PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE

July 16, 2019

Advice Letter 5561-E

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

SUBJECT: 2019 Tree Mortality Non-Bypassable Charge (TM NBC) Bundled Renewable Portfolio Standard (RPS) Energy Sale Solicitation; Power Purchase and Sale Agreement Between Pacific Gas and Electric Company and Peninsula Clean Energy Authority

Dear Mr. Jacobson:

Advice Letter 5561-E is effective as of June 14, 2019.

Sincerely,

Edward Randolph

Edward Randolph
Deputy Executive Director for Energy and Climate Policy/
Director, Energy Division

Pacific Gas and Electric Company®

Erik Jacobson
Director
Regulatory Relations

Pacific Gas and Electric Company
77 Beale St., Mail Code B13U
P.O. Box 770000
San Francisco, CA 94177

Fax: 415-973-3582

June 14, 2019

Advice 5561-E
(Pacific Gas and Electric Company ID U39 E)

Public Utilities Commission of the State of California

<u>Subject:</u> **2019 Tree Mortality Non-Bypassable Charge (TM NBC) Bundled Renewable Portfolio Standard (RPS) Energy Sale Solicitation; Power Purchase and Sale Agreement Between Pacific Gas and Electric Company and Peninsula Clean Energy Authority**

I. Introduction

A. Identify the Purpose of the Advice Letter

Pursuant to Decision (D.) 18-12-003, Pacific Gas and Electric Company (PG&E) hereby submits this advice letter to seek approval from California Public Utilities Commission (Commission or CPUC) of one power purchase and sale agreement (PPSA or Transaction) to sell bundled Renewables Portfolio Standard (RPS)-eligible energy and associated Renewable Energy Credits (RECs) generated by PG&E's existing tree mortality power purchase agreement (TM PPA) with Wheelabrator Shasta to Peninsula Clean Energy Authority (Peninsula or Buyer) resulting from PG&E's TM NBC Bundled RPS Energy Sale Solicitation (Solicitation).

B. Solicitation Product and Results

PG&E made available for sale bundled RPS-energy and associated RECs generated from its existing TM PPAs (TM Bundled RPS) listed in Table 1 below within the Solicitation.

Table 1: PG&E's Existing TM PPAs

Facility Name	Contract Capacity (MW)	Initial Energy Delivery Date	Expected Delivery End Date
Burney Forest Products	29	11/1/2017	10/31/2022
Wheelabrator Shasta	34	12/2/2017	12/1/2022

1. Burney Forest Products

The Solicitation did not result in a PPSA for the TM Bundled RPS products generated by PG&E's TM PPA with Burney Forest Products. Per Ordering Paragraph (OP) 3 of D.18-12-

003 and D.19-02-007 approving PG&E's 2018 RPS Plan,[1] PG&E will not use unsold TM Bundled RECs from the Burney Forest Products PPA for its own RPS compliance, and the value attributed to these RECs in the Tree Mortality Non-Bypassable Charge (TM NBC) will be $0 beginning with deliveries made upon CPUC Approval of this Advice Letter.

2. Wheelabrator Shasta

The Solicitation resulted in a PPSA with Peninsula for the TM Bundled RPS products generated by PG&E's TM PPA with Wheelabrator Shasta. This Transaction is for the sale of the bundled energy and associated RECs of PG&E's TM PPA with Wheelabrator Shasta for the remainder of the current TM PPA term, which has an expected delivery end date of December 1, 2022. The Transaction is consistent with the TM NBC sales framework approved as part of Appendix J in PG&E's 2018 RPS Plan (the TM NBC Sales Framework).[2]

C. Background

D.18-12-003 approved a new non-bypassable charge for allocation of costs associated with certain Tree Mortality-related contracts, including both Burney and Wheelabrator. That decision also found that in order to establish a fair value for the RECs associated with the TM contracts, the investor-owned utilities are required to sell them. The resulting value, if any, is required to be used in the calculation of the net cost allocated to all benefitting customers in the TM NBC. D.18-12-003 ordered PG&E to propose a framework for selling the bundled energy and RECs from its TM contracts as part of PG&E's final 2018 RPS Plan.

On March 15, 2019 PG&E submitted its Final, Conforming Version of PG&E's 2018 RPS Procurement Plan (2018 RPS Plan), which included the TM NBC Sales Framework. Following the acceptance of that 2018 RPS Plan, and to comply with the D.18-12-003, PG&E expeditiously made available for sale the TM Bundled RPS for its existing Tree Mortality power purchase agreements with Burney Forest Products and Wheelabrator Shasta by issuing its TM NBC sale solicitation on March 25, 2019. Per D.18-12-003, PG&E will value RECs associated with PG&E's RPS-eligible biomass contracts (TM Bundled RPS) based upon the results of the Solicitation and deduct that amount from the TM NBC. The formula to calculate the TM NBC to collect from ratepayers the net costs of the tree mortality-related procurement contracts required by Resolution E-4770 and Resolution E-4805 was authorized in D.18-12-033. PG&E's 2020 Energy Resource Recovery Account (ERRA) Forecast Testimony, A.19-06-001, Chapter 11 and Chapter 19 provides a proposed TM NBC rate design and proposed rates.

Pursuant to Senate Bill (SB) 901,[3] PG&E will seek to amend contracts to procure electricity generated from biomass to include, or seek approval for new contracts that include, an expiration date 5 years later than the expiration date in the contracts that were operative in 2018 and expire on or before December 31, 2023, so long as the extensions include applicable feedstock requirements. As approved in Appendix J of PG&E's 2018 RPS Plan, PG&E will hold a second TM NBC solicitation to make available for sale any TM RECs

[1] D.19-02-007, pp. 108-109.
[2] PG&E's Final, Conforming 2018 RPS Plan was filed on March 15, 2019 in R.18-07-003.
[3] SB 901, Stats. 2018, Ch. 626 (codified in relevant part at Cal. Pub. Util. Code § 8388).

resulting from the SB 901 new contracts or extensions, if needed. For clarity, the TM RECs made available for sale in this Solicitation do not include TM RECs that may result from the SB 901 new contracts or extensions.

D. Identify the Subject of the Advice Letter, Including:

1. Project Name

The PPSA allows PG&E to deliver TM Bundled RPS from the Wheelabrator Shasta facility (the Project) listed in Table 2 below, which is currently under contract to PG&E. The product is certified as RPS-eligible by the California Energy Commission (CEC).

Table 2: Facility list for PPSA

Name of Facility	Resource	Location	CEC RPS ID	Host Balancing Authority	Pricing Node
Wheelabrator Shasta	Biomass	City – Anderson County – Shasta Address – 20811 Industry Road Anderson, CA 96007	60094	CAISO	WHEELBR 1_7_B1

2. Technology (including level of maturity)

Wheelabrator Shasta is a biomass facility.

3. General Location and Interconnection Point

The Project listed in Table 2 is located in California and is interconnected with the California Independent System Operator Corporation (CAISO)-controlled grid.

4. Buyer

a. Name(s)

Peninsula Clean Energy Authority.

b. Type of Entity(ies) (e.g., LLC, partnership)

Peninsula is a CCA serving residential and business customers in San Mateo County.

c. Business Relationship (if applicable, between seller/owner/developer)

PG&E is not aware of any corporate affiliations between the Project, PG&E, and Peninsula.

5. **Project Background, e.g., Expiring QF Contract, Phased Project, Previous Power Purchase Agreement, Contract Amendment**

The Project is an existing and operating facility under a current TM PPA to deliver output to PG&E.

6. **Source of Agreement, i.e., RPS Solicitation Year or Bilateral Negotiation**

The PPSA resulted from a Solicitation and was evaluated and executed in accordance with the TM NBC Sales Framework.

Further information regarding the Solicitation results is included in Confidential Appendix B. Relevant Solicitation materials provided to bidders are provided in public Appendix G and H.

E. General Project Description

The Project is described in Section B.1. above. The terms of the Transaction are summarized as follows:

Table 3: Transaction Summary

Buyer	Technology	Contract Quantity	Date Contract Delivery Term Begins	Delivery Term (Months)
Peninsula	Biomass	Buyer receives full bundled energy and REC output from PG&E's existing TM PPA with Wheelabrator Shasta	Upon final CPUC Approval of Tier 1 Advice Letter	Residual delivery term of PG&E's existing TM PPA with Wheelabrator Shasta (approximately 41 months)

F. Project Location

Wheelabrator Shasta is located in California and interconnected to the CAISO.

G. General Deal Structure

Describe general characteristics of contract, for example:

1. **Required or Expected Portfolio Content Category of the Proposed Contract**

PG&E will sell bundled energy and RECs under the PPSA. PG&E presently purchases the bundled product under contract that PG&E expects would qualify as Portfolio Content Category (PCC) 1 as to PG&E. The Transaction must receive final, non-appealable Commission approval before energy deliveries and the transfer of RECs to Buyer may begin under the PPSA.

2. **Full Generation Output of Facility**

PG&E will deliver from the Project listed in Table 2 above. PG&E is obligated under the terms of the PPSA to deliver the Project's total quantity of bundled energy and RECs during the delivery term. Deliveries pursuant to the PPSA consist of the full output of the Project.

3. Any Additional Products, (e.g., capacity)

No.

4. Generation Delivery Point (e.g., busbar, hub, etc.)

The delivery point will be the Pricing Node as defined in the CAISO tariff: WHEELBR1_7_B1 (Pnode).

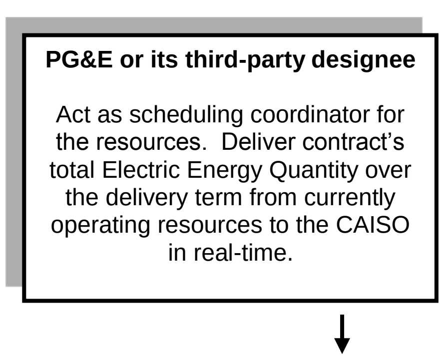
5. Energy Management (e.g., firm/shape, scheduling, selling, etc.)

Under the terms of the PPSA, PG&E or a third-party designee will act as scheduling coordinator for the resource. The scheduling coordinator is responsible for scheduling energy from the Project into the CAISO market. The Buyer will take title to the energy from the Project at the Pnode.

PG&E will financially settle the energy and RECs approximately four months after the energy was generated. For example, for energy generated in the month of May, the corresponding RECs will be created and deposited into PG&E's Western Renewable Energy Generation Information System (WREGIS) account at the end of August. In September, PG&E will invoice the Buyer for the delivered volume of energy at the hourly Locational Marginal Pricing (LMP) Index Price and the associated RECs at the contract price. The invoice for energy will reflect a netting of energy payments. PG&E, as scheduling coordinator, will have received CAISO revenues for the delivered energy and is obligated to remit those revenues to Buyer, and the Buyer is obligated to pay the LMP Index Price for the delivered energy to PG&E. The September invoice for May energy delivery would therefore show a netting of CAISO LMP revenues received by PG&E and payment owed by each Buyer for the same energy, resulting in an invoice price of $0 for energy. PG&E will transfer the RECs to the Buyer's WREGIS account.

6. Diagram and Explanation of Delivery Structure

Figure 1: Delivery Structure of the Energy Portion of the PPSA



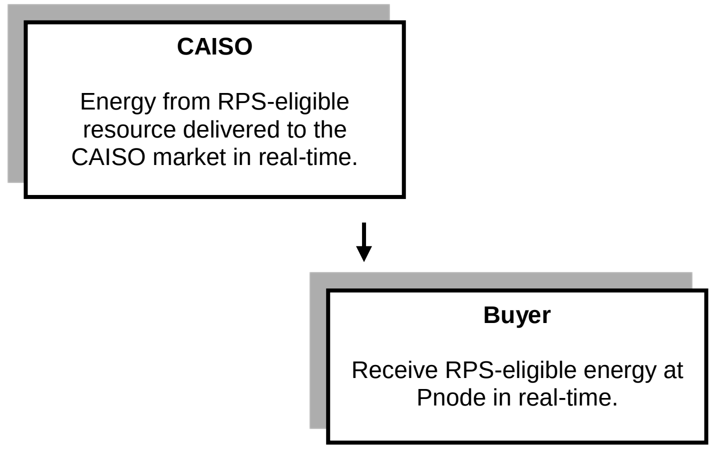
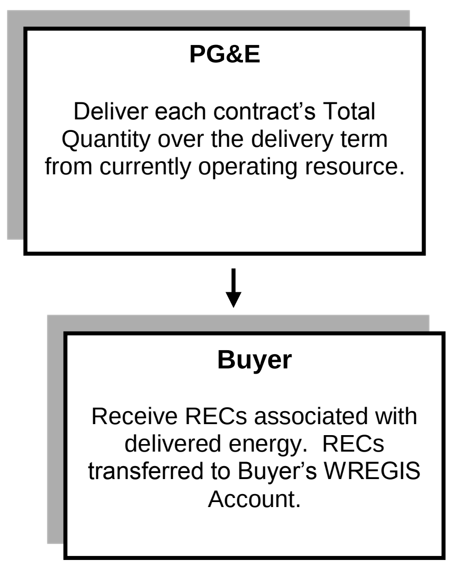


Figure 2: Delivery Structure of the RECs Portion of the PPSA



H. RPS Statutory Goals and Requirements

The Transaction does not have an impact on PG&E's RPS goals and requirements. As noted above, the Commission ordered that RECs from the TM contracts be sold. Even if they are offered and not sold, as with Burney, the Commission ordered no load-serving entity may use the REC for compliance purposes. Accordingly, PG&E is unable to use the TM contracts for its own RPS compliance going forward regardless of the outcome of the TM solicitation.

I. Confidentiality

Explain if confidential treatment of specific material is requested. Describe the information and reason(s) for confidential treatment consistent with the showing required by D.06-06-066, as modified by D.08-04-023.

In support of this Advice Letter, PG&E has provided the confidential information listed below. This information includes the PPSA and other information that more specifically describes the rights and obligations of the parties involved. This information is being submitted in the manner directed by D.08-04-023 and the August 22, 2006, Administrative Law Judge's Ruling Clarifying Interim Procedures for Complying with D.06-06-066 to demonstrate the confidentiality of the material and to invoke the protection of confidential utility information provided under either the terms of the Investor Owned Utility Matrix, Appendix 1 of D.06-06-066 and Appendix C of D.08-04-023, or Public Utilities Code section 454.5(g). A separate Declaration Seeking Confidential Treatment is being submitted concurrently with this Advice Letter.

Confidential Attachments:

Appendix A: Consistency with Commission Decisions and Rules and Project Development Status

Appendix B: Solicitation Overview

Appendix C: Independent Evaluator Report (Confidential)

Appendix D: Summary of Contracts

Appendix E: Comparison of PPSA of with Peninsula Clean Energy Authority with PG&E's 2018 Pro Forma RPS Short-Term Sales Confirmation

Appendix F: Power Purchase and Sale Agreement with Peninsula Clean Energy Authority

Appendix I: PG&E's Renewable Net Short Calculation (Confidential)

Appendix J: PG&E's Alternative Renewable Net Short Calculation (Confidential)

Public Attachments:

Appendix C: Independent Evaluator Report (Redacted)

Appendix G: PG&E Notification of Solicitation Issuance

Appendix H: PG&E Solicitation Bid Form

Appendix I: PG&E's Renewable Net Short Calculation (Redacted)

Appendix J: PG&E's Alternative Renewable Net Short Calculation (Redacted)

II. Consistency With Commission Decisions

A. RPS Procurement Plan

1. Identify the Commission decision that approved the utility's RPS Procurement Plan. Did the utility adhere to Commission guidelines for filing and revisions?

PG&E's draft 2018 RPS Plan was approved in D.19-02-007 on February 21, 2019, and the final, conforming version of the 2018 RPS Plan was filed in Rulemaking 18-07-003 on March

15, 2019. PG&E complied with all procedural requirements with regard to the filing of its 2018 RPS Plan.

2. Discuss how the Transactions are consistent with the utility's Procurement Plan and meet utility procurement and portfolio needs (e.g., capacity, electrical energy, resource adequacy, or any other product resulting from the Transactions).

Pursuant to D.18-12-003, PG&E developed the TM NBC Sales Framework, filed as Appendix J in the approved 2018 RPS Plan, to make available for sale the bundled RPS energy from its existing TM PPAs. The proposed PPSA is for the sale of bundled energy and associated RECs generated for the remaining term of PG&E's existing TM PPA with Wheelabrator Shasta.

Consistent with the 2018 RPS Plan, the Transaction used PG&E's pro forma Sales Agreement, and PG&E is providing comparisons of the executed Transaction against the approved pro forma short-term sales confirmation. The adherence to PG&E's pre-approved Sales Framework, the use of the approved pro forma short-term sales confirmation, and the execution of the Transaction through the TM NBC Bundled RPS Energy Solicitation allows for the filing of the Transaction through this Tier 1 advice letter, which is consistent with the 2018 RPS Plan and D.18-12-003.

3. Describe the project characteristics set forth in the solicitation, including the required deliverability characteristics, online dates, locational preferences, etc., and how the Transactions meet those requirements.

Required deliverability characteristics, online dates, and location preferences do not apply to PG&E's approach to TM NBC bundled RPS sales.

4. Sales

a. For Sales contracts, provide a quantitative analysis that evaluates selling the proposed contracted amount vs. banking the RECs towards future RPS compliance requirements (or any reasonable other options).

D.18-12-003 required PG&E to make available for sale bundled energy and associated RECs from its existing TM PPAs. Per D.19-02-007, an IOU must sell the bundled product to determine its value, or count its value at $0 if It cannot be sold. D.19-02-027 further clarified that IOUs may not procure renewables from their own sales solicitations or set a reservation price for such sales, and if an IOU is not able to sell the product, the REC would not count toward the RPS compliance requirements of any load serving entity.[4] Therefore, PG&E will value unsold products at zero and the associated RECs that PG&E values at zero may not be used by PG&E or any load serving entity for RPS compliance requirements. Because PG&E cannot use or bank RECs that were offered for sale, even if those RECs

[4] D.19-02-007 at pp.108-109.

remained unsold, PG&E did not analyze the value of the contracts against the value of banking the RECs from the TM contracts.

b. Explain the process used to determine price reasonableness, with maximum benefit to ratepayers.

PG&E followed the approved Sales Framework to evaluate bids resulting from the Solicitation. The Solicitation Protocol described the approach that would be used to evaluate bids and identified sales price as the sole quantitative evaluation criterion. The Transaction will benefit all ratepayers by reducing customer costs using the market value of the TM NBC RECs to reduce the total costs of the TM contracts incorporated in the NBC.

C. Compliance With Standard Terms and Conditions (STCs)

1. Do the proposed Transactions comply with D.08-04-009, D.08-08-028, and D.10-03-021, as modified by D.11-01-025?

The non-modifiable STCs in the PPSA conforms exactly to the "non-modifiable" terms set forth in Attachment A of D.08-04-009, as modified by D.08-08-028 and D.13-11-024 and by Appendix C of D.10-03-021, as modified by D.11-01-025.

2. Using the tabular format, provide the specific page and section number where the RPS non-modifiable STCs are located in the contract.

The locations of non-modifiable terms in the PPSA is indicated in the table below:

Counterparty	Contract Reference	Non-Modifiable Term				
		STC 1: CPUC Approval	**STC 6: Eligibility**	**STC 17: Applicable Law**	**STC REC 1: Transfer of RECs**	**STC REC 2: WREGIS Tracking of RECs**
Peninsula	Section	2.12	6.1(a)	8.2(b)	6.1(b)	6.1(c)
	Page Number	6	12	15	13	13

3. Provide a redline of the contract against the utility's Commission-approved pro forma RPS contract as Confidential Appendix E to the filed advice letter. Highlight modifiable terms in one color and non-modifiable terms in another.

Redlines comparing the executed PPSA to the form of Short-Term Sales Confirmation included as Attachment I.3 to PG&E's 2018 RPS Plan are included in Confidential Appendix E. The non-modifiable terms and modifiable terms have been highlighted in each redlined comparison.

D. Portfolio Content Category Claim and Upfront Showing (D.11-12-052, OP 9)

1. Describe the contract's claimed portfolio content category.

PG&E makes no representation about the compliance value to other LSEs, such as the Buyer, of the RPS-eligible product that will be sold pursuant to the PPSA, if approved. However, as stated above, PG&E presently purchases the bundled product under contract that PG&E expects would qualify as PCC 1 as to PG&E.

2. Explain how the procurement pursuant to the contract is consistent with the criteria of the claimed portfolio content category as adopted in D.11-12-052.

PG&E will sell energy and associated RECs generated from a California-based, CEC-certified eligible renewable energy resource that has its first point of interconnection within a California balancing authority. Accordingly, deliveries to PG&E under the original TM PPA between PG&E and the generator would generate a PCC 1 product as defined in California Public Utilities Code Section 399.16(b)(1) if used by PG&E for RPS compliance. Furthermore, as defined under D.10-03-021, as modified by D.11-01-025, the proposed PPSA transfers a bundled product since both renewable energy and its associated RECs are being sold together.

3. Describe the risks that the procurement will not be classified in the claimed portfolio content category.

There is no known risk that the products conveyed by the PPSA would not be categorized as PCC 1 if used by PG&E for RPS compliance.

4. Describe the value of the contract to ratepayers if:

1. **Contract is classified as claimed**

2. **Contract is not classified as claimed**

The value to PG&E's customers of the Transaction does not depend on the ultimate categorization of the transferred RPS products by the verifying regulatory agencies, since PG&E has not assumed compliance value risk under the Transaction. For the counterparty or the LSE to which the product is ultimately sold, the value to the customers of those entities would be less if the products are not classified as a PCC 1 product.

F. Interim Emissions Performance Standard

Pursuant to D.07-01-039, the proposed PPSA is not subject to the EPS because its delivery term is for less than five years.

G. Procurement Review Group (PRG) Participation

1. **List PRG participants (by organization/company).**

The PRG for PG&E includes the Commission's Energy Division, the Office of Ratepayer Advocates, the Union of Concerned Scientists, The Utility Reform Network, the Coalition of California Utility Employees, and Coast Economic Consulting.

2. **Describe the utility's consultation with the PRG, including when information about the contract was provided to the PRG, whether the information was provided in meetings or other correspondence, and the steps of the procurement process where the PRG was consulted.**

At the February 26, 2019 PRG meeting via WebEx, PG&E updated the PRG regarding PG&E's intent to issue the Solicitation to sell bundled energy and RECs associated with its existing TM NBCPPAs.

On April 23, 2019, PG&E provided an update via email to the PRG regarding the qualified bid list for the Solicitation.

On April 29, 2019, PG&E provided a summary of the quantities that PG&E expected to execute via email to the PRG.

PG&E did not receive any comments/critiques/questions from the PRG on the updates provided by PG&E on April 23 and April 29, 2019 regarding the qualified bids in the Solicitation and PG&E's intent to execute the PPSA.

3. **For short-term contracts, if the PRG was not able to be informed prior to filing, explain why the PRG could not be informed.**

This is not applicable as the PRG was notified in advance of execution.

H. Independent Evaluator (IE)

The use of an IE is required by D.04-12-048, D.06-05-039, 07-12-052, and D.09-06-050.

1. **Provide name of IE.**

The IE is Lewis Hashimoto of Arroyo Seco Consulting.

2. **Describe the oversight provided by the IE.**

The IE provided active oversight of PG&E's communication within the Solicitation beginning prior to issuance and continuing through contract execution. The IE provided input in advance of the Solicitation's launch with the goal of maximizing the effectiveness of PG&E's outreach. During the Solicitation, the IE reviewed e-mails exchanged between PG&E and the counterparties and participated on phone calls between PG&E and the counterparties.

3. List when the IE made any findings to the Procurement Review Group regarding the applicable solicitation, the project/bid, and/or contract negotiations.

The IE did not provide any findings to the PRG related to the PPSA. The IE concludes in the IE report that the Transaction merits Commission approval.

4. Insert the public version of the project-specific IE Report.

The public and confidential versions of the IE report are attached to this Advice Letter as Appendix C.

III. Project Development Status

Since the Project is an operating facility, this section is not applicable.

IV. Contingencies and/or Milestones

Describe major performance criteria and guaranteed milestones, including those outside the control of the parties, including transmission upgrades, financing, and permitting issues.

Absent the delivery of the contract quantities of energy and corresponding quantities of RECs, the short-term Transaction has no guaranteed milestones. The Transaction is conditioned upon CPUC Approval, as defined in the proposed PPSA.

V. Safety Considerations

The Transaction covers the resale of energy and RECs purchased under an existing PPA. The Project is an existing resource currently performing under an existing PPA with PG&E. The Transaction that is the subject of this Advice Letter has no impact on the underlying PPA and therefore raises no incremental safety matters related to the generation of the energy.

VI. Request for Commission Disposition

PG&E requests that the Energy Division issue a disposition making this advice letter effective no later than 30 days after filing. Any such disposition that makes this advice letter effective shall be deemed to constitute the following:

1. Approval of the PPSA in its entirety, including payments to be received by PG&E, subject to CPUC review of PG&E's administration of the PPSA;
2. A finding that the PPSA is consistent with the Sales Framework approved as part of PG&E's 2018 RPS Plan and is consistent with OP 3 of Decision 18-12-003, and that the sale of the bundled renewable electricity and green attributes under the PPSA is reasonable and in the public interest;
3. A finding that all costs of the PPSA are fully recoverable in rates over the life of the

PPSA, subject to CPUC review of PG&E's administration of the PPSA; and

4. A finding that the payments received by PG&E pursuant to the PPSA shall be credited to all benefitting customers through the Tree Mortality Non-Bypassable Charge Balancing Account (TMNBCBA) over the life of the PPSA; and
5. A finding that PG&E reasonably sought to sell the output from the Burney TM PPA, and that because the output of that facility went unsold, PG&E may attribute $0 to the value of the RECs associated with it in the Tree Mortality Non-Bypassable Charge, consistent with D.18-02-003 and D.19-02-007.

Protests

Anyone wishing to protest this Advice Letter may do so by letter sent via U.S. mail, facsimile or E-mail, no later than July 5, 2019, which is 21 days[5] 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:

Erik Jacobson
Director, Regulatory Relations
c/o Megan Lawson
Pacific Gas and Electric Company
77 Beale Street, Mail Code B13U
P.O. Box 770000
San Francisco, California 94177

Facsimile: (415) 973-3582
E-mail: PGETariffs@pge.com

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 96-B, Rule 7.4). The protest shall contain the following

[5] The 20-day protest period concludes on a holiday. PG&E is hereby moving this date to the following business day.

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, Rule 3.11).

Effective Date

Consistent with its approved 2018 RPS Plan, PG&E is submitting this advice letter with a Tier 1 designation to be effective upon date of submittal.

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 list shown below, including the service lists for R.18-07-003 and A.16-11-005. Non-market participants who are members of PG&E's PRG and have signed appropriate Non-Disclosure Certificates will also receive the Advice Letter and accompanying confidential attachments by overnight mail. Address changes to the General Order 96-B service list should be directed to PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at Process_Office@cpuc.ca.gov. Advice letter filings can also be accessed electronically at http://www.pge.com/tariffs.

/S/

Erik Jacobson
Director, Regulatory Relations

Attachments

cc: Service List for R.18-07-003 and A.16-11-005
Cheryl Lee – Energy Division

Limited Access to Confidential Material

The portions of this Advice Letter marked Confidential Protected Material are submitted under the confidentiality protection of Section 583 and 454.5(g) of the Public Utilities Code. This material is protected from public disclosure because it consists of, among other items, the PPSA itself, price information, and analysis of the PPSA, which is protected pursuant to D.06-06-066 and D.08-04-023. A separate Declaration Seeking Confidential Treatment regarding the confidential information is filed concurrently herewith.

California Public Utilities Commission

ADVICE LETTER SUMMARY
ENERGY UTILITY

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

Company name/CPUC Utility No.: Pacific Gas and Electric Company (ID U39E)

Utility type:
- [x] ELC
- [ ] GAS
- [ ] WATER
- [ ] PLC
- [ ] HEAT

Contact Person: Yvonne Yang
Phone #: (415)973-2094
E-mail: PGETariffs@pge.com
E-mail Disposition Notice to: Yvonne.Yang@pge.com

EXPLANATION OF UTILITY TYPE

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

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 5561-E

Tier Designation: 1

Subject of AL: 2019 Tree Mortality Non-Bypassable Charge (TM NBC) Bundled Renewable Portfolio Standard (RPS) Energy Sale Solicitation; Power Purchase and Sale Agreement Between Pacific Gas and Electric Company and Peninsula Clean Energy Authority

Keywords (choose from CPUC listing): Agreement, Compliance

AL Type: [ ] Monthly [ ] Quarterly [ ] Annual [x] One-Time [ ] Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #:
D.18-12-003

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:

Confidential treatment requested? [x] Yes [ ] No

If yes, specification of confidential information: See attached Confidentiality Declaration and Matrix
Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information: Lucker, Brendan, BSLF@pge.com, 415-973-7108

Resolution required? [ ] Yes [x] No

Requested effective date: 6/14/19

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[1]: N/A

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

[1]Discuss in AL if more space is needed.

Clear Form

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

CPUC, Energy Division Attention: Tariff Unit 505 Van Ness Avenue San Francisco, CA 94102 Email: EDTariffUnit@cpuc.ca.gov	Name: Erik Jacobson, c/o Megan Lawson Title: Director, Regulatory Relations Utility Name: Pacific Gas and Electric Company Address: 77 Beale Street, Mail Code B13U City: San Francisco, CA 94177 State: California Zip: 94177 Telephone (xxx) xxx-xxxx: (415)973-2093 Facsimile (xxx) xxx-xxxx: (415)973-3582 Email: PGETariffs@pge.com
	Name: Title: Utility Name: Address: City: State: District of Columbia Zip: Telephone (xxx) xxx-xxxx: Facsimile (xxx) xxx-xxxx: Email:

Clear Form

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

PACIFIC GAS AND ELECTRIC COMPANY

DECLARATION OF BRENDAN LUCKER SEEKING CONFIDENTIAL TREATMENT FOR CERTAIN DATA AND INFORMATION CONTAINED IN ADVICE LETTER 5561-E

I, Brendan Lucker, declare:

1. I am a Manager in Competitive Solicitations within the Energy Policy and Procurement organization at Pacific Gas and Electric Company (PG&E). In this position, my responsibilities include overseeing the negotiations for the purchase and sale of Renewables Portfolio Standard (RPS) energy as well as designing and administering solicitations for the purchase and sale of energy and energy-related products. This declaration is based on my personal knowledge of PG&E's practices and my understanding of the Commission's decisions protecting the confidentiality of market-sensitive procurement information.

2. Based on my knowledge and experience, and in accordance with Decisions 06-06-066, 08-04-023, and relevant Commission rules, I make this declaration seeking confidential treatment for certain procurement data and information contained in the attachments to Advice Letter 5561-E.

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 market sensitive data and information covered by Public Utilities Code section 454.5(g), D.06-06-066, D.08-04-023 and/or relevant Commission rules. The matrix also specifies why confidential protection is justified. Further, the data and information: (1) is not already public; and (2) cannot be aggregated, redacted, summarized or

otherwise protected in a way that allows partial disclosure. By this reference, I am incorporating into this declaration all of the explanatory text that is pertinent to my testimony in the attached matrix.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct. Executed on June 14, 2019 at San Francisco, California.

Brendan Lucker

PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)
Advice Letter 5561-E
June 14, 2019

IDENTIFICATION OF CONFIDENTIAL INFORMATION

Redaction Reference	Category from D.06-06-066, Appendix 1, or Separate Confidentiality Order That Data Corresponds To	Justification for Confidential Treatment	Length of Time
Appendix A, Consistency with Commission Decisions and Rules and Project Development Status	Item VII(G): Renewable Resource Contracts under RPS program - Contracts without SEPs Item VII (un-numbered category following VII(G)): Score sheets, analyses, evaluations of proposed RPS projects Item V(C): LSE Total Energy Forecast -- Bundled Customer (MWh) VI(B): Utility Bundled Net Open (Long or Short) Position for Energy (MWh) May 21, 2014 *Administrative Law Judge's Ruling on Renewable Net Short* issued in Rulemaking 11-05-005 ("May 21, 2014 ALJ Ruling") Item VIII(A): Bid Information Item VIII(B): Specific quantitative analysis involved	This appendix contains information regarding the confidential terms and conditions of the power purchase and sale agreement ("PPSA") that seek to sell RPS-eligible products. Disclosure of this information would provide valuable market sensitive information to market participants regarding the contracts and could be damaging to PG&E's future negotiations with other counterparties for similar products. Therefore, this information should remain confidential. This appendix also contains details regarding PG&E's confidential RPS Sales Framework, its Alternative Renewable Net Short ("RNS") calculation, and the impact of the sale under the PPSA on PG&E's RPS compliance position. This information is expressly deemed confidential by the May 21, 2014 ALJ Ruling. Additionally, this information could be used to determine PG&E's net open position for RPS-eligible products and its internal and proprietary forecast of its bundled customer total energy requirements, and also constitutes analysis and evaluation of proposed RPS projects, including sales or transactions intended to create or manage a compliance bank. In addition, if other market participants learned of market sensitive information concerning PG&E's sales strategy, they could change their bidding behavior and affect market pricing. This could detrimentally impact PG&E's customers. Finally, this appendix contains confidential bid information and specific bid evaluations from PG&E's solicitation. If released publicly, this information would provide valuable market sensitive information to market participants; therefore, this information should remain confidential.	For Item VII(G): Three years from date contract states deliveries to begin, or one year after expiration (whichever is sooner) For Item VII (un-numbered category following VII(G)): Three years For Items V(C) and VI(B): Front three years of forecast data confidential May 21, 2014 ALJ Ruling: Indefinite For Items VIII(A) and VIII(B): Three years after winning bidders selected Public Utilities Code § 454.5(g): Three years

IDENTIFICATION OF CONFIDENTIAL INFORMATION

Redaction Reference	**Category from D.06-06-066, Appendix 1, or Separate Confidentiality Order That Data Corresponds To**	**Justification for Confidential Treatment**	**Length of Time**
	in scoring and evaluation of participating bids Public Utilities Code § 454.5(g)		
Appendix B, Solicitation Overview	Item VII (un-numbered category following VII(G)): Score sheets, analyses, evaluations of proposed RPS projects Item VIII(A): Bid Information Item VIII(B): Specific quantitative analysis involved in scoring and evaluation of participating bids Public Utilities Code section 454.5(g) May 21, 2014 ALJ Ruling	This appendix contains confidential bid information and bid evaluations from PG&E's solicitation and discusses confidential negotiations between PG&E and counterparties. If released publicly, this information would provide valuable market sensitive information to market participants, could be damaging to future PG&E contract negotiations and ultimately detrimental to PG&E's customers, and could create a disincentive to do business with PG&E and other regulated utilities. Therefore, this information should remain confidential. This appendix also contains information relating to PG&E's confidential RPS Sales Framework, which is deemed confidential by the May 21, 2014 ALJ Ruling. In addition, if other market participants learned of market sensitive information concerning PG&E's sales strategy, they could change their bidding behavior and affect market pricing. This could detrimentally impact PG&E's customers.	For Item VII (un-numbered category following VII(G)): Three years For Items VIII(A) and VIII(B): Three years after winning bidders selected Public Utilities Code § 454.5(g): Three years May 21, 2014 ALJ Ruling: Indefinite

PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)
Advice Letter 5561-E
June 14, 2019

IDENTIFICATION OF CONFIDENTIAL INFORMATION

Redaction Reference	Category from D.06-06-066, Appendix 1, or Separate Confidentiality Order That Data Corresponds To	Justification for Confidential Treatment	Length of Time
Appendix C, Independent Evaluator Report – grey shaded sections	Item VII(G): Renewable Resource Contracts under RPS program - Contracts without SEPs Item VII (un-numbered category following VII(G)): Score sheets, analyses, evaluations of proposed RPS projects Item VIII(A): Bid Information Item VIII(B): Specific quantitative analysis involved in scoring and evaluation of participating bids Public Utilities Code section 454.5(g) May 21, 2014 ALJ Ruling	This appendix contains the IE report, which includes confidential bid information and bid evaluations from PG&E's solicitation. The confidential IE report also discusses, analyzes and/or evaluates the terms of the PPSA and confidential negotiations between PG&E and counterparties. If released publicly, this information would provide valuable market sensitive information to market participants, could be damaging to future PG&E contract negotiations and ultimately detrimental to PG&E's customers, and could create a disincentive to do business with PG&E and other regulated utilities. Therefore, this information should remain confidential. This appendix also contains information relating to PG&E's confidential RPS Sales Framework, which is deemed confidential by the May 21, 2014 ALJ Ruling. In addition, if other market participants learned of market sensitive information concerning PG&E's sales strategy, they could change their bidding behavior and affect market pricing. This could detrimentally impact PG&E's customers.	For Item VII(G): Three years from date contract states deliveries to begin, or one year after expiration (whichever is sooner) For Item VII (un-numbered category following VII(G)): Three years For Items VIII(A) and VIII(B): Three years after winning bidders selected Public Utilities Code § 454.5(g): Three years May 21, 2014 ALJ Ruling: Indefinite

PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)
Advice Letter 5561-E
June 14, 2019

IDENTIFICATION OF CONFIDENTIAL INFORMATION

Redaction Reference	Category from D.06-06-066, Appendix 1, or Separate Confidentiality Order That Data Corresponds To	Justification for Confidential Treatment	Length of Time
Appendix D, Summary of Contracts	Item VII(G): Renewable Resource Contracts under RPS program - Contracts without SEPs Item VII (un-numbered category following VII(G)): Score sheets, analyses, evaluations of proposed RPS projects Item V(C): LSE Total Energy Forecast – Bundled Customer (MWh) VI(B): Utility Bundled Net Open (Long or Short) Position for Energy (MWh) Item VIII(B): Specific quantitative analysis involved in scoring and evaluation of participating bids	This appendix summarizes and analyzes the PPSA, and contains bid evaluation information. If released publicly, this information would provide valuable market sensitive information to market participants and could be damaging to PG&E's future negotiations with other counterparties for similar products. Therefore, this information should remain confidential. This appendix also contains information that could be manipulated in conjunction with publicly-available information to determine PG&E's net open position for RPS-eligible products and its internal and proprietary forecast of its bundled customer total energy requirements.	For Item VII(G): Three years from date contract states deliveries to begin, or one year after expiration (whichever is sooner) For Item VII (un-numbered category following VII(G)): Three years For Items V(C) and VI(B): Front three years of forecast data confidential For Item VIII(B): Three years after winning bidders selected

PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)
Advice Letter 5561-E
June 14, 2019

IDENTIFICATION OF CONFIDENTIAL INFORMATION

Redaction Reference	Category from D.06-06-066, Appendix 1, or Separate Confidentiality Order That Data Corresponds To	Justification for Confidential Treatment	Length of Time
Appendix E Comparison of PPSA with PG&E's 2018 Pro Forma RPS Short-Term Sales Confirmation	Item VII(G): Renewable Resource Contracts under RPS program - Contracts without SEPs	This appendix contains the PPSA for which PG&E seeks approval in this Advice Letter filing. Public disclosure of the terms of the PPSA would provide valuable market sensitive information to market participants and could be damaging to PG&E's future negotiations with other counterparties for similar products. Therefore, this information should remain confidential.	For Item VII(G): Three years from date contract states deliveries to begin, or one year after expiration (whichever is sooner)
Appendices F, Power Purchase and Sale Agreements	Item VII(G): Renewable Resource Contracts under RPS program - Contracts without SEPs	This appendix contains the PPSA for which PG&E seeks approval in this Advice Letter filing. Public disclosure of the terms of the PPSA would provide valuable market sensitive information to market participants and could be damaging to PG&E's future negotiations with other counterparties for similar products. Therefore, this information should remain confidential.	For Item VII(G): Three years from date contract states deliveries to begin, or one year after expiration (whichever is sooner)
Appendices I and J, PG&E's Renewable Net Short Calculations – grey shaded sections	Item V(C): LSE Total Energy Forecast -- Bundled Customer (MWh) VI(B): Utility Bundled Net Open (Long or Short) Position for Energy (MWh) May 21, 2014 ALJ Ruling Item VII (un-numbered category following VII(G)): Score sheets, analyses, evaluations of proposed RPS projects	For Table 1: For rows A, C, E, Ga and Gb, this information shows PG&E's net position for RPS-eligible energy in the periods within the front three years of the forecast. The redacted information in Rows A, C, E, Ga, and Gb could also be manipulated in conjunction with publicly-available information to determine PG&E's internal and proprietary forecast of its bundled customer total energy requirements. The redacted information for rows Ia, Ib, J, J0, J1, J2, La and Lb relates to PG&E's optimized RNS, including: PG&E's assumptions for its overall portfolio optimization strategy; any plans to sell forecast RECs above the PQR; application of forecast RECs above the PQR towards a future RPS compliance requirement; and any plan to procure RECs above the PQR in future years. This information is expressly deemed confidential by the May 21, 2014 ALJ Ruling. Additionally, this information could be used to determine PG&E's net open position for RPS-eligible products and constitutes analysis and evaluation	For Items V(C) and VI(B): Front three years of forecast data confidential May 21, 2014 ALJ Ruling: Indefinite For Item VII (un-numbered category following VII(G)): Three years

IDENTIFICATION OF CONFIDENTIAL INFORMATION

Redaction Reference	Category from D.06-06-066, Appendix 1, or Separate Confidentiality Order That Data Corresponds To	Justification for Confidential Treatment	Length of Time
		of proposed RPS projects, including sales or transactions intended to create or manage a compliance bank. For Table 2: For rows A, C, E, Ga and Gb, this information shows PG&E's net position for RPS-eligible energy in the periods within the front three years of the forecast. The redacted information in Rows A, C, E, Ga, and Gb could also be manipulated in conjunction with publicly-available information to determine PG&E's internal and proprietary forecast of its bundled customer total energy requirements. The redacted information for rows Gd, Ge, Ha, Hb, H, Ia, Ib, J, J0, J1, J2, La and Lb relates to PG&E’s optimized RNS, including: PG&E’s assumptions for its overall portfolio optimization strategy; any plans to sell forecast RECs above the PQR; application of forecast RECs above the PQR towards a future RPS compliance requirement; and any plan to procure RECs above the PQR in future years. This information is expressly deemed confidential by the May 21, 2014 ALJ Ruling. Additionally, this information could be used to determine PG&E’s net open position for RPS-eligible products and constitutes analysis and evaluation of proposed RPS projects, including sales or transactions intended to create or manage a compliance bank.	

PACIFIC GAS AND ELECTRIC COMPANY

Appendix A

Consistency with Commission Decisions and Rules and Project Development Status

(CONFIDENTIAL)

PACIFIC GAS AND ELECTRIC COMPANY

Appendix B

Solicitation Overview

(CONFIDENTIAL)

PACIFIC GAS AND ELECTRIC COMPANY

Appendix C

Independent Evaluator Report

(REDACTED)

PACIFIC GAS AND ELECTRIC COMPANY 2019 TREE MORTALITY NON-BYPASSABLE CHARGE BUNDLED RPS ENERGY SALE SOLICITATION

REPORT OF THE INDEPENDENT EVALUATOR ON A CONTRACT FOR SALE OF RENEWABLE ENERGY TO PENINSULA CLEAN ENERGY AUTHORITY

JUNE 4, 2019

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

This report provides a review of an agreement between the Pacific Gas and Electric Company ("PG&E") and Peninsula Clean Energy Authority ("PCE") for renewable energy to be delivered from a biomass-fueled generating plant in PG&E's supply portfolio. PG&E had previously contracted with Burney Forest Products ("BFP") and Wheelabrator Shasta ("Wheelabrator") in 2016 to comply with legislative and regulatory mandates to help address the tree mortality crisis in California. The contract to sell RPS-eligible energy to PCE originated from PG&E's 2019 Tree Mortality Non-Bypassable Charge ("TM NBC") Bundled RPS Energy Sale solicitation. An independent evaluator (IE), Arroyo Seco Consulting (Arroyo), conducted various activities to observe, test, and check PG&E's processes as the parties negotiated an agreement for the bundled RPS energy output of the Wheelabrator Shasta facility. No contract was executed for sale of the output of the Burney Forest Products facility.

This report includes discussions of:

- The role of the Independent Evaluator,
- The adequacy of PG&E's outreach to potential buyers and robustness of the solicitation,
- The degree to which the design of PG&E's methodology provided for fair evaluation of bids,
- The fairness with which PG&E's evaluation methodology was administered,
- The fairness of contract-specific negotiations, and
- Merit of the executed contract for approval by the California Public Utilities Commission ("CPUC").

Arroyo's opinion is that PG&E's outreach to potential buyers was adequate, the solicitation was not at all robust, and PG&E's methodology was designed fairly and, in its results, administered fairly. Arroyo's opinion is that PG&E's contract negotiations with PCE were conducted in a manner that was fair to potential competing buyers and to ratepayers.

Arroyo believes that the price and market value of the contract is reasonable, although the market for Portfolio Content Category 1 ("PCC1") energy is illiquid and not transparent so that comparable pricing information about PCC1 energy sales is scarce. There is likely even less liquidity for unit-contingent RPS transactions such as this agreement than there is for transactions for firm delivery from a portfolio. There are as yet no comparable unit-contingent contracts with biomass-fueled facilities burning High Hazard Zone (HHZ) fuels whose pricing is public. The transaction is consistent with the confidential sales framework that was approved by the CPUC with PG&E's 2018 RPS procurement plan. The portfolio fit of the contract ranks high. Based on these observations, Arroyo's opinion is that the executed contract with PCE merits CPUC approval.

2. ROLE OF THE INDEPENDENT EVALUATOR

This chapter describes key roles of the IE and summarizes activities undertaken to fulfill those roles as PG&E sought to sell bundled renewable energy from the two facilities fueled by High Hazard Zone biomass, with which it has executed BioRAM contracts.

A. KEY INDEPENDENT EVALUATOR ROLES

The CPUC stated its intent for participation of an IE in competitive procurement solicitations to "separately evaluate and report on the IOU's entire solicitation, evaluation and selection process", in order to "serve as an independent check on the process and final selections."[1] The Energy Division has provided IEs with a standard template for use in reporting about RPS transactions for which utilities seek approval through advice letters, specifying that such a report should cover topics including:

- Describe the IE's role.
- How did the IOU conduct outreach to bidders, and was the solicitation robust?
- Was the IOU's methodology designed such that proposals were fairly evaluated?
- Was the evaluation process fairly administered?
- Were contract-specific negotiations fair?
- Does the contract merit Commission approval?

The structure of this report, setting out detailed findings for each of these issues, is organized around these major topics.

B. IE ACTIVITIES

Arroyo performed various key tasks to fulfill the role of IE in this solicitation:

- Reviewed the solicitation protocol and other materials;
- Discussed with the PG&E team its plan to pursue sales of bundled renewable energy from the two biomass-fueled projects;
- Observed (telephonically) negotiations between the parties;
- Participated in a meeting of PG&E's Procurement Review Group in which the solicitation was discussed;
- Reviewed marked-up drafts of confirmation agreements as PCE proposed changes to PG&E's initial draft form confirmation agreement; and
- Researched recent comparable transactions of PCC1 renewable energy for publicly available market pricing data to serve as benchmarks for price reasonableness.

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

3. PG&E'S OUTREACH EFFORTS AND THE ROBUSTNESS OF THE RESPONSE

On February 26, 2019, PG&E directly emailed a pre-issuance market notice for the solicitation to a focused contact list of 109 individuals representing 71 entities. This was followed by another e-mail on March 25 announcing the issuance of the solicitation. In the latter e-mail, PG&E included a link to its public webpage for the TM NBC solicitation that provided a version of an Edison Electric Institute (EEI) short-form confirmation agreement customized to sell the output of a biomass plant, a bid form composed as a spreadsheet, a solicitation protocol, and a confidentiality agreement. The notice also included registration information for a participants' webinar. PG&E received only one timely submitted conforming bid prior to the deadline on April 17 at 1 p.m. PDT, the one submitted by PCE.

A. BACKGROUND INFORMATION

In 2015, the Governor issued an Emergency Proclamation to respond to widespread drought and tree mortality in forests across California which heightened risks of wildfire and hazards to public safety from falling trees. It included directives to the CPUC to ensure that then-existing contracts with forest bioenergy facilities could be extended and new contracts could be executed. It directed the Department of Forestry and Fire Protection ("CalFire") and other state agencies to identify High Hazard Zones. The CPUC issued Resolution E-4770 on March 17, 2016, which directed the three investor-owned utilities ("IOUs") to conduct solicitations from generation facilities using biofuel from HHZs, using the Renewable Auction Mechanism ("RAM") mechanism and standard contract.

PG&E conducted a Bioenergy Renewable Auction Mechanism ("BioRAM") in 2016; based on the offers, PG&E and Burney Forest Products executed a BioRAM PPA and Rider for delivery of RPS-eligible energy from BFP's existing biomass-fueled generation facility. Contract capacity is 29 MW. The contract quantity for the PPA averages 218 GWh/year over the five-year contract term.

The CPUC subsequently issued Resolution E-4805, which implemented biomass provisions of Senate Bill 859 that was signed into law in September 2016. Among SB 859's directives was a requirement for IOUs and large public utilities to enter contracts for more deliveries of biomass-fueled energy from HHZ fuels than required previously. PG&E did not conduct a new solicitation but sought refreshed price offers from participants from its BioRAM solicitation and from non-participants. Based on those offers, it executed a PPA and rider with Wheelabrator Shasta Energy Company, Inc. Contract capacity is 34 MW; contract quantity averages 238 GWh/year over five years.

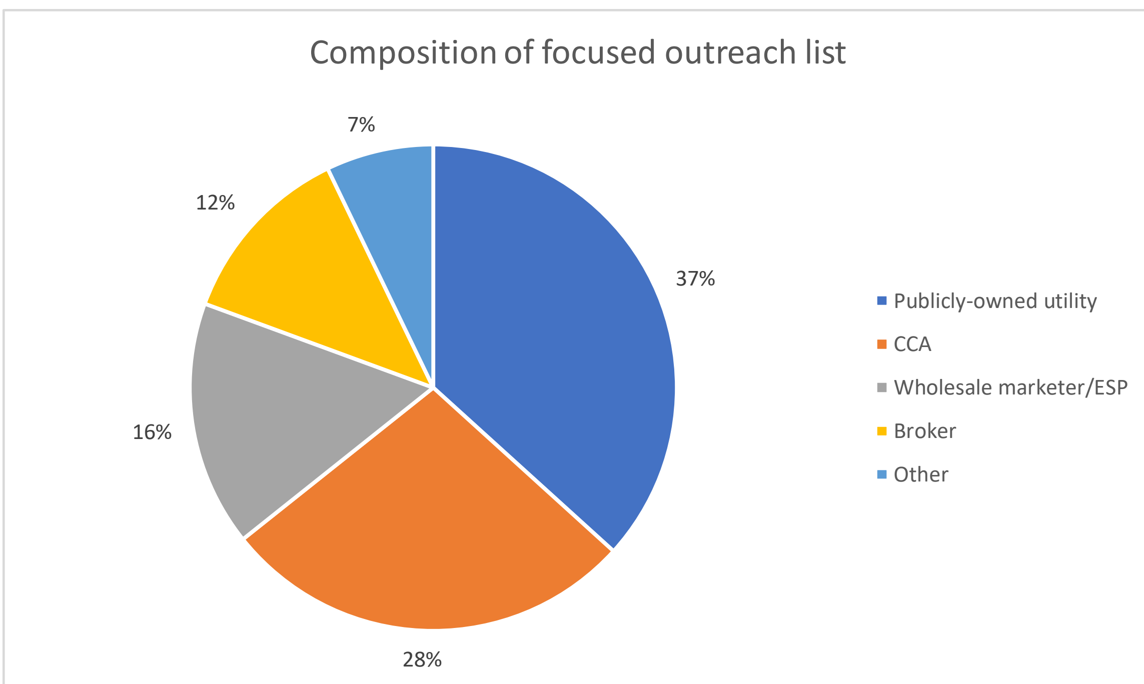
Resolution E-4805 also required a non-bypassable charge as the vehicle to allocate costs of tree mortality-related biomass procurement to unbundled customers. In December 2018, the CPUC's Decision 18-12-003 directed the IOUs to offer for sale the future deliveries of energy and renewable energy credits ("RECs") from each BioRAM contract, with energy settled at market index price. The revenue from these bundled energy sales will serve as part of the calculation of net costs of the BioRAM contracts to be allocated to customers.

PG&E appended a framework for its TM NBC bundled RPS energy sales solicitation to the final version of its 2018 RPS procurement plan, which was approved by the CPUC in March 2019. This confidential framework serves as the basis for the solicitation.

B. ADEQUACY OF SOLICITATION OUTREACH

PG&E previously held solicitations to sell RPS-eligible energy in 2016[2], 2017, and 2018 and had developed a customized contact list of potential renewable energy buyers for those efforts. For the TM NBC solicitation and for PG&E's 2019 Bundled RPS Energy Sale solicitation, which it held almost simultaneously, PG&E augmented the prior list with additional contacts. This list does not represent a thoroughly comprehensive list of all parties that might ever have an interest and capability of buying bundled renewable energy, but it represents a solid list of leads and shows continued enhancement over prior lists; the universe of potential or likely buyers has expanded as existing CCAs have ramped up the scope of their activities and new CCAs have formed. Figure 1 displays the composition of the focused contact outreach list by type of entity; "other" organizations include investor-owned utilities, a solar project developer, and a solo consultant.

Figure 1.

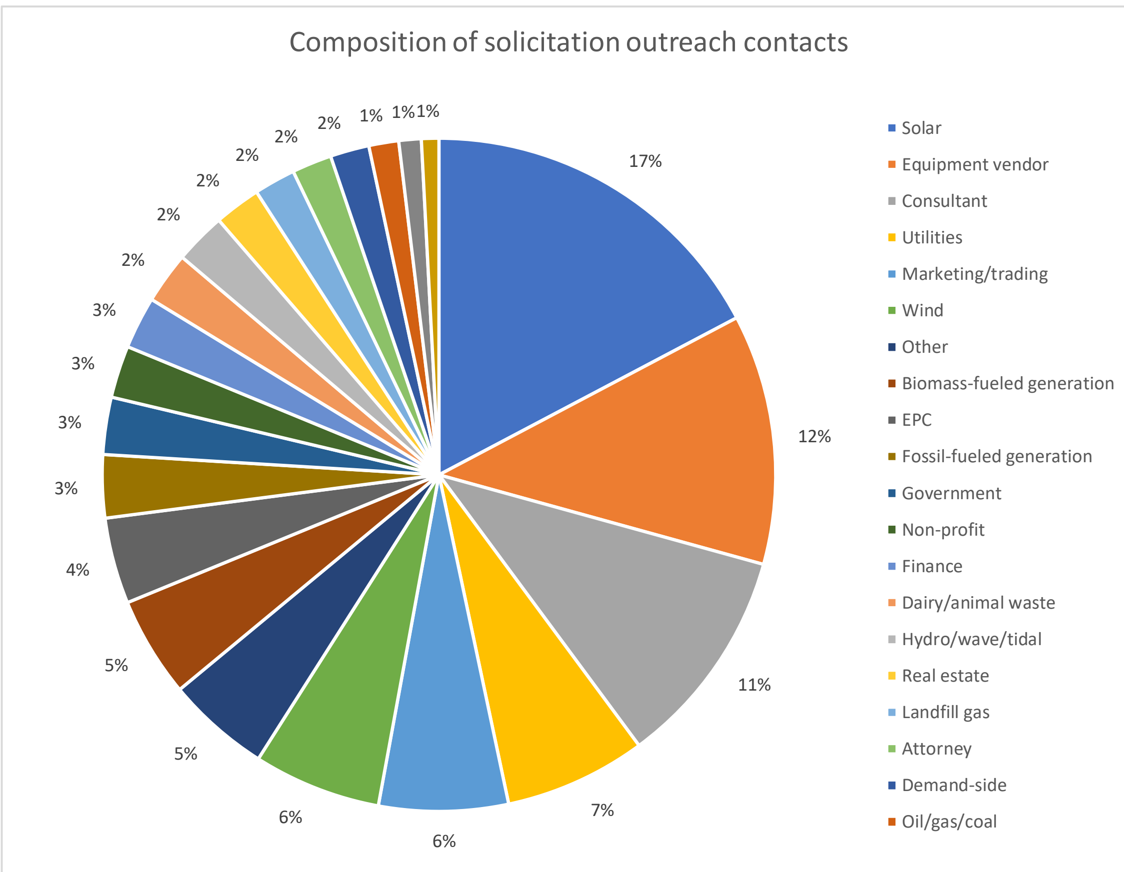


[2] The 2016 effort was an informal "e-solicitation" using e-mail to contact a list of potential participants rather than broad public outreach: it did not use a formal solicitation protocol.

Additionally, PGE e-mailed the market notices for the TM NBC solicitation to its standing RFO contact list, which it uses for outreach for most energy procurement solicitations for buying products. This much larger list focuses on generation developers and the vendors that service their needs, and therefore does not target the likeliest candidates to seek to buy RPS-eligible energy rather than to sell it. Figure 2 displays the composition of this RFO contact list. After the pre-issuance and issuance market notices, PG&E also e-mailed reminder notices about the bid deadline to the two lists on April 10 and April 15.

PCE was directly contacted using these outreach and reminder e-mails because its staff was represented on both the focused REC buyer list and the general standing RFO contact list. For this effort, focused on the small universe of RPS compliance entities and those who serve their wholesale power needs, the utility did not pursue broad outreach through public media such as the electricity trade press or media releases.

Figure 2.



Arroyo's opinion is that PG&E adequately distributed notices of this solicitation. For future energy sales solicitations, PG&E might benefit by adding to its outreach contacts CCAs that are just now ramping up their start-up activities but may not yet have been positioned to respond directly to the current solicitation, such as Solana Energy Alliance, Desert Community Energy, San Jacinto Power, and other emergent CCAs outside the PG&E service territory.

C. CLARITY AND CONCISION OF SOLICITATION MATERIALS

PG&E published on its public website a written protocol to document the requirements of the request for bids and to communicate the evaluation criteria that the utility would use to make its selection decision. The protocol was 11 pages long, which is quite concise for California IOUs' solicitations, for which protocols typically run to dozens of pages. For example, San Diego Gas & Electric Company's protocol for its 2018 Renewable Energy Credit (REC) Sale RFP was 19 pages in length. PG&E's market notice e-mail was also succinct; it relied on a link to the solicitation website for participants to obtain details.

In addition to the protocol, the pro forma contract, and the bid form, PG&E made available the two existing BioRAM contracts that had been redacted to shield confidential information such as contract price, and a record of monthly historical generation for the two facilities while under these contracts. This information was available only to participants that executed non-disclosure agreements and registered for the solicitation on the PowerAdvocate platform, and was intended to facilitate participants' preparation of bids by providing more information to form expectations for contract performance.

Arroyo's opinion is that solicitation materials were generally clear to most potential bidders. There were only three questions posed to PG&E by potential participants at the end of the participants' webinar, mostly queries about what the contracts would allow or guarantee and about the historical production of the two biomass facilities. PCE's submitted bid form was complete and conforming and did not require corrections.

One indicator of clarity is that of [redacted] that registered for the participants' webinar, all but one were either RPS compliance entities or wholesale marketers. The outlier was a small solar power development firm. Arroyo's inference is that this one firm failed to achieve clarity from the solicitation materials about PG&E's intent to sell rather than buy RPS-eligible energy. Similarly, all the entities that registered on the PowerAdvocate platform for the solicitation were either RPS compliance entities or wholesale marketers.

D. BIDDERS' CONFERENCE

PG&E convened a participants' webinar on April 2 for this solicitation; it e-mailed a market notice about the webinar to both contact lists on April 1. The presentation provided an orientation to the solicitation, including a description of the product to be sold, the schedule, the key elements of the confirmation agreement, the evaluation criteria, and the mechanics of submitting bids. The audience was invited to submit questions, which were answered by PG&E in the course of the webinar. The queries addressed topics such as PG&E not allowing a partial sale of a biomass-fueled project's output, how to obtain historical generation data for the facilities, PG&E not providing a contractual guarantee of output levels, and deliveries not being scheduled as an Inter-Scheduling Coordinator Trade. Questions and answers were posted on PG&E's public website so that potential participants that did not attend the webinar could access them.

E. ROBUSTNESS OF THE SOLICITATION

In its solicitation protocol, PG&E stated in its "Solicitation Product and Goals" section an intent to sell the bundled RPS-eligible energy and RECs from both the Burney Forest Products and Wheelabrator Shasta contracts. Only one bid was received timely by the stated bid deadline, and PG&E negotiated and awarded an agreement to sell the output of the Wheelabrator Shasta contract to the one bidder, PCE. The solicitation fell short of its goals, as no contract was executed to take delivery of the output of the Burney Forest Products facility. Arroyo's opinion is that the response to the solicitation was not at all robust.

There may be several factors that limit the robustness of a market response to such a request for bids for renewable energy from specific biomass-fueled plants:

- The product offered by PG&E for this solicitation was unit-contingent delivery of energy and RECs with no guaranteed delivery volume, which differs in key respects from what the IOUs have been offering in several solicitations. For many potential buyers, this risk attribute of the product renders it inferior to contracts that PG&E was offering at nearly the same time in its 2019 Bundled RPS Energy Sale solicitation. The delivered volume from a TM NBC contract will be uncertain, subject to the availability performance of the biomass-fueled plant. Generating stations are subject to forced outages, and in the past a woody biomass-fueled plant in California was reported to suffer catastrophic turbine damage that rendered it inoperable and uneconomic to return to service. The product offered in PG&E's other active solicitation confers greater delivery volume certainty to a buyer and should attract more interest from risk-averse participants.
- Only a modest number of California retail energy providers appear to hold net short RPS compliance positions for the third and fourth compliance periods. The IOUs hold long positions, leaving some but not all in-state publicly-owned utilities, CCAs (or their ESPs), and direct access providers as likeliest potential buyers. There seems to be no appetite for California RPS-eligible energy among out-of-state utilities.
- Other compliance entities may lack interest in procuring renewable energy through short-term purchases of energy produced in existing facilities, as opposed to long-term contracts with proposed new projects that would bring additional renewable generation into the market, given their compliance and procurement strategies. Some CCAs have faced criticism from stakeholders for purchasing RECs originating from existing facilities as opposed to creating additional renewable energy supply.
- PG&E issued its pre-issuance market notice on February 26 and required bids to be submitted on the PowerAdvocate on-line web platform by April 17. Arroyo agrees that this should have been sufficient lead time for any serious bidder to compose a proposal by the deadline. However, one entity submitted a tardy bid, as described below, so perhaps other potential bidders might have been unable to or did not choose to respond in a timely manner.
- Some CCAs and POUs clearly have a preference for local generation; a few have demonstrated their willingness to enter into PPAs to buy uncompetitively high-priced RPS-eligible energy from facilities sited within their service territories. This choice is consistent with the priority placed by these entities on supporting local

economic development. Both biomass-fueled facilities whose output was offered in this solicitation are more than a hundred miles from the nearest CCA or POU[3].

- Some CCAs appear to prefer long-term contracts over purchases of one to five years, given the current state of their portfolios and bearing in mind the impending obligation for 65% of retail sellers' RPS procurement to be made up of long-term contracts by the beginning of the fourth compliance period.
- Some CCAs may prefer to procure new RPS-eligible energy through their own Requests for Offers rather than responding to IOUs' solicitations to sell.
- Some CCAs promote their product offerings as carbon-free. While the output of the two BioRAM facilities is RPS-eligible energy and the facilities' output meets the criteria to be designated as Portfolio Content Category 1 deliveries, these are also considered biogenic sources by the California Energy Commission. The CEC issued a staff paper in 2018 that proposed that retail energy sellers disclose the carbon dioxide emissions from biogenic sources used for their energy supply in a footnote to the power content label. A CCA that has positioned its product as carbon-free might have some concern that if carbon dioxide from biogenic sources could be counted at some point in the future as greenhouse gas emissions in its power content label rather than in a footnote, because its use of these supplies would conflict with its marketing message.
- Risk-averse buyers might not want to enter a transaction to buy RPS energy from a currently bankrupt seller, when the contracts between PG&E and the BioRAM generators could hypothetically be rejected in the course of the Chapter 11 process.

Arroyo notes that two wholesale energy marketing and trading firms participated in the webinar, along with another compliance entity; none of these submitted bids to the solicitation. It seems possible that PG&E's answers provided to questions in the webinar may have been unsatisfying because the answers confirmed that no volume guarantee was forthcoming and that no partial bid for a project's output would be accommodated. Similarly, two compliance entities and one wholesale marketing and trading firm, in addition to PCE, registered for the solicitation on the PowerAdvocate platform, but did not submit bids. The lack of robustness of the response to the solicitation is consistent with the overall illiquidity of the market for term contracts for California RPS-eligible energy which in this case was likely exacerbated by the uniquely riskier nature of the offered product.

E. LATE-SUBMITTED BID

The deadline for submitting bids to the TM NBC solicitation was 1 p.m. PDT on April 17. This was clearly stated in both the solicitation protocol and the participants' webinar, and on PG&E's public website. The protocol and webinar presentation communicated that bids needed to be submitted via the PowerAdvocate on-line platform.

[3] BFP is sited about forty miles from the boundary of the service territory of Surprise Valley Electrification Corp., but that rural electric co-op obtains its energy supply from the Bonneville Power Administration.

[redacted] sent an e-mail to PG&E's TM NBC e-mail address at 3:43 p.m. on April 18, more than 24 hours after the bid deadline, attaching a bid form, a marked-up copy of the form confirmation agreement, and a copy of an e-mail from PG&E's 2019 Bundled RPS Sale team acknowledging that [redacted] After the bid deadline, the PowerAdvocate platform locks out any further submittals, so [redacted] would have been unable to upload its bid package as required for the solicitation. Also, [redacted] had failed to register to the PowerAdvocate platform to participate in the solicitation and would have been unable to upload a bid even if it had composed one in a timely manner before the deadline. [redacted] had not attended the participants' webinar for the solicitation and had not requested access to the PowerAdvocate platform to submit a bid. Members of [redacted] procurement team had been contacted about the solicitation via e-mail outreach.

PG&E notified [redacted] that its late-submitted bid was selected for continued negotiation. After some telephonic discussions, however, [redacted] notified PG&E that it would not proceed with negotiations. [redacted] indicated that it was averse to further transactions with PG&E because of its Chapter 11 status. The proposed TM NBC contract was problematic [redacted] because it was a multi-year commitment to PG&E, [redacted] expressed a concern that PG&E's contracts with the BioRAM facilities are pre-petition agreements that could be affected by outcomes in the Chapter 11 proceedings. [redacted]

F. PARTICIPANTS' FEEDBACK ABOUT THE PROCESS

PG&E intends to seek feedback about the solicitation from both participants and from non-participants on its focused sale-specific contacts list. Systematic feedback had not yet been solicited nor received at the time this report was finalized.

4. FAIRNESS OF PG&E'S EVALUATION METHODOLOGY

This section describes PG&E's methodology for evaluating bids and selecting a short list in this solicitation and assesses its fairness to ratepayers and bidders.

A. PRINCIPLES TO EVALUATE PG&E'S BID EVALUATION METHODOLOGY

The Energy Division of the CPUC has 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:

- There should be no consideration of any information that might indicate whether the participant is an affiliate.
- Procurement targets, objectives, and preferences 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 proposals in a technology-neutral manner.
- The LCBF methodology should allow for consistent evaluation and comparison of proposals of different sizes, in-service dates, and contract length.

Some additional considerations appear relevant to PG&E's specific situation.

- 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.
- CCAs should not be systematically disadvantaged by using neutral-appearing criteria that discriminate against the entire class of CCAs.

B. PG&E'S METHODOLOGY

PG&E's public solicitation protocol stated just one quantitative evaluation criterion and a few qualitative criteria:

Pricing. PG&E sought to maximize the benefit to ratepayers of selling RPS-eligible energy by preferring higher-priced bids to lower-priced bids. The utility team did not employ its Portfolio-Adjusted Value (PAV) methodology specified in its approved 2017 RPS procurement plan for analyzing proposals for value and portfolio fit. However, in this situation where bidders pursue purchases of RPS-eligible energy for the same delivery term, priced at market index plus a fixed REC bid premium in $/MWh, where purchases are from the same specific project, the PAV ranking of competing bids should be identical to the ranking by bid REC price. Ranking bids by price premium is far less burdensome than running PG&E's PAV algorithm.

Credit. PG&E stated it could consider the creditworthiness of bidders, focusing on their ability to fulfill financial obligations, and on whether entering new agreements may cause excess credit concentration in the utility's exposure to participants or banks. The solicitation protocol does not refer to credit rating or other explicit measures of creditworthiness, which might be used to distinguish between CCAs, of which many do not yet have credit ratings, vs. corporations with large wholesale trading and marketing functions, which generally do.

Agreement Modifications. PG&E stated its intent to evaluate whether modifications that a participant proposes to alter PG&E's pro forma contract might have a material impact on the costs of entering into an agreement. The protocol acknowledged that buyers could propose edits to terms involving price and credit requirements for discussion.

Other criteria. In its protocol, PG&E left open its discretion to employ other qualitative criteria in evaluating bids. These included but were not limited to: consideration of past adverse commercial experience doing business with any specific participant, the degree of concentration of exposure to a participant, and whether or not PG&E has already negotiated and executed an EEI master agreement with a participant, which would facilitate use of a short-form confirmation agreement as opposed to the potentially more challenging or time-consuming negotiation of a new long-firm confirmation agreement.

PG&E did not specifically propose to employ any other evaluation criteria employed in its prior solicitations, such as supply chain responsibility, supplier diversity, RPS goals, etc.

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

This section summarizes some of the attributes of PG&E's approach to evaluating bids to purchase bundled PCC1 renewable energy from the utility's supply portfolio.

Consistency with RPS Procurement Plan. To PG&E's 2018 RPS procurement plan, accepted in CPUC Decision 19-02-007, the utility appended its confidential framework for the TM NBC sale solicitation. The CPUC found PG&E's proposed sales framework to be reasonable. Also, PG&E's conduct of its TM NBC sales solicitation adhered to the Decision's conclusion that an IOU may not set a reservation price for the energy sale.

The process for selection of bids for short-term sales was consistent with PG&E's CPUC-approved sales framework including the detailed criteria required by the framework as laid out in confidential Appendix J of the approved 2018 RPS procurement plan.

Market Valuation. PG&E did not calculate Portfolio-Adjusted Values for the bids for these renewable energy volumes. Directly using the PAV metric would have been consistent with its past practice in renewable energy procurement and with the 2018 RPS procurement plan's statement that the use of PAV ensures procurement providing the best fit for PG&Es

portfolio at the least cost. However, in the context of this solicitation, ranking bids by highest price should be equivalent to a ranking by highest PAV. Differences in transmission costs, congestion costs, capacity value, project viability, and other PAV components are effectively rendered identical across bids for a specific biomass-fueled project's energy because they are attributes of the same energy volumes regardless of buyer.

Other criteria. Because the biomass-fueled projects from which sales volumes will be delivered are already constructed and operating, transmission network upgrade costs are sunk costs and do not factor into selection decisions. Similarly, both of the BioRAM projects are highly viable by virtue of achieving commercial operation and delivering energy on an ongoing basis, so that project viability is not a consideration for evaluation. In a sense, the question of the viability of individual buyers to make payments to PG&E is taken into account in the creditworthiness criterion.

5. FAIRNESS OF PG&E'S BID EVALUATION AND SELECTION PROCESS

This section provides a narrative of how PG&E administered its evaluation and selection process and selected a short list for its Tree Mortality Non-Bypassable Charge Bundled RPS Energy Sale solicitation. Arroyo's opinion is that the bid evaluation was fairly administered.

A. GUIDELINES TO DETERMINE FAIRNESS OF EVALUATION PROCESS

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

- Were all proposals 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 proposals fair and consistent?
- Was there a reasonable justification for any fixed parameters that were a part of the IOU's LCBF methodology?
- Were the qualitative and quantitative factors used to evaluate bids fair to all bids?

Some other considerations appear relevant to reviewing PG&E's administration of its methodology.

- Were the decisions to reject higher-valued proposals from the short list because of low scores in criteria or preferences other than market valuation applied consistently across all proposals? Were the selections of lower-valued proposals in preference to higher-valued ones based on their superior attributes in non-valuation criteria made consistently, or were high-valued proposals skipped over unfairly?
- If PG&E chose to contract for a different volume of sales than strictly based on the approved framework, was the decision made fairly in how it affected bidders, and based on factors stated in Appendix J that provided details on the framework?
- Were the judgments used to make a selection based on evaluation criteria and preferences that were publicly disseminated to participants prior to bid submittal?
- Did PG&E disadvantage any class of participants (such as CCAs) in its administration of the selection methodology?

B. PG&E'S EVALUATION OF BIDS AGAINST CRITERIA

As only a single conforming bid was received in the solicitation, PG&E's evaluation of that bid was straightforward and focused on whether the bid conformed to the requirements of the solicitation protocol. There was no need to rank bids from competitors by price.

[redacted]

[redacted]

[redacted]

PG&E did not apply other evaluation criteria in making its selection.

C. RESULTS ANALYSIS

Arroyo agreed with PG&E's selection of the PCE bid for contracting. Arroyo agrees that PG&E made a reasonable and justifiable decision to select this bid, consistent with the CPUC-approved framework outlined in PG&E's 2018 RPS procurement plan. Arroyo agreed that PCE's bid met the requirements of the solicitation and did not pose unacceptable concerns for modifications of the form agreement or credit concentration.

Arroyo disagreed with PG&E's decision to accept [redacted] tardily submitted bid package for negotiations. While there have been past precedents where PG&E accepted proposals submitted after the solicitation's deadline, these have been situations in which the participant clearly intended to deliver the proposal on time but failed to do so; as for example being impeded by traffic driving to PG&E's general office by the deadline or employing a delivery service which failed to make timely delivery as promised. There is no evidence that the [redacted] ever intended to submit a timely bid; it never bothered to register for the PowerAdvocate platform to be in a position to upload a bid. [redacted] offered no excuses for sending a bid form more than 24 hours after the deadline. In the almost simultaneous 2019 Bundled RPS Energy Sale solicitation, [redacted] Arroyo's opinion is that PG&E has no obligation to reward non-conforming behavior by a participant, and that by accepting [redacted] tardy bid the utility was contravening its own solicitation protocol. The issue is moot, however, because [redacted] withdrew its tardy bid eight days after it e-mailed it. Arroyo's opinion is that the fairness with which PG&E evaluated, negotiated, and executed a contract based on PCE's bid was not affected by its acceptance of the competing tardy bid.

Arroyo does not believe that PCE was disadvantaged in any way by PG&E's acceptance of a tardy bid; the selection of PCE's bid and the negotiation of the contract with PCE as described below were not affected in any way by the tardy bid. Arroyo does not believe that competitors that could have bid for a BioRAM facilities' output were adversely affected; none of them showed up to submit a proposal. If any party was treated unfairly by PG&E's decision to accept a tardy bid, it would have been those entities that submitted tardy proposals in PG&E's past solicitations that were less than 24 hours overdue but were rejected by the utility. They might consider the rejection of their proposals and the acceptance of [redacted] even tardier bid to have been disparate and unfair treatment.

Observations regarding PG&E's administration of the evaluation methodology include:

- PG&E evaluated bids without involving any third party or the Independent Evaluator to conduct any portion of its analysis.
- Arroyo did not observe PG&E treating potential participants in disparate ways, other than accepting a bid that was submitted more than 24 hours late while the utility has in prior solicitations rejected such submittals that were that tardy or even less tardy.
- Questions from participants were answered fairly and consistently.
- The judgments that served as the basis for selecting PCE's bid for execution were based solely on evaluation criteria that were stated publicly in the solicitation protocol.
- [redacted]
- Arroyo agrees that based on PG&E's framework for evaluating the PCE bid to sell RPS-eligible energy from a BioRAM contract, the utility made reasonable and justifiable decisions for selection.

Arroyo's opinion is that, in the actual outcome, PG&E's process for evaluating and selecting the single conforming bid was fairly administered.

6. FAIRNESS OF CONTRACT-SPECIFIC NEGOTIATIONS

This chapter provides an independent review of the extent to which PG&E's negotiations with Peninsula Clean Energy Authority were conducted fairly with respect to competitors and to ratepayers. PG&E notified PCE that its bid had been selected on April 22, 2019. PG&E and PCE began negotiations later that week, concluding with execution of the agreement on May 17, 2019.

Arroyo telephonically observed negotiation sessions between the parties' commercial teams. Arroyo also reviewed marked-up draft contracts to identify specific proposals and counterproposals parties made during discussions. The starting point for negotiations was an EEI short-form confirmation agreement customized for the TM NBC sale solicitation that was posted publicly with other materials on PG&E's public website.

Arroyo's opinion is that PG&E's negotiations with PCE were conducted in a manner that was fair to competitors. The last chapter of this report describes how the contract that resulted from the negotiations also meets the requirements of the approved framework for the TM NBC renewable energy sale solicitation and therefore is fair to ratepayers.

A. PRINCIPLES FOR EVALUATING THE FAIRNESS OF NEGOTIATIONS

Arroyo employed some principles to evaluate the degree of fairness with which PG&E handled negotiations to sell renewable energy to PCE.

- Were bidders treated fairly and consistently by PG&E during negotiations? Were all bidders given equitable opportunities to advance proposals towards final agreements? Were individual bidders given unique opportunities to move their proposals forward or concessions to improve their contracts' commercial value, opportunities not provided to others?

- Was the distribution of risk between seller and buyer in the agreements distributed equitably across contracts? Did PG&E's ratepayers take on a materially disproportionate share of risks in some contracts and not others? Were individual buyers given opportunities to shift their commercial risks towards ratepayers, opportunities that were not provided to others?

- Was non-public information provided by PG&E shared fairly with all buyers? Were individual buyers uniquely given information that advantaged them in securing contracts or realizing commercial value from those contracts?

- If any individual buyer was given preferential treatment by PG&E in the course of negotiations, is there evidence that other buyers were disadvantaged by that treatment? Were other proposals of comparable value to ratepayers assigned lower priority?

B. NEGOTIATIONS BETWEEN PG&E AND PENINSULA CLEAN ENERGY

Peninsula Clean Energy Authority is a CCA and joint powers authority organized by San Mateo County and all twenty cities in the county, that began serving some retail customers in October 2016 and phased in the rest in 2017. It previously contracted with Direct Energy and Exelon Generation Company to serve as energy service providers and has also begun signing long-term contracts directly with new generators for supply. PG&E and PCE previously executed a sales transaction that arose from the utility's February 2018 Bundled RPS Energy Sales solicitation.

The parties' negotiations covered contract terms such as:

- [redacted]

  [redacted]

- [redacted]

[redacted]

- [redacted]

Arroyo views [redacted] not materially altering the balance of benefits, risks, and costs between buyer and seller from the pro forma confirmation that served as the basis for starting discussions, and consistent with PG&E's prior treatment of PCE. The negotiation resulted in a confirmation agreement whose terms are generally consistent with PG&E's treatment of other buyers of bundled RPS energy in its other solicitation. The agreement was executed on May 17, 2019.

C. FAIRNESS OF NEGOTIATIONS

In Arroyo's opinion, negotiations between PG&E and PCE were conducted fairly. PG&E endeavored to avoid any significant modifications of the confirmation agreement from its draft form and [redacted] Arroyo did not observe PG&E providing PCE with any non-public information that materially advantaged it against ratepayers or competitors.

[redacted]

[redacted]

[redacted]

CCA Code of Conduct. The CPUC adopted a code of conduct for IOUs' interactions with CCAs in Decision 12-02-009. Most of the elements of the code govern IOU marketing and lobbying activities, but rule 20 (which restates ordering paragraph 5 from Resolution E-4250) applies to PG&E's conduct of its efforts to make renewable energy sales:

> "Electrical corporations may not refuse to make economic sales of excess electricity to a community choice aggregation program, nor refuse in advance to deal with any community choice aggregation program in selling electricity because it is a community choice aggregation program."

In the course of this solicitation, PG&E agreed to deal with a CCA. Arroyo did not observe PG&E refusing to make a sale of electricity to a CCA or refusing in advance to deal with a CCA. [redacted] Arroyo's opinion is that PG&E complied with the requirements of the CCA code of conduct in how it handled negotiations.

Summary. Arroyo's opinion is that contract-specific negotiations with PCE were handled fairly with respect to competitors. No individual bidder was materially disadvantaged by PG&E's treatment of its competitors. Arroyo believes that PG&E's negotiations were consistent with the requirements of the CCA Code of Conduct. Further discussion of the contract's fairness to PG&E's ratepayers is provided in the next chapter.

7. MERIT FOR CPUC APPROVAL

This chapter provides an independent opinion on whether PG&E's contract with PCE for delivery of the output from PG&E's BioRAM contract with Wheelabrator Shasta merits approval by the CPUC. It also addresses other required topics identified in the Energy Division's template for Independent Evaluators for use in reporting.

A. FAIRNESS OF SOLICITATION

PG&E solicited bids as it sought to sell renewable energy from its two BioRAM contracts. It provided public solicitation materials that clearly stated the evaluation criteria. In the actual administration of the evaluation and selection process it adhered to the use of those stated criteria and complied with its solicitation protocol and with its approved renewable energy procurement plan, with one exception: it selected for negotiation a bid that was submitted after the due date stated in the protocol. Despite accepting this tardy proposal, no contract for sale of energy to the proposer was actually negotiated or executed. Arroyo does not believe PG&E's actions to accept a tardy bid affected the fairness with which the utility treated PCE or disadvantaged PCE against potential competitors.

While the utility did not use Portfolio-Adjusted Value as the metric for evaluation, using bid price as metric was equivalent to ranking proposals by PAV (which is the metric for PG&E's approved least-cost, best-fit methodology). The approach used for evaluating bids was consistent with the framework laid out in confidential Appendix J of PG&E's CPUC-approved 2018 procurement plan that governs the utility's approach to the TM NBC sale solicitation. PG&E's negotiations with PCE were handled fairly with respect to competitors and to ratepayers.

Overall, Arroyo believes that PG&E ran a solicitation that, in its results, was consistent with CPUC Decisions, consistent with PG&E's approved LCBF methodology, and fair to PCE and its competitors.

B. BIDS WITH BEST OVERALL VALUE TO RATEPAYERS

PG&E selected the best and only conforming bid received, best in terms of ratepayer value as indicated by bid price and adhering to the approved sales framework.

C. CONSISTENCY WITH PROTOCOL AND PROCUREMENT PLAN

PG&E's sale of bundled energy in the contract conforms with its 2018 RPS procurement plan, in which the utility states its intent to sell RPS volumes, and more specifically conforms to the detailed framework for the TM NBC sale solicitation provided as an appendix to the plan. The sale conforms to the needs of PG&E's portfolio and its RPS requirements, because it reduces the excess RPS procurement level and PG&E's excess REC bank by selling now for ratepayer benefits instead of carrying forward to future periods. PG&E's process of evaluating and selecting bids was consistent with the solicitation protocol, with the one exception of selecting a tardy bid, and Arroyo's opinion is that the selection of PCE's proposal to negotiate a contract was reasonable.

D. MERIT FOR CPUC APPROVAL

This section reports on the IE's view of the merits of the contract with PCE.

Pricing and market value. PG&E will sell bundled PCC1-eligible renewable energy at market index plus a REC price [redacted] There are relatively few public benchmarks available to ascertain whether this is a reasonable price, given the illiquidity and opacity of the market for California RPS-eligible energy. Arroyo does not participate in REC markets and cannot directly monitor non-public commercial transactions other than some of PG&E's.

PG&E's most recently closed competitive solicitation to sell renewable energy in late 2018 elicited bids priced at [redacted] The CPUC approved those transactions. [redacted]

Note that because the sale to PCE of the output of the Wheelabrator Shasta facility is unit-contingent, the product transacted in this contract differs in risk profile from the bundled RPS energy sales contracts that were executed in that prior solicitation. Also, the current transaction is for RPS energy from a single biomass-fueled facility rather than from a portfolio of renewable resources and technologies. Delivery volumetric risk for a sale from an entire portfolio is diversified while the volume risk from selling from one facility is un-diversified. Arroyo's opinion is that the market value for a unit-contingent energy contract may reasonably be lower than that of contracts for deliveries with greater volume certainty because of the difference in risk profile. Market pricing benchmarks discussed here are mostly for specific firm volumes sold from a portfolio, not unit-contingent sales.

PG&E recently received bids for its 2019 Bundled RPS Energy Sale solicitation. [redacted]

There are some pricing data for recent renewable energy sales to or from publicly-owned utilities and CCAs for deliveries in 2019 and 2020 that have been made public:

- At the beginning of 2016, Silicon Valley Power (the city of Santa Clara) offered a ten-year agreement to sell 36.3 GWh/year of PCC1 energy to Alameda Municipal Power for the 2018 – 2027 period at market index + $15/MWh. The latter opted instead to execute a fixed price contract but the indicative pricing demonstrates the seller's view of an acceptable sale price.

- The city of Roseville executed a ten-year contract in early 2015 with Powerex to provide it with 75 GWh/year of PCC1 energy. The pricing of deliveries escalates with each contract year. The contract pricing for deliveries to Roseville is market index + $15.30 and $16.30/MWh in 2020 and 2021.

- In summer 2016, the city of Pasadena approved a four-year contract with Powerex to buy both PCC1 and PCC2 energy in the 2017 – 2020 period. The sale includes a total of 17.5 GWh of PCC1 energy priced at market index + $13.95/MWh.

  Pasadena subsequently contracted with Powerex in April 2018 for further deliveries of PCC1 and PCC2 energy. The PCC1 deliveries will be made from 2020 to 2030, at 70 GWh per year, and are priced at market index + $16.30/MWh.

- In February 2017 SVCE executed a PPA with Regenerate Power LLC, the Palo Alto-based developer of a new solar photovoltaic project in the Imperial Valley, for deliveries of PCC1 energy during the 2018 – 2021 period. The total price for bundled PCC1 energy under this contract was $42, $40.5, $39.3, and $39 per MWh for the delivery years 2018, 2019, 2020, and 2021 respectively. The fixed-price transaction differs in structure from PG&E's sale of bundled PCC1 energy, so one can only guess what REC price was implied for the transaction. Arroyo speculates that the implied REC price for the delivery period, as of spring 2017, may have been less than $14/MWh but would depend on the parties' assumed forward energy pricing curves and their expectations for the shape of the generation profile and the hourly market pricing profile.

- In January 2018 Redwood Coast Energy Authority executed a PPA with DG Fairhaven, LLC, the owner of a biomass-fueled generator on the Samoa peninsula in Humboldt County, for deliveries of 87.6 GWh of PCC1 energy from March 2018 through February 2019, with potential for extensions. The price for the base PCC1 energy deliveries is $65/MWh, and the contract calls for payments of market index plus a REC price of $14.50/MWh for deliveries above the contract capacity of 10 MW in any settlement period (the generation unit has net rated capacity of 17.25 MW).

  In January 2019 RCEA agreed to extend its contract with DG Fairhaven into the March – December 2019 period; deliveries would be priced again at $65/MWh in March, but drop to $59/MWh in the April through December period because DG Fairhaven sold the Resource Adequacy provided by the facility to another buyer. Price would increase to $67/MWh in 2020, and will be increased in 2021 based on changes in consumer price index.

RCEA similarly extended its contract with Humboldt Redwood Company with pricing of PCC1 deliveries at $67/MWh in 2020 and escalating starting in 2021 based on CPI increases.

Arroyo notes that the prices for these PPAs is far above market price for PCC1 energy, but this CCA counts among its objectives the development of local Humboldt County renewable resources and energy-related economic advancement. The pricing of surplus delivered energy in the DG Fairhaven agreement, however, appears to be priced at the CCA's view of fair market price for PCC1 energy deliveries. Note also that these contracts are for deliveries from individual biomass-fueled facilities, as is PG&E's sale of energy generated by the Wheelabrator Shasta facility. However, the volumes in RCEA's contracts are for firm energy at specified volumes, not unit-contingent.

- In December 2017, the Southern California Public Power Authority, acting as agent on behalf of the cities of Anaheim, Burbank, and Vernon, entered a 25-year PPA with Desert Harvest II for deliveries of PCC1 energy at a price of market index + $15.25/MWh. Deliveries will commence upon commercial operation, which was expected to be December 2020.

- In 2018, the city of Santa Clara and 3Degrees Group, Inc. amended an existing contract to accommodate purchases of RECs for delivery to customers of the city utility Silicon Valley Power through 2021. The RECs are priced at $15/MWh, to be matched with customer usage. However, this is not an apples-to-apples comparison with PG&E's bundled RPS energy sale, because 3Degrees is delivering Green-e Energy Certified RECS that may be sourced from solar projects anywhere in the WECC with a "preferred generation location of California."

- Northern California Power Agency serves the electricity procurement function for the CCA Pioneer Community Energy. In July 2018 it reported to PCE its results for RPS-eligible energy procurement, showing actual price of $15/MWh for PCC1 RECs for delivery in February through May 2018 and $16.25/MWh for PCC1 RECs for delivery in June through December 2018.

- In its 2018 Integrated Resource Plan, released in September 2018, the city of Riverside stated its intent to sell excess PCC1 energy through 2020, expecting a sales price of $16/REC. The city's IRP is premised on market quotes it obtained in 2018.

Other older transactions for PCC1 energy are also publicly visible, but these may be poorer benchmarks for a transaction for deliveries in the 2019 – 2022 timeframe.

The contract price for deliveries to PCE [redacted] The comparison of prices to those of publicly visible transactions of the recent past supports a view that the price of the PCE contract is fair and reasonable. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

<u>Portfolio fit.</u> The bundled RECs that are to be sold to PCE are expected to be surplus to PG&E's RPS compliance needs, though the BioRAM contracts were executed based on the tree mortality mandate. Arroyo believes that it is advantageous to ratepayers for PG&E to sell surplus RECs at or above market price rather than to hold them for RPS compliance needs later. PG&E's estimates indicate that its RPS net position in the third and fourth compliance periods is long, so the PCE contract fits with the utility's portfolio strategy of reducing the surplus REC position in 2019 and 2020 and monetizing part of the surplus for

near-term ratepayer value through bundled RPS energy sales. In any case the resale of the energy from the Wheelabrator Shasta facility is a regulatory mandate.

Summary. The PCE contract was consummated at a price that appears to be near or within the range of market pricing for PCC1 RECs available for the delivery years in question, based on a very limited number of publicly visible comparable transactions and based on comparison to sales contracts that PG&E executed with buyers in 2018 and 2019. The contract is consistent with PG&E's 2018 RPS procurement plan and its framework for the TM NBC sale solicitation, and fits well with PG&E's strategy for RPS portfolio management. Arroyo's opinion is that the methodology for evaluating and selecting a short list and the administration of that methodology were fair. [redacted]

Arroyo believes that PG&E's negotiations with PCE were handled fairly with respect to competitors and ratepayers. The allocation of costs and risks between ratepayers and the buyer that resulted from negotiations was, overall, consistent with PG&E's past practices. Arroyo's opinion is that PG&E's actions in negotiating and transacting or not transacting with CCAs in the course of this solicitation complied fully with the CCA code of conduct.

On that basis, Arroyo's opinion is that PG&E's contract with Peninsula Clean Energy Authority resulting from the TM NBC sale solicitation merits CPUC approval.

PACIFIC GAS AND ELECTRIC COMPANY

Appendix D

Summary of Contracts

(CONFIDENTIAL)

PACIFIC GAS AND ELECTRIC COMPANY

Appendix E

Comparison of PPSA of with Peninsula Clean Energy Authority with PG&E's 2018 Pro Forma RPS Short-Term Sales Confirmation

(CONFIDENTIAL)

PACIFIC GAS AND ELECTRIC COMPANY

Appendix F

Power Purchase and Sale Agreement with Peninsula Clean Energy Authority

(CONFIDENTIAL)

PACIFIC GAS AND ELECTRIC COMPANY

Appendix G

PG&E Notification of Solicitation Issuance

Appendix G

Notification of Solicitation

As mentioned in section I.D.6. of this Advice Letter, PG&E notified previously-identified RPS-obligated entities likely to have an interest in the product and, to ensure a robust response, sent the market notice to PG&E's Wholesale Electric Power Procurement distribution list containing almost 3,000 contacts. A sample of the electronic market notice of the 2019 Tree Mortality Non-Bypassable Charge Bundled Renewable Portfolio Standard Solicitation issuance is provided below.

Pacific Gas and Electric Company

View this email in your browser

Market Participants,

PG&E is pleased to announce the issuance of its 2019 Tree Mortality Non-Bypassable Charge (TMNBC) Bundled Renewable Portfolio Standard (RPS) Energy Sale Solicitation to make available for sale the bundled RPS-eligible energy and corresponding Renewable Energy Credits (RECs) generated by PG&E's existing Tree Mortality Power Purchase Agreements (TM PPAs) pursuant to a confirmation. To be considered in this solicitation, all bids are due no later than **1:00 PM Pacific Prevailing Time (PPT) on April 17, 2019.**

For parties interested in finding out more information on the TMNBC Bundled RPS Energy Sale Solicitation, all solicitation materials are available on PG&E's website at: www.pge.com/rfo/tmnbc

PG&E will use the Power Advocate platform for the receipt of bids in this solicitation. All participants are required to pre-register through Power Advocate in order to submit a bid. The instructions for bid submittal are available on PG&E's website at the link above.

Any questions regarding this solicitation may be directed to: TMNBCrecsales@pge.com with a copy to the Independent Evaluator, Lewis Hashimoto at arroyosecoconsulting@gmail.com. We look forward to your participation.

Regards,
PG&E

PACIFIC GAS AND ELECTRIC COMPANY

Appendix H

PG&E Solicitation Bid Form

Electric Company

Tree Mortality Non-Bypassable Charge (TMNBC) Bundled Renewable Portfolio Standard (RPS) Energy Sale Solicitation Bid Form

0% Complete

0 of 36 input requirements satisfied

ENABLE MACROS OR THIS WORKBOOK WILL NOT FUNCTION PROPERLY.

Macros can be enabled by clicking the "Enable Macros" button on the "Microsoft Excel Security Notice" that is displayed before the form opens...

Enable Macros | Disable Macros

...or by clicking the "Enable Content" button that is sometimes displayed at the top of the screen when the form first opens.

Security Warning Macros have been disabled. Enable Content

Contact Information	
Bidder Name:	
Bidder Type:	
Email:	
Phone:	
Street:	
City:	
State:	
Zip:	

Buyer/Counterparty same as Bidder	<Choose>

Buyer/Counterparty:	
Buyer/Counterparty Type:	
If "Other", please specify Buyer/Counterparty Type:	
Email:	
Phone:	
Street:	
City:	
State:	
Zip:	

Facility Name: Burney Forest Products	
I am submitting a bid for this facility	<Choose>

Facility Name: Wheelabrator Shasta	
I am submitting a bid for this facility	<Choose>

Participant's Non-Disclosure Agreement (NDA)	
By submitting an offer, Participant agrees to adhere and be bound by the confidentiality provisions described in the 2019 Tree Mortality Non-Bypassable Charge (TMNBC) Bundled Renewable Portfolio Standard (RPS) Energy Sale Solicitation Protocol and the Confidentiality Agreement included as Attachment C to the Solicitation Protocol.	
Title:	
Electronic Signature:	
Select "Yes" to certify that the typed name acts as your electronic signature.	

Acknowledgement of Protocol	
By selecting "Yes" Participant hereby agrees to the terms of the Solicitation Protocol. Participant acknowledges that any costs incurred to become eligible or remain eligible for the solicitation, and any costs incurred to prepare a bid for this solicitation are solely the responsibility of Participant.	
Title:	
Electronic Signature:	
Select "Yes" to certify that the typed name acts as your electronic signature.	

Participant Authorization	
By selecting "Yes" Participant hereby confirms that they are "a duly authorized representative of Participant."	
Title:	
Electronic Signature:	
Select "Yes" to certify that the typed name acts as your electronic signature.	

Attestation	
By providing the electronic signature below Participant hereby attests that all information provided in this Bid Package and in response to this 2019 Tree Mortality Non-Bypassable Charge (TMNBC) Bundled Renewable Portfolio Standard (RPS) Energy Sale Solicitation Solicitation is true and correct to the best of Participant's knowledge as of the date such information is provided.	
Title:	
Electronic Signature:	
Select "Yes" to certify that the typed name acts as your electronic signature.	

PACIFIC GAS AND ELECTRIC COMPANY

Appendix I

PG&E's Renewable Net Short Calculation

(REDACTED)

Table 1: Renewable Net Short Calculation as of Jan 2019

Net Short Calculation Using PG&E Bundled Retail Sales Forecast In Near Term (2018 - 2022) and 2017-2018 IRP Cycle Forecast (2023 - 2036)

Variable	Calculation in Energy Division RNS Calculation Template	Revised Calculation Correcting Apparent Errors in Energy Division Template	Item	Deficit from RPS prior to Reporting Year	2011 Actuals	2012 Actuals	2013 Actuals	2011-2013	2014 Actuals	2015 Actuals	2016 Actuals	2014-2016	2017 Actuals	2018 Actuals	2019 Forecast
			Forecast Year		-	-	-	CP1	-	-	-	CP2	-	-	-
			Annual RPS Requirement												
A			Bundled Retail Sales Forecast (LTPP)1		74,864	76,205	75,705	226,774	74,547	72,113	68,441	215,101	61,397	48,832	38,055
B			RPS Procurement Quantity Requirement (%)		20.0%	20.0%	20.0%	20.0%	21.7%	23.3%	25.0%	23.3%	27.0%	29.0%	31.0%
C	A*B		**Gross RPS Procurement Quantity Requirement (GWh)**		14,973	15,241	15,141	45,355	16,177	16,802	17,110	50,089	16,577	14,161	11,797
D			Voluntary Margin of Over-procurement2		-	-	-	-	-	-	-	-	-	-	-
E	C+D		**Net RPS Procurement Need (GWh)**		14,973	15,241	15,141	45,355	16,177	16,802	17,110	50,089	16,577	14,161	11,797
			RPS-Eligible Procurement												
Fa			Risk-Adjusted RECs from Online Generation3		14,699	14,513	17,212	46,424	20,207	21,285	22,551	64,042	22,345	20,453	20,682
Faa			Forecast Failure Rate for Online Generation (%)		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fb			Risk-Adjusted RECs from RPS Facilities in Development4		-	-	-	-	-	-	0	-	-	-	433
Fbb			Forecast Failure Rate for RPS Facilities in Development (%)		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fc			Pre-Approved Generic RECs		-	-	-	-	-	-	-	-	-	-	-
Fd			Executed REC Sales		-	-	(142)	(142)	(50)	-	(60)	(110)	(2,069)	(1,441)	(8,001)
F	Fa + Fb +Fc - Fd	Fa + Fb +Fc + Fd	Total RPS Eligible Procurement (GWh)5		14,699	14,513	17,069	46,281	20,157	21,285	22,491	63,932	20,276	19,012	13,115
F0			Category 0 RECs		14,651	13,049	14,163	41,863	16,899	17,408	17,914	52,222	14,804	13,471	10,705
F1			Category 1 RECs		48	1,464	2,906	4,418	3,257	3,876	4,577	11,710	5,471	5,542	2,410
F2			Category 2 RECs		-	-	-	-	-	-	-	-	-	-	-
F3			Category 3 RECs		-	-	-	-	-	-	-	-	-	-	-
			Gross RPS Position (Physical Net Short)												
Ga	F-E		**Annual Gross RPS Position (GWh)**		(274)	(728)	1,928	926	3,980	4,482	5,381	13,843	3,699	4,851	1,318
Gb	F/A		**Annual Gross RPS Position (%)**		19.6%	19.0%	22.5%	20.4%	27.0%	29.5%	32.9%	29.7%	33.0%	38.9%	34.5%
			Application of Bank												
Ha	H - Hc (from previous year)	J - Hc (from previous year)	Existing Banked RECs above the PQR6,7		-	(274)	(1,033)	-	861	4,815	9,274	861	14,630	18,200	23,046
Hb			RECs above the PQR added to Bank		(274)	(728)	1,928	926	3,980	4,482	5,381	13,843	3,699	4,851	1,318
Hc			Non-bankable RECs above the PQR8		-	31	34	65	26	23	25	74	129	2	-
H	Ha+Hb		Gross Balance of RECs above the PQR		(274)	(1,002)	895	926	4,841	9,297	14,655	14,704	18,329	23,051	24,364
Ia			Planned Application of RECs above the PQR towards RPS Compliance		-	-	-	-	-	-	-	-	-	-	
Ib			Planned Sales of RECs above the PQR9		-	-	-	-	-	-	-	-	-	-	
J	H-Ia-Ib	H-Ia+Ib	Net Balance of RECs above the PQR6		(274)	(1,002)	895	926	4,841	9,297	14,655	14,704	18,329	23,048	24,364
J0			Category 0 RECs		-	-	-	-	657	1,237	2,019	2,067	2,067	2,067	2,067
J1			Category 1 RECs		-	-	895	926	4,184	8,060	12,636	12,636	16,261	20,981	22,296
J2			Category 2 RECs		-	-	-	-	-	-	-	-	-	-	
			Expiring Contracts												
K			RECs from Expiring RPS Contracts10		N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	29	432
			Net RPS Position (Optimized Net Short)												
La	Ga + Ia – Ib – Hc	Ga + Ia + Ib	**Annual Net RPS Position after Bank Optimization (GWh)11**		(274)	(728)	1,928	926	3,980	4,482	5,381	13,843	3,699	4,851	1,318
Lb	(F + Ia – Ib – Hc)/A	(C + La) / A	**Annual Net RPS Position after Bank Optimization (%)11, 12**		19.6%	19.0%	22.5%	20.4%	27.0%	29.5%	32.9%	29.7%	33.0%	38.9%	34.5%

Variable	Item	2020 Forecast	2017-2020	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast	2021 - 2024	2025 Forecast	2026 Forecast	2027 Forecast	2025 - 2027	2028 Forecast	2029 Forecast	2030 Forecast	2028 - 2030	2031 Forecast	2032 Forecast	2033 Forecast	2031 - 2033	2034 Forecast	2035 Forecast	2036 Forecast	2034- 2036
	Forecast Year	-	CP3	-	-	-	-	CP4	-	-	-	CP5	-	-	-	CP6	-	-	-	CP7	-	-	-	CP8
	Annual RPS Requirement																							
A	Bundled Retail Sales Forecast (LTPP)1	[redacted]			33,733	32,486	32,026	[redacted]	31,938	32,056	32,162	96,156	32,357	32,730	33,126	98,213	33,666	34,277	34,954	102,898	35,713	36,572	37,506	109,792
B	RPS Procurement Quantity Requirement (%)	33.0%	30.0%	35.8%	38.5%	41.3%	44.0%	39.9%	46.7%	49.3%	52.0%	49.3%	54.7%	57.3%	60.0%	57.3%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
C	**Gross RPS Procurement Quantity Requirement (GWh)**	[redacted]			12,987	13,401	14,091	[redacted]	14,904	15,814	16,724	47,443	17,688	18,765	19,876	56,329	20,200	20,566	20,973	61,739	21,428	21,943	22,504	65,875
D	Voluntary Margin of Over-procurement2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	**Net RPS Procurement Need (GWh)**	[redacted]			12,987	13,401	14,091	[redacted]	14,904	15,814	16,724	47,443	17,688	18,765	19,876	56,329	20,200	20,566	20,973	61,739	21,428	21,943	22,504	65,875
	RPS-Eligible Procurement																							
Fa	Risk-Adjusted RECs from Online Generation3	20,451	83,932	20,246	17,777	17,027	16,751	71,800	16,589	16,058	15,800	48,447	15,748	15,173	15,101	46,023	14,338	13,794	12,558	40,689	11,296	10,187	9,506	30,990
Faa	Forecast Failure Rate for Online Generation (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fb	Risk-Adjusted RECs from RPS Facilities in Development4	642	1,075	1,081	1,090	1,087	1,085	4,343	1,078	1,073	1,069	3,220	1,066	1,059	1,055	3,180	1,050	1,047	1,040	3,138	663	595	270	1,529
Fbb	Forecast Failure Rate for RPS Facilities in Development (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fc	Pre-Approved Generic RECs	83	83	263	442	576	674	1,955	770	851	917	2,538	924	921	921	2,766	920	922	919	2,762	919	919	921	2,758
Fd	Executed REC Sales	(3,646)	(15,157)	(300)	-	-	-	(300)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	Total RPS Eligible Procurement (GWh)5	17,529	69,932	21,290	19,308	18,690	18,510	77,798	18,437	17,983	17,786	54,205	17,738	17,154	17,077	51,969	16,308	15,763	14,518	46,589	12,878	11,701	10,697	35,277
F0	Category 0 RECs	12,264	51,244	13,277	11,191	10,896	10,669	46,034	10,548	10,039	9,807	30,394	9,763	9,233	9,188	28,184	8,516	8,412	7,783	24,710	7,153	6,705	6,695	20,553
F1	Category 1 RECs	5,265	18,688	8,013	8,118	7,793	7,840	31,764	7,889	7,943	7,979	23,811	7,975	7,921	7,889	23,785	7,792	7,351	6,735	21,879	5,725	4,996	4,003	14,724
F2	Category 2 RECs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F3	Category 3 RECs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gross RPS Position (Physical Net Short)																							
Ga	**Annual Gross RPS Position (GWh)**	[redacted]			6,321	5,289	4,419	[redacted]	3,533	2,168	1,061	6,762	50	(1,612)	(2,799)	(4,360)	(3,892)	(4,803)	(6,455)	(15,150)	(8,550)	(10,242)	(11,806)	(30,598)
Gb	**Annual Gross RPS Position (%)**	[redacted]			57.2%	57.5%	57.8%	[redacted]	57.7%	56.1%	55.3%	56.4%	54.8%	52.4%	51.6%	52.9%	48.4%	46.0%	41.5%	45.3%	36.1%	32.0%	28.5%	32.1%
	Application of Bank																							
Ha	Existing Banked RECs above the PQR6,7	[redacted]																						
Hb	RECs above the PQR added to Bank																							
Hc	Non-bankable RECs above the PQR8	-	132	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	Gross Balance of RECs above the PQR	[redacted]																						
Ia	Planned Application of RECs above the PQR towards RPS Compliance																							
Ib	Planned Sales of RECs above the PQR9																							
J	Net Balance of RECs above the PQR6																							
J0	Category 0 RECs																							
J1	Category 1 RECs																							
J2	Category 2 RECs																							
	Expiring Contracts																							
K	RECs from Expiring RPS Contracts10	746	1,207	1,046	3,460	4,160	4,437	13,104	4,500	4,981	5,192	14,674	5,245	5,722	5,747	16,714	6,066	6,609	7,868	20,543	9,647	10,760	11,745	32,152
	Net RPS Position (Optimized Net Short)																							
La	**Annual Net RPS Position after Bank Optimization (GWh)11**	[redacted]																						
Lb	**Annual Net RPS Position after Bank Optimization (%)11, 12**																							

General Table Notes: Values are shown in GWhs. Fields in grey are protected as Confidential under CPUC Confidentiality Rules.

(1) (Row A) Forecasts of retail sales through 2022 are reflective of PG&E's internal bundled retail sales forecast less interdepartmental (metered usage at PG&E-owned facilities) and GTSR sales.

Forecasts post-2022 use the 2017-2018 IRP Cycle forecast (successor to LTPP proceeding planning process).

(2) (Row D) As a portion of the Bank will be used as VMOP, Row D will remain zero. See 2018 RPS Plan for a description of PG&E's VMOP.

(3) (Row Fa) "Online Generation" includes forecasted volumes from replacement contracts (i.e. ReMAT contracts replacing QF contracts) for facilities that are already online.

(4) (Row Fb) "In Development" includes forecasted volumes from phase-in projects. This is consistent with labeling in the RPS Database (which labels phase-in projects as "In Development" under "Overall Project Status").

(5) (Row F) Row F has subtracted 134 GWh of RECs associated with 2011 generation from the Hay Canyon Wind Facility and the Nine Canyon Wind Phase 3. These RECs are not being used for RPS compliance because they were not retired within the RPS statute's 36-month REC retirement deadline.

(6) (Rows Ha and J) As PG&E's Alternative RNS incorporates additional risk-adjustments to the results from the Physical Net Short, the Bank sizes indicated in Rows Ha and J may differ from Rows Ha and J of the Alternative RNS, which shows the stochastically-adjusted Bank size.

(7) (Rows Ha) At the beginning of each compliance period Row Ha subtracts previous compliance non-bankable volumes from the previous compliance period net balance of RECs. For example, the 2021 forecast for Row Ha is equivalent to the Row J in CP3 minus Row Hc in CP3.

(8) (Row Hc) For 2017-2020, while PG&E has not elected early compliance with the banking rules established in D.17-06-026, PG&E has modeled the new banking rules herein for planning purposes. Forecasts post-2020 reflect compliance period banking rules pursuant to D. 17-06-026.

(9) (Row Ib) The annual RPS sales volume forecast assumption is based on actual RPS sales completed in 2018 and is included for RPS position planning purposes. Row Ib is reduced by executed REC sales volumes included in row Fd.

(10) (Row K) Row K now includes only expiring volumes from contracts as of January 2019.

(11) (Rows La and Lb) Rows La and Lb incorrectly subtract the non-bankable volumes. Although these volumes can not be carried forward, per Decision 12-06-038, these volumes could be used towards meeting compliance in the current period. Therefore, the non-bankable volumes should be included in the Annual Net RPS Position after Bank Optimization.

(12) (Row Lb) Row Lb incorrectly calculates the Annual Net RPS Position after Bank Optimization.

PACIFIC GAS AND ELECTRIC COMPANY

Appendix J

PG&E's Alternative Renewable Net Short Calculation

(REDACTED)

Table 2: Alternative Renewable Net Short Calculation as of Jan 2019

Stochastically-Optimized Net Short Calculation Using PG&E Bundled Retail Sales Forecast and Corrections to Formulas

Variable	Calculation in Energy Division RNS Calculation Template	Revised Calculation Correcting Apparent Errors in Energy Division Template	Item	2011 Actuals	2012 Actuals	2013 Actuals	**2011-2013**	2014 Actuals	2015 Actuals	2016 Actuals	**2014-2016**	2017 Actuals	2018 Actuals	2019 Forecast	2020 Forecast	**2017-2020**	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast	**2021 - 2024**	2025 Forecast	2026 Forecast	2027 Forecast	**2025 - 2027**	2028 Forecast	2029 Forecast	2030 Forecast	**2028 - 2030**	2031 Forecast	2032 Forecast	2033 Forecast	**2031 - 2033**	2034 Forecast	2035 Forecast	2036 Forecast	**2034 - 2036**
			Forecast Year	-	-	-	CP1	-	-	-	CP2	-	-	-	-	CP3	-	-	-	-	CP4	-	-	-	CP5	-	-	-	CP6	-	-	-	CP7	-	-	-	CP8
			Annual RPS Requirement																																		
A			Bundled Retail Sales Forecast (Alternate)[1]	74,864	76,205	75,705	226,774	74,547	72,113	68,441	215,101	61,397	48,832	38,055	[redacted]			33,733	32,486	32,026	[redacted]	31,938	32,056	32,162	96,156	32,357	32,730	33,126	98,213	33,666	34,277	34,954	102,898	35,713	36,572	37,506	109,792
B			RPS Procurement Quantity Requirement (%)[2]	20.0%	20.0%	20.0%	20.0%	21.7%	23.3%	25.0%	23.3%	27.0%	29.0%	31.0%	33.0%	30.0%	35.8%	38.5%	41.3%	44.0%	39.9%	46.7%	49.3%	52.0%	49.3%	54.7%	57.3%	60.0%	57.3%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
C	A*B		**Gross RPS Procurement Quantity Requirement (GWh)**	14,973	15,241	15,141	45,355	16,177	16,802	17,110	50,089	16,577	14,161	11,797	[redacted]			12,987	13,401	14,091	[redacted]	14,904	15,814	16,724	47,443	17,688	18,765	19,876	56,329	20,200	20,566	20,973	61,739	21,428	21,943	22,504	65,875
D			Voluntary Margin of Over-procurement[3]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	C+D		**Net RPS Procurement Need (GWh)**	14,973	15,241	15,141	45,355	16,177	16,802	17,110	50,089	16,577	14,161	11,797	[redacted]			12,987	13,401	14,091	[redacted]	14,904	15,814	16,724	47,443	17,688	18,765	19,876	56,329	20,200	20,566	20,973	61,739	21,428	21,943	22,504	65,875
			RPS-Eligible Procurement																																		
Fa			Risk-Adjusted RECs from Online Generation[4]	14,699	14,513	17,212	46,424	20,207	21,285	22,551	64,042	22,345	20,453	20,682	20,451	83,932	20,246	17,777	17,027	16,751	71,800	16,589	16,058	15,800	48,447	15,748	15,173	15,101	46,023	14,338	13,794	12,558	40,689	11,296	10,187	9,506	30,990
Faa			Forecast Failure Rate for Online Generation (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fb			Risk-Adjusted RECs from RPS Facilities in Development[5]	-	-	-	-	-	-	-	-	-	-	433	642	1,075	1,081	1,090	1,087	1,085	4,343	1,078	1,073	1,069	3,220	1,066	1,059	1,055	3,180	1,050	1,047	1,040	3,138	663	595	270	1,529
Fbb			Forecast Failure Rate for RPS Facilities in Development (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fc			Pre-Approved Generic RECs	-	-	-	-	-	-	-	-	-	-	-	83	83	263	442	576	674	1,955	770	851	917	2,538	924	921	921	2,766	920	922	919	2,762	919	919	921	2,758
Fd			Executed REC Sales	-	-	(142)	(142)	(50)	-	(60)	(110)	(2,069)	(1,441)	(8,001)	(3,646)	(15,157)	(300)	-	-	-	(300)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	Fa + Fb +Fc - Fd		Total RPS Eligible Procurement (GWh)[6]	14,699	14,513	17,069	46,281	20,157	21,285	22,491	63,932	20,276	19,012	13,115	17,529	69,932	21,290	19,308	18,690	18,510	77,798	18,437	17,983	17,786	54,205	17,738	17,154	17,077	51,969	16,308	15,763	14,518	46,589	12,878	11,701	10,697	35,277
F0			Category 0 RECs	14,651	13,049	14,163	41,863	16,899	17,408	17,914	52,222	14,804	13,471	10,705	12,264	51,244	13,277	11,191	10,896	10,669	46,034	10,548	10,039	9,807	30,394	9,763	9,233	9,188	28,184	8,516	8,412	7,783	24,710	7,153	6,705	6,695	20,553
F1			Category 1 RECs	48	1,464	2,906	4,418	3,257	3,876	4,577	11,710	5,471	5,542	2,410	5,265	18,688	8,013	8,118	7,793	7,840	31,764	7,889	7,943	7,979	23,811	7,975	7,921	7,889	23,785	7,792	7,351	6,735	21,879	5,725	4,996	4,003	14,724
F2			Category 2 RECs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F3			Category 3 RECs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Step 1 Result: Physical Net Short[7]																																		
Ga	F-E		**Annual Gross RPS Position (GWh)**	(274)	(728)	1,928	926	3,980	4,482	5,381	13,843	3,699	4,851	1,318	[redacted]			6,321	5,289	4,419	[redacted]	3,533	2,168	1,061	6,762	50	(1,612)	(2,799)	(4,360)	(3,892)	(4,803)	(6,455)	(15,150)	(8,550)	(10,242)	(11,806)	(30,598)
Gb	F/A		**Annual Gross RPS Position (%)**	19.6%	19.0%	22.5%	20.4%	27.0%	29.5%	32.9%	29.7%	33.0%	38.9%	34.5%				57.2%	57.5%	57.8%		57.7%	56.1%	55.3%	56.4%	54.8%	52.4%	51.6%	52.9%	48.4%	46.0%	41.5%	45.3%	36.1%	32.0%	28.5%	32.1%

PG&E's Alternative RNS Table - Stochastic-Adjustment (2018-2033)[8]

Variable	Calculation in Energy Division RNS Calculation Template	Revised Calculation Correcting Apparent Errors in Energy Division Template	Item	2011 Actuals	2012 Actuals	2013 Actuals	2011-2013 Actuals	2014 Actuals	2015 Actuals	2016 Actuals	**2014-2016**	2017 Actuals	2018 Actuals	2019 Forecast	2020 Forecast	**2017-2020**	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast	**2021 - 2024**	2025 Forecast	2026 Forecast	2027 Forecast	**2025 - 2027**	2028 Forecast	2029 Forecast	2030 Forecast	**2028 - 2030**	2031 Forecast	2032 Forecast	2033 Forecast	**2031 - 2033**
			Step 2 Result: Stochastically-Adjusted Net Short (Physical Net Short + Stochastic Risk-Adjustment)[9]																														
Gd			**Stochastically-Adjusted Annual Gross RPS Position (GWh)**	(274)	(728)	1,928	926	3,980	4,482	5,381	13,843	3,699	4,851	[redacted]																			
Ge			**Stochastically-Adjusted Annual Gross RPS Position (%)**	19.6%	19.0%	22.5%	20.4%	27.0%	29.5%	32.9%	29.7%	33.0%	38.9%																				
			Application of Bank																														
Ha	H - Hc (from previous year)	J - Hc (from previous year)	Existing Banked RECs above the PQR (The Bank at Beg. Of Period)[10,11]	-	(274)	(1,033)	-	861	4,815	9,274	861	14,630	18,200	[redacted]																			
Hb			RECs above the PQR added to Bank	(274)	(728)	1,928	926	3,980	4,482	5,381	13,843	3,699	4,851																				
Hc			Non-bankable RECs above the PQR	-	31	34	65	26	23	25	74	129	2	-	-	132	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	Ha+Hb		Gross Balance of RECs above the PQR	(274)	(1,002)	895	926	4,841	9,297	14,655	14,704	18,329	23,051	[redacted]																			
Ia			Planned Application of RECs above the PQR towards RPS Compliance	-	-	-	-	-	-	-	-	-																					
Ib			Planned Sales of RECs above the PQR[12]	-	-	-	-	-	-	-	-	-																					
J	H-Ia-Ib	H-Ia+Ib	Net Balance of RECs above the PQR (The Bank at End of Period)[10]	(274)	(1,002)	895	926	4,841	9,297	14,655	14,704	18,329	23,048																				
J0			Category 0 RECs	-	-	-	-	657	1,237	2,019	2,067	2,067	2,067																				
J1			Category 1 RECs	-	-	895	926	4,184	8,060	12,636	12,636	16,261	20,981																				
J2			Category 2 RECs	-	-	-	-	-	-	-	-	-																					
			Expiring Contracts																														
K			RECs from Expiring RPS Contracts[13]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	29	432	746	1,207	1,046	3,460	4,160	4,437	13,104	4,500	4,981	5,192	14,674	5,245	5,722	5,747	16,714	6,066	6,609	7,868	20,543
			Step 3 Result: Stochastically-Optimized Net Short (Stochastically-Adjusted Net Short + Application of Bank)[14]																														
La	Ga + Ia – Ib – Hc	Gd+Ia+Ib	**Annual Net RPS Position after Bank Optimization (GWh)[14]**	(274)	(728)	1,928	926	3,980	4,482	5,381	13,843	3,699	4,851	[redacted]																			
Lb	(F + Ia – Ib – Hc)/A	(C + La) / A	**Annual Net RPS Position after Bank Optimization (%)[14]**	19.6%	19.0%	22.5%	20.4%	27.0%	29.5%	32.9%	29.7%	33.0%	38.9%																				

General Table Notes: Values are shown in GWhs. Fields in grey are protected as Confidential under CPUC Confidentiality Rules.

(1) (Row A) PG&E uses its September 2018 internal bundled retail sales forecast less interdepartmental (metered usage at PG&E-owned facilities) and GTSR sales for its procurement decisions.

(2) (Row B) RPS procurement quantity requirements are based on the SB 100 compliance period targets.

(3) (Row D) As a portion of the Bank will be used as VMOP, Row D will remain zero. See 2018 RPS Plan for a description of PG&E's VMOP.

(4) (Row Fa) "Online Generation" includes forecasted volumes from replacement contracts (i.e. ReMAT contracts replacing QF contracts) for facilities that are already online.

(5) (Row Fb) "In Development" includes forecasted volumes from phase-in projects. This is consistent with labeling in the RPS Database (which labels phase-in projects as "In Development" under "Overall Project Status").

(6) (Row F) Row F has subtracted 134 GWh of RECs associated with 2011 generation from the Hay Canyon Wind Facility and the Nine Canyon Wind Phase 3. These RECs are not being used for RPS compliance because they were not retired within the RPS statute's 36-month REC retirement deadline.

(7) (Step 1 Result: Physical Net Short) Rows Ga and Gb represent PG&E's physical net short based on PG&E's internal bundled retail sales forecast, as opposed to the IRP forecast provided in the RNS.

(8) The stochastic model optimizes from 2018 to 2033

(9) Step 2 Result: Stochastically-Adjusted Net Short (Physical Net Short+ Stochastic Risk-Adjustment) PG&E added rows Gd and Ge to the Alternative RNS in order to show the stochastically-adjusted physical net short, which incorporates the risks and uncertainties addressed in the stochastic model. For more details on PG&E's stochastically modeled risks, see the 2018 RPS Plan. This is prior to any application of the Bank.

(10) (Rows Ha and J) As PG&E's Alternative RNS incorporates additional risk-adjustments to the results from the Physical Net Short, the Bank sizes indicated in Rows Ha and J appear smaller than they are in Rows Ha and J of the RNS, which shows the non-stochastically-adjusted Bank size.

(11) (Rows Ha) At the beginning of each compliance period Row Ha subtracts previous compliance non-bankable volumes from the previous compliance period net balance of RECs. For example, the 2021 forecast for Row Ha is equivalent to the Row J in CP3 minus Row Hc in CP3.

(12) (Row Ib) The annual RPS sales volume forecast assumption is based on actual RPS sales completed in 2018 and is included for RPS position planning purposes. Row Ib is reduced by executed REC sales volumes included on Row Fd.

(13) (Row K) Row K now includes only expiring volumes from contracts as of January 2019.

(14) (Step 3 Result: Stochastically-Optimized Net Short (Stochastically-Adjusted Net Short + Application of Bank))

*Stochastic Results in Rows Gd-Lb reflect a January 2019 stochastic modeling vintage.

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

AT&T
Albion Power Company
Alcantar & Kahl LLP

Alta Power Group, LLC
Anderson & Poole

Atlas ReFuel
BART

Barkovich & Yap, Inc.
P.C. CalCom Solar
California Cotton Ginners & Growers Assn
California Energy Commission
California Public Utilities Commission
California State Association of Counties
Calpine

Cameron-Daniel, P.C.
Casner, Steve
Cenergy Power
Center for Biological Diversity
City of Palo Alto

City of San Jose
Clean Power Research
Coast Economic Consulting
Commercial Energy
County of Tehama - Department of Public Works
Crossborder Energy
Crown Road Energy, LLC
Davis Wright Tremaine LLP
Day Carter Murphy

Dept of General Services
Don Pickett & Associates, Inc.
Douglass & Liddell

Downey & Brand
East Bay Community Energy
Ellison Schneider & Harris LLP
Energy Management Service
Engineers and Scientists of California
Evaluation + Strategy for Social Innovation
GenOn Energy, Inc.
Goodin, MacBride, Squeri, Schlotz & Ritchie
Green Charge Networks
Green Power Institute
Hanna & Morton
ICF
International Power Technology
Intestate Gas Services, Inc.
Kelly Group
Ken Bohn Consulting
Keyes & Fox LLP
Leviton Manufacturing Co., Inc. Linde
Los Angeles County Integrated Waste Management Task Force
Los Angeles Dept of Water & Power
MRW & Associates
Manatt Phelps Phillips
Marin Energy Authority
McKenzie & Associates

Modesto Irrigation District
Morgan Stanley
NLine Energy, Inc.
NRG Solar

Office of Ratepayer Advocates
OnGrid Solar
Pacific Gas and Electric Company
Peninsula Clean Energy

Pioneer Community Energy
Praxair
Regulatory & Cogeneration Service, Inc.
SCD Energy Solutions

SCE
SDG&E and SoCalGas

SPURR
San Francisco Water Power and Sewer
Seattle City Light
Sempra Utilities
Southern California Edison Company
Southern California Gas Company
Spark Energy
Sun Light & Power
Sunshine Design
Tecogen, Inc.
TerraVerde Renewable Partners
Tiger Natural Gas, Inc.

TransCanada
Troutman Sanders LLP
Utility Cost Management
Utility Power Solutions
Utility Specialists

Verizon
Water and Energy Consulting
Wellhead Electric Company
Western Manufactured Housing Communities Association (WMA)
Yep Energy