July 14, 2015

Pacific Gas and Electric Company
Attn: Erik Jacobson, Director, Regulatory Relations
Senior Director, Regulatory Relations
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA  94177


Dear Ms. Allen:

Advice Letter 4632-E is effective as of May 7, 2015.

Sincerely,

Edward Randolph
Director, Energy Division
May 7, 2015

Advice 4632-E
(Pacific Gas and Electric Company ID U39 E)

Public Utilities Commission of the State of California

Subject: Pacific Gas and Electric Company’s 2014 Renewables Portfolio Standard Shortlist Report

I. Purpose


II. Attachments

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

Section 1: Independent Evaluator Report (Confidential)
Section 2: Independent Evaluator Report (Confidential Data Redacted)
Section 3: Least-Cost, Best-Fit Report
Section 4: Solicitation Overview
Section 5: 2014 RPS RFO Workpapers

III. Confidentiality

PG&E submits the confidential sections of this advice letter 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. Because D.08-04-023 provides specific instructions for seeking and contesting confidentiality of the type of information submitted in this advice letter, PG&E is not proposing a protective order. PG&E is attaching to this filing a declaration that identifies and justifies its claim of confidentiality pursuant to D.08-04-023.
III. Protests

Anyone wishing to protest this filing may do so by letter sent via U.S. mail, facsimile or E-mail, no later than May 27, 2015, which is 20 days after the date of this filing. Protests must be submitted to:

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

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

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

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

Meredith Allen
Senior Director, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, California 94177

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

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

PG&E submits this Advice Letter as a Tier 2 filing and requests that it be approved within 30 days and made effective as of May 7, 2015.

V. **Notice**

In accordance with General Order 96-B, Section IV, a copy of this Advice Letter excluding the confidential appendices is being sent electronically and via U.S. mail to parties shown on the attached list and the service lists for R.15-02-020, R.11-05-005, and R.12-03-014. 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,

______________________________
Meredith Allen
Senior Director – Regulatory Relations

cc: Paul Douglas – Energy Division
    Cheryl Lee – Energy Division
    Service Lists: R.15-02-020, R.11-05-005, and R.12-03-014

Attachments:

- Section 1: Independent Evaluator Report (Confidential)
- Section 2: Independent Evaluator Report (Confidential Data Redacted)
- Section 3: Least-Cost, Best-Fit Report
- Section 4: Solicitation Overview
- Section 5: 2014 RPS RFO Workpapers
## California Public Utilities Commission
### Advice Letter Filing Summary
#### Energy Utility

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

<table>
<thead>
<tr>
<th>Utility type:</th>
<th>Contact Person: Jennifer Wirowek</th>
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<tr>
<td>☑️ ELC</td>
<td>Phone #: (415) 973-1419</td>
</tr>
<tr>
<td></td>
<td>E-mail: <a href="mailto:J6ws@pge.com">J6ws@pge.com</a> and <a href="mailto:PGETariffs@pge.com">PGETariffs@pge.com</a></td>
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### Explanation of Utility Type

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**Advice Letter (AL) #:** 4632-E  
**Tier:** 2

**Subject of AL:** Pacific Gas and Electric Company’s 2014 Renewables Portfolio Standard Shortlist Report

**Keywords (choose from CPUC listing):** Compliance, Portfolio

**AL filing type:** ☑️ Monthly  ☐ Quarterly  ☐ Annual  ☐ One-Time  ☐ Other

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #: D.14-11-042

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

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

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

Confidential information will be made available to those who have executed a nondisclosure agreement: ☑️ Yes  ☐ No

Name(s) and contact information of the person(s) who will provide the nondisclosure agreement and access to the confidential information: Sandra Burns (415)-973-1627

Resolution Required? ☐ Yes  ☑️ No

Requested effective date: May 7, 2015  
No. of tariff sheets: N/A

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

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

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

Tariff schedules affected: N/A

Service affected and changes proposed: N/A

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

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

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

**Pacific Gas and Electric Company**
Attn: Meredith Allen
Senior Director, Regulatory Relations
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177
E-mail: PGETariffs@pge.com
BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

PACIFIC GAS AND ELECTRIC COMPANY
ADVICE LETTER 4632-E
2014 RENEWABLES PORTFOLIO STANDARD SHORTLIST REPORT

DECLARATION OF SANDRA BURNS
SEEKING CONFIDENTIAL TREATMENT FOR
CERTAIN DATA AND INFORMATION CONTAINED IN
ADVICE LETTER 4632-E
2014 RENEWABLES PORTFOLIO STANDARD SHORTLIST REPORT
DATED MAY 07, 2015

I, Sandra Burns, declare:

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

2. Based on my knowledge and experience, and in accordance with the Decisions 06-06-066, 08-04-023, and relevant Commission rules, I make this declaration seeking confidential treatment for certain data and information contained in Advice Letter 4632-E, PG&E’s 2014 Renewables Portfolio Standard Shortlist Report dated May 07, 2015.

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 confidential data and information covered by Decision 06-06-066 or General Order 66-C. The matrix also specifies why confidential protection is justified. Further, the data and information: (1) is not already public to the best of my knowledge; and (2)
cannot be aggregated, redacted, summarized or otherwise protected in a way that allows partial disclosure.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct. Executed on May 07, 2015, at San Francisco, California.

SANDRA BURNS
## DOCUMENT: Sections 1, 4, and 5 of Advice Letter 4632-E

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<th>Redaction Reference</th>
<th>Category from D.06-06-066, Appendix 1, or Separate Confidentiality Order That Data Corresponds To</th>
<th>Justification for Confidential Treatment</th>
<th>Length of Time Data To Be Kept Confidential</th>
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<tr>
<td>Section 1: Confidential Independent Evaluator Report</td>
<td>VII – Score sheets, analysis and evaluation for RPS Projects.</td>
<td>Section 1 of Advice Letter 4632-E summarizes and evaluates confidential information concerning the Shortlisted Projects from PG&amp;E’s 2014 Renewables Portfolio Standard (“RPS”) Solicitation. The public portions of Section 1 are repeated in the public Section 2 of the Advice Letter. Section 4 contains bid evaluations, summaries of bid information, and quantitative analyses from PG&amp;E’s 2014 RPS Solicitation. Section 5 contains evaluations of bids, bid information, and quantitative analyses from PG&amp;E’s 2014 RPS Solicitation. Public disclosure of these materials would provide business and financial information to participating bidders’ competitors and prospective sellers to PG&amp;E and could impact their business conduct by providing valuable market sensitive information to competitors. Releasing this information publicly would also be detrimental to negotiations with other counterparties. The information also contains certain information that PG&amp;E understands the developers to consider proprietary and confidential. This information should receive confidential treatment pursuant to G.O. 66-C to the extent it is not covered by the Matrix.</td>
<td>VII Confidential for three years from submission of the Advice Letter.</td>
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<td>Section 4: Solicitation Overview</td>
<td>VIII.A – Bid information.</td>
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<td>VIII.A Confidential until after final contracts are submitted to the CPUC for approval.</td>
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<td>VIII.B – Quantitative analysis for scoring and evaluating bids.</td>
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<td>VIII.B Confidential for three years after winning bidders selected.</td>
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<td>General Order (“GO”) 66-C.</td>
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<td>GO 66-C Confidential indefinitely.</td>
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2014 RPS Shortlist Report

May 7, 2015
Section 1
Independent Evaluator Report
(Confidential Version)

May 7, 2015
Section 2
Independent Evaluator Report
(PUBLIC Version)

May 7, 2015
PACIFIC GAS AND ELECTRIC COMPANY
2014 RENEWABLES PORTFOLIO STANDARD SOLICITATION

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

MAY 7, 2015
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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 2015\(^1\) to procure energy eligible to meet Renewables Portfolio Standard (RPS) goals.

An independent evaluator (IE), Arroyo Seco Consulting (Arroyo), conducted a range of activities to review, test, and check PG&E’s processes as the utility conducted outreach to renewable power developers and operators, solicited Offers, evaluated Offers, and selected a short list of Offers with which to pursue negotiations. Activities included reviewing PG&E’s solicitation protocols, monitoring the utility team’s outreach efforts and results, assessing PG&E’s Least-Cost, Best-Fit (LCBF) methodology and its inputs, analyzing PG&E’s selection decisions, performing independent evaluations of the Offers’ net market value and project viability, and considering the fairness of PG&E’s decision-making process.

The high-level findings of this independent evaluation are that

- PG&E undertook adequate outreach to the renewable generation industry and succeeded in conducting a robust competitive solicitation;

- The utility’s Least-Cost, Best-Fit methodology was designed such that, for the most part, Offers were fairly evaluated. However, Arroyo disagrees with PG&E’s choice to not consider the impact of network upgrade costs for projects that interconnect outside the CAISO.

- Overall, Arroyo’s opinion is that PG&E administered its LCBF methodology fairly when evaluating the 2014 Offers. Arroyo disagreed with few of PG&E’s choices. Arroyo believes that these choices were within the range of subjective business judgment that utilities may apply in making procurement decisions; and

- Arroyo’s opinion is that with one exception PG&E’s proposed RPS short list merits Commission approval. Arroyo’s opinion is that PG&E’s selection is less than fully fair to developers that submitted proposals for CAISO-interconnected projects whose total valuations would be higher if the costs of transmission network upgrades had been considered for the latter.

The report details the basis for these findings, following the 2014 version of the RPS Solicitation Shortlist Report Template provided by the Energy Division (ED) of the California Public Utilities Commission (CPUC). The public version of this report has had confidential information redacted.

---

\(^1\) While the solicitation’s documents were issued on January 5, 2015, it was authorized by CPUC Decision 14-11-042, issued in November 2014, that conditionally accepted PG&E’s 2014 RPS Procurement Plan; the RFO is considered the utility’s 2014 RPS solicitation.
1. ROLE OF THE INDEPENDENT EVALUATOR

Pacific Gas and Electric Company issued a Request for Offers (RFO) on January 5, 2015, a competitive solicitation for power generation qualifying as eligible renewable energy resources (ERRs) within the California Renewables Portfolio Standard Program. The RPS Program was established by state law to ensure that retail sellers of electricity meet targets for procurement from ERRs as a percentage of annual retail sales. In its solicitation protocol for the 2014 RPS RFO, PG&E announced its goal of procuring between zero and 1,600 GWh/year of new supply.2

The CPUC conditionally approved PG&E’s 2014 RPS procurement plan in its Decision 14-11-042 issued on November 24, 2014. This chapter describes key roles of the IE and details activities undertaken by Arroyo in this solicitation to fulfill those roles.

A. KEY INDEPENDENT EVALUATOR ROLES AND RESPONSIBILITIES

To comply with CPUC requirements, PG&E retained Arroyo Seco Consulting to serve as IE for the 2014 RPS solicitation by providing an independent evaluation of the utility’s Offer evaluation and selection process.

The CPUC has stated its intent for IEs 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 2014 template to guide how IEs should report on the RPS competitive procurement process, outlining four specific issues on which IEs should report:

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

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

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C. IE ACTIVITIES

To fulfill the role of evaluating PG&E’s evaluation and selection of Offer for a short list, several activities were undertaken, both prior to the Offer due-date and subsequently. Prior to the Stage 1 Offer due date of January 28, 2015\textsuperscript{4}, Arroyo performed several tasks:

- Reviewed the solicitation and its attachments including PG&E’s 2014 Form Agreements and description of the LCBF methodology and criteria.
- Examined the utility’s non-public protocols detailing how PG&E would evaluate Offers against the various criteria.
- Attended PG&E’s Bidders’ Webinar on January 7, 2015 to evaluate information provided to potential participants, and how that information was distributed.
- Reviewed the list of registered attendees of the Bidders’ Webinar against PG&E’s master list of RFO contacts (used for outreach to potential participants).
- Checked the posting of questions and answers from the Bidders’ Webinar on PG&E’s public website to see whether information that was made available live to conference attendees was also provided to other potential participants.
- Examined PG&E’s 2014 RFO master contact list; performed an analysis of contacts with respect to industry and technology representation.
- Reviewed the detailed inputs to PG&E’s LCBF valuation model.

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 obtained an electronic copy of each Offer package, and independently built a database for tracking Offers.
- Monitoring PG&E’s evaluation team’s requests of individual participants to address material deficiencies to ensure that each Offer included sufficient information to complete an evaluation and to minimize the number of Offers disqualified as non-conforming. Arroyo monitored other e-mail communications between PG&E and participants to check for fairness in how information was provided.
- Reading portions of each Offer. Arroyo focused on project descriptions and permitting and interconnection details, relevant to eligibility and project viability.

\textsuperscript{4} PG&E’s solicitation protocol requested that Participants submit offer packages in two stages: for the initial deadline, they were to submit an introductory letter, offer forms and interconnection information, which allowed PG&E to begin its market valuation of proposals. The remainder of each offer package including a detailed project description was due on February 4, 2015.
• Participating in 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.

• Employing two independent valuation models to value Offers. This served as a cross-check against PG&E’s LCBF model. The IE models used independent inputs and a different methodology than PG&E’s. They were simpler and lacked the granularity used in the PG&E model. However, an independent valuation was helpful for testing the robustness of PG&E team’s ranking of Offers using alternate assumptions.

• Scoring Offers independently for viability, using the Energy Division’s 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, and can later facilitate a ranking of executed contracts against peer proposals on their project viability.

• 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 a key meeting of PG&E’s steering committee, as it made decisions to approve or modify proposed selections for the short list from the evaluation team.

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

Arroyo’s focus going forward will be on assessing the fairness of project-specific negotiations for shortlisted Offers and the merit for CPUC approval of individual agreements that PG&E may choose to execute.
2. ADEQUACY OF OUTREACH TO PARTICIPANTS AND ROBUSTNESS OF THE SOLICITATION

In its 2014 RPS solicitation, PG&E sought to meet a goal of procuring zero to 1,600 GWh/year by selecting Offers that could lead to negotiated, executed contracts. This section assesses the degree to which PG&E adequately conducted outreach activities to elicit sufficient participation in the RFO process, and the degree to which the resulting solicitation may be judged robust enough to be fully competitive.

A. ADEQUATE DISTRIBUTION OF SOLICITATION ANNOUNCEMENTS

PG&E relied upon e-mailing a large number of individuals on its RFO contact list as the primary means of announcing the opening of its 2014 renewable energy solicitation. The utility team has built its contact list over time, both proactively by adding potential participants for different RFOs and reactively by taking individuals’ requests to be added to the list. Figure 1 shows a breakdown by industry sector of the contact list employed by PG&E for this solicitation, which has nearly three thousand individual contacts.

![Composition of RFO contact list](image)
The largest segment represented on the list was composed of contacts active in the solar power sector. The second largest segment was comprised of vendors, including equipment vendors and design and engineering firms. In the 2014 RPS RFO, this grouping was augmented by including a number of vendors of energy storage hardware, software, and systems; these contacts may not necessarily be positioned to submit offers for renewable energy directly but could be part of teams developing new renewable generation with bundled storage. The third largest segment was made up of consulting firms, with specialties such as electric transmission, water and wastewater quality, public relations and lobbying, environmental permitting, solar resource assessment, composting, and carbon offset credit certification; most of these seemed ill-positioned to propose generation projects as principals, as opposed to advising clients that submit offers.

Developers or owners of wind generation followed in representation on the list. Other well-represented sectors included electric and water utilities; wholesale marketers, brokers, and traders of power, gas, renewable energy credits, and other commodities; developers and owners of fossil-fueled generation or fossil fuel producers; developers and operators of biomass-fueled generation; non-profit organizations including land trusts and environmental advocacy groups; government agencies; and individuals with no obvious direct connection to the renewable power industry, such as real estate agents, a dermatologist, a python breeder, and a pre-school. (Arroyo views the presence of less relevant contacts on PG&E’s outreach list as a side consequence of the utility’s efforts to be inclusive in building a contact list that accommodates individuals who requested to be added to RFO news distribution.)

Inspection of the contact list reveals that many of the major developers of renewable energy are included, particularly for solar and wind, as are many owners of existing California-based solar, wind, biomass, and geothermal projects.

PG&E did not issue a press release to announce the issuance of the 2014 RPS RFO. It was difficult to find news articles in the trade press announcing this year’s solicitation. Journalistic reportage of the release of the RFO appeared to be less broad than in prior years, when more articles about the solicitation were published in trade journals. Similarly, while in prior years news about the RFO was posted on the websites of some law firms for the edification of their clients, this year’s solicitation did not receive such attention. One citation about the 2014 RPS RFO was posted on the website of Microgrid Knowledge, a specialty news reporter. The detailed solicitation protocol and its attachments, the schedule, and other informational items were posted on PG&E’s public website.

Overall, Arroyo’s opinion is that notifications about PG&E’s 2014 RPS RFO were adequately distributed. It was disappointing that the solicitation no longer garners much notice in the trade press or other media, given the need to reach broad audiences. Potential new participants who are not included in the RFO e-mail contact list would appear to be unlikely to detect news of the solicitation. Arroyo believes that it would be better if the means of publicizing the RFO to the generation development community did not rely so heavily on a single e-mail blast but also incorporated more outreach through the trade press and trade organizations. All the Offers were submitted by companies or teams with individuals on the RFO e-mail contact list; perhaps there are other renewable energy developers active in California who would have participated had they been contacted.
B. CLARITY AND CONCISENESS OF SOLICITATION MATERIALS

PG&E’s 2014 RPS solicitation protocol is modestly sized for a document of its type (it totals 36 pages excluding attachments, vs. 31 pages for Edison’s 2014 RPS RFO protocol). The presentation to potential participants in PG&E’s outreach webinar was rather longer at 53 pages (vs. Edison’s 59-page bidders’ conference presentation), but it delved deeply into the nuts and bolts of how to enter data into the offer spreadsheet. Arroyo believes these materials are reasonably concise given the purposes they serve and given the inclusion of extensive legal disclosures the utility seems obligated to include for protection.

Arroyo’s opinion is that the contents of the protocol generally provided clear and comprehensible direction on how to prepare and submit complete Offer packages that could be accepted and evaluated, although there was at least one issue of diminished clarity.

- Many Offers were submitted as complete and conforming packages. This suggested that these participants understood and followed the guidance of the protocol and the outreach webinar presentation.

- There were RFO requirements or inputs for which several participants failed to follow the instructions provided in the protocol, which might suggest a future opportunity to improve the clarity of the guidance through editing. For example:
  - The solicitation protocol stated in two separate passages that PG&E was seeking offers for contract deliveries that begin in 2020 and onwards. The bidders’ webinar presentation stated as an eligibility requirement “Delivery Term to start on 1/1/2020 or later”.
    However, several participants submitted Offers for deliveries beginning prior to 2020. PG&E then requested that they conform their proposals to meet the requirement for a 2020 or later start date. (The original guidance may have been muddied by the question-and-answer session of the outreach webinar, in which PG&E acknowledged that it “might consider” offers for existing generators to terminate an existing contract and start a new one.)
  - In Decision 14-11-042 the CPUC ordered the utilities to require two offer variants for each proposal, distinguished by economic curtailment rights. PG&E implemented this in its protocol: for each proposal, it required one primary variant with unlimited hours of buyer curtailment, and stated that “Seller is also required to submit at least one other offer variation that caps the annual number of hours that PG&E may economically curtail”. PG&E’s bidders’ webinar presentation identified this requirement as a “key change” from its 2013 solicitation, and walked through the mechanics of how to fill out a primary variant “a” with unlimited buyer curtailment rights and a secondary variant “b” with a cap on economic curtailment hours. Nevertheless, several

5 An unrelated issue regarding the clarity of the solicitation protocol’s requirements for Offers for projects that will be repowered is discussed in the chapter on fairness of administration of the RFO.
participants failed to submit more than one curtailment variant by the first phase
due-date; PG&E had to request second variants for these Offers.

- In this solicitation, PG&E structured the offer form for renewable generation
  projects with bundled energy storage to accommodate both a “Contract Price”
in $/MWh paid for delivered energy when the project’s storage resource fails to
meet contract requirements (e.g. the battery fails) and an additional “Storage
Price” in $/MWh paid for all delivered energy when the storage resource meets
requirements. In other words, the Storage Price is a price adder that provides an
incentive for the operator to maintain the storage resource at acceptable
performance levels, and is paid for all delivered energy whether discharged from
storage or not. This differed from the structure of pricing requested by PG&E
in its 2013 RPS RFO, in which a “variable O&M charge” would apply as a price
adder only applicable to delivered energy that was discharged from storage.

The nature of the Storage Price input as a price adder applied to all delivered
energy was explained somewhat cryptically but accurately within the offer form
spreadsheet; a comment in the spreadsheet stated that “Storage Price reflects the
$/MWh charge for energy discharged from storage and the ERR facility”. It
was also explained albeit tersely within a footnote in the solicitation protocol:
“As long as storage is operating as agreed to in the PPA, PG&E will pay the
RPS-eligible product + Storage price for all delivered MWh”.

After opening and reviewing Offers, the PG&E team sent a clarifying e-mail
to participants who submitted proposals with storage to explain in greater
detail how the Contract Price and Storage Price were intended to be
structured. Some participants had correctly understood the Storage Price as
a price adder applied to all delivered energy, others apparently misconstrued
it as a full standalone price only for energy discharged from storage or as a
price adder applied only to energy discharged from storage.

The proportion of Offers that needed to be corrected for other deficiencies in the offer
packages was modest. This suggests that with the exception of the requirements regarding
contract start date, buyer curtailment variants, and the design of Storage Price as an adder,
PG&E’s solicitation materials and instructions were clear enough for most participants to
understand and follow.

In Arroyo’s opinion, the solicitation protocol was entirely clear in plain English in
specifying the requirements for a 2020 or later contract start date and for submitting at least
two offer variants regarding buyer curtailment hours. Arroyo believes that the number of
initial Offers that failed to meet one or the other requirement was caused by inattention on
the part of participants, rather than any vagueness or opacity of language with which PG&E
drafted its guidance, and by the novelty of the CPUC’s requirement for two variants. Arroyo
cannot really suggest specific edits to make it any more obvious that Offers must propose a
2020 or later contract start date. Given the apparent inattention of some participants,
PG&E might need to spell out with even greater emphasis and repetition the requirement to
submit a primary “a” and secondary “b” offer variant for buyer curtailment hours in the
protocol. For example, a redundant discussion of the required variants could be inserted in
the protocol’s section on “Offer Form Folder”.
Arroyo believes that the written materials provided a less than fully clear description of how Contract Price and Storage Price would apply to projects with bundled energy storage; PG&E appears to have recognized this in hindsight from the filled-in offer forms and took proactive steps to clarify its intent for the affected participants. In future solicitations this could be addressed with clarifying language within the Offer Pricing chapter of the protocol.

The 2014 solicitation protocol stated several of PG&E’s preferences among offers, for:

1. Projects considered bundled in-state resources, or out-of-state resources scheduled into a California balancing authority without substituting electricity from another source, or using a dynamic transfer agreement (“Category 1”), over out-of-state resources whose output is shaped and firmed using substitute electricity and scheduled into a CAISO interface point (“Category 2”);

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

3. Resources that can contribute to the utility’s Resource Adequacy (RA) requirement, i.e. a preference for deliveries from projects whose interconnections have Full Capacity Deliverability Status (FCDS) rather than energy-only status;

4. Offers with a delivery term of ten to fifteen years, as opposed to contract tenor longer than twenty years or shorter than ten;

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

6. Projects that offer more rather than less flexibility in scheduling generation, e.g. that provide for unlimited hours of buyer curtailment, which is represented by PG&E’s 2014 RPS Form PPA. Attachment K to the protocol stated the utility’s preference for curtailment at any time, e.g. up to 8,760 hours per year.

Based on the details of Offers received, Arroyo infers that most participants understood these preferences. For example, few participants proposed PPAs with a contract tenor less than ten years or greater than twenty; most offers were for projects with FCDS.

When the utility solicited feedback from non-shortlisted participants after closing the solicitation, the sense of the commentary about the clarity of RFO materials was positive overall. For example, one respondent stated that PG&E’s “instructions seemed pretty clear about what needed to be submitted”, though “more specificity could have been helpful” regarding resource-specific requirements of the form agreement. Another stated that PG&E’s “process is pretty clear for us – it works”.

Overall, Arroyo believes that PG&E’s solicitation materials were clear and concise. Both the protocol and the version of the offer form spreadsheet for projects with bundled energy storage deserve some minor improvements to clarify instructions for storage pricing.
PG&E held a bidders’ webinar for potential participants in the 2014 RPS RFO on January 7, 2015. This was a venue for the utility team to describe important features of the solicitation, such as:

- The volume target for this year’s RFO,
- Changes in guidelines, eligibility criteria, and data requirements from prior RFOs,
- The evaluation methodology, including new elements such as integration costs,
- A detailed tutorial on how to fill out offer forms and submit complete Offers.

The webinar was significantly less well attended than the comparable outreach events that PG&E held in its 2011, 2012, and 2013 RPS RFOs. Arroyo speculates that this might be affected by awareness in the developer community that PG&E has not filed advice letters with the CPUC for PPAs originating from its 2013 RPS RFO, and perhaps by the challenges that renewable energy developers face with the winding down of federal tax credit programs.

Figure 2 displays a breakdown of registrants for this RFO’s webinar. The most well represented sectors are developers of solar and wind generation, followed by various sectors that do not directly develop renewable generation such as hardware and services vendors, consultants, and engineering, procurement, and construction firms. Owners and developers of geothermal, hydroelectric, and biomass-fueled generation were also represented.

Of participants in the bidders’ webinar, only about 63% represented companies directly involved with developing or operating renewable energy generation, or marketing renewable energy credits, as opposed to consultants, vendors, attorneys, and other entities unlikely to participate directly in a renewable solicitation. About one-third of the attendees represented companies that later submitted Offers. It appears that most of the Offers submitted to PG&E were from companies that took the solicitation seriously and endeavored to understand how the RFO would be conducted by attending the webinar. More than three-fourths of conforming offers that were considered for the short list were from companies with at least one representative who registered for the conference.

PG&E posted on its website condensed versions of questions posed by webinar attendees along with PG&E’s answers. This enhanced the fairness of the RFO, ensuring that webinar attendees did not benefit from information not made available to competitors. There were few queries posed within the webinar session in this year’s RFO, and most of those focused on new features or changes in RFO eligibility. Arroyo attributes the paucity of questions posed to the fact that most Offers to this RFO were submitted by developers or owners who have participated previously in PG&E’s RPS solicitations, and to some participants’ desire to pose queries by e-mail rather than live in front of competitors.
While PG&E posted on its website all queries that arose in the webinar, for the benefit of participants that did not attend, it generally did not post questions submitted by e-mail and their answers. If PG&E had made some of the questions and answers available to all participants that could have provided a benefit to many by clarifying issues of a more general nature. Such general topics included PG&E’s role as scheduling coordinator, the omission of PG&E’s prior requirement for submitting a single-line drawing of the project, and how to document “application deemed complete” status of an existing generator. Arroyo would regard public posting of summaries of such e-mail discussions as best practice for a complex RFO of this nature. However, Arroyo does not believe that participants who were not provided the benefit of viewing these questions and answers were disadvantaged unfairly compared to those participants whose questions were answered privately by PG&E.

D. FEEDBACK FROM PARTICIPANTS ABOUT THE RFO

Following the selection of a short list, PG&E notified all RFO participants about whether their Offers were selected or rejected; the communications included an opportunity to speak further to the team. Several participants whose Offers were rejected expressed an interest in follow-up discussions. Arroyo directly observed of these sessions.

Feedback sessions were welcomed by Participants who requested them. They created an opportunity to obtain guidance about the ranking of their proposals and why Offers were rejected. Most Participants had positive commentary. Some compared PG&E’s handling of its RFO quite favorably to other IOUs, commenting on the greater clarity of PG&E’s
expression of its preferences regarding Offer attributes such as contract tenor, greater clarity of instructions about offer materials, and on the consistency of PG&E’s approach to its RFO requirements over time. At least one participant indicated that PG&E’s solicitation process is more streamlined than Edison’s; another opined that the burdensome volume of offer materials required for PG&E’s RFO was less than that for other IOUs’ solicitations.

Participants stated their appreciation for PG&E’s providing answers to questions early in the process and quickly upon request. One theme was the degree to which PG&E’s offer spreadsheet form has been improved from the past (for example, fewer errors with macros, greater ease of use) and compares favorably to other utilities’ in its flexibility and robustness. Few concerns about PG&E’s RFO were offered within the feedback discussions. One theme was the uncertainty that participants feel about the costs implied by specific requirements that PG&E’s various contractual or other obligations imply, such as real-time meteorological and energy output reporting, penalties for excess annual generation, and the utility’s requirement for output metering at the high-voltage side of the station transformer.

PG&E also circulated a survey to its RFO contact list, receiving 42 responses including both participants and non-participants. This group overall had a positive view of the RFO, with comments echoing the debriefings of participants whose proposals were rejected. There was a substantial minority of respondents with negative feedback, such as the complexity of the submission process, lack of clarity about evaluation criteria, issues with uploading documents to the on-line platform, the onerous nature of offer deposits, the hurdle of the permitting requirement, and challenges filling in the offer form.

Arroyo’s opinion is that PG&E’s efforts to give and receive feedback were adequate and helpful both to PG&E and to participants willing to take part in a debriefing session.

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E. ROBUSTNESS OF THE SOLICITATION

The response to the solicitation was robust; contracting with all Offers would provide . The volume of the response was stated as the volume goal for the solicitation. The volume of bundled energy Offers proposed, represented a decline of about 10% from the 2013 RPS solicitation’s response. Similarly, the total capacity of proposed projects was , or about 16% less than the response to the 2013 RPS RFO.

One would expect PG&E to be able to meet its volume goal for the solicitation from such a response: .

Arroyo speculates that the lower volume of Offers submitted to PG&E’s 2014 RPS RFO compared to the 2013 solicitation may have been influenced by market participants’
observation that the utility has not filed executed contracts from its 2013 solicitation, and by the expected end of federal tax credit programs for new renewable generation projects.

The technology that represented the largest share of offered volume was solar photovoltaic power, followed by wind generation, geothermal, biomass, solar thermal, and hydroelectric at No Offers for biogas-fueled, wave, or tidal power were submitted this year, or for unbundled renewable energy credits.

Arroyo’s opinion is that PG&E conducted adequate outreach to developers active in North America. The number of individuals contacted, attendance at the webinar, and the yield of Offers from conference attendees suggest that PG&E’s overall outreach effort was effective. Arroyo’s opinion is that the response to the solicitation was robust, and that PG&E’s short list should be sufficient for the utility to meet its volume goals for the RFO.

F. IMPERIAL VALLEY OFFERS

The CPUC has stated a public interest in obtaining a robust response to the IOUs’ RPS solicitations from developers in the Imperial Valley. In the 2009 RPS RFOs, the CPUC required that the utilities hold special Imperial Valley bidders’ conferences. This focus is “in order to provide all reasonable opportunities for optimal use of the Sunrise transmission project.” For the IOU’s 2014 RPS solicitations, the CPUC did not specifically require any remedial measures to bolster procurement from Imperial Valley projects but required continued monitoring of IOUs’ renewable procurement activities in the Imperial Valley area.

PG&E received Offers for output of Imperial Valley facilities. In this year’s solicitation the total capacity of Offers for Imperial Valley projects, totaled about of all capacity offered. The total average annual volume of Imperial Valley projects offered, This representation of proposals from Imperial Valley projects seems to be robust.

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7 Another Offer for a project in the Imperial Valley was withdrawn.
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 2014 RPS RFO was designed fairly, overall. Arroyo has some specific but narrow disagreements with details of the design of the utility’s approach.

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

A. PRINCIPLES FOR EVALUATING THE METHODOLOGY

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

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

Some additional considerations appear relevant to PG&E’s specific situation. Unlike some utilities, PG&E does not rely on weighted-average calculations of scores for evaluation criteria to arrive at a total aggregate score. Instead, the team ranks Offers by Portfolio-Adjusted Value (“PAV”). “After the calculation of PAV is complete, PG&E considers project viability, contribution to RPS goals, supplier diversity, and the other qualitative criteria.”8 PG&E ranks Offers by value but uses its commercial judgment to consider other attributes in making selections. This suggests a few other principles for assessing fairness:

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• The methodology should identify how non-valuation measures will be considered; all non-valuation criteria used in selecting Offers should be transparent to participants.

• The logic of how non-valuation criteria or preferences are used to reject higher-value Offers and select lower-value Offers should be applied consistently and without bias.

• The valuation methodology should be reasonably consistent with industry practices.

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

PG&E’s evaluation methodology for renewable energy RFOs has been revised over the years; its evolution has benefitted from input from IEs and the utility’s PRG, and from internal review. This section discusses the methodology in greater depth, and addresses a set of specific issues that are called out in the Energy Division’s 2014 template for IE reports.

1. CONSISTENCY WITH PROCUREMENT PLAN, PORTFOLIO FIT, PRODUCTS

Overall, PG&E’s evaluation and selection methodology is consistent with its 2014 RPS procurement plan. In Arroyo’s opinion, PG&E adequately incorporated the needs and preferences stated in its RPS procurement plan as approved by the CPUC into its approach.

• The publicly stated volume goal for the 2014 solicitation is consistent with that described in the plan, of procuring between zero and 1,600 GWh/year of incremental RPS-eligible deliveries through new long-term contracts.

• As ordered by the Decision approving PG&E’s 2014 RPS procurement plan, the protocol requires new projects to have a Phase II interconnection study or its equivalent. It goes further and specifies that the project must have remained active in the interconnection process (vs. previously obtained a Phase II study, then dropping out of the queue). The protocol gives specific guidance on what would be considered to be the “equivalent” of a Phase II study for projects interconnecting at the distribution level and for projects proposing to deliver from a repowered facility. As described below, PG&E rigorously applied the CPUC’s Phase II requirement where applicable but exercised flexibility on its own specific guidance for repowers.

• In its Decision approving the IOU’s 2014 RPS procurement plans, the CPUC ordered the IOUs to impose a new minimum requirement that projects have achieved an “application deemed complete” or equivalent status within the applicable CEQA or NEPA land use permitting process as ascertained by the lead agency. PG&E included this new eligibility requirement in its 2014 solicitation protocol and applied it in screening Offers for conformance to RFO requirements.

• The CPUC ordered the three IOUs to reduce the minimum eligible project size for RPS procurement plants to 500 kW. The solicitation protocol conformed to this requirement by stating a 0.5 MW minimum size.

• The CPUC authorized PG&E to rely on two sets of Time-of-Delivery (TOD) factors, one for energy-only deliveries, and one for projects with Full Capacity
Delivery Status (FCDS). The protocol identifies these two sets of TOD factors, and they were used in valuing Offers.

• The CPUC ordered PG&E to remove the prior assumption of 1,400 MW of maximum import capability to the CAISO from IID’s balancing authority area, allowing PG&E to update the assumption to the CAISO’s more recent estimates. This is not explicitly stated in PG&E’s public solicitation protocol, but the utility team’s analysis of valuations for this year’s RFO is consistent with that order.

• The CPUC authorized PG&E to alter its pro forma agreement for RPS purchases to incorporate a provision similar to one that Edison made in modifying its pro forma agreement for 2014. For Edison, the provision gives the buyer the right to review material changes to the generating project and to accept or reject them at buyer’s sole discretion. PG&E has incorporated an analogous but differently worded provision. PG&E’s pro forma now requires the project to comply with project specifications as laid out in an appendix to the contract, and requires the seller to obtain buyer’s prior written consent to make any change or modification to those project specifications.

• As ordered by the CPUC, PG&E’s 2014 RPS procurement plan now requires sellers to propose at least two offer variants that propose different amounts of economic buyer curtailments of project output. PG&E’s protocol required participants in the RFO to submit a primary offer variant that provides unlimited buyer curtailments (e.g. up to 8,760 hours per year) and at least one secondary offer variant that nominates a cap to the number of hours per year the utility can order curtailments. (The novelty of this requirement sowed confusion among some participants.)

• For the 2014 RPS procurement plan, the CPUC ordered PG&E to incorporate interim integration cost adders consistent with an approach described in the Decision that was originally recommended by PG&E. The utility team has detailed this calculation of compliant interim adders in its non-public protocol for market valuation, and applied these adders in its LCBF valuation for the 2014 RPS RFO.

In summary, PG&E’s methodology aligns closely with its 2014 RPS procurement plan, and is consistent with the plan’s stated needs and preferences. In particular, final versions of PG&E’s 2014 solicitation protocol and Form Agreement include various elements ordered or authorized by the CPUC in its Decision approving the 2014 RPS procurement plan.

The products requested in the RFO were consistent with those specified in PG&E’s RPS procurement plan, including Categories 1, 2, and 3 RPS deliveries. In the 2014 RPS RFO PG&E did not seek sites for new projects or offers for Purchase and Sales Agreements.

**Portfolio Fit.** PG&E does not use a stand-alone metric for portfolio fit. It takes into account its various preferences for attributes of portfolio fit through adjustments it applies when calculating Portfolio-Adjusted Value: adjustments based on project location, timing of contract deliveries vs. periods of RPS compliance needs, firmness vs. variability of energy delivery, and benefits of buyer curtailment options. In Arroyo’s opinion the methodology adequately takes into account characteristics related to PG&E’s portfolio fit preferences.
PG&E incorporated a few specific preferences into its methodology, consistent with its RPS procurement plan: for contract tenor of 10 to 15 years, for Category 1 over Category 2 deliveries, for projects sited within the PG&E’s territory, for more rather than fewer hours of buyer curtailment, and for projects with FCDS over those with energy-only deliveries. The calculation of PAV includes quantitative means to translate the latter three preferences into value differences; the first two preferences were qualitatively assessed.

2. MARKET VALUATION

PG&E’s market valuation approach has a number of general strengths including its consistency with industry practice, its rapid turnaround, its reliance on market price data rather than dispatch model outputs, its neutrality with respect to technologies (as opposed to project characteristics) and its relation to real option pricing. Its weaknesses are the same as other methods that rely on extrapolating market price beyond a time horizon when liquid, transparent market price signals for energy or capacity can be observed.

PG&E values the ratepayer benefits of energy storage bundled into proposals. The methodology for this is consistent with PG&E’s valuation of energy deliveries; storage value depends on inputs regarding the future hourly shape of CAISO market prices. While PG&E uses assumed hourly prices in other aspects of valuation, Arroyo views the energy storage valuation as more sensitive to hourly shaping than valuation of energy in general.

One strength of PG&E’s valuation methodology is that it reflects the impact of changing resource mix in California in the relative valuation of resources with different profiles; this is most clearly observed in the update to capacity valuation inputs, described below.

CONSISTENCY OF EVALUATION CRITERIA

Overall, PG&E calculated individual components of its market valuation methodology in a manner consistent with its protocol and with CPUC direction. PG&E employed two sets of time-of-delivery factors, one for energy-only contracts and one for FCDS projects, in calculating PPA revenues, as directed by the Decision approving the RPS procurement plan. Similarly, PG&E’s evaluation of the capacity benefit of projects whose output is imported to the CAISO from IID’s territory is consistent with updated CAISO guidance for maximum import capability. PG&E developed interim integration adders for different resources and used them in calculating market value, consistent with the approach ordered by the CPUC.

Arroyo cannot identify any components of costs or revenues that should not have been included in PG&E’s valuations of Offers. The analysis was, overall, consistent with what was communicated in the solicitation protocol. The next section describes a cost element that PG&E did not count, that in Arroyo’s opinion should have been included in valuation.

TRANSMISSION COSTS

PG&E’s methodology includes costs of transmission upgrades in its value calculations for all Offers involving projects that propose to interconnect directly to the CAISO. In its market valuation protocol, PG&E stated that it would “use both the reliability network upgrades and delivery network upgrades in the calculation” of a cost adder, relying on data from interconnection studies. The methodology weighs CAISO network upgrades against
the benefits of RA value in calculating net market value. PG&E used transmission experts to review transmission study results that served as inputs to the LCBF methodology.

However, PG&E’s methodology omits consideration of any network upgrade costs when the project proposes to interconnect outside the CAISO balancing authority area, in which case some or all of the network costs are ultimately borne by transmission customers of that other balancing authority area, such as the Imperial Irrigation District (IID) or the Western Area Power Administration (WAPA). In IID’s case California ratepayers end up bearing upgrade costs in their rates, but they happen to be businesses and households largely outside the CAISO grid, so these costs are not taken into account when PG&E estimates the Offer’s value. These network upgrade costs do not directly affect PG&E’s rates.9

Also, PG&E’s methodology does not count the costs to CAISO customers of network upgrades that will be required in San Diego Gas & Electric’s grid to accommodate increased imports from IID at the intertie that flow east-to-west towards SDG&E’s load centers. In the absence of a CAISO Phase II study or interconnection agreement with projects built within IID, this impact cannot be discerned. SDG&E formerly provided estimates of such costs in its Transmission Ranking Cost Reports, but these are no longer published.

This obscure detail of PG&E’s choice to count network upgrade costs for projects interconnecting within the CAISO, but not count them for projects outside the CAISO, is not explicitly stated in the RFO’s public protocol. The protocol states that transmission-related costs are part of PG&E’s market evaluation, and that “Transmission cost adders reflect the cost of incremental, refundable network upgrades borne by customers”. It does not specify that transmission adders reflect the cost of upgrades borne by CAISO customers but not those borne by non-CAISO customers. This wording of the protocol could be read to imply that a project’s incremental, refundable network upgrade costs borne by IID’s or other BAAs’ customers are counted as costs when valuing Offers, but that is not the case.

In its Decision approving PG&E’s 2012 RPS procurement plan, the CPUC stated that “the Commission agrees with PG&E that no preferences should be given to CAISO-interconnected projects or to projects otherwise interconnected.”10 By loading the valuation of CAISO-interconnected projects with network upgrade costs but ignoring analogous costs when valuing IID-interconnected projects, the methodology can systematically bias shortlist selection towards the latter. This appears to Arroyo to constitute a built-in preference.

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9 While new projects interconnecting to IID’s grid pay up front the out-of-pocket costs to build network upgrades, IID’s practice is to reimburse these projects later by issuing them transmission service credits that can be used to offset the tariff rate the project pays over time for transmitting energy from the project to an IID-CAISO intertie point. In effect, the foregone transmission service charges that the project would have paid IID absent these credits must be made up by rates paid by IID’s native customers or other transmission customers. Arroyo views this arrangement as imposing some or most of the cost of network upgrades onto IID ratepayers (the amount of reimbursed credits do not take into account any interest due on the upfront payments made by the new project).

In Arroyo’s opinion, PG&E’s calculation of net market value is not a neutral or unbiased metric for comparing CAISO- and non-CAISO-interconnected projects. This disparate treatment of CAISO vs. IID-interconnecting projects is the opposite of the concern previously expressed by stakeholders including IID, who feared IOUs’ unfair discrimination against IID-interconnected projects. As described below, this systematic bias played a role in PG&E’s selection of a short list. That being said, Arroyo is not aware of any specific direction from the CPUC that orders IOUs to take into account the costs of transmission network upgrades borne by non-CAISO ratepayers when valuing Offers, beyond the language agreeing that “no preferences should be given” in the 2012 Decision. Indeed, IID’s rates are outside the CPUC’s jurisdiction and it is not obvious how the IOUs’ treatment of IID network upgrade costs in offer evaluation would be regarded in CPUC policymaking. There is an opportunity for greater clarity in CPUC guidance on how IOUs should handle this obscure element of LCBF methodologies.

OTHER ELEMENTS OF MARKET VALUATION

Capacity valuation. PG&E has updated and revised its Portfolio-Adjusted Valuation methodology in its treatment of capacity value. The time series for capacity value for NP-15 resources is based on the short-run avoided cost of capacity (existing system resources) through . Using its assumptions for demand and supply growth, PG&E estimates the “balance year” when capacity needs to be added to the market to maintain reliability to be , so the capacity value is assumed to rise to the long-run cost of capacity (e.g. new entry price of a new gas-fired combustion turbine) by .

In contrast, the capacity value for SP-15 resources is set to short-run avoided cost of capacity. PG&E’s view is that the import constraint on Path 26 could in the future prevent the utility from fully using the Resource Adequacy benefits of contracted resources in SP-15, so that the benefit of that capacity should be discounted though this adjustment when calculating PAV. Additionally, when a project is interconnected outside the CAISO and must have its capacity benefits imported, PG&E must use import counting rights to obtain that RA benefit. So PG&E’s PAV methodology further discounts the capacity value of non-CAISO resources to account for the foregone value of import counting rights. Furthermore, PG&E now assigns zero capacity value to projects outside the CAISO that propose to deliver at intertie points where the small size of import rights renders it questionable whether PG&E can obtain sufficient import allocation to take full benefit of imported RA over a contract’s term, such as Edison’s Blythe and Control substations.

These updates to RA valuation would seem to reduce the attractiveness of projects in SP-15 compared to NP-15. However, other updates to PG&E’s methodology have reduced the contribution of capacity value to overall Offer valuation. PG&E has switched from using average Effective Load Carrying Capability (ELCC) to incremental ELCC factors as the basis for estimating the net qualifying capacity of intermittent generators. The outlook for hourly demand net of existing generation has been updated. These revisions led PG&E to reduce its ELCC factor from in the 2013 RPS RFO to in the 2014 RPS RFO for solar photovoltaic resources, and from for wind resources. With a smaller portion of Offer valuation attributable to capacity value, the impact of PAV adjustments to RA value for SP-15 vs. NP-15 has diminished. In other words, the quantitative impact of one of the elements of PG&E’s methodology that manifests the utility’s preference for
projects within its own service territory is smaller than formerly was the case. As ordered by the CPUC, PG&E developed two value rankings using ELCCs and an exceedance approach.

**Congestion cost.** PG&E’s valuation methodology includes an estimate of congestion cost based on the load zone where a project injects its output. The congestion cost factors are based on historical locational marginal prices. Curiously, in the 2013 and 2014 RFOs PG&E’s congestion cost multipliers for the SCE North load zone have turned sharply negative, as shown in Table 1 of Attachment K of the RFO protocol, where in prior years they were neutral to positive costs. In other words, the input assumptions imply that for the SCE North zone, “loads in the corresponding area are served by the constrained transmission line(s) and thus a new generation in the area may reduce congestion.” Arroyo believes that these input assumptions have enhanced the valuation of Offers for projects in the Mojave and Tehachapi Pass area compared to competing projects in other load zones.

**Curtailment.** PG&E evaluates the value impact of buyer curtailment options in two parts of its methodology. The calculation of net market value includes an estimate of curtailment value based on option pricing for the utility’s right to decline energy delivery in time periods when market price is so low that ratepayers are better off not taking delivery. Separately, when calculating PAV, PG&E attributes value to the curtailment option for avoiding the impact of CAISO imbalance charges, CAISO curtailment orders, and excess costs for ancillary services. The methodology applies a subtractor for offer variants with less than 8,760 hours/per year of buyer curtailment rights. This adjustment is based on PG&E’s estimates and is larger for resources such as solar projects, whose hourly delivery pattern correlates with periods with a greater expectation of overgeneration episodes. The two components of buyer curtailment value are applied separately; the PAV adjustment tends to have a greater impact than the option adder to net market value.

**Integration Cost Adder.** The CPUC Decision approving the IOUs’ 2014 RPS procurement plans ordered the utilities to incorporate an interim integration cost adder in the solicitations. PG&E’s methodology follows that directive, applying a variable cost component of $4/MWh for wind and $3/MWh for solar resources, and a fixed cost component that PG&E estimates for the incremental cost of procuring flexible capacity required to manage the offered resource’s output within the portfolio. PG&E estimates a greater contribution to maximum ramping needs for solar resources than for wind, so on average the project-specific integration cost adders are larger for solar offers than for wind. Baseload or dispatchable resources are assigned no integration cost adder, consistent with the CPUC Decision, though one might expect the addition of an inflexible and not fully reliable baseload resource to the CAISO to create some integration costs as well.

3. EVALUATION OF OFFERS’ PROJECT VIABILITY

PG&E’s solicitation protocol states that it “will evaluate the project viability of each offer” using the current version of the CPUC’s Project Viability Calculator, and that “PG&E will review all submissions and adjust self-scores as appropriate.” Similarly, the participants’ webinar presentation stated “All offers will be evaluated and scored” using the Calculator.

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PG&E’s interpretation of the process described in the protocol is to leave developers’ self-scores intact when other considerations, such as low value, cause the Offer to be rejected, and focus on scoring high-valued Offers. In the case of Offers that are considered for selection based on high PAV, PG&E conducts conformance checks of the developers’ self-scores; in this case, checking about one fifth of proposals including all shortlisted Offers. In Arroyo’s opinion it would have been better to review and adjust developers’ self-scores for all rejected Offers that ranked higher in valuation than the lowest-PAV shortlisted proposal, in order to ensure that PG&E’s logic for selection and rejection based on value and viability is applied consistently and fairly to all high-ranked but skipped Offers.

Based on reviewing self-scores, Arroyo believes that many developers applied the scoring guidelines reasonably, while a few grossly overstated the scores for their proposed projects by badly misapplying the guidelines and exaggerating or misrepresenting the attributes of their projects and experience. As a result, some of the self-scores not re-evaluated by PG&E are unreasonably measured. Arroyo scored all conforming Offers using the Project Viability Calculator, and discussed details of some of those evaluations with the PG&E team.

C. FUTURE LCBF METHODOLOGY IMPROVEMENTS

PG&E’s methodology has undergone repeated refinement, motivated both by internal choices within the utility and external impetus by the regulator. Incremental improvements have been made over time. Arroyo can only suggest a few modest possible improvements.

ENSURING FAIRNESS OF TREATMENT

As described above, PG&E applies a transmission cost adder for new projects interconnecting to the CAISO grid, but does not apply such an adder for new projects interconnecting to the grids of other balancing authority areas. In Arroyo’s opinion this results in disparate treatment of the two classes of sellers, resulting in an Offer selection process biased in favor of projects outside the CAISO. While it seems legitimate that PG&E would be less focused on grid costs that do not directly affect PG&E’s customers’ rates, in the case of projects interconnecting to IID’s grid some transmission costs are ultimately borne by California ratepayers who reside outside the CAISO’s boundaries.12 This approach does not optimize energy investment from the vantage of what is the least-cost solution for society overall, but rather from the more parochial perspective of what is best for PG&E’s ratepayers. Arroyo recommends that PG&E count these network upgrade costs in its valuation methodology in the interest of conducting a decision-making process that guides socially efficient investment overall. The current process steers capital toward investment in projects with higher total costs than would be optimal for society, which offer lower power costs only when non-CAISO network upgrade costs are ignored.

12 While developers whose projects interconnect to the IID grid may claim that they pay the entire cost of network upgrades up front, in Arroyo’s opinion this claim is inaccurate and misleading if the project subsequently benefits from IID’s refund of those payments in the form of transmission service credits later used to reduce the project’s operating costs. The net effect is for the project to pay less than the full cost of the upgrades and for IID ratepayers to bear the shortfall in rates when IID foregoes transmission service revenues by awarding transmission service credits to the project.
This issue also exists when evaluating new projects proposed to be interconnected to other balancing authority areas outside California. It is unclear to Arroyo how concerning it should be that part of the cost to deliver energy from a new project is ignored when PG&E’s ratepayers are being subsidized by Arizona or New Mexico customers, as opposed to by California residents within IID’s territory or California municipal utilities’ territories.13

IMPROVING VALUATION INPUTS

Arroyo recommends that PG&E use a discount rate based on the estimated cost of capital for power developers, not PG&E’s authorized cost of capital. Given the risks that face project development (permitting, site control, interconnection, procurement, financing, etc.) it seems more appropriate to discount future benefits and costs using a higher discount rate representative of the riskier independent power industry, rather than that of a regulated monopoly. Arroyo does not believe that development risks that affect the riskiness of cash flows to a project become lower simply because the project contracts with a utility.

IMPROVING VIABILITY SCORING

The regulator could improve utilities’ and IEs’ ability to use the Project Viability Calculator. The 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 (on the CPUC’s web site) is dated December 2009. Without transparent access to current 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 somewhat difficult to score transmission requirements accurately.

INCREASING GRANULARITY IN VALUING BUYER CURTAILMENT

PG&E’s current approach assigns one level of PAV adjustment for offers that provide X hours or less per year of buyer curtailment, a second level for Y hours or less per year, a third level for Z hours or less, etc. Arroyo suspects that these specific tiers of curtailment are a relic of prior solicitations in which PG&E’s pro forma RPS agreement required a minimum of W hours per year of buyer curtailment. In the 2014 RPS RFO, PG&E did not set a minimum number of hours of buyer curtailment. Offer variants were proposed with X hours per year. Arroyo expects the benefit of a buyer curtailment option for only X hours per year to differ materially from that with Z hours per year, but the current tiered approach treats the two versions the same. Arroyo recommends that PG&E consider specifying PAV adjustments for buyer curtailment at a higher level of granularity for proposals for less than W hours per year.

13 Another consideration is that PG&E’s ratepayers could later bear some of the costs of IID network upgrades. If IID increases transmission tariffs to make up for the foregone revenues lost by providing transmission service credits to today’s project, future projects on IID’s grid that sell to PG&E through future contracts may need to recover the higher-priced transmission service charges through higher PPA contract prices directly borne by PG&E ratepayers.
4. FAIRNESS OF ADMINISTERING 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 2014 RPS solicitation was conducted fairly. Arroyo’s opinion is that the process was, overall, conducted in a fair and generally consistent manner. Arroyo disagreed with one of PG&E’s choices for a couple of reasons.

A. PRINCIPLES USED TO DETERMINE FAIRNESS OF PROCESS

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

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

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

- Were the decisions to reject higher-valued Offers from the short list because of low scores in criteria or preferences other than market valuation applied consistently across all Offers? Were the selections of lower-valued Offers in preference to higher-valued ones based on their superior attributes in non-valuation criteria made consistently, or were high-valued Offers skipped over unfairly?

- If PG&E did not select the projects for the short list that provide the best overall value while meeting the needs of PG&E’s three compliance periods, what factors prevented those projects from being selected? Was their rejection based on considerations that were communicated transparently to participants in the solicitation protocol?
• Does the resulting short list conform to the needs of PG&E’s portfolio?

• Were the judgments used to create the short list based on evaluation criteria and preferences that were publicly disseminated 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 detailed inputs to its valuation model and with results throughout the evaluation process. Arroyo also had access to all offer packages and to correspondence between PG&E and participants, and was able to arrive at independent opinions about the strengths and weaknesses of individual Offers against the evaluation criteria.

The PG&E team discussed its logic for selection of the draft short list with the IE; Arroyo attended the steering committee meeting in which a proposal for the short list of Offers was reviewed, discussed, and approved. 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.

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 CPUC-approved Project Viability Calculator;

• Developing an independent point of view about which Offers merited selection;

• Comparing PG&E’s valuation ranking to the independent model’s ranking, identifying outliers (e.g. where the utility ranked an Offer much higher than the IE or vice versa), and determining whether variances were caused by different inputs and methodology or stemmed from errors by either PG&E or Arroyo;

• Comparing the question-and-answer information posted on PG&E’s public website to notes from the participants’ webinar session to ensure that answers were made available to all participants;

• Auditing communications between PG&E and participants to check whether any individual participant was advantaged over its competitors by requests posed or information provided;

• Reviewing in detail and discussing with the PG&E team its decisions to reject Offers for nonconformance with the requirements of the solicitation protocol;
• Reviewing PG&E’s decisions to reject Offers based on the utility’s stated preferences or low scores on non-value criteria; judging whether those rejections were fair;

• Assessing PG&E’s decisions to select Offers that were lower valued over higher-valued alternatives, based on superior scores 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 THE REQUIREMENTS OF THE SOLICITATION

PG&E performed a detailed review of offer packages to identify deficiencies that needed to be addressed and to assess which Offers had terms that deviated from RFO requirements. Most participants whose Offers were identified as deficient were able to submit the missing information. Two common deviations were failure to provide at least two offer variants that differed in buyer curtailment hours per year or to propose a contract start date of 2020 or later. In these cases the requirements were new for the 2014 RPS RFO and may have been overlooked by participants (in the 2013 RPS RFO the 2020-or-later GCOD was expressed as a preference, not a requirement). Also, PG&E found it necessary to clarify for participants offering energy storage what the definitions of “Contract Price” and “Storage Price” in the offer form worksheet were intended to be; the contract design for pricing deliveries from an RPS-eligible generator with bundled energy storage had changed from the 2013 RPS RFO.

PG&E chose to reject only a very few Offers for failure to conform to the requirements of the solicitation protocol:

1. **Permitting application deemed complete.** In its Decision approving the IOUs’ 2014 RPS procurement plans, the CPUC ordered that projects demonstrate that their applications for the land use entitlement process be “deemed complete” by the lead agency designated under the California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA). Projects offered to the RFO had not yet applied to the relevant lead permitting agency and were rejected by PG&E as not conforming to the requirements of the solicitation; Arroyo agreed with these decisions to reject.

2. **Phase II interconnection study or equivalent.** In its Decision to conditionally accept the IOU’s 2013 RPS procurement plans, the CPUC ordered PG&E to include a requirement in its 2013 solicitation protocol and all future RPS procurement plans that projects must have completed a CAISO “Phase II (or equivalent or exemption) study to bid into its 2013 RPS solicitation.”¹⁴ PG&E’s 2014 RPS solicitation protocol explicitly addressed this requirement. Projects that were offered had yet not obtained their facilities studies, the equivalent of a Phase II interconnection study, from the transmission owners to whose grid they intend to

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interconnect. PG&E rejected these offers as not conforming to the requirements of the RFO; Arroyo agreed.

The protocol further clarified that for “existing and repowered facilities, a completed CAISO repowering assessment and PTO interconnection facilities study is deemed as “equivalent” to the Phase II study within the CAISO territory.” In 2013 the CAISO issued a technical bulletin describing in detail under what circumstances an existing project that proposes to repower its generator(s) can obtain an interconnection agreement without having to undergo the full generator interconnection and deliverability allocation procedures (GIDAP), by demonstrating that “the total capability and electrical characteristics of the generating unit will be substantially unchanged.”

The technical bulletin essentially offers an exemption from the requirement of obtaining CAISO Phase I and II studies for projects whose proposed repowers meet specific criteria. These repower projects can submit an affidavit “representing that the total capability and/or electrical characteristics of the generating unit(s) will remain substantially unchanged” along with supporting information. The project may or may not still need to undergo an interconnection facilities study, so an affidavit confirming no substantial change does not necessarily exempt a project from any CAISO repowering assessment at all.

PG&E’s interpretation of the technical bulletin was that repowering projects that replace old wind turbines with new wind turbines of equal or lesser total capacity would likely be exempted from undergoing the full GIDAP studies. Arroyo agrees that the likelihood is quite high that old wind projects being repowered to the same or lesser capacity with modern wind turbines will be found by the CAISO or the relevant PTO to pose no substantial change to the project’s impact to the grid. On that basis PG&E decided to accept Offers that propose to repower existing wind generation projects even if they do not yet have a formal determination from the CAISO or PTO that the repowered projects will be substantially unchanged from the existing facility. Given that PG&E requires a contract start date of 2020 or later, it seems likely that wind project owners who intend to repower for a 2020 contract start date may not find it timely in 2015 to proceed with filing an affidavit for “substantially unchanged” capability and electrical characteristics. However, accepting the Offers for repowered wind projects lacking a CAISO repowering assessment contradicts the strict letter of PG&E’s solicitation protocol’s guidance.

TARDY OFFERS

PG&E set a deadline for the first round of Offer submissions of 1 p.m. PST on January 28, 2015. Three offer forms were submitted that afternoon between 1 and 2 p.m.; the participant, reported to PG&E just before the deadline that it was

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17 The issue of whether it was fair to competing participants for PG&E to accept these Offers for evaluation was rendered moot.
experiencing technical issues uploading its documents to the PowerAdvocate web-based platform. PG&E chose to err on the side of inclusivity and accepted the tardy submittals.

Another participant, [masked], submitted Offers for [redacted] projects in time for the first-round deadline; however, it subsequently submitted revised offer forms before the second-round deadline. These revisions substantially increased offer pricing from the original submittals. PG&E queried the developer about its tardy revisions that worsened pricing after the deadline for submitting offer forms, but the team evaluated the proposals at the higher prices. The issue of whether it was fair to competing participants for PG&E to accept late submittals from [masked] for evaluation was rendered moot when none of these Offers were selected for PG&E’s short list.

**FIXED VS. FLOATING PRICING**

PG&E accepted an offer variant as conforming to RFO requirements that could have been deemed ineligible because it proposed indexed pricing, not a fixed-price schedule. The participants’ webinar presentation explicitly stated “Prices should be fixed” and “Indexed prices not accepted”. However, the selection of [masked] was based on valuing an offer variant priced as a market index plus an adder. While this clearly contradicts the guidance provided in the webinar presentation, the solicitation protocol itself is silent on whether or not indexed-price proposals are eligible; the webinar presentation clearly states that RFO materials govern the requirements if there are inconsistencies between, say, the presentation and the solicitation protocol. Because the solicitation protocol does not address indexed pricing, Arroyo does not consider the shortlisted [masked] to be ineligible, though others could contest this selection. In future RFOs it would be better if PG&E addressed eligibility of index-priced Offers explicitly in the solicitation protocol.

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

Nearly all parameters and inputs that PG&E used in its evaluation of the 2014 RPS RFO Offers were reasonably and fairly chosen, in Arroyo’s opinion. This includes assumptions for market pricing of energy, system RA capacity, flexible capacity, for the value of buyer curtailment options, for the impact of debt equivalence, and for numerous other inputs.

Arroyo continues to have a concern that PG&E’s use of its own approved cost of capital as the discount rate for valuing cash flows of independent power plants likely understates the riskiness of those cash flows and places excess weight on pricing in later contract years.

Arroyo disagreed with assuming zero as the input for network upgrade costs for projects interconnecting to the Imperial Irrigation District grid, as described previously. This choice of input appears to contradict the description of PG&E’s methodology in the public solicitation protocol of basing transmission adders on interconnection studies’ estimates of “the cost of incremental, refundable network upgrades borne by customers”. The IID interconnection studies associated with these projects provide estimates of refundable network upgrade costs that ultimately are borne in part by IID customers. Arroyo’s opinion is that this input assumption of zero cost causes an unreasonable bias or preference towards selection of IID-interconnecting projects over competing CAISO-interconnecting projects.
PG&E has a variety of internal controls in place to ensure that its selection of inputs and parameters are reasonable and fair. The Energy Supply organization relies on a separate and independent risk management function for oversight of power market assumptions used in valuation, and on a corporate financial function for oversight on financial assumptions. The choice of parameters is described in internal non-public protocols. Some of the inputs are based on estimates made by the CEC and CPUC. Additionally, Arroyo had the opportunity to review the inputs to the valuation model in detail and to raise specific questions about or objections to inputs with the PG&E team as appropriate.

E. THIRD-PARTY ANALYSIS

In its 2014 RPS RFO, PG&E engaged the services of an external transmission expert with Flynn Resource Consultants Inc. to review submitted interconnection studies and interconnection agreements, to estimate appropriate transmission adders for use in the market valuation process, to assign projects to local areas for estimating congestion and loss factors, and to score projects on the interconnection progress and transmission upgrade elements of the Project Viability Calculator. Both PG&E’s evaluation team and the Arroyo spot-checked this outsourced content for quality control; no issues were identified.

F. TRANSMISSION COST ADDERS AND INTEGRATION COSTS

PG&E closely followed its public and non-public protocols in administering its procedures for CAISO-based transmission adders. The team relied on data from Phase II interconnection studies or interconnection agreements to estimate the cost of network upgrades for new projects interconnecting to the CAISO grid. PG&E no longer uses Transmission Ranking Cost Reports as the basis for adders.

In Arroyo’s opinion, transmission cost adders should be calculated and applied when valuing projects that interconnect within California outside the CAISO’s balancing authority area. Arroyo considers the valuations of these PPAs to understate the full cost to society of power from the projects, and the evaluation methodology to be less than fully fair to competing projects that interconnect to the CAISO grid. PG&E ignored network upgrade costs that are borne by ratepayers of other balancing authority areas and that do not directly affect the rates of PG&E customers when calculating the costs of new projects.

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

With this narrow exception, Arroyo’s opinion is that PG&E properly assessed and applied transmission adders to Offers. PG&E developed and applied integration cost adders
to Offers for intermittent energy delivery, using an interim methodology that was consistent with the CPUC’s Decision approving the 2014 RPS procurement plans.

G. AFFILIATE PROPOSALS AND BUYOUT OR TURNEKEY OFFERS

In its 2014 RPS RFO, PG&E did not solicit Offers for utility buy-outs of new projects or for turnkey construction of projects to transfer to utility ownership, focusing instead on seeking Offers for Power Purchase Agreements or for unbundled RECs. No affiliates of PG&E submitted Offers so the issue of conflicts of interest in selecting proposals from affiliates did not arise.

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

PG&E’s overall approach to creating a short list was to rank PPA Offers for delivery of bundled energy by Portfolio-Adjusted Value and to select highest-valued Offers. However, the choice of specific Offers for the short list was also strongly influenced by PG&E invoking the resource diversity evaluation criterion.

1. RESOURCE DIVERSITY

New in the 2014 RPS RFO, PG&E included resource diversity as a qualitative criterion for evaluating and selecting Offers. Resource diversity was included among the criteria that the CPUC identified as a potential benefit associated with renewable resources, to be treated as a qualitative attribute, in Decision 04-07-029.

In order to increase the resource diversity of its short list, PG&E first selected high-PAV Offers for , then skipped over more than other ranked next highest in PAV before next selecting . In other words, rather than selecting a short list composed solely of the highest-PAV Offers, which would have resulted in a non-diverse short list, PG&E chose instead to select a more diverse short list (diverse in technology, diverse in intermittent vs. baseload resources, diverse in offering energy storage vs. not) with a slightly lower average value. This is consistent with PG&E setting priorities so that resource diversity was almost as important as market valuation among criteria.

2. PROJECT VIABILITY

Overall, PG&E followed the methodology stated in its 2014 RPS solicitation protocol:

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

The PG&E team used the Project Viability Calculator to rescore projects considered for selection. PG&E left self-scores intact for low-PAV Offers rejected based on value. PG&E’s approach of not scoring the viability of each and every Offer did
not affect selection of a short list. All the shortlisted Offers were scored by the team.\textsuperscript{18} Arroyo agrees that the task of scoring every Offer variant is tedious and burdensome, and that scoring the lowest-valued proposals for viability does not contribute much to the selection process.\textsuperscript{19} PG&E performed data conformance checks on Offer variants it scored, including using outside data sources to confirm the accuracy of the scores.

Similarly, PG&E rejected the third highest-PAV proposal, 

similar to the utility largely because of the low viability of a proposed project, despite ranking high for Portfolio-Adjusted Value. Notably, 

\textsuperscript{18} Arroyo independently scored at least one variant of each conforming Offer, in order to rank projects on project viability when later reporting on the merit of specific executed PPAs for CPUC approval, as prescribed by the Energy Division’s template for IE reports. 

\textsuperscript{19} PG&E shortlisted a somewhat similar Offer for a proposed facility, 

On that basis, Arroyo believes that it was fair for PG&E to select \underline{\textit{ Offer variant }} based on considerations of project viability and counterparty concentration.
3. RPS GOALS

Appendix K to the solicitation protocol named three components of the RPS Goals: adherence to legislative/regulatory direction, consistency with the CPUC’s Water Action Plan, and support for Executive Order S-06-06 regarding biomass-fueled generation.

PG&E’s evaluation team scored for consistency with RPS goals, focusing on projects considered for shortlisting. With one exception, shortlisted Offers were deemed to be consistent with RPS goals, receiving either a zero or plus score. The exception was , which was scored at -1. PG&E’s environmental team noted that this proposed facility, PG&E selected for the short list while acknowledging this low score for RPS goals, placing greater weight on the high valuation and high project viability score it assigned to the Offer.

4. ENERGY STORAGE

The 2014 solicitation protocol encouraged submittal of RPS Offers with energy storage. PG&E took into account its valuation of proposed energy storage components when calculating PAV. When deciding which Offers to select for the short list, the team took note of which proposals included variants with energy storage.
5. 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 Diverse Business Enterprises (“DBE”) such as Women-, Minority- and Service Disabled Veteran-owned Business Enterprises (“WMDVBE”) and Lesbian, Gay, Bisexual, and Transgender-owned Business Enterprises (“LGBT”) 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 supplier diversity goal of reaching greater than 30% of all procurement with DBEs. The Supplier Diversity evaluation will take into account the participant’s status as a DBE, intent to subcontract with DBEs, and the Participant’s own Supplier Diversity Program.”21

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

Among developers submitting to the 2014 RPS RFO, All of these Offers were rejected by PG&E because of low valuation or low project viability; the supplier diversity criterion did not play a role as a “tie-breaker” in selection.

6. CREDIT

All of the shortlisted Offers, with one exception, proposed levels of collateral that were consistent with PG&E’s standard requirements stated in its solicitation protocol. In the case of

PG&E chose to select despite these shortcomings in the collateral which if incorporated into an executed contract would constitute disparate, possibly unfair treatment compared to that accorded other participants who met standard collateral requirements in their Offers. Arroyo would hope that improving will be a subject for the parties’ negotiations.

7. COUNTERPARTY CONCENTRATION AND PROJECT SIZE

The rather large volume offered for compared to PG&E’s target for its short list played a role in the decision to reject the proposal. While PG&E made public its volume target for procurement from this RFO (a range) it did not make public its target for the total volume of the short list. The solicitation protocol stated that PG&E could use “project size” as a qualitative factor in evaluating Offers, without indicating a preference for smaller project over larger. Greater transparency in RFO materials might make it clearer to participants that submitting proposals for relatively enormous delivery volumes is one way to disadvantage their Offers.

8. OTHER EVALUATION CRITERIA AND PREFERENCES

Other criteria stated in the protocol did not play a significant role in Offer selection.

**Contract tenor.** While PG&E stated a preference for contracts with a delivery term of 10 to 15 years, shortlisted Offers were for PPAs with 20-year terms, the exception being that proposed a 10-year term.

In 2013 the CPUC ordered PG&E to remove its adjustment for contract term length that was previously applied in calculating PAV. In the absence of a quantitative adjustment, PG&E’s valuation methodology tends to assign a higher value to contracts offering longer terms, all else being equal. This tendency was apparently not counteracted by PG&E applying the now-qualitative preference for contracts of fifteen years or less.

**Modifications.** PG&E appears not to have discarded any Offers based on participants’ proposals to modify contract terms materially from the utility’s pro forma agreement. For example, Arroyo would consider to be a material modification to the pro forma, yet the Offer was shortlisted.

**Safety.** While PG&E has enhanced safety-related elements of its RPS form agreement, Arroyo cannot identify how safety, as a qualitative evaluation factor, has entered into the utility’s short list decisions. There is no obvious point in the evaluation and selection process at which a participant strengthened or weakened its proposal’s attractiveness based on safety considerations. One example could be if PG&E were to discount Offers for which the developer has proposed to weaken pro forma contract language regarding safety standards. This does not appear to have played any role in short list selection.

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22 For example, a Participant with an out-of-state project could demand in its mark-up of the pro forma agreement that the requirement to abide by the CPUC’s General Order 167 regarding maintenance and operating standards be struck.
Past commercial experiences. The solicitation protocol lists past commercial experiences with a counterparty as a potential qualitative evaluation criterion. PG&E does not appear to have allowed prior experience with specific counterparties affect its offer selection. For example, PG&E shortlisted a project proposed by Arroyo cannot identify any situations in which past experiences, good or bad, have affected PG&E’s decisions.

Figure 3.

Project location. While PG&E stated a preference for resources sited within its service territory, PG&E has also shortlisted an Offer from. It appears that the economics of low price and low (or assumed zero) transmission adders has outweighed both the qualitative preference for NP-15 projects and the quantitative adjustments applied to discount the value of SP-15 projects when calculating Portfolio-Adjusted Value. Figure 3 displays the distribution of where offered projects were located or proposed to deliver.

Resource Adequacy. PG&E stated a preference for resources that contribute to its RA requirement. However, were both offered as energy-only resources. These projects’ ability to avoid network upgrade costs by outweigh their inability to deliver RA benefits in PG&E’s methodology. This may be attributed in part to the much reduced ELCC factor attributed to solar photovoltaic resources in PG&E’s 2014 input parameters, which assigns less credit for RA benefits to these projects than in prior years’ solicitations.
Flexibility. PG&E stated a preference for resources that provide flexibility in scheduling, assigning greater value to contracts allowing more hours per year of buyer curtailment. Most offer variants that were shortlisted were “primary” variants for which the participant proposed 8,760 hours per year of buyer curtailment options. The exception was

Portfolio Content Category. PG&E stated a preference for Category 1 over Category 2 RPS deliveries. While this RFO was open to Category 1, 2, or 3 proposals, only Category 1 Offers were submitted.

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 a few aspects of how PG&E applied its methodology:

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

Arroyo acknowledges that PG&E’s logic is consistent with the utility’s sole focus on direct costs to PG&E ratepayers, because the deliveries from IID-based projects to PG&E customers would be subsidized by IID ratepayers. Arroyo’s concern is that it seems less than fully fair for a methodology to so strongly favor one class of projects (new IID-interconnecting generators) over another (new CAISO-interconnecting generators) and it seems undesirable from a public policy standpoint to select projects that are not the least-cost alternatives when all costs to society, including costs borne by IID customers in California, are considered.
• **Offers Ranked Low for Project Viability.** Arroyo ranked in the bottom quartile among all Offers ranked for project viability, using the Project Viability Calculator. On that basis Arroyo would not have made such a selection for the short list. However, Arroyo also acknowledges that PG&E is applying its business judgment to make a tradeoff between project viability and other attributes, and in general IOUs are given considerable latitude by their regulator to exercise their discretion on issues such as where to make tradeoffs about value and viability.

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Figure 4 displays a histogram of the independent scores Arroyo assigned to the projects offered in the RFO and to the shortlisted Offers. Among shortlisted proposals,
2. INDEPENDENT OFFER ANALYSES

Arroyo conducted its own rather simplified valuation analysis. These valuations correlated with PG&E’s Net Market Value analysis, but with a fair amount of noise in the comparison. PG&E applies a number of adjustments to arrive at Portfolio-Adjusted Value calculations for each offer variant that form the basis for selection; Arroyo does not employ analogous adjustments. Arroyo also performed an independent review of project viability.

Overall, if Arroyo had used its valuation and viability scores to select a list, more Offers for solar generation would have been selected; this reflects the impact that PG&E’s current inputs for ELCC factor have on the comparative valuation of solar vs. wind generation.

Projects that Arroyo scored below median for project viability would have been rejected. This reflects PG&E’s preference for more resource diversity in its short list, its greater willingness to select lower-viability proposals than Arroyo would have considered desirable, the impact on PG&E’s valuations of not counting network upgrade costs for projects outside the CAISO, and the major changes PG&E has made to its ELCC factors to reflect its view of future market patterns.

3. RECTIFYING DEFICIENCIES OF REJECTED OFFERS

PG&E communicated early about offer deficiencies and provided participants opportunities to correct. No Offer was rejected after corrections, such as adding a second
offer variant with a buyer curtailment hour/year cap, or switching to a contract start date of 2020 or later as required by the protocol. Others had minor errors or inconsistencies in offer information. In a few cases deficiencies were clearly beyond remedy: projects that have not obtained a Phase II interconnection study (or equivalent) or have not applied for a required use permit from the lead agency, both of which were ordered by the CPUC as requirements. In the case of these Offers rejected for non-compliance with CPUC-ordered RFO requirements, Arroyo believes that little could have been done to help participants rectify deficiencies in time for this solicitation; the proposals were submitted prematurely.

4. OVERALL FAIRNESS OF ADMINISTRATION

Arroyo’s opinion is that nearly all of PG&E’s decisions to select or reject Offers to arrive at a short list were fair and reasonable. Arroyo believes that in most decisions, PG&E’s preferences and its choices were within the realm of “reasonable business judgment” that the CPUC allows IOUs to exercise in energy procurement.

The only decision PG&E made that Arroyo considered less than fully fair was to select based on a valuation that did not consider the substantial cost to IID ratepayers of network upgrades, while rejecting Offers from projects interconnecting in the CAISO that ranked lower in value because they were burdened with transmission cost adders. If one narrowly considers solely the cost impact to PG&E ratepayers of new projects, then this selection seems fairer, as IID’s customers will in essence subsidize PG&E customers’ rates by paying for the various conductor, capacitor, transformer, and telemetry upgrades required to accommodate that project’s impact upon the IID grid.

Also, Arroyo considers the selection of as likely to be unreasonable in viability risks it poses, based on its low-ranking project viability associated with inadequacies in However, one could tolerate the selection of a project proposed by

J. IMPERIAL VALLEY OFFERS

PG&E applied the same approach to evaluate Offers for projects sited in the Imperial Valley as it did others, other than not applying transmission adders to IID-interconnecting projects. Projects in the Imperial Valley comprise Overall, the response of developers to propose Imperial Valley projects was robust and PG&E’s selection of Imperial Valley Offers was representative of that response. Arroyo perceives no evidence that PG&E failed in any way to perform outreach to developers active in the Imperial Valley or that there was any structural impediment in the RFO process that hindered the selection of competitively priced Offers for projects in the Imperial Valley.
5. MERIT FOR CPUC APPROVAL

This chapter discusses whether PG&E’s proposed short list merits CPUC approval.

A. FAIRNESS, CONSISTENCY WITH CPUC DECISIONS AND APPROVED METHODOLOGY

Arroyo’s opinion is that PG&E’s conduct of its 2014 RPS solicitation was, overall, conducted in a manner that was fair to ratepayers and competing developers and consistent with Commission decisions and with PG&E’s approved LCBF methodology. Most shortlisted Offers rank high in value and moderate or high in viability; nearly all of PG&E’s evaluation and selection decisions closely followed its approved methodology. In Arroyo’s opinion there was only one specific issue regarding fairness and consistency worth identifying.

Arroyo’s opinion is that ignoring network upgrade costs when valuing projects interconnecting with the grids of non-CAISO balancing authority areas is less than fully fair to projects interconnecting within the CAISO. Arroyo doubts that [redacted], which benefited vs. its CAISO-interconnecting competitors from not having its network upgrade costs counted in PG&E’s valuation, merits selection given the substantial impact such costs should have on its competitiveness. The treatment of IID-interconnected projects in PG&E’s valuation is not consistent with that of CAISO-interconnected projects, and Arroyo considers PG&E’s methodology to be less than fully fair to the latter. The CPUC approved PG&E’s final 2014 RPS solicitation protocol, which stated that PG&E would consider the refundable portion of reliability network upgrades in its market evaluation, without distinguishing between CAISO and non-CAISO network upgrade costs. Also, Arroyo preliminarily scores the project as low in project viability. [redacted] the situation poses greater risks of development failure than Arroyo would consider appropriate for PG&E’s short list.

B. BEST OVERALL VALUE

Because PG&E’s initial screening of Offers focused primarily on their ranking in Portfolio-Adjusted Value, the final short list is mostly composed of high-valued Offers that in aggregate can provide attractive value to ratepayers. The total value of the short list would have been even higher if PG&E had not rejected some Offers based on its preferences or concerns about resource diversity. [redacted] Arroyo’s opinion is that PG&E’s choices to reject high-valued Offers and to select instead lower-value Offers of
different technologies were justified by the use of the resource diversity criterion, an element of the approved LCBF methodology newly added for the 2014 solicitation.

C. CONFORMANCE TO PORTFOLIO NEEDS, RPS REQUIREMENTS, RPS PLAN, AND PROTOCOL

Overall, the short list conforms well to PG&E’s RPS compliance needs in the timing of deliveries in periods when the utility’s portfolio is expected to be short of RPS deliveries. Negotiating PPAs with some of the selected Offers should advance the utility towards meeting its RPS compliance goals in the mid to late 2020s.

It is less clear whether the short list fits well with PG&E’s supply portfolio in more traditional measures such as contributing to filling net energy needs in time of day or season. Much of the short list is made up of new solar and wind projects that might contribute in the long term to heavier reliance on intermittent resources that could raise integration costs and to greater needs for ramping resources in spring and summer afternoons. Only a modest portion of the short list would provide firm generation and none of the shortlisted Offers are for dispatchable contracts, though all provide some degree of buyer curtailment option. However, PG&E’s evaluation takes into account integration costs based on a CPUC-approved interim approach, and these intermittent resources score high for value even when including such costs.

The short list, overall, conforms well to PG&E’s 2014 RPS procurement plan and protocol. With a total volume of捆绑能量提案的总和 of bundled energy proposals shortlisted, the utility should be able to negotiate and execute the goal of zero to 1,600 GWh/year of new long-term contracts. The shortlisted Offers are for Category 1 deliveries, identified as preferred products in the plan. The shortlisted Offers are either existing, generating resources or have obtained the equivalent of Phase II interconnection studies, and have all achieved application-deemed-complete status for land-use permitting.

Arroyo does not view the moderate-value as having attributes cited in the procurement plan such as viability, qualifications, or any other publicly stated evaluation criteria that would justify its selection, other than adding to the resource diversity of the short list. On that basis, the selection of does not appear to Arroyo to be consistent with the text of PG&E’s 2014 RPS procurement plan and protocol. The written protocol does not distinguish between network upgrade costs in the CAISO vs. outside the CAISO and seems to imply that network upgrade costs will be counted for all Offers, but PG&E’s actual evaluation distinguishes between transmission costs borne by CAISO customers and non-CAISO customers in a way that is not specified in the protocol.

24 PG&E rescored
Arroyo’s opinion is that PG&E’s short list, with one exception, merits CPUC approval. PG&E selected high-PAV and moderate-PAV Offers. To the extent PG&E selected Offers ranking moderate rather than high in value, the utility can justify its choices based on its desire to increase the resource diversity of its portfolio and on either moderate or high rankings for viability. Arroyo views the selection of as unjustified. However, Arroyo would characterize the merits of this proposal as subject to differences of opinion between the IE and the utility about how much development risk one should tolerate when selecting a short list and about whether the full costs of a project interconnecting outside the CAISO should be considered when valuing proposals or whether an IOU can properly ignore transmission costs borne by non-CAISO ratepayers. While Arroyo believes that PG&E’s methodology assigns an unreasonable preference to projects interconnecting outside the CAISO, PG&E’s decision to select a low-viability Offer over higher-viability Offers that it valued lower (because it loaded those Offers with CAISO interconnection costs in its valuation) is within the range of subjective business judgment that Arroyo believes utilities are allowed.
6. DETAILS ON THE SHORT LIST

Figures 5 and 6 display the breakdown of total Offers and shortlisted Offers by renewable technology.

Figure 5.

Offered contract volume by technology

Figure 6.
Table 1 summarizes PG&E’s short list.
Table 1. PG&E’s proposed short list

26 Based on PG&E forward curve used in LCBF valuation
27 After the offer due-date, communicated that the Offer for should be treated as having Full Capacity Deliverability Status instead of its original submittal as providing energy-only deliveries; however, as of the drafting of this report the developer had not repriced the Offer to reflect the difference in PG&E’s TOD factors between energy-only and FCDS contracts.
Section 3
Least-Cost Best-Fit Report
PUBLIC

May 7, 2015
Section 3: Least-Cost Best-Fit Report

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

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

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

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

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

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

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

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

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

On February 10, 2015, the CPUC’s Energy Division provided PG&E the templates for use in preparing this Advice Letter.

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

The goal of the 2014 RPS Solicitation bid evaluation and selection criteria and processes is to produce a shortlist of viable, competitively priced offers for negotiations which will ultimately result in renewable energy procurement of up to 1,600 gigawatt hours (“GWh”) of PG&E’s load.

1. **Provide the procurement target for this solicitation (e.g. 1,500 GWh)**

   The procurement target for this solicitation is between zero and 1,600 GWh.

2. **Describe how the target 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.); RPS portfolio risk, supply, and need; total energy portfolio needs; other utility requirements; and optimization strategy to meet IOU’s overall need stated in its RPS Procurement Plan.**

   PG&E’s procurement target for this RFO was to procure between zero and 1,600 GWh per year of RPS-eligible deliveries through long term contracts providing compliance value in 2020 and beyond. This goal was additional and incremental to any volumes PG&E has procured or intends to procure through existing mandated programs such as the Renewable Auction Mechanism (“RAM”) program, Renewable Market Adjusting Tariff (“RemAT”) programs, the Qualifying Facility (“QF”) program, and PG&E’s Photovoltaic (“PV”) program.
To determine its “need” from the 2014 RPS Solicitation, PG&E employed both a deterministic approach consistent with the Energy Division Staff methodology for calculating the renewable net short (“RNS”) as well as an “Alternate” stochastic approach, that enables PG&E to develop a forecast of RPS-eligible deliveries that risk-adjusts for potential project failures or delays, generation variability, and load forecast variability (for more details on the RNS and PG&E’s risk-adjustment methodology, see Chapter 6 of PG&E’s 2014 Renewable Energy Procurement Plan). Additionally, the Alternate approach to calculating the RNS utilizes PG&E’s internal long-term bundled retail sales forecast. The results from the Energy Division methodology’s RNS Table are provided in Appendix C-1 of PG&E’s 2014 Renewable Energy Procurement Plan. The results from PG&E’s stochastic, Alternate RNS are provided in Appendix C-2. PG&E uses the Alternate RNS to determine its procurement need.

3. Explain any assumptions made regarding expiring projects, projects under contract but not online, and distributed generation programs (e.g. RAM, SB 1122, solar PV program, etc.).

Given that the 2014 RPS RFO “need” is based on the results of the RNS calculations provided in PG&E’s 2014 Renewable Energy Procurement Plan, all project and portfolio assumptions are consistent with PG&E’s RNS modeling assumptions from Appendix G and Chapter 6 of PG&E’s 2014 Renewable Energy Procurement Plan. The assumptions that pertain to expiring contracts, projects under contract but not online and distributed generation programs are summarized in the following table.

TABLE 1: Modeling assumptions for expiring contracts, projects under contract but not online, and DG programs

| Assumptions                | For the following reasons this risk-adjusted forecast does not assume that expiring volumes are retained:
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Expiring Contract (Re-contracting) Assumptions | 1. PG&E does not yet have contractual commitments for these expiring volumes;  
  2. A number of the expiring contracts are with aging generating facilities with limited remaining useful life; |

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2. Ibid, Appendices C.1 and C.2.
3. Ibid., Appendix G and Chapter 6.
3. Contract-renewal bids may not be competitive with offers for new projects received in the current or future solicitations; and
4. Assuming re-contracted volumes obscures PG&E’s current real need for additional energy in later years.

- Re-contracting is not precluded by this assumption, but rather it reflects that re-contracting will be considered in the future side-by-side with procurement of other new resources.
- This forecasting methodology (i.e. not assuming any re-contracting) is consistent with PG&E’s Annual RPS compliance filing that only shows PG&E’s current contractual commitments.

<table>
<thead>
<tr>
<th>Project Failure and Generation Variability Assumptions (for projects under contract but not online)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Under development projects with high likelihood of failure are labeled “OFF” (0% deliveries assumption).</td>
</tr>
<tr>
<td>• All other Under Development projects are “ON,” that is, they are assumed to deliver 100% of forecasted volumes. Please see the Solicitation Overview Section, page 7 for a detailed listing of the generation variability assumptions built into the stochastic model.</td>
</tr>
<tr>
<td>• Deliveries commence within the allowed delay provisions in the contract.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Future Volumes from Pre-Approved Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed-in Tariffs</td>
</tr>
<tr>
<td>E-SRG, E-PWF (AB 1969 FIT)</td>
</tr>
<tr>
<td>• All deliveries from executed contracts are assumed at 100% of contract volumes.</td>
</tr>
<tr>
<td>• Annual energy volumes (for non-operating projects) are modeled based on PG&amp;E's best estimate for project start dates/initial energy delivery date.</td>
</tr>
</tbody>
</table>

<p>| ReMAT                                     |
| • All deliveries from executed contracts are assumed at 100% of contract volumes. |
| • Modeled start date for generic volumes assumed to begin 7/1/2016 and ramp up linearly until 5/1/2018, reaching a total of ~120 MW. |</p>
<table>
<thead>
<tr>
<th><strong>SB1122 (Bioenergy Feed-in Tariff Program)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Modeled start date for generic volumes assumed to begin 7/1/2017 and ramp up linearly until 5/1/2019, reaching a total of ~111 MW.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Renewable Auction Mechanism (Remaining Capacity)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• For planning purposes PG&amp;E assumed a project start date equal to 5/1/2017.</td>
</tr>
<tr>
<td>• Technology mix assumed to be 10 MW of baseload, 20 MW of as-available non-peaking and ~ 60 MW of as-available peaking.</td>
</tr>
<tr>
<td>• All deliveries from executed contracts are assumed at 100% of contract volumes.</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th><strong>PV Originally Authorized for PG&amp;E Photovoltaic Program</strong></th>
</tr>
</thead>
</table>
| • PG&E filed an updated PV PPA Program protocol and PPA via a Tier 3 Advice Letter on February 28, 2014 for its Year 3 PV PPA RFO for 58 MW.  
| • Consistent with D.14-11-042, PG&E assumed that it will use the Renewable Auction Mechanism process to procure the remaining authorized PV Program volumes. |
| • For planning purposes, PG&E assumed that 58 MW starts on 1/1/2017, 100 MW on 1/1/2018, and 100 MW on 1/1/2019 (30 months from contract approvals in 7/1/2014 through 7/1/2016, respectively). |
| All deliveries from executed contracts are assumed at 100% of contract volumes. |

4. If size (GWh) of shortlist is not equivalent to solicitation target, provide a detailed explanation of why it differs.

Please see the Solicitation Overview Section page 7.

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4 PG&E filed Advice Letter 4620-E on April 20, 2015, seeking approval of the PPAs resulting from its Third PV PPA Solicitation.
5. **Describe how size of shortlist is or is not consistent with RPS need approved in most recent RPS procurement plan.**

The shortlist is consistent with the RPS need approved in the most recent RPS procurement plan. The plan states that PG&E seeks to procure between zero and 1,600 gigawatt-hours (GWh) per year from offers meeting any of the three portfolio content categories within the statutory limitations for each category. PG&E seeks long-term or otherwise bankable RPS-eligible products because such products will help to sustain 33% beyond 2020 and because they provide the flexibility to optimize PG&E’s RPS portfolio over time. PG&E’s Solicitation will focus on procuring economically attractive products that fit PG&E’s portfolio need in order to maximize the value to its customers and minimize the cost of the RPS program.

II. **Offer Evaluation and Selection Criteria**

A. **Description of Criteria**

1. List and discuss how the quantitative and qualitative criteria were applied to evaluate and select offers. This section should include a full discussion of the following items, but it should **not** be a copy of the protocol:
   a. **Net Market Valuation**
      i. Energy
      ii. resource adequacy / capacity\(^5\)
      iii. integration costs
      iv. congestion cost adders
      v. transmission cost adders
   b. Other approved quantitative criteria
   c. Portfolio fit
   d. Credit and collateral requirements
   e. Number of curtailment hours
   f. Project Viability
   g. Other qualitative criteria / preferences (e.g. seller concentration, supplier diversity, etc.) – describe how they were used in the rankings and shortlisting (e.g. tie-breakers, secondary ranking, etc.)

Solicited bids were evaluated based on the criteria listed above. The following discussion describes each criterion in more detail.

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\(^5\) Pursuant to D.14-11-042, IOUs shall provide their resource adequacy price curve forecasts along with a description of the methodology used to develop their price curve, and an explanation of how their price curve is consistent with the market and long-term procurement planning forecasts.
Market Valuation considers how a particular Offer’s costs compare to its market value. Costs include estimated transmission network upgrade costs, congestion costs, integration cost, and contract payments. Benefits include energy, capacity, and ancillary services values. Each of these components is described more fully below. Pursuant to D.12-11-016, Net Market Value is calculated for each Offer based on several components as follows:

Net Market Value: \( R = E + C - (P + T + G + I) \)

Adjusted Net Market Value: \( A = R + S \)

Where:

\( E \) = Energy Value

\( C \) = Capacity Value

\( P \) = Post-Time-Of-Delivery (TOD) Adjusted Power Purchase Agreement (PPA) Price, including associated debt equivalence costs

\( T \) = Transmission Network Upgrade Cost

\( G \) = Congestion Cost

\( I \) = Integration Costs

\( S \) = Ancillary Service Value

Costs and benefits are each quantified and expressed in terms of discounted dollars per megawatt per hour (“MWh”). NMV is benefits minus costs, and is expressed in terms of discounted dollars per MWh.

Energy Benefit (E):

For each hour of delivery, is the quantity of energy delivery for an hour multiplied by the forward energy price at the corresponding Trading Hub (NP15, SP15, or ZP26), adjusted for losses for that hour. The quantity of energy delivery for each hour is determined by the hourly generation profile of the Offer. If an Offer includes energy storage that allows PG&E to schedule the discharge from the storage component, the energy benefit also includes the additional value that PG&E may receive from being able to shift the RPS energy from the Project to more valuable hours given the constraints of the energy storage.

Losses vary by location of the project and are assessed using the Locational Marginal Price (“LMP”) Multipliers. The LMP Multipliers are provided in Table 1. The
average Loss Multipliers for On-peak and Off-peak are provided in Table 1. A higher Loss Multiplier implies less loss, thus more value associated with a project located in the corresponding load zone.

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

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

**Capacity Benefit (C):**

Capacity Value for each month is calculated as the projected monthly net qualifying capacity multiplied by the monthly capacity price for generic or System RA. To the extent that an Offer provides flexible capacity (“Flexible RA”), the capacity that is expected to count for Flexible RA and meets the CAISO’s must-offer requirement for flexible capacity resources is evaluated at the projected monthly premium (which can be zero or positive) for Flexible RA and then added to the Capacity Benefit.

PG&E develops the Flexible RA price curve and the System RA price curve jointly. Flexible RA price, the value of 1 kilowatt (“kw”) of Effective Flexible Capacity (EFC), for each delivery year is developed based on the supply and demand equilibrium for flexible RA for the year in the CAISO system. The demand is determined from the forecast of the flexible RA requirement. The supply curve for each year was built as an increasing function of the participating EFC from available resources in the year.

The supply curve reflects an estimated marginal price for each level of participating EFC (bidding economically without must offer obligation). The supply curve starts at zero when there is a large surplus of available resources participating in the Flexible RA market. The supply curve increases as a higher price is needed to incent a larger share of available resources to provide flexibility.

System RA price, the value of 1 kw of NQC, for each delivery year is estimated based on the supply and demand equilibrium for system RA in the CAISO system. The demand is set from the forecast of the system RA requirement, based on 115% of the system peak. The supply is estimated from the forecast of the NQC of available resources in each year. In calculating the available supply for System RA, PG&E has included the additional resources that are necessary to meet local RA requirements.

System RA can be provided by existing and new resources. Before new resources are needed, the supply curve for system RA is based on the cost of continuing to operate
the existing resources to provide RA (short-run operating cost). When the system needs new resources to provide generic RA (resource balance year), the price is the long-run fixed and variable cost of the new resource, net of the Flexible RA price. The supply curve also reflects a transition period of a few years around the resource balance year to reflect the uncertainties in the forecasts. As a result, generic RA price is set as the short-run cost of capacity in the years when there is enough supply to meet the generic RA requirement. After the resource balance year, when there is a projected need for new capacity in order to meet the System RA requirement, the sum of System RA and Flexible RA price is set to the long-run cost of capacity.

The short-run costs of capacity were estimated based on the net cost of capacity of existing generic resource (based on the existing Combined Cycle resource), using PG&E’s Avoided Capacity Cost model.

PG&E’s methodology to develop RA price curves is consistent with current “market” resource adequacy values. Additionally, PG&E’s methodology begins with the underlying foundational assumptions adopted in the long-term procurement planning proceeding. These assumptions include information as to the future levels of system peak demand as well as the set of supply resources that can meet the demand for both system and flexible capacity. Other assumptions that are similar include incorporating generic renewable resources to meet the 33% RPS levels over time and retirements of plants due to the once-through-cooling requirements.

Ancillary Services Benefit (A/S):

Ancillary Services Benefits are assumed to be zero if an Offer does not provide any ancillary services (“A/S”) capability. For Offers that provide PG&E the ability to schedule Ancillary Services, the incremental benefit of having A/S capability will be captured, not to be double counted with the energy benefit.

PPA Payments (P):

PPA Payments are determined by the expected payments under each Offer and the associated debt equivalence costs. The PPA Price for an Offer classified as a forward contract is calculated as the present value of hourly PPA payments divided by the total MWh of energy. The hourly PPA payment is calculated as the expected hourly generation delivered by the generation profile, the contract price, and the time-of-delivery (TOD) factor for the corresponding TOD period, as specified in the 2014 RPS Solicitation Protocol.

Transmission Network Upgrade Costs (T):

The Transmission Network Upgrade Costs (T) is the projected cost, if any, of bringing the power from the generating facility to PG&E’s network. For the 2014 RPS RFO, Participants were required to have at least a Phase II interconnection study, or equivalent, to bid into the RFO. PG&E required Participants to submit the
latest interconnection study, or interconnection agreement, with each offer. PG&E also requested supplemental transmission information from developers for each offer. This information included the proposed project’s current interconnection queue position and form of interconnection applied for (e.g., energy only vs. full capacity deliverability status), application status and expected timing for execution of any interconnection agreements, and transmission provider. Details of the current or proposed interconnection were requested for the projects, including voltage level, transmission or distribution service level, transmission line, and interconnecting substation.

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

PG&E used results from Participants’ completed Phase II interconnection studies or equivalent to calculate the transmission cost as described below.

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

The Present Value Revenue Requirement (“PVRR”) captures from a ratepayer perspective the risk and cost to construct and maintain transmission upgrades to accommodate the generation from the renewable resource. This PVRR of the costs of the Network Upgrades is converted into levelized dollars per MWh by dividing the PVRR by the present value of MWh.

Congestion Costs (G):

Congestion Cost is calculated by multiplication of the Congestion Cost Multiplier, applicable for the corresponding time period and load zone, and the Energy Price at the corresponding trading Hub. The hourly congestion costs used are the net present value over the contract period, divided by the present value of expected energy quantity (MWh) to arrive at the congestion cost in levelized dollars per MWh.
A summary of Congestion Cost Multipliers for each load zone is included in Table 2. A higher Congestion Cost Multiplier indicates a higher Congestion Cost (G). Specifically, a Congestion Cost Multiplier greater than zero indicates that generation in the corresponding area serves load outside of the area by congested lines and thus a new generator in the corresponding area is expected to increase the congestion. A zero Congestion Cost Multiplier implies there is no congestion in the transmission lines connecting the area. A Congestion Cost Multiplier less than zero indicate that loads in the corresponding area are served by the constrained transmission line(s) and thus a new generation in the area may reduce congestion.

**TABLE 2**

<table>
<thead>
<tr>
<th>Descriptive Names</th>
<th>CAISO</th>
<th>Loss Multipliers</th>
<th>Congestion Cost Multipliers</th>
<th>LMP Multipliers for E</th>
<th>LMP Multipliers for G</th>
<th>LMP Multipliers for E-G</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>On Peak</td>
<td>Off Peak</td>
<td>On Peak</td>
<td>Off Peak</td>
<td>On Peak</td>
</tr>
<tr>
<td>1 PG&amp;E Central Coast</td>
<td>PGCC</td>
<td>102.4%</td>
<td>100.5%</td>
<td>2.2%</td>
<td>1.6%</td>
<td>100.2%</td>
</tr>
<tr>
<td>2 PG&amp;E East Bay</td>
<td>PGEB</td>
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<td>99.9%</td>
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<td>1.4%</td>
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</tr>
<tr>
<td>3 PG&amp;E Fresno</td>
<td>PGF1</td>
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<td>102.7%</td>
<td>-2.3%</td>
<td>-6.4%</td>
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</tr>
<tr>
<td>4 PG&amp;E Fulton</td>
<td>PGFG</td>
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<td>98.6%</td>
<td>2.7%</td>
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<tr>
<td>5 PG&amp;E Humboldt</td>
<td>PGHB</td>
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<tr>
<td>6 PG&amp;E Los Padres</td>
<td>PGLP</td>
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<td>3.0%</td>
<td>1.9%</td>
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<tr>
<td>7 PG&amp;E North Bay</td>
<td>PGNB</td>
<td>102.0%</td>
<td>99.5%</td>
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<tr>
<td>8 PG&amp;E North Coast</td>
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<tr>
<td>23 San Diego Gas &amp;</td>
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<td>99.0%</td>
<td>99.7%</td>
<td>-2.6%</td>
<td>-0.3%</td>
<td>101.7%</td>
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</tbody>
</table>

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6 Multipliers shown are a simple average over hours and months. Contract valuations use disaggregated values for different months.
Overall locational value of the project delivered to CAISO should be assessed by looking at the LMP multipliers provided in Table 2. LMP Multiplier for a project delivered to Palo Verde will be 1. The LMP multipliers imply the relative value of 1 MWh in each load zone compared with the corresponding Trading Hub (NP15, SP15, ZP26, or Palo Verde) price. For example, PG&E could consider Offer A located in Sierra and Offer B located in San Francisco, with everything else the same. Offer B will have higher Energy Value (E) because the Loss Multipliers in San Francisco are higher than for the Sierra. On the other hand, Offer A has lower Congestion Cost (G) because the Congestion Cost Multiplier for Sierra is lower than San Francisco. Overall, Offer B scores higher than Offer A, because E-G will score higher due to higher LMP Multipliers in San Francisco compared with Sierra.

Integration Costs (I):

Integration costs are defined as the costs and values of integrating a generation project into a system-wide electrical supply. The renewable integration cost adder (RICA) is calculated using the methodology adopted in D.14-11-042.

The RICA is calculated as the sum of two cost components: 1) variable costs; and 2) fixed costs.

The variable cost component is set at $4/MWh for wind and $3/MWh for solar.

The fixed cost component is calculated as the product of two parameters: 1) PG&E’s flexible RA price curve expressed as $/kW-month; and 2) the monthly increase (or decrease) in the need for flexible RA associated with one MW of installed capacity of wind or solar (“Contribution to Flexible Capacity Needs”) expressed as MW of flex capacity needed/MW of wind or solar capacity.

The Contribution to Flexible Capacity Needs is determined in the following way:

1. Obtain the hourly aggregate system profile for load, wind, and solar.  
2. Calculate the hourly three hour net-load ramp for each hour of the year.  
3. Identify the maximum three hour net-load ramp for each month, and determine the relative contributions from load, wind, and solar to that ramp

Portfolio Adjusted Value (Other Approved Quantitative Criteria)

Portfolio Adjusted Value (“PAV”) adjustments included the following components: Location, RPS Portfolio Need, Energy Firmness and Curtailment. PAV modifies the NMV to account for elements that impact a particular Offer’s value in the context of PG&E’s portfolio.

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7 Consistent with the CAISO Flexible Capacity Study, the solar PV and solar thermal components are combined. ([http://www.caiso.com/Documents/Final_2014_FlexCapacityNeedsAssessment.pdf](http://www.caiso.com/Documents/Final_2014_FlexCapacityNeedsAssessment.pdf)).
8 Consistent with the CAISO Flexible Capacity Study, this is the three hour contiguous ramp starting in a given hour of the year, where net-load is defined as load minus wind minus solar.
PG&E has a preference for projects in its service territory. This preference is influenced by constraints (either in the marketplace or imposed on PG&E by regulatory agencies) that may limit the amount of capacity in SP15 that PG&E can count toward its RA requirement. Capacity located closer to PG&E’s load is likely to deliver energy that has more value for PG&E’s bundled electric portfolio, even when market forward prices indicate that energy delivered farther away has greater Market Value. The long-term risk for PG&E’s customers is less when resources are located within PG&E’s service territory rather than outside of PG&E’s service territory. The calculation of PAV effectuates this by adjusting the value of energy and capacity for offers from resources in SP15.

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

The PAV Capacity Benefit for offers from resources in SP15 was calculated using capacity prices that are no higher than the capacity prices used for offers from resources in NP15. The PAV Capacity Benefit for offers from resources in SP15 was based on capacity prices that are no higher than the short-run cost of capacity. This adjustment is intended to account for the relative value, to PG&E’s portfolio, of capacity that may be used to meet future resource adequacy requirements to serve PG&E’s bundled electric customers. The adjustment reflects the fact there is a constraint on how much capacity in SP15 that may be counted toward PG&E’s RA requirements. This adjustment is not duplicative of the Capacity Value component of NMV. Whereas PG&E’s calculation of Capacity Value in NMV represents an offer’s value of capacity to any wholesale market participant, including investor-owned utilities in southern California and purely financial traders, the locational adjustment described here is specific to PG&E’s portfolio and would not be made by investor-owned utilities in southern California, financial traders, and wholesale market participants in general (although the locational adjustment described here might be made by other load-serving entities with load heavily concentrated in northern and central California).
As a consequence of these adjustments to the value of energy and capacity, offers from resources in NP15 tended to have higher PAV and rank better than equivalent offers from resources in SP15.

RPS Portfolio Need:

PG&E has a preference for offers with deliveries beginning in 2020 or later. PG&E considered how an offer contributes to PG&E’s overall portfolio need for RPS energy. For each delivery year in which PG&E’s portfolio (augmented by the offer) is projected to be short RPS-eligible energy, the PAV Adjustment for the offer’s RPS-eligible energy was higher. The RPS Portfolio Need adjustment is not duplicative of the Energy Value component of NMV. Whereas PG&E’s NMV calculation reflected the value of generic energy in the marketplace, the RPS portfolio need adjustment described here reflected the incremental value of RPS-eligible energy to PG&E’s portfolio in meeting the portfolio’s RPS requirement.

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

Energy Firmness:

PG&E’s NMV calculation of Energy Value uses energy forward price curves that are associated with firm energy. Offers in the 2014 RPS RFO were typically not for firm energy. To value the energy benefit for an offer from a resource that has uncertainty in the minute-by-minute production of energy, a risk-adjusted multiplier was used in calculating PAV. PAV is calculated as the product of an offer’s Energy Benefit (as calculated in the Energy Value component of NMV and then adjusted by the locational adjustment and RPS portfolio need adjustment described above) and the PAV risk-adjusted multiplier for that offer. The PAV risk-adjusted multiplier took on values between 0.8 and 1.0. A multiplier of 1.0 represents an offer’s Energy Benefit is the same as if the offer were to provide firm energy. A multiplier of 0.8 represents substantial reduction in an offer’s Energy Benefit because of the offer’s significant uncertainty in energy production from its resource. The multiplier for an offer from a solar thermal resource is higher than the multiplier for an offer from a wind resource or a solar PV resource. An offer for a solar thermal resource with storage has a higher multiplier than a solar thermal resource without storage. The particular PAV risk-adjusted multiplier applied to an offer will be a function of the relative firmness of the offer’s energy and not simply a function of the renewable technology being offered.

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

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

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

Curtailment Hours Offered:

PG&E prefers a Seller to offer its energy as curtailable at any time at Buyer’s discretion, for which the Seller will be compensated.

PG&E’s NMV calculation of Energy Value includes the option value of the difference between the (presumably negative) wholesale market spot price avoided when Buyer Curtailment occurs and the Buyer’s cost of Curtailment. This expected value is anticipated to be realized by any wholesale market participant and is not specific to the particular composition or positions of PG&E’s portfolio or PG&E’s particular capabilities, opportunities, and constraints for wholesale market activities. When an offer does not conform to PG&E’s preference for unlimited Buyer Curtailment and limits the number of hours of curtailment, PG&E may not be able to curtail in the hours that are more valuable to PG&E and its customers. Recognizing increasing operational challenges that additional inflexible resources are placing on the system, PG&E will adjust the PAV of such offers to account for the costs and operational challenges that are added to PG&E’s portfolio. The operational challenges include the operational complexity caused by the limits on curtailment hours. The energy that PG&E cannot curtail when needed may increase the portfolio’s costs for imbalance energy charges from the CAISO, cause the CAISO to issue involuntary curtailment orders to PG&E that can be costly, cause extreme price volatility in spot market prices for energy and ancillary services and as a result increase the cost of ancillary services, and add similar costs associated with managing the portfolio. The PAV adjustment for Limited Curtailment Hours represents these decremental values to PG&E’s portfolio. Defined in this way, the PAV curtailment adjustment is therefore not duplicative of PG&E’s calculation of NMV.

The PAV curtailment adjustment is also not duplicative of the integration cost adder. The curtailment adjustment is strictly in the context of PG&E’s portfolio. In contrast, the integration cost adder is in the context of the system. The PG&E portfolio perspective and the physical transmission system perspective are two distinct and separate perspectives.
The PAV curtailment adjustment is also not duplicative of the PAV energy firmness adjustment. The curtailment adjustment reflects a flexibility or dispatchability (emanating from hours of Buyer Curtailment) that is a quality superior to must-take firm energy, whereas the energy firmness adjustment reflects uncertain generation that is typically inferior to must-take firm energy and at best is the same quality as must-take firm energy.

Thus, offers that provide less than full curtailment had lower PAV and ranked worse than equivalent offers that provided the requested hours of Buyer Curtailment.

Portfolio Fit

See section II.A.1.b above.

Credit and collateral requirements

PG&E did not score Participants’ credit and collateral requirements during the 2014 RPS Solicitation. 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.

Number of curtailment hours

See section II.A.1.b.4 above.

Project Viability

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

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

For background, a project’s viability score is based on weighted scores in three categories: 1) Company / Development Team, 2) Technology, and 3) Development Milestones. The Project Viability assessment results in a score ranging from 0 to 100 points with 100 being the highest possible score. Offer information required by PG&E for evaluation of project viability is described in Section VI of the 2014 RPS
Solicitation Protocol. The Participant’s claims in all three categories were verified to the extent possible using publicly available data and/or PG&E data.

Other qualitative criteria

RPS Goals:

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

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

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


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


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

Supplier Diversity:

In support of PG&E’s supplier diversity goals, the good faith efforts of Participants to subcontract with Diverse Business Enterprises (“DBE”), such as Women-, Minority-, and Service-Disabled Veteran-owned (WMDVBE) and Lesbian Gay Bisexual, and Transgender-owned Business Enterprises (LGBT) or the Participant’s status as a certified WBE, MBE, or DVBE are factors that are considered in the bid evaluation process. In each of its RFOs, PG&E encourages
participation from suppliers who are WMDVBEs or that have supplier diversity programs. Through this encouragement, PG&E continues to send a message to market participants that supplier diversity is an important initiative to PG&E. PG&E required Solicitation participants to fill out a section within the Offer Package that indicated whether the participant was a WMDVBE, whether the participant had WMDVBE programs within their organization and if the participant would commit a percentage of their construction and maintenance to third-party WMDVBE subcontractors. PG&E used this data to consider supplier diversity in the shortlisting process.

1. Outreach conducted to WMDBVE companies prior to and during this solicitation

    PG&E has continued its outreach efforts with WMDVBEs. PG&E’s Wholesale Electric Procurement website provides WMDVBEs with information about upcoming Request for Offers (RFOs) and descriptions of various programs available. PG&E’s Wholesale Electric Procurement website includes a section on Supplier Diversity for those suppliers interested in the various power procurement programs run by PG&E. WMDVBEs can also sign up through PG&E’s website to receive RFO email notifications directly.

    PG&E’s Energy Procurement team continues to make a concerted effort to reach out to potential WMDVBE suppliers that express an interest in providing electric procurement to PG&E. These potential WMDVBE suppliers received one-on-one meetings with PG&E to discuss their capabilities and opportunities. PG&E recommended next steps to the WMDVBEs which included providing contact information to other representatives within PG&E that are better suited to handle the WMDVBE suppliers’ proposed electric or gas products. In addition to fielding numerous calls and emails from suppliers interested in becoming a PG&E supplier of electricity, PG&E is developing an Electric Commodity procurement website tailored to WMDVBEs. This website will provide information about ongoing outreach and educational items of interest to the WMDVBE community as well as benefit Non-WMDVBE Supplier understanding. The objective is that as our Non-WMDVBEs realize the importance of supplier diversity to PG&E, they will provide more opportunities for WMDVBEs to participate in power procurement.

2. Number of WMDBVE companies prior to and during this solicitation and supplier diversity spending on construction, operation and maintenance of facilities.

    PG&E advanced its efforts to develop guidelines and provide opportunities for WMDVBEs in power procurement. The company spent 88% more with WMDVBEs in Power Procurement in 2014 when compared to 2013. While there is more work that can be done, PG&E is building the
foundation for continuous improvement with the goal of program sustainability. While PG&E acknowledges that implementing the General Order (GO) 156 Electric Commodity Procurement initiative will take time, PG&E is determined to continue its efforts to facilitate increased WMDVBE participation. Initiatives such as GO 156 are successful in large part due to building upon incremental victories such as those described below that encourage stakeholders to reach a little further to do what they otherwise did not think was possible.

PG&E’s Energy Procurement team worked diligently to educate WMDVBEs about direct and subcontracting opportunities to support business needs in these areas. Renewable project development programs continue to hold potential for WMDVBEs’ direct or subcontracting participation. Significant project investment is required for in-site preparation, permitting, environmental studies, engineering, construction, operations and maintenance services, and each of these areas of project develop offers an opportunity for WMDVBEs to add value.

3. Women, minority, and/or disabled veterans trained or hired by utility specifically for purposes of this solicitation

PG&E has staff dedicated to the RFO process and therefore did not have a need to hire or train any new WMDVBE specifically for purposes of this solicitation.

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

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

C. Discuss how the evaluation process differs, if at all, for operating and new projects, different expected portfolio content categories, and varying term lengths.

PG&E received offers for operating and new projects. PG&E evaluated the new and existing resources using the same PAV components.

PG&E received some PCC 1 Offers from out-of-state resources that would be dynamically scheduled. In this instance, when considering offers of similar PAV, PG&E considered the Seller’s provisions for delivery to CAISO and whether it could reliably deliver energy to the CAISO as promised. PG&E viewed the in-CAISO resources as providing more certainty regarding delivery and project benefits.

In this RFO, PG&E received no PCC 2 offers and no PCC 3 offers.
PG&E indicated a minimum term length of at least ten years. Term length has a quantitative impact on the debt equivalence calculation that is part of the PPA payment calculation.

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

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

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

2. Describe how turnkey projects are evaluated against PPAs

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

3. Describe how buyout projects are evaluated against PPAs

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

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

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

E. Conformance and Confirmation of Bid Information

1. Describe process for determining bid conformance

The eligibility criteria for bidding into this RFO were: 1) PPA of 10 years or more or grandfathered\(^9\) status, 2) Phase II interconnection study or equivalent, 3) location within the CAISO or delivery to CAISO interface point, 4) projects must have achieved, at a minimum, the “application deemed complete” (or equivalent) status under the land use entitlement process by the lead agency, and 5) submittal of at least two offer variations, one with PG&E’s unlimited right to economically curtail the resource and the second variation that caps the annual number of hours that PG&E may economically curtail the resource. Bidders were asked to submit a variety of offer documents, including an Excel-based offer form.

Reasons for bid non-conformance were lack of an interconnection study, pre-2020 Commercial Operation Dates, and the lack of having an “application deemed complete” by the lead environmental permitting agency. PG&E first checked to see if all offer documents had been provided. If documents were missing, PG&E notified Sellers by e-mail and asked them to provide the documents within two days. If Sellers still did not provide the documents, PG&E considered the offer non-conforming.

\(^9\)“Grandfathered” refers to criteria listed in the California Public Utilities Code at Section 399.16(d) to ensure that existing contracts continue to “count in full” for purposes of RPS compliance.
provide a CAISO interconnection study, PG&E contacted the Seller to get more information about their interconnection status, and then made a determination, in consultation with the IE, on whether the offer should be considered ineligible. For Sellers that provided a non-CAISO interconnection study, PG&E reviewed the other materials provided to confirm that Seller was offering delivery to the CAISO and that appropriate transmission arrangements were in place.

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

PG&E considered Offers that planned to repower as having met the requirement for a Phase II study or equivalent, generally accepting Sellers’ assertions that an interconnection study would not be required.

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

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

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

III. Offer Evaluation and Selection Process

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

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

A PG&E evaluation team oversees the integrity of the evaluation process and makes a shortlist recommendation to the PG&E steering committee. The steering committee has the authority to approve the shortlist and additionally to rule on issues of eligibility. Following shortlisting, the steering committee approves the priority of
negotiations. Offers and their respective valuations are updated as new information becomes available in the course of negotiations.

**B. Provide a flowchart that explains IOU’s LCBF and shortlisting process. Please describe all the critical steps on the flowchart utilized in the shortlisting process. Be very explicit in your explanation.**

The following flowchart illustrates the steps in PG&E’s shortlisting process. The critical steps in the flowchart and PG&E’s Least-Cost, Best-Fit (“LCBF”) considerations are described in detail in Section 3 of the 2014 RPS Shortlist Report.

**C. What amount of time was spent on each part of the process?**

For the 2014 RPS Solicitation, the interval between the issuance of the request for Offers to the receipt of Offers was approximately three weeks; from the date of bid receipt until notification of bidders eligible for shortlisting, the interval was approximately nine weeks; from the date of notification to transmission of the preliminary short list to the Commission was one week. 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.
D. Were any offers rejected for non-conformance? If so, what were the non-conforming characteristic(s) and how many were rejected for each characteristic?

There were 5 projects rejected for non-conformance. The offers were rejected because 1) the offer did not meet the requirement for a Phase II interconnection study or equivalent or 2), the offer did not meet the requirement for having achieved, at a minimum, the “application deemed complete” or equivalent status for their environmental permit. There were additional offer variations that were non-conforming due to a pre-2020 GCOD, but these counterparties had sufficient offer variations that remained valid.

E. Describe involvement of the Independent Evaluator.

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

F. Describe involvement of the Procurement Review Group (e.g. date(s) of presentations to PRG, who was present at presentations, any other communication, etc).

For the 2014 RPS Solicitation, PG&E presented a detailed summary along with the preliminary shortlist recommendation on March 25, 2015. Key project characteristics and selection rationale 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.

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

10 For the 2014 RPS RFO, Participants submitted their offers via the online platform Power Advocate. The IE had access to the offer documents in the same manner as PG&E.
PG&E gets feedback from both successful and unsuccessful bidders after the shortlist is complete. For successful (shortlisted) bidders, PG&E solicits feedback as part of its ongoing discussions with the counterparty. PG&E also offered a feedback call to all non-shortlisted bidders. PG&E explained where the project fell in the PAV ranking by quartile, which offer variations scored higher, and the primary reasons why bidders’ projects were not successful. PG&E responded to requests for feedback from seven unsuccessful bidders. As part of those conversations, PG&E asked bidders for their feedback on the solicitation process. This year, PG&E also sent out a survey to its general RFO email distribution list in an effort to obtain feedback from Sellers that did not participate in the RPS RFO in order to better understand what might have prevented their participation.

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 up to 1,600 GWh of load. PG&E took into account the approved RPS need when the shortlist was determined.

B. Describe what role price and value had in determining your proposed shortlist. Was there a certain price point or value that was determined as a cut off? Was rate impact considered for individual offers or on a portfolio or shortlist level?

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

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

The primary reason for not shortlisting projects that otherwise offered favorable value was seller concentration. A significant number of the highest ranked offers were from the same counterparties and PG&E wanted a diverse set of counterparties on its shortlist. PG&E also took into account project size and shortlisted smaller sized projects with a similar PAV to a larger sized project.

C. Were offer prices and LCBF scores examined relative to other offers or other procurement options?

Offer prices and LCBF scores are used in determining the Portfolio Adjusted Value for each offer. The offers are examined relative to each other using this portfolio adjusted value.
D. What were the primary reasons for not shortlisting a project (e.g. price, value, online date, viability, environmental concerns, seller concentration, non-conforming, other)?

The primary reason for not shortlisting a project was a project’s PAV. As described in question B above, projects were considered relative to each other and projects with a lower net value were not shortlisted.

Secondary reasons that projects were not shortlisted were because of seller concentration, resource diversity, and project size. Each of these reasons was taken into consideration when we looked at projects with similar PAVs.

E. Describe how, if at all, curtailment affected your shortlist. If it was considered in a quantitative manner, describe the basis for the measure (energy value, locational marginal pricing, historic frequency of negative pricing, etc).

Please see Curtailment explanation in Section II.A.1.b.4 and the explanation in the Shortlist Overview Section IV.3.

F. 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 with high market value and acceptable project viability scores. PG&E did not set a minimum viability threshold. Rather, PG&E reviewed the top-ranked PAV offers to determine qualitatively whether the offers had significant enough viability concerns to warrant exclusion from the shortlist. See Section 4 for more details.

G. Describe any qualitative factors used to finalize your proposed shortlist (e.g. online date, location, transmission and project size). How were they used (e.g. tie-breaker, cut-off, exclusion measures, etc.) and how did the shortlist change?

In addition to the factors above, PG&E considered technology diversity. PG&E shortlisted a range of technologies. In some cases, a project was shortlisted in order to obtain a diverse set of technologies on the shortlist, even if the PAV was less attractive than the PAV for projects utilizing other technologies. In addition, PG&E considered the project’s ability to contribute to the CPUC mandated storage target.

Using the considerations discussed above, PGE’s selection process included project-specific trade-offs between the qualitative and quantitative factors. Final shortlisting decisions were made based on best professional judgment.
H. Describe any policy issues or other strategies (e.g. seller concentration, technology diversity, operational flexibility, portfolio optimization, etc.) that affected your proposed shortlist.

See Section IV.G above.

I. Describe how safety was considered in determining your proposed shortlist and if it affected the proposed shortlist.

Local, state and federal agencies that have review and approval authority over the projects are charged with enforcing safety, environmental and other regulations for the bidders’ projects. PG&E’s PPA requires Sellers to comply with all applicable rules and regulations regarding safety, and PG&E expects all bidders to have read these terms and provided project offers consistent with these requirements. Therefore, PG&E viewed safe operations as a fundamental obligation that bidders committed to upholding through providing an offer into the RFO and was not additionally considered in the selection of the shortlisted projects.
Section 4
Solicitation Overview
(CONFIDENTIAL)

May 7, 2015
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