project. They suggested that PG&E erect higher barriers to participation by “non-serious” parties, such as higher offer deposits (as required in other jurisdictions). Arroyo views this theme as a form of confirmation that PG&E’s approach to outreach was successful in obtaining broad and robust competition from the developer community, at some cost to the administrative workload of evaluating so many Offers.

D. 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 changes that may further improve the means by which PG&E evaluates Offers or the transparency with which Participants can view the evaluation process, some of which were suggested in feedback sessions by Participants.

ENHANCING TRANSPARENCY

One set of suggestions would seek to address the sense that comprehension of how PG&E evaluates and selects Offers among the developer community could be improved. This could help reduce wasted effort on the part of developers in promoting projects that are unlikely to be selected, and reduce the amount of wasted effort within the utility as it attempts to analyze Offers with poor viability and low value. Some ideas could include:

- Reviewing the scoring guidelines for the Project Viability Calculator in the bidders’ conference, to explain what is required to obtain top scores in each criterion;
- Including scoring guidelines for all 11 criteria used in the Calculator in Attachment K, with commentary on what it takes to obtain top scores in each category;

- Editing the solicitation materials to further emphasize the need for out-of-state projects to provide a full price at a CAISO delivery point that the developer would be willing to write into a PPA, rather than a busbar price outside the CAISO or a discussion of hypothetical wheeling tariffs that PG&E rather than the project would need to pay to move power to a CAISO delivery point;
- Modifying solicitation materials to clarify that the developer must provide a copy of the most recent interconnection study or executed interconnection agreement that will serve as the basis for estimating a transmission adder for network upgrades;²³
- Revising the solicitation materials to clarify that, in addition to the various evaluation criteria, PG&E will use its preferences regarding delivery point and commercial operation date to make selection decisions (or, alternatively, relabeling those two preferences as evaluation criteria). In particular, it would be key to make as clear as possible within the solicitation protocol itself what PG&E's preferences for on-line date are, seeing that many Participants completely failed to notice this;
- Editing the both the public and non-public solicitation protocols to provide a fuller description of how Offers for sites for development will be evaluated, what the basic requirements for eligibility are, what specific evaluation criteria will be used, and what characteristics of offered sites would render them attractive or unattractive to the utility as candidates for ownership. The ownership team should provide clearer internal documentation of how it made its selection and rejection decisions.
- Based on the practices of another IOU, some Participants suggested that PG&E provide developers feedback on how the pricing of their Offers ranked by quartile. PG&E declines non-selected Participants' requests for information about how much lower their proposed prices would need to be in order to be selected for the short list. Arroyo agrees that that could be misleading information (e.g. rankings of pricing are not the same as rankings for value), hard for the utility to gauge, and could be unfair to Participants who do not actively seek feedback. However, if all three IOUs were to adopt the practice of providing feedback on price ranking quartiles to Participants on request, it is possible that this process could be handled fairly without misleading developers. It could have the effect of dissuading some developers from expending effort on the least competitive projects, and of encouraging developers with near-competitive prices to improve them. Increasing the transparency of price rankings might help dispel the perception expressed by some developers that the California market is "a buddy system" or too much a "back-room" process.

STREAMLINING THE PROCESS

²³ While the 2011 protocol stated a requirement to submit the CAISO or PTO interconnection study, several participants failed to do so and others did not know how to distinguish the network upgrade component of transmission costs from direct interconnection facilities costs. Clarifying that the study is required with the offer package if available would streamline the process.

At least one other IOU has chosen to drop the requirement for hardcopies of the Offer package; to Arroyo this now seems an appropriate step for PG&E to take, going forward. Arroyo has some lingering concern about the Participants who fail to put all the information present in their hardcopy Offers into readable electronic form using the required format, but this may be dispelled if Offers are submitted entirely in electronic form. Arroyo agrees for now that it is still best for Participants to submit electronic Offer packages by flash drive rather than by e-mail, given the occasional problems PG&E has experienced in contacting some Participants by e-mail and in receiving very large digital files by e-mail.

Some Participants have objected to the volume of information that PG&E requires for a complete Offer package. Arroyo agrees that there are some opportunities for the utility to delete some required information that has little or no impact on a short-listing decision (such as project block diagrams and resumes of managers) in favor of seeking such information after short-listing. Another assertion by Participants is that the requests for information in different tabs of the Offer package are redundant; it may be possible to restructure the requests to reduce any need to supply the same data in different tabs. The focus of the information requirement should be organized around securing the data required to score the Project Viability Calculator, to value the Offers, and to draw conclusions about other criteria such as RFO Goals, while minimizing submittal of other interesting and helpful information with little bearing on selection, that can be deferred to after a short list is made.

IMPROVING VALUATION INPUTS

Arroyo has suggestions for improving the methodology for assessing the value of Offers:

- 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.
- Restudy the inputs to the model that set the basis for Resource Adequacy valuation. For example, it appears that PG&E's current assumption for new entrant capital costs is materially higher than that embedded in the currently applicable Market Price Referent. Arroyo believes that current assumptions (including the use of a regulated utility's cost of capital as discount rate) cause the PG&E team to overstate the value of RA capacity, and that this tends to create distortions and biases in project valuation rankings. Overstating RA values would tend to favor solar projects over wind and run-of-river hydro generation, for example.
- Clarify that the most recent CAISO or PTO interconnection study (or interconnection agreement if available) is required in the Offer package. Without this non-public information it is difficult to assess an appropriate transmission adder other than using TRCR information, and data from either a Phase I or Phase II study report is more specific to a given resource than TRCR proxy estimates.

- Develop LMP multipliers for CAISO interconnection points at the periphery of the balancing authority area, such as Four Corners, Moenkopi, Mead, and the Hassayampa-North Gila line, so that energy from projects that propose such nodes as delivery points can be valued taking congestion into account. These are CAISO delivery points that are external to the body of the IOUs' service territories and tend to record higher congestion differentials than points within the territories. The current Attachment K shows LMP multipliers only for zones internal to the CAISO grid, not for these far-flung CAISO delivery points.
- Discuss with the CAISO its plans and policies for establishing pseudo-ties or dynamic scheduling arrangements for new projects outside the balancing authority area, in order to establish a view about which projects realistically can expect to obtain such treatment and which not. For example, Arroyo perceives it as unlikely that the CAISO could or would set up dynamic scheduling arrangements with projects that interconnect in WECC balancing authority areas that would require wheeling through three service territories to get to a CAISO intertie. If the CAISO does not envisage such arrangements, Offers that propose these should be classed as non-compliant, or should be valued using transmission tariff costs for those wheels.
- Offers claiming that a project will be managed as a pseudo-tie should be required to state the specific CAISO intertie with which it will be permanently associated as required by CAISO rules; this would clarify how best to value the proposal.
- 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 would be helpful if projects that propose to add RA capacity to deficient local subareas were highlighted in the course of evaluating Offers.
- Include in the LCBF valuation the costs of network upgrades for projects that interconnect within California but outside the CAISO grid. The practice of evaluating full costs for some projects but PPA costs only (omitting the impact on transmission rates) for other California projects seems inconsistent and less than fully fair to developers who choose to build their generation within the CAISO grid. It also seems less than fully fair to California customers in non-CAISO balancing authority areas who will bear the primary burden for those upgrades.

IMPROVING VIABILITY SCORING

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 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. It would be helpful if the CPUC were to post updates to the status of transmission projects requiring regulatory approval more frequently.

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 2011 RPS solicitation was conducted fairly. Arroyo's overall conclusion is that the process was conducted in a fair and generally consistent manner. Arroyo disagreed with PG&E about the length of its short list. This chapter discusses how PG&E developed a final 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 bids treated the same regardless of the identity of the bidder?
- Were bidder questions answered fairly and consistently and the answers made available to all bidders?
- Did the utility ask for "clarifications" that provided one bidder an advantage over others?
- Was the economic evaluation of the bids 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 bids?

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?
- 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 made available 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 make 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 2011 Project Viability Calculator;
- Developing a separate and independent point of view about which Offers most merited selection for a short list;
- Comparing PG&E’s valuation ranking to the IE 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 and to transmission clusters, 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 independently reviewing 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 by requesting additional information from Participants 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 few did not.

Fifteen Offers were rejected by PG&E for nonconformance with the requirements of the Solicitation Protocol. Also, a few variants of Offers were rejected though other variants of the same Offer were accepted as conforming.

PG&E rejected some Offers and variants because they violated the requirement stated in the solicitation protocol that projects for a Purchase and Sale Agreement (e.g. for transfer to utility ownership) must be sited within the state of California. PG&E is not at this point in time considering the purchase of out-of-state power plants through RPS solicitations.

Other offers for PPAs were rejected as nonconforming because they specified a price for delivery at a project busbar in a balancing authority area outside California rather than to a CAISO delivery point. Or they proposed an out-of-state project as a PPA for bundled product delivery, rather than a REC sale or a CAISO-approved pseudo-tie or dynamic scheduling arrangement.²⁴ Some out-of-state Offers failed to provide a detailed or credible plan about how to deliver power to the CAISO, particularly for intermittent resources, or failed to name a specific point of interconnection to the CAISO where the power will be delivered. The solicitation protocol had cited CPUC Decision 11-01-025 regarding bundled transactions requiring interconnections inside California or using dynamic scheduling. It

²⁴ An out-of-state Offer that proposed dynamic scheduling to qualify as a bundled resource quoted only a busbar price, leaving the full delivered price unspecified, and was deemed non-compliant.

appeared that some Participants do not understand current requirements for a project to be considered an in-state bundled resource for purposes of RPS compliance.

Similarly, some variants were rejected because they failed to conform to another requirement stated in the protocol for PSAs: “The Project and transmission interconnection must be designed and constructed in conformance with California Independent System Operator’s (CAISO) various reliability agreements, procedures, protocols, tariffs, and standards.”²⁵ While this eligibility requirement does not say so in so many words, Arroyo interprets it to disqualify PSAs for in-state generation whose interconnection is outside the CAISO’s balancing authority area. Such projects would not operate under the CAISO tariff. PG&E is not considering purchasing generation outside the CAISO through RFOs.

One Offer submitted for a PSA was rejected for non-compliance with the requirement stated in the solicitation protocol that the “Project should utilize a commercially proven, non-solar technology.”²⁶ PG&E is not currently considering solar generation proposals from the RPS RFO for transfer to utility ownership (as opposed to other competitive solicitations focused on pursuing turnkey approaches to utility-owned solar generation).

PG&E rejected another set of Offers that failed to provide basic information required by the solicitation protocol, such as project location, and which explicitly were offered as indicative, non-binding proposals as opposed to the binding and exclusive requirement for participation in the RFO as stated in the protocol.

Other Offers were deemed nonconforming to the requirements of the protocol because they proposed new transmission or new shaping-and-firming service arrangements rather than new PPAs, PSAs, unbundled RECs, or biogas sales as requested in the protocol.

In the days immediately following Offer Opening, some Participants sent PG&E corrections and changes to their previously submitted Offers. Arroyo notes that 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” by the utility.

Overall, Arroyo’s opinion is that PG&E’s decisions about which Offers or Offer variants to classify as nonconforming were fair to Participants. There were Offers that were very clearly nonconforming based on explicit deficiencies from the requirements clearly stated in the solicitation protocol; most Offers were clearly conforming. There was also a gray area in between, in which reasonable people could disagree about whether an Offer should be rejected for nonconformance or not; in general the PG&E team gave Participants whose Offers fell into this gray zone the benefit of the doubt and evaluated the proposals. In many of these cases Arroyo would have rejected the proposals. However, none of these accepted Offers from the gray area were selected given their rankings for value and viability.

²⁵ Pacific Gas and Electric Company, “Renewables Portfolio Standard: 2011 Solicitation Protocol, May 11, 2011 (Updated June 7, 2011)”, page 9.

²⁶ Loc. cit.

Another gray area that troubles Arroyo is the failure of several Participants to submit the required Attachment L, PG&E's supplier diversity questionnaire. As described below, it appears that some Participants did not take the supplier diversity evaluation criterion of the RFO and the requirements of the protocol relating to diversity seriously. In future Arroyo would suggest that Offers lacking a completed Attachment L be rejected as non-conforming if PG&E contacts the Participant to correct the deficiency but the Participant fails to do so.

D. REASONABLENESS AND FAIRNESS OF PARAMETERS AND INPUTS

The vast majority of the many parameters and inputs that PG&E used in its evaluation of the 2011 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 used a discount rate of 7.6% to bring future Offer costs and benefits to a 2011 present value. This value is based on PG&E's approved cost of capital. It represents the approved weighted average cost of capital (WACC) for PG&E, on an after-tax basis.

Arroyo doubts it is appropriate to use a regulated utility's authorized cost of capital as the discount rate for net revenues from PPAs with renewable generation developers. These developers are generally not regulated utilities but are rather private or public companies in the independent power producer (IPP) sector. The cost of equity and cost of debt for the riskier IPP sector are both higher than for regulated utilities. For example, the cost of debt assumed into the Energy Division's 2009 analysis of the Market Price Referent (MPR), an analysis that represents the risks of an IPP developer building a proxy plant under a long-term PPA, was 7.67% compared to PG&E's authorized 6.05%, and the assumed cost of equity underlying the proxy developer was 11.96% vs. PG&E's authorized 11.35%.²⁷

Arroyo asserts that the flow of net benefits of power deliveries from independent power companies contracting in long-term PPAs has more risk associated with it than PG&E's risk (e.g. higher credit risk, bankruptcy risk, liquidity risk, development risk) that merits discounting the net benefits at the higher WACC associated with the IPP industry. That suggests that the appropriate WACC to be used when evaluating Offers in this solicitation should be closer to the 8.25% after-tax WACC for the proxy plant used in the 2009 MPR model than to the regulated utility's 7.6%. PG&E disagrees, and believes that cash flows in a PPA secured by a regulated utility's credit should be discounted at a regulated WACC.

Arroyo's opinion is that use of a low discount rate results in valuations that overstate the importance of the most distant years of contract term, when the methodology depends on extrapolated market forward prices. Arroyo views this as a distortion that skews PG&E's value rankings towards preferring long-dated PPAs, and projects with later on-line dates. In particular, the lower discount rate tends to overemphasize the value of Resource Adequacy in making rankings of PPAs, which tends to skew selection towards solar projects over wind projects, and towards projects with full-capacity interconnections over energy-only projects.

²⁷ California Public Utilities Commission, Resolution E-4298, December 18, 2009, page 21.

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 on power market assumptions used in valuation, and on a 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. Additionally, the IE has the opportunity to review the inputs to the valuation model in detail and to raise questions with the team as appropriate. The discount rate assumption is one input which PG&E's management is philosophically unwilling to consider modifying.

E. THIRD-PARTY ANALYSIS

In its 2011 solicitation, PG&E outsourced a portion of the analysis of transmission adders to an external consultant. An internal PG&E transmission expert oversaw the work and performed quality control on the product; also, Arroyo had an opportunity to review the third-party work product and compare it to the IE's independent analysis as a check.

With this exception, the underlying scores and calculations involved in assessing offers against evaluation criteria were performed by the PG&E team. Arroyo believes that outsourcing the transmission analysis was appropriate because it helped ensure that PG&E could meet its internal deadlines for Offer analysis despite the massive number of proposals. Outsourcing allowed a full valuation of Offers including transmission costs to be available in time to share with PG&E's Procurement Review Group (in contrast to prior RFOs).

F. TRANSMISSION COST ADDERS AND INTEGRATION COSTS

PG&E generally followed its transmission analysis protocols in administering its procedures for market valuation. The team used TRCR proxy costs from the three California IOUs or data from Phase I or Phase II interconnection studies or interconnection agreements to estimate the cost of network upgrades for new projects interconnecting in congested locations. This is a great deal of transmission information to process in a short period of time and the team should be commended for its success in having developed, acquired, and applied a full set of this data within the deadline for creating a short list.

The team followed the public and non-public protocols for analysis of transmission adders. As stated in the discussion of PG&E's LCBF methodology, there are two areas in which Arroyo disagrees with how this was performed. Both fall within lacunae in the protocols, so PG&E's practice was entirely consistent with its protocols.

- Arroyo believes that transmission cost adders should be estimated for projects that interconnect within California but outside the CAISO's balancing authority area, using the estimates of network upgrade costs provided in those other PTO's interconnection studies. Arroyo considers the valuations of these PPAs to understate the full cost of power from the projects, and the analytic approach to be less than fully fair to projects that interconnect to the CAISO grid.

- In Arroyo’s opinion, the lack of estimated LMP multipliers for CAISO intertie points that fall outside the main body of the BAA presents a gap in data inputs. Projects that propose to interconnect to these points are unfairly advantaged vs. projects assigned to recognized LMP zones. Arroyo’s opinion is that projects interconnecting to far-flung outposts of the CAISO grid in other states should be evaluated with a recognition that nodal prices there are on average materially lower than those within the core of CAISO service territories due to congestion.

G. AFFILIATE PROPOSALS AND TURNKEY OFFERS

PG&E has more stringent eligibility requirements for renewable energy projects intended for utility ownership through turnkey development and transfer (the utility does not have unregulated affiliates that participated in the RPS RFO). For example, PG&E does not accept proposals for utility-owned generation that is sited outside California or outside the CAISO balancing authority area. In the RPS solicitation PG&E did not accept PSA proposals for solar generation; it separately conducts a competitive solicitation seeking solar photovoltaic generation for utility ownership.

Analytically, PG&E has an extra step in applying the same LCBF methodology to projects proposed for PSAs; it estimates a stream of revenue requirements for the project and the estimated operating and maintenance costs to replace PPA payments as the cost of the PSA. Otherwise the evaluation of turnkey proposals is quite similar to that of PPAs.

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 bundled delivery to a CAISO node by net value and to screen out (as a first cut) all Offers that scored below a chosen threshold for project viability. Then the PG&E team went down the list ranked by value, selecting Offers primarily based on highest valuation and higher than threshold viability. These selections were modified by criteria and preferences other than value and viability, described in this section.

PG&E stopped adding highly valued projects to its short list when the total volume of the selections totaled several times the RFO’s target of 1% to 2% of PG&E’s retail load. The team made a business judgment of how much more than the target would be needed to achieve the goals for the RFO, given a likelihood that Participants would choose exclusive negotiations with other utilities or that Offers would drop out of negotiations at some point.

The team applied different value cutoffs to different classes of projects based on the utility’s stated preferences; for example, the valuation cutoff was lower for projects sited within PG&E’s service territory than for those interconnecting to other utility’s grids. Similarly, the valuation cutoff for Offers of unbundled RECs or RECs plus firm energy was set higher than the cutoff for Offers proposing bundled delivery of energy to a CAISO point. Other situations where the cutoff varied are described below.

1. SERIOUS ENVIRONMENTAL CONCERNS

Appendix K to PG&E's 2011 solicitation protocol states specific subcomponents of the RPS Goals evaluation criterion. Among these is "environmental stewardship", which is identified in the CPUC's Decision 04-07-029 as one of a few designated "qualitative attributes" that the Decision allowed the IOUs to use as the basis for including Offers on a short list, subject to (1) the Offer being within reasonable price proximity to others selected and (2) support from the utility's PRG prior to elevation.²⁸

In the 2011 RFO, PG&E's evaluation team screened Offers to identify higher-valued projects with potentially serious environmental impacts; this is the contrapositive of the logic stated in Decision 04-09-027, in that PG&E is using a qualitative attribute to reject Offers from its short list. The team identified only a few Offers as posing sufficiently egregious threats to consider rejection on the basis of the most serious environmental concerns. These typically related to concerns regarding impact to endangered or threatened species from construction of a generating facility in close proximity to critical habitat.

In administrating its methodology, PG&E only rejected one 2011 Offer based solely on serious environmental concerns; it was adjacent to known occurrences of both endangered and fully protected species. Other projects that were identified as posing such concerns were rejected anyway based on inadequate value or viability scores.

2. RESOURCE DIVERSITY

Another component of the RFO Goals evaluation criterion is resource diversity. Attachment K of PG&E's 2011 solicitation protocol cited "Resource Diversity benefits" as a non-quantitative factor identified in CPUC Decision 04-07-029 that could be considered in Offer selection.

PG&E made an effort to increase the resource diversity of its energy mix by altering the value cutoff point below which it rejected Offers. For example, the PG&E team chose to accept baseload generation Offers that were valued below proposals for intermittent generation that were rejected. In a sense, the team chose to create a short list that is quite diverse in resource type (rather than, say, one technology) by applying the valuation criterion differently for different resources, rather than selecting only the highest-valued proposals that had acceptable viability. This will likely result in PG&E contracting with a diverse mix of baseload and peaking, and firm and intermittent resources, at a higher cost to ratepayers than only contracting disproportionately with one type of resource at lower cost.

3. SUPPLIER CONCENTRATION

In this year's solicitation, PG&E stated in its protocol that averting excess supplier concentration would be an evaluation criterion. During the selection process this criterion

²⁸ California Public Utilities Commission, Decision 04-07-029, "Opinion Adopting Criteria for the Selection [of] Least-Cost and Best-Fit Renewable Resources", July 8, 2004, Findings of Fact #28 and 29

played a role: the PG&E team limited the volume of selected Offers from any individual counterparty. In some cases where a Participant had its most attractive Offers selected, the PG&E team chose to reject remaining Offers from that Participant even though they were higher valued than Offers from other Participants that were also selected. PG&E also chose to reject some rather large proposals from a developer with whom the utility has already contracted large-volume projects that have not yet achieved commercial operation.

One way that PG&E avoided excess supplier concentration was to reject some rather high-volume Offers with high valuations in favor of smaller Offers with lower valuations from the same developer. This enabled the short list to include a larger number of Participants whose smaller Offers were selected, instead of fewer Participants with only large Offers. The result is a more robust solicitation in the sense that more companies are likely to complete contracts and that PG&E's counterparty credit risk will be diversified. It also means that total ratepayer cost will be higher than an alternative scenario in which only the very highest-valued, viable Offers were selected regardless of volume.

In future years the transparency of PG&E's RPS solicitations would be improved if this particular aspect or consequence of the supplier concentration criterion were communicated more clearly in the bidders' conference and in the solicitation protocol. Arroyo believes that it is unlikely that most Participants were aware that submitting very large projects could disadvantage those proposals, and that those Offers might hypothetically have been selected if smaller variants of them had been proposed at similar pricing.

4. DELIVERY POINT

PG&E stated in its 2011 solicitation protocol a preference for projects that deliver at nodal points within PG&E's service territory, over projects that deliver to other nodal points within the CAISO, to interface points of the CAISO, and to points outside the CAISO.

In the 2011 RPS solicitation, PG&E translated this stated preference into a higher valuation cutoff for in-state projects outside its service territory and a lower valuation cutoff for projects inside. In other words, some projects interconnecting in the SP-15 zone were rejected, whereas if the project with the same resource type, valuation, and viability had proposed to interconnect in NP-15 or ZP-26 it would likely have been selected.

5. COMMERCIAL OPERATION DATE

The solicitation protocol clearly stated PG&E's preference to select Offers that demonstrated flexibility in on-line date. PG&E's bidders' conference presentation stated that the utility would focus on the latter part of the 2014-2016 compliance period. This preference aligns with the utility's current view of its RPS portfolio needs.

It is difficult to separate the application of this preference in Offer selection from an independent effect: that the LCBF valuation methodology assigns a higher value, all else being equal, to projects with later on-line dates than to projects with earlier on-line dates. Arroyo is not aware of any individual Offer that selected solely because of the timing of its on-line date, as opposed to a better valuation for later on-line date. Nor is Arroyo aware of

any Offer that was rejected solely because its proposed on-line date was far from the latter part of the 2014-2016 compliance period. That being said, it was clear to the IE that fit of projects' timing with the utility's compliance needs was on the mind of the PG&E team as it constructed the short list.

In future RPS solicitations, PG&E should improve the transparency of its selection process by stating its timing preference directly within the solicitation protocol. It was evident from debriefings after the completion of the RFO that many Participants were operating under the mistaken belief that PG&E preferred projects with the earliest on-line dates, as was the case in its 2009 RPS RFO. It is possible that some of these Participants, had they understood the preference clearly, could have submitted Offer variants with later on-line dates that might have been selected because of higher valuations.

7. 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.”²⁹

PG&E's evaluation committee scored Offers based on the submittal of Attachment L, a Supplier Diversity Questionnaire.

Historically, only a tiny proportion of IOUs' short-listed Offers or executed PPAs have been executed with WMDVBEs, and PG&E's policy of scoring Offers against this subcriterion is no doubt intended to help address the shortfall between actual procurement of renewable power from WMDVBE's (or from prime contractors that use diverse suppliers as subcontractors) and PG&E's overall supplier diversity goal.

Among developers submitting to the 2011 RPS RFO, only three Participants were WMDVBEs that have been certified by the CPUC Clearinghouse. None of the Offers submitted by certified WMDVBEs scored above the valuation cutoff. Other Participants claimed to be WMDVBEs that had not yet obtained CPUC certification³⁰, but review of their ownership suggested that this claim was inaccurate for at least one entity.

Not only were few Participants actual WMDVBEs, but only a subset of Participants agreed to pursue PG&E's stated WMDVBE subcontracting goal (30% of spend). Some

²⁹ Pacific Gas and Electric Company, “Renewables Portfolio Standard: 2011 Solicitation Protocol, May 11, 2011 (Updated June 7, 2011), page 42.

³⁰ One Participant that claimed CPUC certification apparently did so falsely.

Participants whose Offer was shortlisted stated an intent to meet this goal in their proposals but others did not. Arroyo views the overall response from the renewable energy developer community towards PG&E's diversity goals as rather weak.³¹ Arroyo believes that, given the competitiveness of the solicitation, PG&E has an opportunity to negotiate with shortlisted parties regarding their commitment to a WMDVBE subcontracting target.³²

It appears that many Participants failed to take the supplier diversity criterion seriously; some Participants indicated that they have historically not subcontracted with diverse suppliers or they planned to subcontract with no diverse subcontractors for their offered project. In future solicitations there may be opportunities to explain or communicate the diversity goal more clearly, and to more explicitly link Offer selection to a Participant's willingness to commit to some subcontracting goal.

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 some minor aspects of the PG&E analysis and selection, but these pertained to micro-level issues that did not affect overall selection of a short list. For example, Arroyo and the PG&E team scored Offers using the same Project Viability Calculator; in nearly all cases the scores differed, but relative rankings of Offers were similar overall. Other examples of minor disagreement with no impact on selection include:

- Arroyo disagreed with the estimates of LMP multipliers applied to CAISO delivery points outside California which had not been assigned to an LMP zone;
- Arroyo would have rejected as non-compliant more out-of-state Offers with weak cases for achieving regulatory treatment as bundled in-state resources;
- Arroyo would not have assigned full Resource Adequacy value to some of the out-of-state Offers that proposed to deliver power at CAISO intertie points where PG&E's ability to secure RA import capability is limited.

³¹ Some Participants whose Offers were shortlisted indicated that WMDVBE content of their subcontracted effort would be "minimal", or omitted both the required question and response about the subcontracting goal from the Offer, or declined to state a goal while generally stating a commitment to diversity, or stated a goal less than 6%. One Participant whose Offer was short-listed failed to include Attachment L in its initial offer package altogether.

³² Several of the shortlisted projects are sited in or near communities in which minorities represent a majority of the population, so one might expect opportunities to seek and procure from diverse subcontractors.

Arroyo's primary critique of PG&E's short list is that it is too large. Total volume is a multiple of the target for procurement of contracts from the 2011 RFO. By choosing to accommodate a large short list, PG&E has selected some Offers that Arroyo considers marginally attractive, rather than focusing on the highest valued, most viable proposals:

- Because PG&E chose a different cutoff for valuation for different types or locations of resources, it selected several Offers that Arroyo ranked as mediocre in net value. Arroyo would have shortened the short list by rejecting these lower-valued proposals, acknowledging that this would have reduced the resource diversity of the short list.
- PG&E used a cutoff for viability score to screen out many Offers. However, the team selected a very few Offers that it had scored below this threshold, because of other attributes that PG&E considered sufficiently attractive to outweigh the projects' weaker viability assessments. Arroyo would have rejected those proposals based on the projects' mediocre viability.
- Arroyo's input assumptions to the independent valuation place a lower value on Resource Adequacy capacity that PG&E's do. As a result, Arroyo would have ranked some solar projects lower than PG&E did (for which RA value contributed a material portion of total net value), and some wind generation projects higher; Arroyo would have considered selecting more wind generation Offers than PG&E did.

Although Arroyo disagreed with the resulting short list that PG&E selected, the basis for these disagreements largely centers on differences in business judgments about relative priorities and choices of numerical inputs. Arroyo believes that the choices the PG&E team made were reasonable and justifiable. For example, PG&E's choice to lower the valuation cutoff for certain resource types and locations was fully consistent with placing a relatively high priority on the non-quantitative sub-criterion of resource diversity and on the stated preference for projects within PG&E's service territory. While Arroyo's relative preferences differ, Arroyo believes that PG&E's relative priorities, based on its business judgment, are reasonable.

Similarly, Arroyo disagrees with PG&E's selection of inputs for its valuation of capacity, but acknowledges that the underlying sources of the inputs which generate the RA value estimates come directly from the CPUC and the California Energy Commission. It seems reasonable for a regulated utility to select parameters in a way that they are consistent with guidance from regulators, though Arroyo believes that better choices are available for inputs.

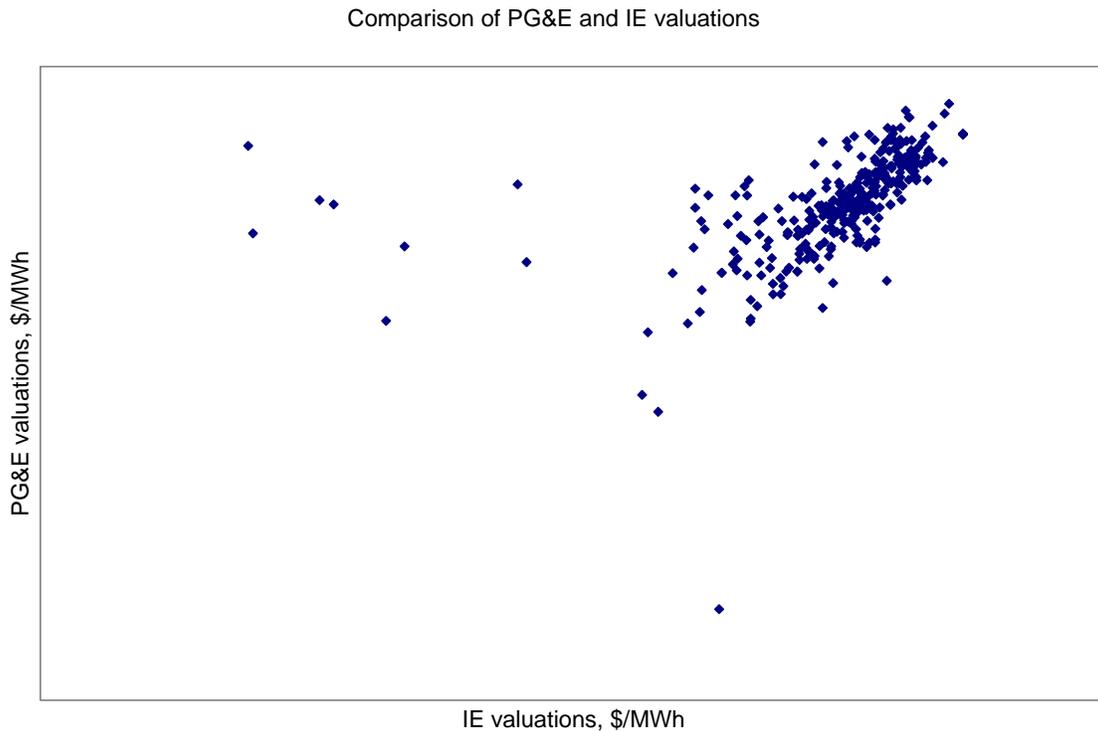
Separately, Arroyo can offer only a qualified opinion about whether the selection of Offers for sites for development was made fairly. The group within PG&E that analyzes these Offers provided incomplete documentation of the basis for selection decisions. Arroyo disagrees with the shortlisting decisions about these Offers. The CPUC will have a better opportunity to review these if PG&E executes contracts for these in the future.

2. INDEPENDENT OFFER ANALYSES

Arroyo conducted its own rather simplified valuation analysis. PG&E's and Arroyo's valuations generally correlated well for many Offers, but with a fair amount of noise in the comparison, as shown in Figure 3 that compares the two sets of valuations. Some of the differences between valuations include:

- Less value assigned to Resource Adequacy in the independent assessment, which tends to lower the value ranking of projects with the most estimated Net Qualifying Capacity such as solar generation;
- Less value assigned to projects interconnecting in non-CAISO balancing authority areas;
- Less of a premium assigned to projects with later on-line dates or longer delivery terms.

Figure 3



This comparison was useful in quality control to identify errors in PG&E's or the IE's input parameters. Also, the comparison helped identify what factors caused specific Offers to be ranked high or low in PG&E's short-listing process, such as the impact of the discount rate assumption, the on-line date, and the size of transmission adder.

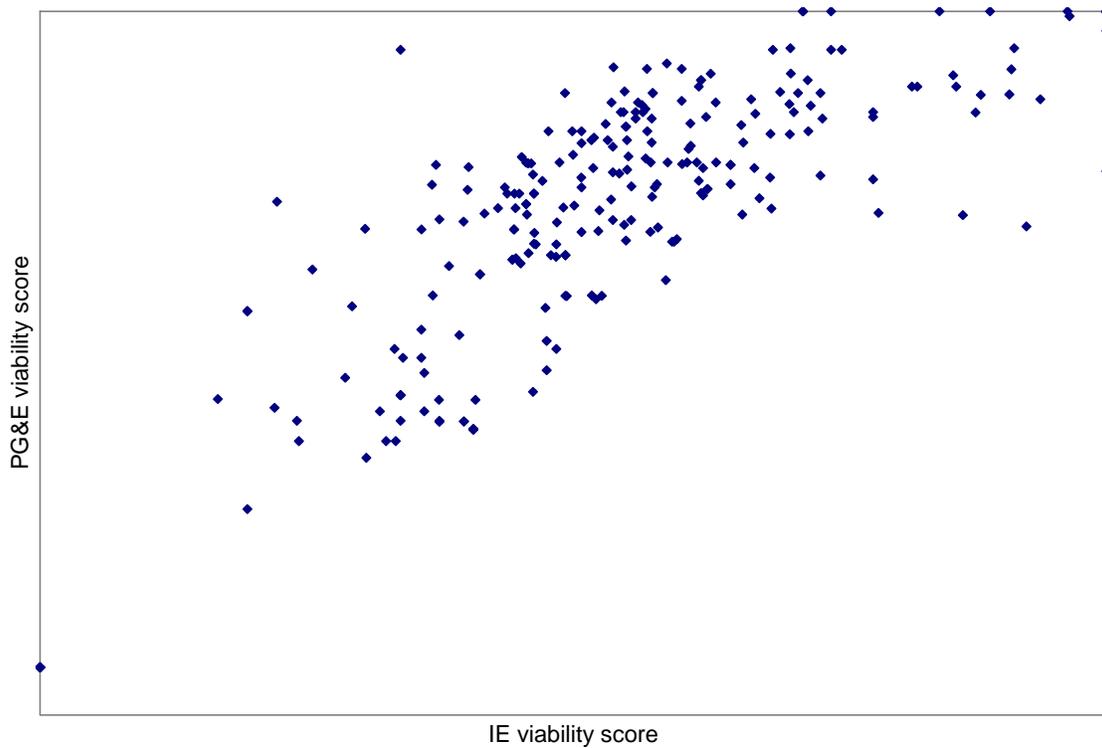
Arroyo also scored each Offer for viability independently of PG&E's analysis, using the final version of the 2011 Project Viability Calculator. This was useful to get an estimate of what the standard error of the Calculator is, and a sense of whether differences in score

reflect significant differences in the viability of projects or are within the noise of the method for assessing viability. Arroyo emerged from the comparison (shown in Figure 4) with a view that differences of a dozen or fewer points in viability score may not reflect significant differences in the likelihood that project will succeed in attaining commercial operation on schedule, given the modest precision of the tool and the subjectivity of its use.

Some of the differences between viability scores include:

- Lower IE scores for projects proposing very large solar photovoltaic facilities;
- Lower IE scores for projects from developers with experience only in distributed generation (e.g. beyond the meter) projects rather than wholesale generation;
- Lower IE scores for projects for which specific network upgrades are as yet poorly characterized.

Figure 4



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 the short list, as far as Arroyo can discern. Many of the issues related to failure to

complete an Attachment D offer form fully, using the final version of that form, or omission of the most recent CAISO or PTO interconnection study.

Given the robustness of the solicitation and the very large number of Offer variants, the PG&E team did not collect every piece of information required by the solicitation protocol from every Participant. For example, some Participants had obtained interconnection studies for their project but did not submit copies with their proposals. Arroyo observes that in these cases the missing information would not have made a difference to the selection/rejection decision. The PG&E team made a concerted effort to obtain copies of these studies for most of these projects because the information within them is used in calculating transmission adders for the LCBF valuation. By this point it was evident which Offers had proposed uncompetitive, high prices and were unlikely to be short-listed.

Other missing information, such as CAISO queue number assignments, missing project descriptions, and geographic location data, was requested by the PG&E team of a number of Participants, who were willing to provide this. A few Participants failed to include a completed version of Attachment L, the supplier diversity questionnaire, in their Offer packages. PG&E followed up with some of these to request the missing information, a request with which those contacted readily complied.

4. OVERALL FAIRNESS OF ADMINISTRATION

Despite a variety of minor disagreements, Arroyo Seco Consulting's overall judgment is that PG&E's administration of its protocols to arrive at a short list for the 2011 RPS RFO was fair, unbiased, consistent, and reasonable.

Most disagreements between Arroyo and the PG&E team fall into the category of choices that Arroyo would have not made if it were 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 that PG&E made reflect the relative priority it assigns to some of the non-quantitative evaluation criteria and preferences vs. net value and viability. Arroyo believes that 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.

The use of non-quantitative criteria and preferences resulted in PG&E making selections that, while internally consistent, might appear less than fully fair to affected Participants. For example, some short-listed Offers from projects within PG&E's service territory have lower LCBF valuations than reject Offers outside the NP-15 and ZP-15 zones. A Participant in SP-15 whose Offer was rejected might view this conduct as unfair, but Arroyo views it as consistent with PG&E's priorities as stated in the public solicitation protocol.

J. IMPERIAL VALLEY OFFERS

PG&E received several Offers for renewable generation proposed to be sited in the Imperial Valley. The PG&E team generally applied the same steps and processes to evaluate these Offers as it did with others. One exception appears to favor Offers for projects that

interconnect within the Imperial Irrigation District over projects interconnecting within the CAISO; the PG&E team did not apply transmission adders to the former proposals.

Arroyo believes that the choice of Imperial Valley Offers on the final short list generally represents a fair and reasonable selection made by PG&E, though Arroyo would have selected fewer of these proposals, consistent with the IE's view that some lower-value Offers should have been truncated from the overall short list. The volume of short-listed Offers in the Imperial Valley as a fraction of all short-listed Offers is higher than the volume of Imperial Valley proposals submitted out of all bundled energy proposals in the RFO. More details on the Imperial Valley Offers and their evaluations are provided in the confidential appendix.

Section 3
Least-Cost Best-Fit Report
REDACTED



November 7, 2011

3. LCBF Template: IOU Written Description of RPS Bid Evaluation and Selection Process and Criteria

I. Introduction

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

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 Renewable 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”).

B. Describe goals of IOU’s bid evaluation and selection criteria and processes.

The goal of the 2011 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 1-2% 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.) to meet IOU’s overall need stated in its Procurement Plan.

PG&E followed a two-step process to determine its “need” from the 2011 RPS Solicitation. First, consistent with the methodology used in its semi-annual RPS Compliance Report, PG&E developed a forecast of deliveries from its executed portfolio (*i.e.*, all contractual obligations entered into through the year 2020, including Feed-in Tariff contracts), and all pre-approved procurement programs (*i.e.*, the 500 megawatt (“MW”) photovoltaic (“PV”) Program and the Renewable Auction Mechanism (“RAM”) Program) to determine its *Base Case Scenario*. Neither shortlisted projects (from the 2011 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. With the following exceptions, all deliveries are assumed at 100% of contract volumes:

- i. Contracts for which the Commission has directed PG&E not to count in forecasting and planning (*e.g.*, Solaren) are assumed to deliver 0% of contract volumes;

- [REDACTED]
- [REDACTED]

Second, to determine its *High Need Scenario* PG&E estimated [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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**:

[REDACTED]

TABLE 1
Base Case and High Need Scenario Assumptions

<p>[REDACTED]</p>	<p>[REDACTED]</p>	<p>[REDACTED]</p>
<p>[REDACTED]</p>	<p>[REDACTED]</p>	<p>[REDACTED]</p>

<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	<p>[REDACTED]</p> <p>[REDACTED]</p>	<p>[REDACTED]</p>
<p>[REDACTED]</p>	<p>[REDACTED]</p>	<p>[REDACTED]</p>
<p>[REDACTED]</p>	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>

	<p>[REDACTED]</p> <p>[REDACTED]</p>	<p>[REDACTED]</p>
	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>

<p>[REDACTED]</p>	<ul style="list-style-type: none">[REDACTED][REDACTED][REDACTED]	<p>[REDACTED]</p>

II. Bid Evaluation and Selection Criteria

A. Description of Criteria

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

a. Market valuation

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

See Section II B.1 below.

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.

See Section II B.2 below.

c. Portfolio fit

See Section II B.3 below.

d. Credit and collateral requirements

See Section II B.4 below.

e. Project Viability

See Section II B. 5 below.

f. Other qualitative criteria / preferences

See Section II B.6 below.

B. Overview of the Ranking Methodology

PG&E first classified whether Offers were considered Bucket 1 (in-state bundled or dynamically scheduled), Bucket 2 (firmed and shaped) or Bucket 3 (REC-only) based on PG&E's understanding of the buckets identified in Senate Bill 2 (1st extraordinary session) ("SB 2 1X"). PG&E created separate rankings according to Net Market Value for Bucket 1, Bucket 2 and Bucket 3. Initially, Offers are ranked according to Market Valuation. The appropriate Transmission Adder, if any, is subtracted from the Market Valuation, resulting in a Net Market Value. After the Net Market Value is determined, PG&E's viability, portfolio fit

and RPS goals evaluation criteria are considered and applied to the Offer to arrive at its final place in the ranking. In consultation with the IE and PRG, PG&E then decides which Offers to include and which ones not to include on the Shortlist.

1. Market Valuation

a. Overview of the Market Valuation Criterion

Market valuation considers how an Offer’s costs compares to its benefits, from a market perspective. Costs include fixed and variable components representing all anticipated significant relevant costs, including Transmission and Integration cost adders. Benefits include energy, capacity, and ancillary services. Costs and benefits are each quantified and expressed in terms of present value (2011 dollars) per MWh. The Market Value represents benefits minus costs, and is expressed in terms of levelized price, that is, present value per MWh (2011 dollars and 2011 MWh). All energy benefit calculations use a Locational Marginal Price (“LMP”) multiplier to determine the locational value of the energy delivered. Differences in LMP prices reflect both congestion and losses between areas. The specific multiplier is based on recorded Market redesign and Technology Upgrade (“MRTU”) data for the period July to February 2011. A summary of LMP multipliers for each LMP zone is included as Table 2 below. More detailed LMP multipliers can be downloaded from PG&E’s website at www.pge.com and clicking on the 2011 RPS Solicitation link.

TABLE 2
Locational Marginal Price (LMP) Aggregation Multipliers⁴

Descriptive Names	CAISO APNodes	On Peak	Off Peak
PG&E Central Coast	PGCC	1.006	1.008
PG&E East Bay	PGEB	1.000	1.001
PG&E Fresno	PGF1	0.994	1.003
PG&E Fulton Geysers	PGFG	1.001	0.993
PG&E Humboldt	PGHB	1.059	1.073
PG&E Los Padres	PGLP	1.000	1.000
PG&E North Bay	PGNB	1.004	1.000
PG&E North Coast	PGNC	1.028	1.007
PG&E North Valley	PGNV	0.965	0.978
PG&E Peninsula	PGP2	1.016	1.012
PG&E Sacramento Valley	PGSA	0.985	0.996
PG&E South Bay	PGSB	1.009	1.009

⁴ LMP multipliers shown are a simple average over hours and months. Contract valuations use disaggregated values for different months and peak and off-peak periods.

Descriptive Names	CAISO APNodes	On Peak	Off Peak
PG&E San Francisco	PGSF	1.044	1.026
PG&E Sierra	PGSI	0.974	0.987
PG&E San Joaquin	PGSN	0.945	0.958
PG&E Stockton	PGST	0.991	0.994
So Cal Edison Core	SCEC	0.995	0.998
So Cal Edison North	SCEN	0.989	0.997
So Cal Edison West	SCEW	1.016	1.011
So Cal Edison High Desert	SCHD	0.940	0.947
So Cal Edison Low Desert	SCLD	0.992	0.986
So Cal Edison North West	SCNW	1.007	1.011
San Diego Gas & Electric Core	SDG1	0.997	0.999

Offers are classified into two types based upon how they are financially modeled: 1) forward contracts and 2) dispatchables. How benefits and costs are calculated varies with each of the two types of Offers. Since the valuation method for each Offer determines how the Offer is valued, the calculation of Benefits, Costs, and Market Value is described below. Whether an Offer is for a PPA or Purchase and Sale Agreement (“PSA”) does not affect valuation. Offers of “sites for development” are not discussed here.

b. Calculation of Benefits, Costs, and Market Value for Each Offer Type

1) 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 Renewable Energy Credit (“REC”) plus energy products.

Quantification of Benefits: The benefits of forward contract Offers include energy, capacity, and ancillary services. Benefits are measured in units of present value per MWh (2011 dollars and 2011 MWh).

Energy benefit, for each hour of delivery, is the quantity of energy delivery for an hour times the forward energy price for that hour. The quantity of energy delivery for each hour is determined by the hourly generation profile of the offer. 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, expressed in terms of present value per MWh.

Capacity benefit for Resource Adequacy (“RA”), for year of availability, is the monthly quantity of qualifying capacity multiplied by the monthly capacity value, discounted to 2011 dollars and summed across years. The total discounted capacity benefit is then divided by total discounted MWh of energy, expressed in terms of present value per MWh. PG&E will use the most current, Commission-adopted methodology for calculating net qualifying capacity. The methodology at the time of 2011 RPS Solicitation issuance was established in D.09-06-028. Pursuant to this decision, for intermittent energy (*e.g.*, wind and solar) products, the qualifying capacity for each month is determined by the capacity that has an exceedance factor of 70% for the five on-peak hours. That is, for 70% of the time, per hour energy generation for the five RA counting peak hours (HE14-HE18 for April through October, and HE17-HE21 for the rest of the year) is greater than or equal to the qualifying capacity. For other types of non-dispatchable products excluding biomass and geothermal, the qualifying capacity is determined by the monthly average of the five RA counting generation profile of the offer. The qualifying capacity for biomass and geothermal Offers are the maximum monthly generation capacity. [REDACTED]

For Offers whose location would contribute to PG&E’s satisfaction of its Local Capacity Requirement as specified by the California Independent System Operator (“CAISO”) and adopted by the Commission, the capacity attributable to the Offer may be valued at a premium relative to the value of capacity that satisfies only system needs. [REDACTED]

Ancillary service benefits are assumed to be zero for forward contracts.

Quantification of Costs: Cost is determined by the expected payments under each Offer, plus Transmission and Integration cost adders. Transmission adders are described in Section II.B.2 below. Integration costs are defined as the costs and values of integrating a generation project into a system-wide electrical supply. The primary categories of integration costs are regulation, load following, and shadow capacity. Pursuant to D.04-07-029, and unless provided further guidance from the Commission and/or the California Energy Commission (“CEC”), PG&E will assume that integration costs are zero.

PG&E’s payments for each Offer are determined by the Offer’s price multiplied by the appropriate Time of Delivery (“TOD”) factors if applicable, as specified in the RPS Solicitation Protocol. Cost is measured in units of present value per MWh (2011 dollars and 2011 MWh). In the case of PSA Offers, PG&E’s payments for each Offer are replaced by the revenue requirements, fixed and variable operations and maintenance costs, and ownership costs.

2) REC-Only Offers

The term REC-only is used to describe an Offer that provides RECs, without any associated energy.

Quantification of Benefits: Since there is no associated energy or capacity, there is no energy or capacity benefit.

Quantification of Costs: Cost is determined by the expected payments under each Offer. Since there is no associated energy or capacity, there are no Transmission and Integration cost adders.

3) REC plus Energy Offers

The term REC plus Energy is used to describe an Offer that provides RECs as well as renewable energy.

Quantification of Benefits: Since benefits of RECs are not explicitly evaluated, a REC plus Energy contract will be valued exactly the same as a Forward contract.

Quantification of Costs: Cost is determined by the expected payments under each Offer, and is measured in units of present value per MWh (2011 dollars and 2011 MWh). Since the REC+Energy contract does not include TOD factors, TOD factors are not applied in the valuation process.

4) Dispatchable Renewable Resources

The term “Dispatchable” is used to describe Offers which provide some flexibility in their dispatch.

Quantification of Benefits: Benefits include **energy, capacity, and ancillary services**. Benefits are measured in units of present value per MWh (2011 dollars and 2011 MWh).

Energy benefits 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 for a dispatchable type of Offer is calculated the same way as described above for the forward contracts type of Offer. The 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.

Quantification of Costs: The cost 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 present value per MWh (2011 dollars and 2011 MWh).

5) Integration Costs

Integration costs are defined as the costs and values of integrating a generation project into a system-wide electrical supply. The primary categories of integration costs are regulation, load following, and shadow capacity. Pursuant to D.04-07-029, and unless provided further guidance from the Commission and/or the CEC, PG&E will assume that integration costs are zero.

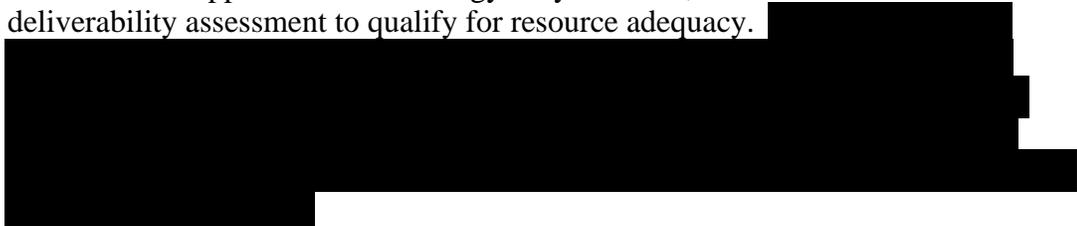
2. Transmission Adder

PG&E requests transmission information from developers for each Offer. This information includes the proposed project’s current interconnection queue position, application status, and transmission provider. Details of the current or proposed interconnection are requested for the projects, including voltage level, transmission or distribution service level, transmission line, interconnecting substation, form of interconnection applied for, and a copy of the study or interconnection agreement, if applicable.

a. Overview

The transmission adder adjusts Offer prices to include the cost, if any to customers of bringing the power from the generating facility to PG&E’s network. Once Offers have been ranked on all evaluation criteria except transmission, the means by which the generation will be delivered to PG&E’s customers is examined. Each bid is associated with a transmission cluster based upon the location of the facility. If a CAISO interconnection study has been completed for the project, the costs in that report are used for bid evaluation. If no study has been completed, the project’s transmission costs are assigned using the transmission ranking cost report methodology. The Transmission Ranking Cost Report (“TRCR”) proxy costs include reliability network upgrades, plus deliverability upgrades.

Some sellers in the 2011 RPS Solicitation had received studies that were based on their application as an energy-only resource, but did not have a deliverability assessment to qualify for resource adequacy.



Each Offer that does not have a CAISO interconnection study is assigned the transmission cost adder indicated by the TRCR as necessary to accept its project capacity on the transmission network.

The cluster-based cost adders are used for bid evaluation only. Projects do not have to physically connect to a cluster, and connecting projects do not necessarily pay the interconnection prices listed in the TRCR.

b. Methodology for Transmission Cost Adder

PG&E assigns each Offer an estimated amount of transmission network upgrade costs using project specific interconnection studies, if available, or using a proxy cost estimate based on the TRCR. For projects located in PG&E, Southern California Edison (“SCE”) or San Diego gas & Electric (“SDG&E”) service territories, PG&E applies the PGE, SCE or SDG&E TRCR. The MW and dollars in the TRCR table are divided between “Peak & Shoulder” and “Night” periods (note that the dollars for “Baseload & As-Available” columns are simply the sum of the other two sets of columns minus any common transmission facilities).

Within each of the transmission clusters, and within each period (Peak & Shoulder and Night), each Offer is assigned a pro-rata share of the cost. This share is based on the Offer’s maximum MW as a percentage of the maximum MW of potential generation assigned to each transmission cluster. For purposes of determining the level to which a project’s MW are assigned, only the highest ranking Offer variation from each Project above it in the cluster ranking is considered. This rule is intended to prevent the allocation of transmission capacity to multiple Offers of a single project.

PG&E may accept the electricity at a CAISO delivery point in the PG&E service area or another CAISO delivery point outside of PG&E’s service territory and avoid the cost of congestion through the use of typical commercial arrangements.

If the proposed Project is located outside the CAISO-controlled grid and is offering delivery outside the CAISO grid, the Seller is asked to deliver the energy onto or to an intertie with the CAISO grid. PG&E may accept 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 assumes the transmission adder is zero. For example, firm and shaped (Bucket 2 offers) will deliver to the CAISO at COB. These offers will go through an interconnection process where the generation facility is located (*e.g.*, Bonneville Power Administration (“BPA”)). 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 does not assign additional out-of-state transmission costs.

A Present Value Revenue Requirement (“PVRR”) is calculated from the Transmission Ranking Cost Table or interconnection study for each evaluated bid⁵. 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 are converted into a present value per MWh (2011 \$ and 2011 MWh) by dividing the PVRR by the Discounted MWh. These present value per MWh (2011 \$ and 2011 MWh) values, one for each Offer, are returned to the database for a recalculation of the Market Valuation.

3. Portfolio Fit

The portfolio fit measure differentiates Offers by the firmness of their energy delivery and by how well the energy delivery profile meets PG&E’s need. A higher portfolio fit measure is assigned to the energy that PG&E is sure to receive and fits the needs of the existing portfolio. It is extremely important that PG&E be able to count on energy when planned as part of managing its long term portfolio. It is obtained by averaging, with equal weighting, the two scores obtained from: 1) the delivery firmness, and 2) the time of delivery, including the timing of and flexibility of commercial online date.

4. 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 2011 RPS Solicitation.

5. Project Viability

a. Project Viability Calculator

The Commission developed a Project Viability Calculator (“PVC”) which was used by the PG&E in its 2011 RPS Solicitation. PG&E evaluated the project viability of each Offer using the PVC issued by the Commission on June 2, 2011. Participants are requested to self-score each of their Offers using the PVC in Attachment D and provide supporting documentation for each score. PG&E reviews all submissions and adjusts self-scores as appropriate. The Participant’s claims in all three categories are verified to the extent possible using publicly available data and/or PG&E data.

⁵ SCE and SDG&E TRCR costs are shown in units of \$/MWh, and represent the annual revenue requirement. Since the conversion of a capital cost to a \$/MWh revenue requirement has been performed as part of the TRCR study, this step is not required.

6. RPS Goals

a. Overview

PG&E assesses 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"). The RPS Goals assessment considers the factors described below.

b. Methodology

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 VIII.D).

1. Non-quantitative factors identified in D.04-07-029. Benefits to low income or minority communities, Environmental Stewardship, Local Reliability, and Resource Diversity benefits
2. Legislative Findings and Declaration that increasing California's reliance on renewable energy may do each of the following:
 - increase the diversity, reliability, public health and environmental benefits of the energy mix;
 - promote stable electricity prices;
 - protect public health;
 - improve environmental quality;
 - stimulate sustainable economic development;
 - create new employment opportunities;
 - reduce reliance on imported fuels;
 - ameliorate air quality problems;
 - improve public health by reducing the burning of fossil fuels;
 - provide tangible demonstrable benefits to communities with a plurality of minority or low-income populations.
3. Consistency with the Commission'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 Commission's recommended water conservation practices and goals is reviewed.
4. Executive Order S-06-06, signed on April 25, 2006. In this executive order, former 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.
5. Supplier Diversity. In support of PG&E's supplier diversity goals, PG&E considers whether a Participant is a Women-, Minority-, and Disabled

Veteran-owned Business Enterprises (“WMDVBEs”) or whether the Participant intends to subcontract with a WMDVBE.

C. 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.

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

PG&E’s selection process, including trade-offs between the qualitative and quantitative factors is described in Section V Final Shortlist. Final shortlisting decisions are made with judgment using the scores and assessments from the net market value and the other evaluation criteria. PG&E also solicits PRG and IE feedback on the recommended shortlist.

E. Discuss how the evaluation process differs, if at all, for out-of-state projects (e.g. incorporating costs of delivering energy from out-of-state facilities).

As noted above, PG&E created separated rankings for projects in Bucket 1, Bucket 2 and Bucket 3. This distinction is based on the fact that projects in each Bucket category may have different limitations on how they can be used for RPS compliance.

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

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

PG&E has not bid any utility-owned projects into the 2011 RPS Solicitation.

2. Describe how turnkey projects are evaluated against PPAs.

All else being equal, a turnkey project is compared to a PPA based on an all-in Net Market Value, defined as Market Value after adjustment for Transmission Adders, in \$/MWh. The cost of ownership, measured as a present value of revenue requirements, is recalculated to be based in \$/MWh. The project with the higher Net Market Value is considered better than the one with the lower Net Market Value, but it is possible that both could move forward.

3. Describe how buyout projects are evaluated against PPAs.

A PPA with a buyout option means PG&E may purchase the project at fair market value at a fixed point during the delivery term. If PG&E does not exercise

that option, the PPA continues through the delivery term at the original terms and conditions. Buyout projects are evaluated as PPAs. Since the purchase will be at fair market value (*e.g.* zero net value), any additional benefit is not included in the quantitative valuation.

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.

5. Describe how sites for development are evaluated.

PG&E considers offers for sites for development and evaluates them to determine whether they would be suitable for either PG&E's PV Utility-Owned Generation ("UOG") program or for wind development. In order for PG&E to utilize a site for solar PV development, PG&E first screens whether the site would be eligible for the UOG program. Projects must be in PG&E's territory and interconnect at distribution voltage. In addition, the sites should provide a good solar resource and not face interconnection, permitting or construction challenges. PG&E screens the sites to determine whether the price is competitive, and whether the sites are better options than sites currently in PG&E's portfolio. PG&E did not identify any solar sites in the 2011 RPS Solicitation that met these criteria.

For wind sites, PG&E considered sites within the CAISO and at transmission voltage. PG&E looks for sites that provide a good wind resource and that do not face interconnection, permitting or construction challenges or military restrictions (*i.e.*, DOD "Military Training Routes"). In addition, PG&E screens the sites to determine whether the price is competitive, and whether the sites are better options than sites currently in PG&E's portfolio. PG&E wind development site control strategy is focused on signing lease agreements as opposed to purchasing new land. PG&E identified one wind site that might meet these criteria and selected it for further evaluation.

III. Bid Evaluation and Selection Process

A. What is the process by which bids 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 the entire population 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.

An evaluation committee oversees the integrity of the evaluation process and makes a shortlist recommendation to the 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 2011 RPS Solicitation, the interval between the issuance of the request for Offers to the receipt of Offers was approximately six weeks; from the date of bid receipt until notification of bidders eligible for shortlisting, the interval was approximately eight weeks; from the date of notification to transmission of the short list to the Commission was two 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 bids rejected for non-conformance? If so, how many and what were the non-conforming characteristic(s)?

There were approximately 15 offers rejected for non-conformance. There were several out-of-state projects that offered bundled projects which did not include delivery to the CAISO or questionable delivery plans or details as required by the 2011 RPS Solicitation Protocol. One offer submitted was for transmission capacity.

D. Describe involvement of the Independent Evaluator.

The IE reviews the evaluation criteria, detailed protocols, and the market valuation and portfolio fit 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.

E. Describe involvement of the Procurement Review Group.

For the 2011 RPS Solicitation, PG&E presented a detailed summary and preliminary shortlist to the PRG about seven weeks after Offer receipt. 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 eight weeks after bid receipt.

F. Discuss whether and how feedback on the solicitation process is requested from bidders (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 responds to requests for feedback from bidders that were not shortlisted, to explain the primary reasons why bidders’ projects were not successful. In the 2011 RPS Solicitation, 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.

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 1-2% of load. PG&E takes into account that Offers may be withdrawn and that negotiations with others may not result in executed contracts. PG&E’s goal is to develop a shortlist that represents a diverse set of technologies and project location.

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 in the 2013-2015 period. However, there is uncertainty with the implementation of SB 2 1X that will influence PG&E’s projected needs and that targets for 2014 and 2015 have not been determined. Projects “that recognize that uncertainty and offer flexibility” were encouraged. As described in the Solicitation Protocol, PG&E identified projects for potential shortlisting that met minimum thresholds for net value and viability.



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. In addition, location affects the TRCR adder. In addition to the quantitative impact on market value, PG&E considered location qualitatively. PG&E shortlisted projects from [REDACTED]. This diversity may help mitigate risk if there are location-specific obstacles to project development that arise such as serious transmission constraints, or region-specific permitting challenges.

Project size: PG&E's LCBF evaluation compares all projects on a \$/MWh net value basis. Thus, projects of all sizes are treated equally. Project size factored into the selection process primarily when considering: (1) viability; (2) seller concentration; and (3) the volume for PG&E's need. 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.

[REDACTED] Finally, PG&E has identified that it has a limited need in the first and second compliance periods.

Technology/Resource diversity: PG&E desired to have a balanced portfolio of projects without one or two technologies over-represented on the shortlist. This diversity addresses potential technology specific development obstacles and risks that might arise (such as market prices for solar panels not falling as planned), and also provides for diversity of hourly generation.

Product Definition: As noted above, there remains uncertainty as to how PG&E will be able to use Bucket 2 and Bucket 3 projects for RPS compliance. This uncertainty arises due to the fact that: (1) product definitions are not final; and (2) interim targets and banking rules are not final. Thus, the bulk of PG&E's shortlist is made up of Bucket 1 offers. [REDACTED]

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 high market value, and high viability. Generally, projects had to score in the top half (above [REDACTED]) in order to be considered for shortlisting. PG&E considered exceptions for projects that scored very high on net market value.

D. Describe what role price had in determining your proposed shortlist. Were bid prices examined relative to other bids or other procurement options? Was there a certain price point cut off? Was rate impact considered for individual bids 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' net value which is closely related to price. Net value 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. 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.

PG&E had a combined value and viability cut-off by technology. As noted above, in most cases the viability cut-off was [REDACTED]

For non-solar projects, PG&E's value cut-off was dependent on project location and technology. PG&E selected the top valued offers that met the viability threshold. 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 reasons for not shortlisting projects were value or viability. As noted above, for Bucket 2 and Bucket 3 offers, the other contributing factor to the decision not to shortlist was uncertainty associated with the 33% implementation rules.

E. Describe how bids' locations affected your proposed shortlist. Was being located in or near 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. The SCE TRCR for Tehachapi is approximately \$5/MWh, and the adder for Imperial Valley is \$2.50/MWh. These lower than average TRCRs would have a positive impact on net value.

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

See Section IV.B above.

Section 4
Solicitation Overview Template
Fully Confidential, Not Provided



November 7, 2011