

December 20, 2016

Advice 4984-E

(Pacific Gas and Electric Company ID U39 E)

Public Utilities Commission of the State of California

Subject: Advice Letter Filing of PG&E's Bioenergy Renewable Auction Mechanism (BioRAM) Power Purchase Agreement and Price Extension Agreement with Wheelabrator Shasta Energy Company Inc.

I. Purpose

Pursuant to Resolutions E-4770 and E-4805, Pacific Gas and Electric Company ("PG&E") hereby submits this Advice Letter seeking approval of a Renewables Portfolio Standard ("RPS")-eligible power purchase agreement ("PPA") executed between PG&E and Wheelabrator Shasta Energy Company Inc. ("Wheelabrator") resulting from PG&E's bilateral negotiation conducted pursuant to Resolution E-4805.

In this Advice Letter, PG&E also seeks Commission approval of a pricing amendment ("Price Extension") to extend and amend the terms of an existing pricing extension to a 30-year Qualifying Facility ("QF") Interim Standard Offer No. 4 Power Purchase Agreement ("QF PPA") with Wheelabrator. The Price Extension has a maximum term of six months, from December 1, 2016 through May 31, 2017. If the Price Extension terminates before the new agreement has been approved, the PPA will revert to its original pricing and terms set forth in the underlying QF PPA.

II. Background**A. New Wheelabrator PPA**

In Resolution E-4770, the California Public Utilities Commission ("Commission" or "CPUC") directed the investor-owned utilities ("IOUs"), including PG&E, to conduct a Bioenergy Procurement Renewable Auction Mechanism ("BioRAM") solicitation for facilities that utilize biofuel from high hazard zones, as designated pursuant to the Governor's Tree Mortality Emergency Proclamation.¹ Resolution E-4770 directed the three IOUs to procure collectively a minimum of 50 megawatts ("MW"), with PG&E's share at a minimum of 20 MW.

¹ Resolution E-4770 at p. 18 (Ordering Paragraph ("OP") 1).

On October 13, 2016 in Resolution E-4805, the CPUC directed PG&E to procure an additional 43 MW of capacity from facilities that utilize biofuel from high hazard zones, for a total minimum procurement requirement by December 1, 2016 of 63 MW (referred to herein as “Total Allocation”). Resolution E-4805 authorized the IOUs to procure their share of this capacity in one of three ways: (1) the BioRAM directed in Resolution E-4770; (2) a second BioRAM; or (3) a bilateral agreement.

Advice Letter E-4958 sought CPUC approval of 29 MW of capacity procured under a BioRAM solicitation (referred to herein as “BioRAM 1”). This Advice Letter seeks approval of the remaining 34 MW of capacity procured through a bilateral agreement with Wheelabrator. It also seeks approval of a Price Extension to the existing QF PPA. Background on the Pricing Extension is described below.

B. QF PPA Price Extension

Wheelabrator currently operates a 54.9 MW nameplate capacity biomass generating facility located in Burney, California. An existing 30-year 49.9 MW PPA was originally executed with this facility as part of PG&E’s QF program and expires on April 30, 2018. In 2010, Wheelabrator and other biomass plants indicated to PG&E that their QF PPA terms and conditions were uneconomic for continued operation at historic levels. In August 2011, PG&E and Wheelabrator executed a four year and eleven month pricing amendment with an effective date of September 1, 2011 (“Original Price Extension”). PG&E filed Advice Letter 3921-E on October 6, 2011 seeking CPUC approval of the Original Price Extension, which was approved by the CPUC per Resolution E-4455 on March 8, 2012. This Original Price Extension expired on its own terms July 31, 2016. Upon expiration of the Original Price Extension, pricing and terms reverted to the underlying Interim Standard Offer No. 4 PPA.

Following expiration of the Original Price Extension, the plant has continued to operate. Wheelabrator has indicated that it will cease operations absent a new pricing amendment.² To ensure that Wheelabrator would be able to operate throughout the winter as it prepares to come online under the new Wheelabrator PPA, PG&E offered Wheelabrator this Price Extension.

III. Bilateral Procurement Process Summary

A. Process Overview

In order to meet the expedited timeline set forth in Senate Bill (“SB”) 859, PG&E contacted the five remaining market participants who bid into the BioRAM 1 solicitation but were not awarded bids on October 14, 2016. PG&E offered these projects the opportunity to submit refreshed offers to be considered as a bilateral transaction. PG&E also reached out to two market

² See Attestation of Reg Goldie, December 12, 2016 (attached as Appendix G).

participants who had not submitted offers into BioRAM 1 to invite them to submit offers. Of the seven projects invited to bid, six offers were submitted.

In this negotiation, PG&E used the terms and conditions of the CPUC approved BioRAM PPA and negotiated specific revisions to incorporate the following provisions required by Resolution E-4805 to be included in any such bilateral contract:³

- 5 year contract term only;
- Feedstock requirements updated, with at least 80 percent of the feedstock of the facility, on an annual basis, required to be a byproduct of sustainable forest management, which includes removal of dead and dying trees from Tier 1 and Tier 2 high hazard zones (“HHZs”) and is not from lands that have been clear cut. Additionally, at least 60 percent of the total feedstock on an annual basis shall be from Tier 1 and Tier 2 HHZs;
- Removal of the fuel switching option from BioRAM 1; and
- The facility must be an existing bioenergy project that commenced operations prior to June 1, 2013.

B. Offer Evaluation

PG&E screened all offers on a “pass-fail” basis against the following eligibility requirements: project size; location; site control; developer experience; commercialized technology; term; and commercial operation date. Based on this initial screen, PG&E accepted all offers as conforming. Conforming offers were then evaluated quantitatively based on PG&E’s Commission-approved Least-Cost, Best-Fit (“LCBF”) evaluation criteria and additionally qualitatively by the Project’s proximity to HHZs.

C. Offer Selection

Using the evaluation criteria described above, PG&E selected Wheelabrator as the offer that would meet the 34 MW requirement at the lowest overall cost to customers as compared to other offers. A more detailed description of the selection and execution process is contained in Confidential Appendix B.

D. Summary of Terms and Conditions

A summary of some of the terms and conditions in PG&E’s approved RAM PPA and BioRAM Rider that were used in the Wheelabrator PPA is included in the chart below. Sections that were updated to meet the provisions required by Resolution E-4805 are underlined below. Please note that all capitalized terms not defined in the chart below are defined in the RAM PPA.

³ Please refer to the discussion in Resolution E-4805 for further details on the requirements.

Key Contract Term	PG&E RAM PPA and BioRAM Rider
Delivery Term	5 years
Eligibility	Existing bioenergy project that commenced operations prior to June 1, 2013, are located within California and directly connected to the CAISO or dynamically scheduled into the CAISO.
Contract Quantity	Participants in the solicitation are asked to provide a best estimate of annual deliveries as part of an Offer, which serves as a basis for the Guaranteed Energy Production (“GEP”).
Commercial Operation Date	Existing facilities must start delivering within 12 months of the Effective Date of the RAM PPA and BioRAM Rider.
Energy only, PCDS or FCDS	Sellers have the option to bid in as energy only, partial capacity deliverability status (“PCDS”), or full capacity deliverability status (“FCDS”).
Performance Standards/ Requirements: Minimum production requirement	GEP: 90% of expected contract quantity based on one year of rolling production (baseload).
Scheduling Coordinator (“SC”)	PG&E is the SC.
Metering	Required to have a CAISO approved revenue meter.
Western Renewable Energy Generation Information System (“WREGIS”)	<p>Seller shall, at its sole expense but subject to the Compliance Cost Cap (applicable to change-in-law only), take all action to ensure all WREGIS Certificates associated with all RECs corresponding to the Delivered Energy are issued and tracked for Buyer’s sole benefit.</p> <p>Seller must transfer all Renewable Energy Credits (“RECs”) associated with Delivered Energy, even if the Delivered Energy is not accepted and/or paid for because it is above the Contract Capacity or, for Baseload Product, paid for at a lower price because it is in excess of the scheduled energy (beyond tolerance band).</p>
Excess Sales	Seller has option to contract as full buy-sell or excess sales.
Curtailment	<p>Seller must curtail in response to CAISO, reliability coordinator, or Participating Transmission Owner curtailment. There is no limitation on curtailment of this type and no payment.</p> <p>Buyer may direct curtailment for any reason for unlimited hours per year. Buyer will pay Seller contract price for energy deemed delivered.</p>
Force Majeure	“Force Majeure” includes any event or circumstance which wholly or partly prevents or delays the performance of any material obligation arising under this Agreement, but only if and to the

Key Contract Term	PG&E RAM PPA and BioRAM Rider
	<p>extent (i) such event is not within the party invoking force majeure's reasonable control and the party has taken all reasonable precautions and measures in order to prevent or avoid such event or mitigate the effect of such event on such Party's ability to perform its obligations and such event is not the direct or indirect result of the negligence or the failure of, or caused by, the Party seeking to have its performance obligations excused thereby.</p> <p>(a) Subject to the foregoing, events that could qualify as Force Majeure include, but are not limited to, the following:</p> <p>(i) flooding, lightning, landslide, earthquake, or unusual or extreme adverse weather-related events;</p> <p>(ii) war (declared or undeclared), riot or similar civil disturbance;</p> <p>(iii) strikes, work stoppage or other labor disputes; or</p> <p>(iv) emergencies declared by the Transmission Provider successor or regional transmission organization or any state or federal regulator or legislature requiring a forced curtailment of the Project or making it impossible for the Transmission Provider to transmit Energy</p> <p>(b) Force Majeure shall not be based on:</p> <p>(i) Buyer's inability economically to use or resell the Product purchased hereunder;</p> <p>(ii) Seller's ability to sell the Product at a price greater than the price set forth in this Agreement;</p> <p>(iii) Seller's inability to obtain permits or approvals of any type for the construction, operation, or maintenance of the Project;</p> <p>(iv) Seller's inability to obtain sufficient fuel, power or materials to operate the Project, except if Seller's inability to obtain sufficient fuel, power or materials is caused solely by an event of Force Majeure;</p> <p>(vi) a Forced Outage except where such Forced Outage is caused by an event of Force Majeure;</p> <p>(vii) a strike, work stoppage or labor dispute limited only to any one or more of Seller, Seller's Affiliates, the EPC Contractor or subcontractors thereof or any other third party employed by Seller to work on the Project;</p> <p>(viii) any equipment failure except if such equipment failure is caused solely by an event of Force Majeure;</p> <p>(ix) a Party's inability to pay amounts due to the other Party under this Agreement.</p>
Failure to Meet	Six-month extension allowed in the event of Permitting Delay,

Key Contract Term	PG&E RAM PPA and BioRAM Rider
Guaranteed Commercial Operation Date	Transmission Delay or Force Majeure. Notice of Permitting Delay or Transmission Delay required no later than 6 months after Effective Date. Notice of Force Majeure due as soon as possible.
Confidentiality	In general, non-public terms of the Agreement shall not be disclosed except to Affiliates, to Buyer's Procurement Review Group, in order to comply with any applicable law, regulation, or any exchange, control area or CAISO rule. Permitted disclosures expanded to include the number of bids per company, project size, contract capacity, and the achievement of project milestones.
Construction Start and Commercial Operation Certification Forms and Procedures	The Construction Start and Commercial Operation Certification Forms and Procedures are provided.
Credit—Project Development Security	Sellers to post project development security prior to commercial operation: \$90/kilowatt ("KW") (Baseload)
Credit—Delivery Term Security	An amount equal to 5% of expected total Project revenues. 5% of total revenue is equal to 3 months of revenue for a 5 year PPA.
High Hazard Zone and Sustainable Forest Management Requirements	On an annual basis, at least 80 percent of the feedstock of the facility shall be a byproduct of sustainable forest management, which includes removal of dead and dying trees from Tier 1 and Tier 2 HHZs and is not from lands that have been clear cut. Additionally, at least 60 percent of the total feedstock on an annual basis shall be from Tier 1 and Tier 2 HHZs.

E. Solicitation Results

1. Summary of Offer Participation

Confidential Appendix A contains information on the results of PG&E's offers and Confidential Appendix F includes the location of the bids by county.

2. Summary of Offer Selection

The executed Wheelabrator PPA is summarized in the table below. For purposes of this Advice Letter, the PPA below is also referred to as the "BioRAM PPA." For further information please refer to Confidential Appendices I and J:

Project	Technology	Capacity (MW)	Location	Est. Annual Deliveries (MWh)	Guaranteed Commercial Operation Date (COD)	Term (years)
Wheelabrator Shasta	Biomass	34.0 ⁴	Anderson	238,272	12/1/17	5

Decision (D.)11-12-052 requires that the IOUs make an upfront showing related to the portfolio content categorization of each proposed RPS procurement transaction. Specifically, for approval of contracts meeting the criteria of Public Utilities Code Section 399.16 (b)(1)(A) (“Portfolio Content Category One”), an IOU may show that the RPS-eligible generator has its first point of interconnection with the Western Electricity Coordinating Council (“WECC”) transmission system within the boundaries of a California balancing authority area (“CBA”).⁵

The BioRAM PPA satisfies the upfront showing required by D.11-12-052 for Portfolio Content Category One. The PPA has or is expected to have its first point of interconnection within the metered boundaries of an IOU transmission or distribution system, within a CBA (i.e., the CAISO). Therefore, the RPS-eligible procurement from the PPA satisfies the criteria for Portfolio Content Category One adopted in D.11-12-052.

In D.07-01-039, the Commission adopted an Emission Performance Standard (“EPS”) that applies to contracts for a term of five or more years for baseload generation with an annualized plant capacity factor of at least sixty (60) percent. The Wheelabrator procurement complies with the EPS because it is an existing biomass facility covered by Conclusion of Law 35(d) of D.07-01-039.

IV. Request for Commission Approval

PG&E requests the Commission approve the Wheelabrator PPA and the Price Extension by April 20, 2017, including adoption of the following findings of fact and conclusions of law:⁶

1. The Wheelabrator PPA and Price Extension should be approved in their entirety, including payments to be made by PG&E pursuant to the PPA and Price Extension,

⁴ Note that the current QF PPA is for 49.9 MW. Only 34 MW of the full 54.9 MW facility will be under contract under the new Wheelabrator PPA.

⁵ See D.11-12-052 at pp. 40-41; See also *id.* at p. 37 (explaining that the upfront showing required of IOUs for procurement projected to meet Portfolio Content Category One based on the relevant point of interconnection would be “straightforwardly based on showing that the RPS-eligible generator has the applicable first point of interconnection.”).

⁶ If the Energy Division disposition does not include explicit findings and conclusions, the approval of this advice letter shall be deemed to include approval of the requested findings and conclusions.

subject to the Commission's review of PG&E's administration of the PPA and Price Extension;

2. A finding that any procurement pursuant to the Wheelabrator PPA and Price Extension constitutes procurement from an eligible renewable energy resource for purposes of determining PG&E's compliance with any obligation or target that it may have to procure eligible renewable energy resources pursuant to the California RPS (Public Utilities Code Section 399.11 et seq.), D.03-06-071, D.06-10-050, D.10-12-048, D.11-12-020, D.11-12-052, Resolution E-4414, or other applicable law;
3. A finding that, subject to after-the-fact verification that all applicable criteria have been met, the Energy Division accepts PG&E's upfront showing that deliveries from the Wheelabrator PPA should be categorized as procurement under the portfolio content category specified in Public Utilities Code Section 399.16 (b)(1)(A);
4. Adopts the following findings with respect to resource compliance with the EPS adopted in R.06-04-009:
 - a. The Wheelabrator PPA is pre-approved as meeting the EPS because it is an existing biomass facility covered by Conclusion of Law 35(d) of D.07-01-039;
5. A finding that all procurement and administrative costs associated with the Wheelabrator PPA and Price Extension are fully recoverable in rates and/or applicable non-bypassable charges over the term of the PPA and Price Extension, subject to reasonableness review of PG&E's administration of the PPA and Price Extension.

V. Request for Confidential Treatment

In support of this Advice Letter, PG&E has provided the following confidential information: the executed Wheelabrator PPA and other information that more specifically describes the rights and obligations of the parties, and the confidential results of the solicitation. This information is being submitted in the manner directed by D.08-04-023 to demonstrate the confidentiality of material and to invoke the protection of confidential utility information provided under either the terms of the IOU Matrix, Appendix 1 of D.06-06-066 and Appendix C of D.08-04-023, or General Order 66-C. A separate Declaration Seeking Confidential Treatment is being filed concurrently with this Advice Letter.

Confidential Attachments:

Confidential Appendix A:	Offer Data (Redacted version included with public filing)
Confidential Appendix B:	Valuation Process Summary
Confidential Appendix C:	Analysis of Customer Benefits
Confidential Appendix D:	Independent Evaluator Report (Redacted version included with public filing)
Confidential Appendix E:	Summary of Solicitation Participation (Redacted version included with public filing)

Confidential Appendix F: Location of Bids
Confidential Appendix H: Executed Extension Agreement
Confidential Appendix I: Executed Wheelabrator PPA and Bilateral Rider
Confidential Appendix J: Redline of BioRAM Rider to Wheelabrator PPA Rider\

VI. Protest

Anyone wishing to protest this filing may do so by letter sent via U.S. mail, facsimile or E-mail, no later than January 9, 2017, which is 20 days after the date of this filing. Protests must be submitted to:

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

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

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

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

Eric Jacobson
Director, Regulatory Relations
c/o Megan Lawson
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, California 94177

Facsimile: (415) 973-1448
E-mail: PGETariffs@pge.com

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

VII. Effective Date & Tier Designation

PG&E is designating this as a Tier 3 Advice Letter, in accordance Resolution E-4805, and requests its approval on or before April 20, 2017. Pursuant to General Order 96-B, the advice letter will be effective upon approval.

VIII. Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list and the service list for R.15-02-020. Address changes to the General Order 96-B list and electronic approvals 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

cc: Cheryl Lee– Energy Division
Service List for R.15-02-020

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 and General Order 66-C. This material is protected from public disclosure because it consists of, among other items, the contracts themselves and price information of a proposed RPS-eligible RAM contract, which are protected pursuant to D.06-06-066 and D.08-04-023. A separate Declaration seeking Confidential Treatment regarding the confidential information is filed concurrently herewith.

Attachments:

Attachment 1:	Confidentiality Matrix and Declaration
Confidential Appendix A:	Offer Data (Redacted version included with public filing)
Confidential Appendix B:	Valuation Process Summary
Confidential Appendix C:	Analysis of Customer Benefits
Confidential Appendix D:	Independent Evaluator Report (Redacted version included with public filing)
Confidential Appendix E:	Summary of Solicitation Participation (Redacted version included with public filing)
Confidential Appendix F:	Location of Bids
Appendix G:	Wheelabrator Attestation
Confidential Appendix H:	Executed Extension Agreement
Confidential Appendix I:	Executed Wheelabrator PPA and Bilateral Rider
Confidential Appendix J:	Redline of BioRAM Rider to Wheelabrator PPA Rider

CALIFORNIA PUBLIC UTILITIES COMMISSION

ADVICE LETTER FILING SUMMARY ENERGY UTILITY

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

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

Utility type:

☒ ELC

☐ GAS

☐ PLC

☐ HEAT

☐ WATER

Contact Person: Yvonne Yang

Phone #: (415) 973-2094

E-mail: Qxy1@pge.com and PGETariffs@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric

GAS = Gas

PLC = Pipeline

HEAT = Heat

WATER = Water

(Date Filed/ Received Stamp by CPUC)

Advice Letter (AL) #: **4984-E**

Tier: 3

Subject of AL: **Advice Letter Filing of PG&E's Bioenergy Renewable Auction Mechanism (BioRAM) Power Purchase Agreement and Price Extension Agreement with Wheelabrator Shasta Energy Company Inc.**

Keywords (choose from CPUC listing): Agreements

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

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #: E-4770 & E-4805

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

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

Is AL requesting confidential treatment? If so, what information is the utility seeking confidential treatment for: Yes

Confidential information will be made available to those who have executed a nondisclosure agreement: Yes. See attached matrix that identifies all of the confidential information.

Name(s) and contact information of the person(s) who will provide the nondisclosure agreement and access to the confidential information: Christina Yagjian (415) 973-8816

Resolution Required? ☒ Yes ☐ No

Requested effective date: **Upon Commission Approval**

No. of tariff sheets: N/A

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

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

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

Tariff schedules affected: N/A

Service affected and changes proposed: N/A

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

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

California Public Utilities Commission

Energy Division

EDTariffUnit

505 Van Ness Ave., 4th Flr.

San Francisco, CA 94102

E-mail: EDTariffUnit@cpuc.ca.gov

Pacific Gas and Electric Company

Attn: Erik Jacobson

Director, Regulatory Relations

c/o Megan Lawson

77 Beale Street, Mail Code B10C

P.O. Box 770000

San Francisco, CA 94177

E-mail: PGETariffs@pge.com

Attachment 1
Confidentiality Matrix & Declaration

PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)

ADVICE LETTER 4984-E

December 20, 2016

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 Data To Be Kept Confidential
Document: Advice Letter 4984-E (and Appendices)			
Appendix A (Solicitation Data and Project Development Milestones) – gray shaded areas	VIII.B – Quantitative analysis for scoring and evaluating bids	Confidential quantitative analysis for scoring and evaluating bids in solicitation	Three years after winning bidders selected
Appendix B (Valuation Process Summary) – in its entirety	VIII.B – Quantitative analysis for scoring and evaluating bids	Confidential quantitative analysis for scoring and evaluating bids in solicitation	Three years after winning bidders selected
Appendix C (Analysis of Customer Benefits and NMV) – in its entirety	VII.G – Terms and conditions of RPS contracts not eligible for Supplemental Energy Payments	Confidential terms and conditions of RPS contract that is not eligible for Supplemental Energy Payments.	Three years from contract date for deliveries to start or one year after expiration.
	VII – Score sheets, analysis and evaluation for RPS Projects	Confidential score sheets, analyses and evaluation for RPS contract.	Three years
	VIII.B – Quantitative analysis for scoring and evaluating bids	Confidential quantitative analysis for scoring and evaluating bids in solicitation	Three years after winning bidders selected

PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)

ADVICE LETTER 4984-E

December 20, 2016

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 Data To Be Kept Confidential
Appendix D (Independent Evaluator Report) – gray shaded areas	VII.G – Terms and conditions of RPS contracts not eligible for Supplemental Energy Payments VII – Score sheets, analysis and evaluation for RPS Projects VIII.B – Quantitative analysis for scoring and evaluating bids	Confidential terms and conditions of RPS contract that is not eligible for Supplemental Energy Payments. Confidential score sheets, analyses and evaluation for RPS contract. Confidential quantitative analysis for scoring and evaluating bids in solicitation	Three years from contract date for deliveries to start or one year after expiration. Three years Three years after winning bidders selected
Appendix E (Summary of Solicitation Participation) – gray shaded areas	VIII.B – Quantitative analysis for scoring and evaluating bids	Confidential quantitative analysis for scoring and evaluating bids in solicitation	Three years after winning bidders selected
Appendix F (Location of Bids) – in its entirety	VIII.B – Quantitative analysis for scoring and evaluating bids	Confidential quantitative analysis for scoring and evaluating bids in solicitation	Three years after winning bidders selected
Appendix H (Pricing Extension) – in its entirety	VII.G – Terms and conditions of RPS contracts not eligible for Supplemental Energy Payments	Confidential terms and conditions of RPS contract that is not eligible for Supplemental Energy Payments.	Three years from contract date for deliveries to start or one year after expiration

PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)

ADVICE LETTER 4984-E

December 20, 2016

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 Data To Be Kept Confidential
Appendix I (Executed PPA, Rider, and Appendix) - in its entirety	VII.G – Terms and conditions of RPS contracts not eligible for Supplemental Energy Payments	Confidential terms and conditions of RPS contract that is not eligible for Supplemental Energy Payments.	Three years from contract date for deliveries to start or one year after expiration
Appendix J (Redline of BioRAM Rider to Executed Wheelabrator PPA Rider) - in its entirety	VII.G – Terms and conditions of RPS contracts not eligible for Supplemental Energy Payments	Confidential terms and conditions of RPS contract that is not eligible for Supplemental Energy Payments.	Three years from contract date for deliveries to start or one year after expiration

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

PACIFIC GAS AND ELECTRIC COMPANY

**DECLARATION OF CHRISTINA YAGJIAN
SEEKING CONFIDENTIAL TREATMENT
FOR CERTAIN DATA AND INFORMATION
CONTAINED IN ADVICE LETTER 4984-E**

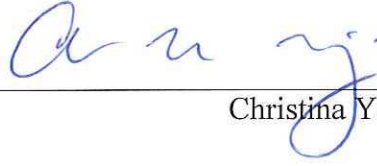
I, Christina Yagjian, declare:

1. I am a Principal in Renewable Transactions within the Energy Policy and Procurement organization at Pacific Gas and Electric Company (PG&E). In this position, my responsibilities include negotiating new and amended power purchase agreements. 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 information.

2. Based on my knowledge and experience, and in accordance with the Decisions 06-06-066, 08-04-023, and relevant Commission rules, I make this declaration seeking confidential treatment for certain data and information contained in Advice Letter 4984-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 D.06-06-066 and/or General Order 66-C. 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 December 20, 2016 at San Francisco, California.



Christina Yagjian

Appendix A

Offer Data

APPENDIX A

Table 1. Overview of BioRAM Bilateral Offers

Seller's (Developer's) Name	Number of bids submitted	Full Capacity project	Energy Only project	Number of bids shortlisted	Number of executed contracts
	1			N/A	0
	1			N/A	0
	1			N/A	0
	1			N/A	0
	1			N/A	1
	1			N/A	0

Note: Given the structure of the BioRAM program, the concept of a shortlist is not applicable.

APPENDIX A

Table 2. Overview of BioRAM Bilateral Offers by Capacity

	Contract Size (MW)	Number of Bids Submitted	Number of Bids Shortlisted	Number of executed contracts
1	0.5-5	1	N/A	0
2	>5-10	0	N/A	0
3	>10-15	1	N/A	0
4	>15-20	1	N/A	0
5	>20-25	2	N/A	0
6	>25-30	0	N/A	0
7	>30-35	1	N/A	1

Note: Given the structure of the BioRAM program, the concept of a shortlist is not applicable.

APPENDIX A

Table 3. Overview of BioRAM Bilateral Offers by Technology

	Participating Technology	Number of Bids Submitted	Number of Bids Shortlisted	Number of executed contracts
1	Solar PV	0	N/A	0
2	Wind	0	N/A	0
3	Landfill Gas	0	N/A	0
4	Geothermal	0	N/A	0
5	Biogas	0	N/A	0
6	Biomass	6	N/A	1
7	Small Hydro	0	N/A	0

Note: Given the structure of the BioRAM program, the concept of a shortlist is not applicable.

Table 4. Overview of Bilateral Offers RFO

	Technology Type	Total # of Bids into RFO	Total # of Eligible Bids	Total # of Bids Shortlisted	Total # of Executed Contracts	Mean RFO Bid Size (MW)	Mean Shortlist Bid Size (MW)	Mean Contract Size (MW)	No. of RFO Bids that Failed Each Viability Screen				
									Dev. Exp.	Site Control	Commercialized Tech.	Interconnection	COD > 36 mos
1	Solar PV	0	0	N/A	0	0.0	N/A	0	0	0	0	0	0
2	Wind	0	0	N/A	0	0.0	N/A	0.0	0	0	0	0	0
3	Landfill Gas	0	0	N/A	0	0.0	N/A	0.0	0	0	0	0	0
4	Geothermal	0	0	N/A	0	0.0	N/A	0.0	0	0	0	0	0
5	Biomass	6	6	N/A	1	19.4	N/A	34.0	0	0	0	0	0
6	Biogas	0	0	N/A	0	0.0	N/A	0.0	0	0	0	0	0
7	Small Hydro	0	0	N/A	0	0.0	N/A	0.0	0	0	0	0	0

Note: Given the structure of the BioRAM program, the concept of the shortlist is not applicable.

APPENDIX A

Table 5. All Bids

Net Market Value Overview by Project Size (MW)						
	BioRAM Bilateral Offers			BioRAM Shortlist		
	Min.	Max.	Mean	Min.	Max.	Mean
0.5-5				N/A	N/A	N/A
>5-10				N/A	N/A	N/A
>10-15				N/A	N/A	N/A
>15-20				N/A	N/A	N/A
>20-25				N/A	N/A	N/A
>25-30				N/A	N/A	N/A
>30-35				N/A	N/A	N/A

Table 6. All Bids

Net Market Value Overview by Technology Type						
	BioRAM Bilateral Offers			BioRAM Shortlist		
	Min.	Max.	Mean	Min.	Max.	Mean
Solar PV				N/A	N/A	N/A
Wind				N/A	N/A	N/A
Landfill Ga				N/A	N/A	N/A
Geotherm				N/A	N/A	N/A
Biogas				N/A	N/A	N/A
Biomass				N/A	N/A	N/A
Small Hydr				N/A	N/A	N/A

Note: Given the structure of the BioRAM program, the concept of the shortlist is not applicable.

Appendix B

Valuation Process Summary

(Redacted in its entirety)

Appendix C

Analysis of Customer Benefits

(Redacted in its entirety)

Appendix D

Independent Evaluator Report

ARROYO SECO CONSULTING

PACIFIC GAS AND ELECTRIC COMPANY BILATERAL CONTRACT EVALUATION

REPORT OF THE INDEPENDENT
EVALUATOR ON A CONTRACT AMENDMENT
AND A NEW AGREEMENT WITH
WHEELABRATOR SHASTA ENERGY
COMPANY INC.

DECEMBER 12, 2016

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EXECUTIVE SUMMARY

This report evaluates both a new bilaterally negotiated contract between the Pacific Gas and Electric Company (PG&E) and Wheelabrator Shasta Energy Company Inc., owner of a biomass-fueled generation facility, and an amendment to the parties' existing contract that grants short-term price relief. An independent evaluator (IE), Arroyo Seco Consulting (Arroyo), conducted various activities to review, test, and check PG&E's processes as the parties negotiated the new contract and the amendment. PG&E and Wheelabrator Shasta executed both on November 17, 2016. The new contract follows closely after PG&E's Bioenergy Renewable Auction Mechanism ("BioRAM") solicitation. It was pursued by PG&E to comply with the California Public Utility Commission's (CPUC's) Resolution E-4805 which increased PG&E's compliance obligation to contract for renewable energy generated by existing biomass-fueled facilities using woody waste from designated High Hazard Zones (HHZs). The contract amendment provides pricing relief for deliveries of energy under the existing Qualifying Facilities (QF) contract for a term of up to six months, prior to initial deliveries to PG&E under the new contract.

Wheelabrator Shasta's generating facility is a three-unit, 34-MW (contract capacity¹) biomass-fueled generator located southeast of the city of Anderson in Shasta County. It began operations in 1989 and has operated under a thirty-year Interim Standard Offer #4 QF contract with PG&E signed in 1987. Wheelabrator Shasta's parent company, Wheelabrator Technologies Inc., was acquired by Waste Management, Inc. in 1990 and then sold in 2014 to Energy Capital Partners, a private equity firm.

The facility will be obligated by both the amendment and new contract to take delivery of minimum requirements of biofuel sourced from HHZs as designated by the California Department of Forestry and Fire Protection ("CalFire"). Burning HHZ-derived fuel will contribute to the goals of the Governor's Emergency Proclamation of October 2015 on tree mortality that ordered the CPUC to extend contracts on existing forest bioenergy facilities receiving feedstock from HHZs.

The structure of this report follows a portion of the guidance of the 2014 RPS Shortlist Report Template provided by the Energy Division of the CPUC. Topics covered include:

- The role of the IE;
- Fairness of project-specific negotiations; and
- Merit of the new contract and the amendment for CPUC approval.

¹ The three units in aggregate are reported to have a nameplate capacity of 54.9 MW; the contract capacity under the current QF agreement is 49.9 MW. The Net Qualifying Capacity designated for the project by the CAISO for 2016 averages 45.7 MW. The interconnection limit of the facility is 49.9 MW.

This report omits discussion of PG&E's outreach efforts for and the robustness of a Request for Offers (RFO), the design of its Least-Cost Best-Fit evaluation methodology and its implementation, which would be appropriate elements if this contract had arisen from a Renewables Portfolio Standard (RPS) RFO or from PG&E's BioRAM RFO rather than from bilateral negotiations.

Arroyo's opinion is that, overall, negotiations between PG&E and Wheelabrator Shasta were conducted fairly with respect to competitors and ratepayers. One could object that Wheelabrator Shasta received a price relief amendment while most of its direct competitors with QF contracts did not, or that Wheelabrator Shasta declined to participate in the competitive BioRAM solicitation but was awarded a bilaterally negotiated contract afterwards while its competitors that chose to participate in that RFO were not.

In Arroyo's opinion, both the new Wheelabrator Shasta agreement and the contract amendment merit CPUC approval.

Deliveries of the project's output under the new contract will rank high in price compared to competing alternatives for renewable energy, but rank moderate in price compared to proposals to deliver HHZ fuel-based energy that remained available to PG&E after the BioRAM RFO. The Portfolio-Adjusted Value (PAV) and net market value of deliveries from the new power purchase agreement (PPA) rank moderate compared to PG&E's remaining alternatives to procure energy from burning HHZ-derived fuel. Arroyo believes that contracting with Wheelabrator Shasta was the highest-valued alternative available to PG&E to meet its compliance obligation set by the CPUC's Resolution E-4805.

The price of the contract amendment ranks moderate or high compared to alternatives for procuring renewable energy but low or moderate against alternatives for short-term procurement of HHZ fuel-based energy. The net market value of the contract amendment ranks moderate or high against competing alternatives for short-term deliveries of HHZ fuel-based energy.

Both the new contract and the amendment rank high on PG&E's previously stated evaluation criterion of RPS Goals; they also support urgent public policy objectives regarding tree mortality that have been promulgated during the current drought emergency. The Wheelabrator Shasta facility ranks high for project viability. Arroyo's opinion is that deliveries under the new contract and amendment will rank low for portfolio fit.

1. ROLE OF THE INDEPENDENT EVALUATOR

This chapter describes key roles of the IE.

A. KEY INDEPENDENT EVALUATOR ROLES

The CPUC first required an independent evaluator to participate in competitive solicitations for utility power procurement in its Decision 04-12-048. It required an IE when Participants in a competitive procurement solicitation include affiliates of IOUs, IOU-built projects, or IOU-turnkey projects. Decision 06-05-039 expanded requirements, ordering use of an IE to evaluate and report on the entire solicitation, evaluation, and selection process for the 2006 RPS RFO and future competitive solicitations. This was intended to increase the fairness and transparency of the Offer selection process. Decision 09-06-050 further expanded the requirement to require an IE to report on long-term RPS contracts that are bilaterally negotiated rather than awarded through a competitive solicitation; Wheelabrator Shasta's contract is the result of such a bilateral negotiation.

The CPUC's Decision 06-06-066 detailed guidelines for treating confidential information in IOU power procurement including competitive solicitations. It provides for confidential treatment of "Score sheets, analyses, evaluations of proposed RPS projects", vs. public treatment of the total number of projects and MW bid by resource type. Where Arroyo's reporting on the fairness of PG&E's negotiation of a contract amendment requires explicit discussion of such analyses, scores, and evaluations, these are redacted in the public version of this document.

B. IE ACTIVITIES

To fulfill the role of evaluating the new renewable energy contract and pricing amendment to the existing QF contract between PG&E and Wheelabrator Shasta, Arroyo performed various key tasks:

- Observed (telephonically) negotiations between the parties;
- Reviewed drafts of the contracts as the parties proposed changes to initial proposals; and
- Performed an independent market valuation of the contracts, and compared them to net market values of other proposals for renewable energy and for biomass-fueled energy using biofuels from high hazard zones.

2. FAIRNESS OF PROJECT-SPECIFIC NEGOTIATIONS

This chapter provides an independent review of the extent to which PG&E's negotiations with Wheelabrator Shasta for a pricing amendment and a new contract were conducted fairly with respect to competitors and to ratepayers.

Discussions between PG&E and Wheelabrator Shasta's commercial team began in mid-October 2016. Arroyo had previously been engaged to serve as Independent Evaluator for PG&E's BioRAM solicitation, and telephonically observed six negotiation sessions between the parties. Arroyo also observed discussions between the parties in the spring of 2016 prior to the opening of the BioRAM RFO.

Arroyo's opinion is that PG&E's bilateral negotiations with Wheelabrator Shasta were conducted in a manner that was, overall, fair to competitors. The next chapter further addresses whether the contract amendment and new contract are fair to PG&E's ratepayers.

A. BACKGROUND INFORMATION

The QF agreement with Valley Power Corporation, the original developer of the project was executed in October 1984 and, as amended, still governs the facility's sales. It provides for capacity payments based on performance and, since the 11th contract year, for energy payments based on short-run avoided cost (SRAC). In recent years, the SRAC calculation has led to energy payments sufficiently low that [REDACTED]

[REDACTED] The parties negotiated and executed an amendment to the QF agreement in September 2011 that set energy price to \$68.46/MWh in the first year, escalating by 2% per annum thereafter, subject to an annual cap on all-in payments of \$100.43/MWh. The 2011 price amendment had a term of four years and eleven months, and was effective from September 2011 through July 2016. The facility has operated since the start of August 2016 exposed to lower SRAC-based energy pricing.

The facility was brought into full commercial operation in 1988. Its annual production, based on public filings, averaged about 393 GWh/year over the 2011-2015 period, for a capacity utilization of 90% based on contract capacity of 49.9 MW, compared to contract quantity of 391 GWh/year specified in the 2011 amendment. The plant has historically burned a mix of unmerchantable waste wood from the Shasta-Trinity and Lassen National Forests and from private forests, agricultural waste such as orchard removals, and, previously, sawmill and paper waste (the facility was adjacent to a Kimberly-Clark paper mill, later owned by Shasta Paper Company, that was shut down in 2001); it operates a community wood waste recycling program.

In October 2015, the Governor issued an emergency proclamation on tree mortality associated with the ongoing drought in California. Among other things the proclamation

ordered CalFire and other agencies to identify High Hazard Zones for wildfire and falling trees, and ordered the CPUC to use its authority to extend contracts on existing bioenergy projects that receive feedstock from high hazard zones. Wheelabrator Shasta's facility is one of the biomass-fueled generators that is closest to CalFire-designated HHZs; the boundary of the nearest Tier One HHZ is perhaps six miles from the project, and wide swathes of Tier Two HHZs lie east and west of the project in the national forests.

The CPUC responded to the Governor's proclamation by issuing 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. The CPUC directed each IOU to develop a bioenergy-specific rider to the standard RAM contract that would impose contract requirements designed to promote the goals of the Emergency Proclamation and Resolution E-4770. PG&E filed Advice 4822-E on April 7 proposing a BioRAM solicitation protocol and a bioenergy-specific rider.

In April 2016, PG&E and Wheelabrator Shasta discussed possible contracting for biomass energy derived from fuel harvested from HHZs. In that discussion, Wheelabrator Shasta indicated [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

Wheelabrator Shasta chose not to participate in PG&E's BioRAM solicitation in July.

In the meantime, PG&E had been conducting bilateral negotiations with the owners of the Rio Bravo Fresno and Pacific Ultrapower Chinese Station biomass-fueled QFs from January through May 2016. Those discussions culminated in execution of contract amendments that provided three-month extensions of price relief for those two sellers through the end of October 2016. PG&E later bilaterally negotiated and executed a contract amendment providing six months of price relief to Burney Forest Products, the BioRAM RFO participant that was awarded a five-year contract from the solicitation.

On October 13, 2016, shortly after PG&E selected Burney Forest Products' 29-MW BioRAM offer for execution, the CPUC issued Resolution E-4805. This implemented biomass provisions of Senate Bill 859 that was signed into law in September. Among SB 859's directives was a requirement for investor-owned utilities and large public utilities to enter contracts for more deliveries of biomass-fueled energy from HHZ fuels than required by the prior Resolution E-4770. SB 859 required that this additional generation be procured by December 1, 2016. Resolution E-4805 specifically allocated PG&E 43 MW of new obligations beyond the minimum 20 MW assigned by Resolution E-4770. Taking into account the execution of the Burney Forest Products contract, PG&E had an additional 34 MW of HHZ-based capacity obligation to meet through new contracts. The requirements set by Resolution E-4805 resembled those of Resolution E-4770 but differed in key details:

- As authorized in Resolution E-4770 PG&E was authorized to source the additional biomass through bilateral contract negotiations;
- Contract term will be five years;
- Deliveries must be from an existing biomass-fueled facility that began operations before June 2013;
- At least 80% of fuel used for generating the delivered energy each year should be the byproduct of sustainable forest management practices, as specified in Appendix B of CPUC Decision 14-12-081;
- At least 60% of fuel used for generating the delivered energy each year should be from designated Tier One and Two High Hazard Zones; and
- No option was provided, as was in the BioRAM rider, for the seller to switch from HHZ-based fuel to other eligible renewable resource fuels.

Rather than embark on a new solicitation, and in view of the impending December 1 deadline to procure the additional HHZ-based energy, PG&E approached the participants in its BioRAM solicitation whose offers had been waitlisted, as opposed to those selected or rejected by PG&E or withdrawn by the participant. On October 14, PG&E contacted the parties that had affirmatively accepted a waitlisted position, and gave them the opportunity to refresh their BioRAM offers to compete for a bilaterally negotiated contract, with the understanding that the rider would be edited to reflect the different requirements of Resolution E-4805.

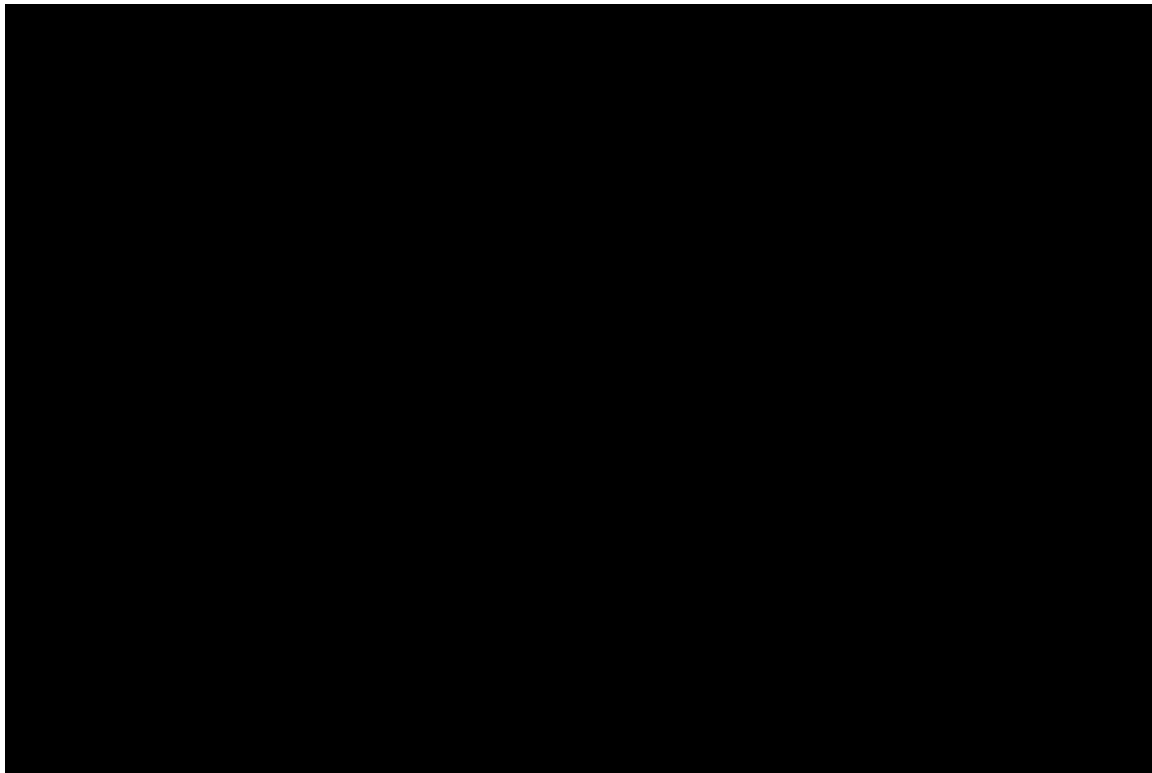
PG&E had previously contacted Wheelabrator Shasta's commercial team in early October (after the BioRAM offer due-date but before issuance of Resolution E-4805) to discuss having it submit a proposal for a bilaterally negotiated contract, and to describe what the fuel, interconnection, and security posting requirements for such a contract would be. Wheelabrator Shasta responded with [REDACTED]

[REDACTED] Wheelabrator Shasta and another owner of biomass-fueled generation [REDACTED] were the only non-participants of the BioRAM RFO to whom PG&E offered this opportunity to compete for a bilateral contract.

In the case of [REDACTED]

Figure 1 displays the average pre-TOD prices offered by the projects that responded to PG&E's request. Not all of the owners of waitlisted facilities contacted chose to respond; PG&E and Arroyo speculate that the non-respondents had likely chosen to contract with other IOUs upon being selected for their BioRAM solicitations after PG&E notified them of being waitlisted for its RFO.

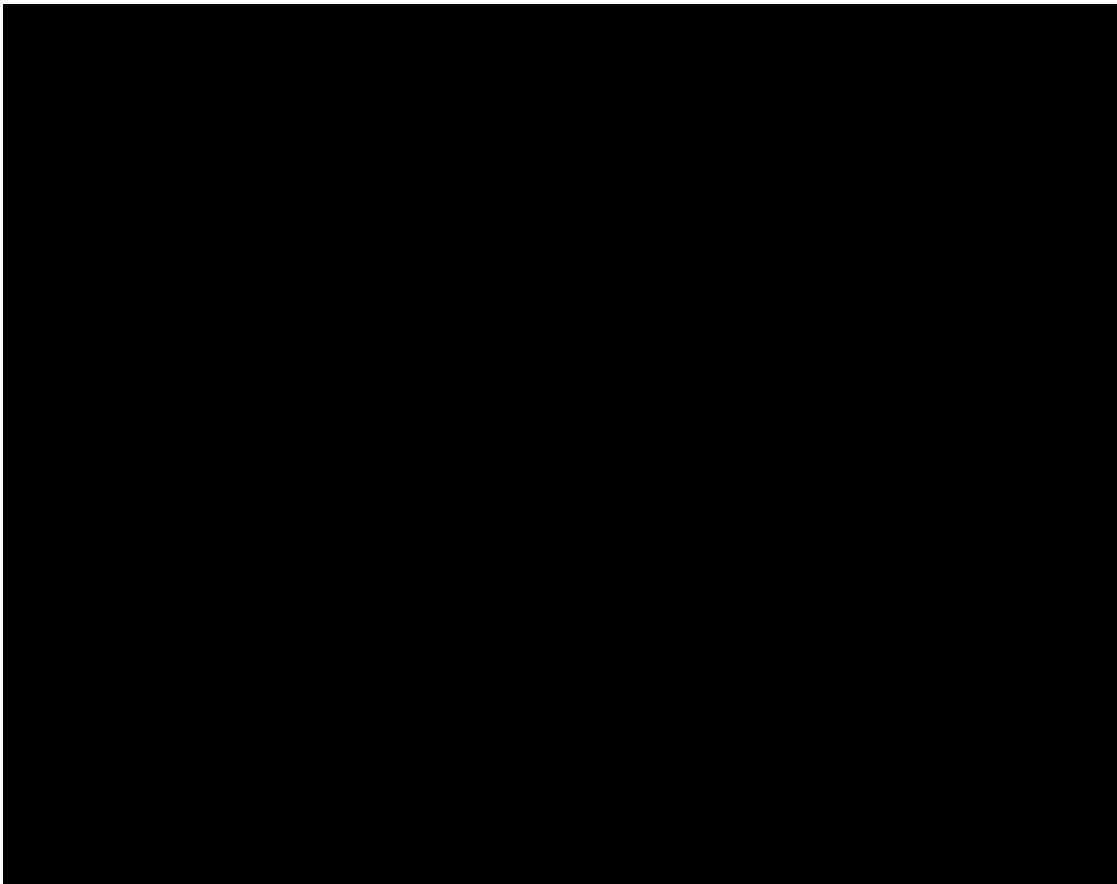
Figure 1.



Similarly, Figure 2 shows the Portfolio-Adjusted Value of the refreshed offers in \$/MWh as calculated by PG&E using its approved least-cost, best-fit methodology.

The proposed [REDACTED] was the highest-valued alternative. However, the amount of additional capacity [REDACTED] this by itself was insufficient for PG&E to meet the 34 MW of additional HHZ-based procurement required by Resolution E-4805. Contracting for 34 MW of Wheelabrator Shasta's capacity was a higher-value solution to meeting the compliance need than contracting for [REDACTED] any combination of other refreshed offers that would total 34 MW or more.

Figure 2.



Wheelabrator Shasta submitted the [REDACTED] [REDACTED] as measured in Portfolio-Adjusted Value.² PG&E embarked on bilateral negotiations with the owner's commercial team within a week of receiving the refreshed offers.

² Note that the offer from [REDACTED] did not conform to PG&E's requirements based on the BioRAM form rider and protocol [REDACTED]

B. PRINCIPLES FOR EVALUATING THE FAIRNESS OF NEGOTIATIONS

Arroyo considered some principles to evaluate the degree of fairness with which PG&E handled negotiations for the Wheelabrator Shasta contracts.

- Were sellers treated fairly and consistently by PG&E during negotiations? Were all sellers given equitable opportunities to advance proposals towards final PPAs? Were individual sellers 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 PPAs distributed equitably across PPAs? Did PG&E's ratepayers take on a materially disproportionate share of risks in some contracts and not others? Were individual sellers 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 sellers? Were individual sellers uniquely given information that advantaged them in securing contracts or realizing commercial value from those contracts?
- If any individual seller was given preferential treatment by PG&E in the course of negotiations, is there evidence that other sellers were disadvantaged by that treatment? Were other proposals of comparable value to ratepayers assigned materially worse outcomes?

C. NEGOTIATIONS BETWEEN PG&E AND WHEELABRATOR SHASTA FOR A NEW CONTRACT

The starting point for the negotiation of a new five-year PPA was the BioRAM rider previously published in the solicitation, modified to conform it to the requirements of Resolution E-4805. Some of the issues addressed in the negotiations included:

- Contract capacity and quantity.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- Termination payment.

[REDACTED]

- Initial energy delivery date.

[REDACTED]

- Event of default.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- Fuel deliveries.

[REDACTED]

[REDACTED]

- Metering.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]
- Audit rights. [REDACTED]

These negotiations led to minor changes to the BioRAM rider. Most of the discussions focused on achieving clarity on terms and on reflecting the specific attributes of the Wheelabrator Shasta facility accurately.

D. NEGOTIATIONS BETWEEN PG&E AND WHEELABRATOR SHASTA TO AMEND THE EXISTING QF AGREEMENT

In 2011, Wheelabrator Shasta and four other biomass-fueled QFs signed contract amendments of the same general nature to their underlying long-term contracts with PG&E. These provided price relief by putting in place fixed energy prices that were higher than the prevailing short-run avoided cost prices applicable to the QF agreements. In the case of Wheelabrator Shasta, the 2011 amendment provided price relief for four years and eleven months, and provided the project an opportunity to operate economically during that period.

It appears that when in early October PG&E approached Wheelabrator Shasta to discuss a five-year contract, the parties discussed some form of transition agreement to support continued operation prior to initial energy deliveries under a long-term contract.³³ PG&E prepared a draft letter agreement that closely resembled the recent price relief amendment to its QF contract with Burney Forest Products.

The parties negotiated on only a few elements of the price relief amendment.

Pricing. [REDACTED]

³³ Arroyo was not engaged to serve as IE for these bilateral contracts until mid-October, and did not observe these earlier discussions between PG&E and Wheelabrator Shasta or PG&E's discussions [REDACTED].

[REDACTED]

HHZ fuel content.

[REDACTED]

[REDACTED]

Termination rights.

[REDACTED]

Buyer curtailment.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

E. DEGREE OF FAIRNESS OF PROJECT-SPECIFIC NEGOTIATIONS

Arroyo's opinion is that the negotiations between the parties were, overall, fair to competitors.

Fairness to competitors of the new contract. In essence, PG&E ran an informal mini-solicitation after the BioRAM RFO was complete in order to meet its increased HHZ fuel-based energy compliance obligation imposed by Resolution E-4805. This competition, leading to negotiation of the new bilateral contract, was opaque compared to how PG&E conducts formal competitive solicitations. There were no protocols published, no webpages posting the questions and answers about the follow-on process, no public posting of the rider that was revised to meet the requirements of Resolution E-4805. PG&E did not seek feedback from participants about how fairly they felt they were treated as would be the usual case with formal RFOs (in fact, PG&E did not seek feedback from either participants or non-participants in the BioRAM RFO). Situations such as this are more vulnerable to concerns about fairness and transparency than formal RFOs because many of the usual practices employed to ensure that competitors are treated fairly were omitted or accelerated.

However, Arroyo agrees that it would have been challenging for the utility to proceed from scratch with a second formal competitive solicitation while meeting Resolution E-4805's requirements and achieving an executed agreement by the legislative and regulatory deadline of December 1. The process of quickly seeking refreshed BioRAM offers plus two offer from non-participants was more efficient and expeditious, if more opaque.

One issue was whether it was fair for PG&E to invite Wheelabrator Shasta [REDACTED] [REDACTED] to submit offer forms for a bilaterally negotiated contract but to invite no other non-participants of PG&E's BioRAM RFO. There are several other woody biomass-fueled projects that could have participated in the BioRAM solicitation but did not. Among these are biomass QFs currently under long-term contract with PG&E. Some received price relief amendments in 2011 in parallel with Wheelabrator Shasta, such as Covanta Energy's Mendota facility, which was shut down in 2014, DG Fairhaven, and the cogeneration facility of Humboldt Redwood Company (previously "Eel River Power") that had a price relief amendment through March 2016. Other projects that could have participated in the BioRAM solicitation included facilities that had previously been contracted to other utilities, such as the Buena Vista biomass plant in Ione, formerly contracted with Sacramento

Municipal Utility District, and Blue Lake Power in Humboldt County, formerly contracted with SDG&E; both are now shut down.

[REDACTED] had a bilateral dialogue with PG&E in April 2016 prior to the BioRAM RFO in which the project's commercial team asked whether PG&E would consider a bilateral contract rather than just PPAs obtained through a competitive solicitation. Similarly, the management of [REDACTED], held discussions with PG&E in February and March 2016 in which it asked whether a bilateral contract could be considered.

Was it fair for PG&E to reach out to Wheelabrator Shasta to solicit a proposal for a bilateral contract, while not contacting other projects whose owners had previously asked the utility specifically about such a bilateral negotiation, such as [REDACTED]?

Arroyo speculates that [REDACTED] would likely be disadvantaged [REDACTED]. [REDACTED] Arroyo believes that it would have improved the robustness of PG&E's effort to seek the most competitively priced bilateral contract to have invited more projects to submit proposals.

However, in Arroyo's opinion PG&E's choice to solicit for proposals only Wheelabrator Shasta [REDACTED] among non-participants in the BioRAM RFO was not unfair. [REDACTED]

[REDACTED] This cost advantage would likely be magnified by the burden of procuring and transporting HHZ-based fuel [REDACTED]. Arroyo speculates that inviting these projects or [REDACTED] facilities that have been out of service for months or years, such as Buena Vista or Covanta Mendota, would be unlikely to have yielded a more competitive proposal than Wheelabrator Shasta's.

A related issue is whether it was fair to award a bilateral contract to Wheelabrator Shasta, whose owner declined to participate in the BioRAM solicitation, and not to any biomass projects that willingly chose to compete for a contract in that more transparent and burdensome RFO process. [REDACTED]

[REDACTED] Arroyo speculates that BioRAM RFO participants whose refreshed offers were not selected might view the award of a bilaterally negotiated contract to a non-participant as less than fair.

However, Resolution E-4805 authorized PG&E to meet its increased compliance obligation through bilaterally negotiated contracts, and Wheelabrator Shasta's proposal was the [REDACTED] proposal that PG&E received from the limited set of biomass projects that it invited to submit offers after the BioRAM RFO had closed. Arroyo's own

opinion is that the outcome would have been more fair if the opaque process of seeking proposals for bilateral contracts had had a more robust response, but awarding Wheelabrator Shasta a bilateral contract was not unfair to the participants of the BioRAM RFO that emerged from both processes with no contract. It seems to Arroyo that authorizing IOUs to use the less transparent bilateral negotiation path to meeting the Resolution's increased MW compliance obligation was consistent with the urgency of procuring those additional contracts by a December 1 deadline, and that the tradeoff was to accept a less transparent and more streamlined process that might be perceived as less than fair by losing competitors.

While PG&E provided Wheelabrator Shasta with a concession [REDACTED], Arroyo does not believe this was unfair. The likelihood that [REDACTED] seems quite small, [REDACTED]

Fairness to competitors of a pricing amendment. Another issue is whether it was fair for PG&E to provide short-term price relief to Wheelabrator Shasta but not to other biomass-fueled QFs currently under contract. PG&E did not treat all biomass-fueled sellers consistently, and not all sellers were allowed to advance discussions towards short-term price relief amendments. Wheelabrator Shasta and three other QFs were allowed to move their proposals forward while this opportunity was denied to others. PG&E provided analogous but not identical price relief amendments to Pacific Ultrapower Chinese Station and Rio Bravo Fresno earlier in 2016. Arroyo expressed an opinion in the IE report for those transactions that PG&E's choice to negotiate higher fixed energy prices for those two projects was less than fully fair to competitors.

There are factors that could mitigate concerns about PG&E's disparate treatment of Wheelabrator Shasta compared to its competitors. For example, PG&E did not begin discussions about a short-term price relief amendment with the project until it became evident that Wheelabrator Shasta's proposal for a new five-year PPA was the most competitive remaining alternative after the BioRAM RFO. This contrasts to PG&E's bilateral negotiations with Pacific Ultrapower Chinese Station and Rio Bravo Fresno, which began before those facilities demonstrated any degree of price competitiveness for a long-term HHZ fuel-based contract.

The other biomass-fueled QFs to which PG&E could have provided price relief do not match Wheelabrator Shasta's merits as a seller: some rank lower in project viability having shut down, others are scored by PG&E as ranking lower in proximity to HHZs, and/or their pricing as revealed by offers in PG&E's BioRAM solicitation is less competitive.

Although Wheelabrator Shasta's competitors, were they aware of its bilateral negotiation for price relief, might likely view it as unfair because they were not similarly approached by PG&E, PG&E could argue that there are compelling ratepayer benefits to offer Shasta a price extension amendment and not offer an analogous deal to competitors. Arguably PG&E's ratepayers can be better off with PG&E securing a short-term amendment that

allows the project to continue to operate economically before the new long-term contract takes effect, as this could improve the reliability of the facility compared to a six-month or longer period of cold lay-up prior to restart. Once a thermal power plant shuts down and furloughs its employees there is a risk that facility-specific skills of the labor force will be difficult to recover if and when the project attempts to return to service months later.

Arroyo does not have evidence that any competitors were specifically harmed by PG&E granting short-term price relief to Wheelabrator Shasta. It seems likely to Arroyo that most woody waste-fueled QFs that fail to obtain a new contract from one of the IOUs will choose to cease operations for wholesale energy sales when exposed to SRAC energy pricing (sawmill cogenerators that produce some power for use behind the meter could likely continue to operate economically). This is not a case of competitors being disadvantaged specifically by Wheelabrator Shasta's price extension; it is a comment on the adverse market conditions facing thermal plants with fuel costs nearer [REDACTED] attempting to compete in a market where electric prices for baseload power are in the \$30s/MWh. For PG&E to attempt to subsidize many or all uneconomic wood-waste-fueled plants with short-term price relief regardless of their lack of competitiveness and without a regulatory mandate to do so would seem imprudent.

A key concession that PG&E provided to Wheelabrator Shasta that it did not provide to the other three projects receiving short-term price relief amendments was [REDACTED]. Arroyo speculates that, were the other three plant owners to discover that PG&E had [REDACTED] in the Wheelabrator Shasta amendment, they might view it as disparate treatment and possibly unfair. However, Arroyo views it as a transfer of risk and cost from the seller to PG&E's ratepayers that appears to be small in value loss compared to the overall transfer of above-market payments to Wheelabrator Shasta. The fairness to ratepayers of this concession is discussed in the next chapter; Arroyo does not believe that competitors were harmed by the concession.

Arroyo has no evidence that PG&E provided non-public information to Wheelabrator Shasta that could uniquely advantage it over competitors in securing a price relief, other than communicating privately to the owner that it was willing to negotiate a bilateral contract.

Arroyo's opinion is that, while PG&E's prior negotiations of bilateral price extension amendments with Pacific Ultrapower Chinese Station and Rio Bravo Fresno were less than fully fair to competing biomass-fueled facilities with which PG&E has active QF contracts, the negotiation of a pricing amendment with Wheelabrator Shasta and not with most other similar facilities was fair to competitors.

The next chapter addresses the degree to which the short-term price relief amendment imposes above-market costs on PG&E's ratepayers, and whether that was fair to them.

3. MERIT FOR CPUC APPROVAL

This chapter provides an independent review of the merits of the new contract between PG&E and Wheelabrator Shasta and the amendment to the existing contract, against criteria identified in the Energy Division's 2014 RPS IE template.

A. CONTRACT SUMMARY

On November 17, 2016, PG&E and Wheelabrator Shasta executed an amendment for continued delivery of RPS-eligible energy from an existing biomass-fueled generation facility, and a new five-year contract for deliveries from that facility. Contract capacity during the term of the amendment continues to be that of the underlying QF agreement, 49.9 MW. When the new contract takes effect, its contract capacity will be 34 MW. The contract quantity for the six-month term of the amendment is 195.7 GWh, which is half the annual contract quantity of Wheelabrator Shasta's 2011 price relief amendment. Contract quantity for the new PPA is 238.3 GWh/year.

The amendment term begins on December 1, 2016 and will continue for six months or until the delivery term of the new contract commences. During the amendment term, Wheelabrator Shasta will continue to be paid SRAC-based energy price as specified in the underlying QF agreement until and unless the CPUC approves the amendment, when a true-up payment would be made. The new PPA becomes effective when conditions precedent are fulfilled, including CPUC approval; Wheelabrator Shasta has named December 1, 2017 as the expected initial energy delivery date. [REDACTED]

During the term of the amendment, Wheelabrator Shasta will be obligated to meet a requirement that at least [REDACTED] of the biomass fuel delivered to the facility be sourced from High Hazards Zones. During the term of the new contract, the obligation is that least 60% of the biomass fuel delivered be sources from HHZs within each calendar year or partial calendar year; at least 80% of fuel delivered within each calendar year or partial calendar year must be a byproduct of sustainable forest management practices. These requirements for the new contract are the same as for PG&E's form BioRAM rider.

The facility is located just outside the southeastern city limits of Anderson in Shasta County, in the northern Sacramento Valley. The Shasta-Trinity National Forest is to its west and north, and the Lassen National Forest is to its east; both contain Tier 1 and 2 HHZs.

B. NARRATIVE OF EVALUATION CRITERIA AND RANKING

The 2014 RPS template for IEs provided by the Energy Division calls for a narrative of the merits of contracts on specific evaluation criteria.

CONTRACT PRICE AND MARKET VALUATION

Contract price: QF contract amendment. The CPUC reviewed the 2011 contract amendment granting Wheelabrator Shasta and four other facilities price relief and approved PG&E's advice filing in Resolution E-4455, noting that "staff finds these projects to be reasonable from a pricing perspective". The current price relief amendment provides the facility with a fixed energy price [REDACTED] than the escalated fixed energy price of \$74.10/MWh that applied to the last eleven months of deliveries under the 2011 amendment. The payment cap of the current amendment [REDACTED] is [REDACTED] than the cap imposed by the 2011 amendment of \$100.43/MWh.

While the 2011 amendment's pricing was sufficiently competitive for the offer to merit approval by the CPUC, the market price for California renewable energy has changed since its 2012 approval. [REDACTED] would rank in the highest-priced quartile of Offers received in PG&E's 2014 RPS RFO. If, however, actual performance led to a somewhat lower price for deliveries [REDACTED], the amendment's pricing could rank in the second-highest-priced quartile.

Deliveries from Wheelabrator Shasta under the contract amendment differ from other renewable energy transactions in that the contract imposes an obligation that [REDACTED] the fuel used to provide energy deliveries come from High Hazard Zones. The state of California has placed a premium on biomass-fueled generation using HHZ fuels, and both regulatory and legislative bodies have set a priority on extending existing contracts for such generation. A better benchmark for market pricing to which the amendment should be compared is the set of proposals from biomass-fueled generators to PG&E's BioRAM solicitation. [REDACTED] is lower than all of the pre-TOD contract prices offered to PG&E's BioRAM RFO, [REDACTED]. The comparison is not apples-to-apples because BioRAM offers were for contracts of five-year term or longer, vs. the six-month extension. [REDACTED]

PG&E previously executed three-month pricing extensions in 2016 with Pacific Ultrapower Chinese Station and Rio Bravo Fresno, which also agreed to meet minimum requirements for obtaining HHZ-based fuel. [REDACTED] Ratepayers' cost of taking delivery of Wheelabrator Shasta's HHZ fuel-based energy under the amendment will likely be [REDACTED] lower than any BioRAM contract's. Similarly, PG&E executed a six-month pricing extension with Burney Forest Products; [REDACTED]

Arroyo's opinion is that the pricing of Wheelabrator Shasta's deliveries during the term of the contract amendment will rank moderate or high when compared to other providers of renewable energy, but low or moderate compared to other short-term alternatives for delivery of biomass-fueled energy from burning biofuel harvested from HHZs.

Contract price: long-term PPA. The new five-year contract replaces the capacity payment and energy price of the existing QF agreement [REDACTED]. The new contract will deliver renewable energy to PG&E at price that ranks high compared to competing alternatives. The average pre-TOD contract price would have ranked in the highest-priced decile when compared to long-term offers submitted to PG&E's 2014 RPS solicitation (Arroyo does not have access to the pricing of offers to PG&E's more recent RAM 6 solicitation).

However, deliveries from Wheelabrator Shasta will differ from other renewable energy proposals in that the contract imposes a minimum obligation that at least 60% of the fuel used to generate energy come from High Hazard Zones. The state of California has placed a premium on biomass-fueled generation using HHZ fuels; executive, legislative, and regulatory bodies have set a priority on contracts for such generation during the current tree mortality emergency. So, a more relevant benchmark for the market prices to which the new contract should be compared is the set of proposals from biomass-fueled generators offering to deliver HHZ fuel-based energy to PG&E's BioRAM solicitation. Wheelabrator Shasta's average pre-TOD contract price is lower than the offer prices from [REDACTED] participants.

[REDACTED]

The Wheelabrator Shasta contract therefore ranks low in price when compared to competing alternatives that would provide access to generation that uses biomass fuel harvested from HHZs. As a matter of public policy, Resolution E-4770 implies that the priority placed on responding to the tree mortality emergency can justify contracts that would be high priced if they were measured only against sources of renewable energy.

Market Valuation: QF contract amendment. PG&E performed a market valuation of the Wheelabrator Shasta amendment using a net market value measure rather than a Portfolio-Adjusted Value measure. Arroyo made an independent estimate of the net market value of the price relief amendment, using [REDACTED] as a conservative estimate of the actual pricing of the deliveries and using the generation profile [REDACTED]. This estimate would rank the Wheelabrator Shasta amendment among the lowest in net market value of offers received in PG&E's most recent RPS RFO. However, it would rank the Wheelabrator Shasta amendment higher in NMV than any offer variant PG&E received in its BioRAM solicitation. (As noted, ranking the net market value of a six-month delivery period against offers of five years or longer in term is not an apples-to-apples comparison.)

Another comparison to renewable energy market price can be constructed from expected market prices and a view of the price of California unbundled renewable energy credits. Arroyo lacks fresh pricing data for the latter. Using stale pricing information from early 2016, the net market value of the Wheelabrator Shasta six-month extension might be [REDACTED]. On the basis of that estimate, PG&E's ratepayers would

expend [REDACTED] in payments to Wheelabrator Shasta above market price, payments that would not be required if the amendment were not executed or approved⁴. Actual above-market payments will depend on the facility's production performance and actual market price outcomes.

Arroyo's estimate of net market value for the Wheelabrator Shasta amendment is [REDACTED] than those of the analogous three-month extensions that PG&E provided to Chinese Station and Rio Bravo Fresno, and [REDACTED] than the six-month extension provided to Burney Forest Products. The CPUC approved the first two of those contract amendments in August 2016 in Resolution E-4797, in which it found the price and value of those amendments to be reasonable in the context of a response to a state of emergency.

Although the amendment is quite low in value compared to possible short-term contracts for renewable generation, it ranks moderate to high in value compared to other short-term means of securing energy from generators burning woody biomass from HHZs.

With an exception, the terms of the contract amendment do not shift risks from Wheelabrator Shasta to PG&E's ratepayers beyond the balance of risks already established in the 2011 amendment. That exception is [REDACTED]

The cost of [REDACTED] is difficult to estimate, [REDACTED] it appears that the [REDACTED] This is small compared to the overall above-market payment to the generator of [REDACTED]. Actual value transfer will depend on market outcomes, and these are very crude estimates.

Despite [REDACTED], Arroyo views the balance of risks between buyer and seller as within the range of what PG&E achieves with other sellers, and as, overall, fair to ratepayers.

Market valuation: long-term PPA. Wheelabrator Shasta's new contract's Portfolio-Adjusted Value would rank it in the lowest-valued decile if compared to all offers for renewable energy received in PG&E's 2014 RPS RFO. However, it was higher in PAV than all but two projects that submitted offers to PG&E's BioRAM RFO. Only [REDACTED]

⁴ This gross estimate should be compared to the above-market cost of payments to the project under the existing QF agreement with no amendment. It is not clear to Arroyo that Wheelabrator Shasta would continue to operate if faced with ongoing SRAC energy pricing until contract expiry, but if it did the estimate of net above-market payments would be lower.

[REDACTED] ranked higher in PAV. Wheelabrator Shasta also ranked higher in PAV than other proposals submitted to PG&E after the BioRAM RFO for a bilateral contract, except for [REDACTED].

Arroyo made an independent estimate of the net market value of the new Wheelabrator Shasta contract. This estimate ranks the new contract's net market value near the lowest of offers received in PG&E's 2014 RPS RFO. But it ranks the new contract in the [REDACTED] among 5-year offer variants PG&E received in the BioRAM solicitation (Resolution E-4805 required a five-year term for contracts to meet its requirements, while the BioRAM solicitation accommodated terms up to ten years). The independent NMV metric ranks the new contract in the second-highest quartile in value among proposals that remained available to PG&E after the BioRAM selections were made and some participants chose not to respond to the utility's request for refreshed proposals.

Based on these comparisons, the new Wheelabrator Shasta contract ranks moderate in market value when compared to available competing alternatives for providing biomass-fueled energy using woody waste harvested from high hazard zones over a five-year period. While it ranks low in value compared to proposals from all sources of renewable energy, the purpose of this solicitation is to meet an urgent need to cope with hazards from tree mortality, a need that would not be met by procuring lower-priced solar or wind generation.

CONSISTENCY WITH RPS GOALS AND PROCUREMENT PLAN

Procurement plan. As part of the RPS procurement cycle, PG&E drafted a 2015 RPS procurement plan in August 2015 that was accepted with conditions by the CPUC in Decision 15-12-025. The plan states that PG&E's existing RPS contract portfolio, its own RPS generation, and its expected bank of renewable energy credits are adequate to ensure compliance with near-term RPS requirements. In the plan, PG&E's projections for its renewable net short position suggest that its procurement of renewable energy in 2016 well exceeds its compliance need. This suggests that the Wheelabrator Shasta contract amendment and new PPA are inconsistent with the RPS procurement plan. The plan states that PG&E has no near-term need for RPS resources but will procure incremental volumes of RPS-eligible contracts in 2016 through CPUC-mandated programs such as the RAM, ReMAT, and BioMAT programs. None of these programs require the extension of the pricing relief that PG&E has previously granted to Wheelabrator Shasta or a new contract. (However, one could argue that some specifics of PG&E's 2015 RPS procurement plan, which did not contemplate a drought and tree mortality emergency, have been superseded by the CPUC's issuance of Resolutions E-4770 and E-4805.)

PG&E's procurement plan states that the utility uses its Portfolio-Adjusted Value (PAV) methodology to evaluate which products provide the best fit at least cost. PG&E did not use its PAV methodology to evaluate the Wheelabrator Shasta contract amendment but it did use the methodology to value the new PPA. Arroyo regards PG&E's use of a net market valuation approach to have provided the same essential insights on the amendment's value as if the utility had strictly employed its approved full LCBF methodology.

The QF contract amendment and new contract will have the effect of increasing resource diversity, or at least deferring a decline in resource diversity, within PG&E's RPS portfolio, which is identified in the procurement plan as a possible risk-reducing strategy.

While PG&E stated no intent to enter into bilateral negotiations for new RPS contracts in its 2015 RPS procurement plan, the CPUC's Resolution E-4770 subsequently authorized the IOUs to pursue bilateral contracts to meet the targeted need to enter into contracts with existing forest bioenergy projects receiving feedstock from High Hazard Zones. The Wheelabrator Shasta transactions fit clearly into this category.

RPS Goals. Because PG&E did not hold a 2015 RPS RFO there are no publicly stated goals or targets for RPS procurement in PG&E's current annual procurement cycle. PG&E's 2014 RPS solicitation protocol included an evaluation criterion for a contract's contribution to RPS goals. One of the subcriteria was whether a project would provide economic benefits to "communities afflicted with high poverty or unemployment", which was one of the legislative goals for the state's RPS program. The city of Anderson (the facility is just sited just outside the city limits) fits that characterization: median annual household income in Anderson in 2014 was \$32.2 thousand vs. \$61.5 thousand for the state of California, based on the U.S. Census Bureau's 2014 American Community Survey. The percentage of its population living below poverty levels was 24.4% vs. the state's 16.4%; an estimated 12.8% of the population over age 16 was unemployed vs. 7.0% for the state.

Arroyo speculates that in the absence of a new contract the facility might shut down, given the low SRAC-based energy pricing available under the existing QF agreement compared to the cash operating costs of generation, or continue operating only during summer to secure capacity payments while deferring paying damages for early termination. Awarding a five-year contract to the facility likely helps sustain the 50+ jobs at the site and the secondary economic benefits to the community including employment by fuel suppliers.

Another RPS Goals evaluation subcriterion in the 2014 RPS RFO was contribution to Executive Order S-06-06, which called for 20% of the state's renewable energy needs in electricity to be met by electricity from biomass. The amendment would contribute to meeting this goal by averting a decline in biomass-fueled production, assuming that Wheelabrator Shasta could likely shut down or reduce output rather than continue operating in baseload mode when exposed to SRAC energy pricing.

When the RPS Goals protocol was drafted for PG&E's 2014 RPS RFO neither PG&E nor its regulator anticipated the Governor's 2015 emergency proclamation. Ensuring continued operation of biomass-fueled generators to burn dead and dying trees harvested from high hazard zones was not specifically an element of PG&E's RPS Goals criterion. However, because both the amendment and new PPA require use of fuel from HHZs as feedstock, they provide immediate and timely support for the state's current executive, legislative, and regulatory goals in a period of emergency caused by tree mortality hazards.

PORTFOLIO FIT

According to its approved 2015 RPS procurement plan, PG&E uses its Portfolio-Adjusted Value methodology to evaluate both market value and portfolio fit. PG&E did not

use PAV analysis to value the contract amendment, so it does not formally have a measure of the portfolio fit of that transaction. However, the new PPA ranked high in PAV against competing alternatives remaining available to PG&E after the BioRAM RFO selections.

Arroyo's opinion is that, qualitatively, the fit of both the Wheelabrator Shasta contract amendment and new PPA with PG&E's portfolio ranks low. The utility already expects a net long RPS position for the second and third compliance periods because of its prior procurement activities and because of changes in PG&E's retail load outlook. Contracting for deliveries of even more renewable energy starting in 2016 increases PG&E's overprocurement of RPS-eligible energy in the current and next compliance period and increases the size of the REC bank that must be carried forward to future periods: costs for these RECs will be expended during the amendment's delivery term but the need for the RECs is projected to develop later in the 2020s.

Wheelabrator Shasta's production shape is generally baseload, whereas PG&E needs more flexible resources to deal with periods of overgeneration and negative market prices. Wheelabrator Shasta's 2011 price amendment provided PG&E with up to 1000 buyer curtailment hours per contract year in off-peak and super-off-peak periods. The new contract amendment [REDACTED], so during the amendment's term the utility has less flexibility to minimize ratepayer costs during periods of overgeneration compared to other parts of its RPS portfolio. However, the new five-year PPA with Wheelabrator Shasta [REDACTED], which will contribute to flexible management of the portfolio.

PROJECT VIABILITY

As an existing generation facility that has operated reliably with production levels above the annual contract quantity of the 2011 amendment on average, the project viability of the Wheelabrator Shasta facility ranks quite high. Arroyo assigns it a score of 100 using the Energy Division's project viability calculator.

MINIMUM FUEL REQUIREMENTS, PROXIMITY TO HIGH HAZARD ZONES

In its BioRAM solicitation protocol, PG&E stated that among the evaluation criteria by which it would assess proposals was whether a project would exceed the minimum requirements for usage of HHZ fuel. Wheelabrator Shasta's contract does not exceed the minimum requirements specified in Resolution E-4805. Nearly all respondents to PG&E's BioRAM solicitation and to its follow-up request for refreshed offers for bilateral contracting chose not to exceed minimum requirements.

Another criterion of the BioRAM solicitation was proximity to HHZs. PG&E's analysis assigned a score to Wheelabrator Shasta that ranked it as moderate (second quartile) in proximity among the peer group of participants in the BioRAM RFO or the follow-up informal competition to pursue bilateral negotiations. Only [REDACTED] scored higher on the metric for proximity to HHZs.

C. DISCUSSION OF MERIT FOR APPROVAL

In Arroyo's opinion, both the contract amendment to extend price relief under the existing contract and the new five-year agreement with Wheelabrator Shasta merit CPUC approval.

- The CPUC found the project's 2011 price relief amendment to be reasonable, including its pricing; the current amendment's pricing is [REDACTED] than the price of the 2011 amendment that applied in the last eleven months of its term. While Arroyo ranks the PPA's contract price as high compared to recent competing proposals from projects delivering renewable energy, the more relevant peer group to which to compare this short-term amendment is other recent opportunities available to PG&E from biomass-fueled facilities that agree to deliver power in the short term from biofuel harvested from High Hazard Zones. The pricing of the new contract ranks low to moderate compared to that peer group; its value ranks moderate to high.
- Similarly, the contract amendment will likely result in payments above the market price of renewable energy. This might amount to excess payments in the vicinity of [REDACTED] by ratepayers above what they would pay for renewable energy at market prices, depending on market and performance outcomes. The \$/MWh net market value of the Wheelabrator Shasta amendment deliveries will however be [REDACTED] those of previous price extensions that PG&E granted to other QFs that are burning HHZ fuel and [REDACTED] those of proposals received in PG&E's BioRAM solicitation for delivering energy derived from HHZ fuel. The contract amendment is an immediate means of obtaining bioenergy from HHZ fuel at a value better than or comparable to competing alternatives.
- While the price of the new five-year contract ranks high compared to competing proposals to deliver renewable energy, the more relevant peer group to which to compare this contract is other proposals from biomass-fueled facilities that offered to deliver power from biofuel harvested from High Hazard Zones. The price of the new agreement ranks low when compared to those proposals that still remained available to PG&E after the BioRAM RFO selections were completed.
- The Portfolio-Adjusted Value of the new contract in levelized \$/MWh ranks high compared to those of competing proposals for HHZ fuel-derived energy that were available to PG&E after the BioRAM solicitation. Arroyo independently ranked the new contract as moderate in net market value among those proposals. However, Arroyo agrees that contracting with Wheelabrator Shasta was the highest-valued alternative available to PG&E to meet its compliance obligation for HHZ fuel-based energy set by Resolution E-4805, given the limitations of the highest-valued proposal.
- Because the contract amendment and the new PPA require the facility to meet a target for the content of its delivered fuel that originates in High Hazard Zones, they will contribute to meeting an urgent public policy goal stated in the Governor's

emergency proclamation on tree mortality and in regulatory and legislative directives. In Arroyo's opinion, the above-market payment the amendment requires is justified by its contribution toward burning HHZ fuels in response to a state of emergency.

- While taking deliveries under the contract amendment and the new PPA is not well aligned with PG&E portfolio fit or RPS compliance needs, and it is not particularly consistent with PG&E's 2015 RPS procurement plan regarding incremental RPS contracts, the deliveries align quite well with the directives of the CPUC's Resolutions E-4770 and E-4805 to respond to the tree mortality emergency.
- The amendment and the new PPA will contribute to PG&E's prior definition of its RPS Goals evaluation criterion, such as contributing economic benefits to a community afflicted by poverty and high unemployment, and supporting the state goal for biomass-fueled energy as a percentage of renewable energy generation.
- As an operating facility that has delivered biomass-fueled energy reliably to PG&E for decades, the Wheelabrator Shasta plant ranks high for project viability.

Based on these observations and judgments about the fairness of negotiations and overall impact on ratepayer benefits and costs, Arroyo's opinion is that both Wheelabrator Shasta's contract amendment and new five-year contract merit CPUC approval.

Appendix E

Summary of Solicitation Participation

APPENDIX E

Names of participating companies and the number of offers per company

Indicates winning counterparty

CONFORMING OFFERS		
Item:	Developers	Number of Offers Submitted
1		1
2		1
3		1
4		1
5	Wheelabrator Technologies Inc.	1
6		1
		6
	Total Offers	6

APPENDIX E

CONFORMING OFFERS				
Baseload Product Category				
Item No:	Counterparty	ERR Type	Contract Capacity (MW)	Annual Generation (GWh)
1		Biomass		
2		Biomass		
3		Biomass		
4		Biomass		
5	Wheelabrator Technologies Inc.	Biomass	34.0	238.4
6		Biomass		
6	Total Baseload Conforming Offers		116.3	841.9

Appendix F

Location of Bids

(Redacted in its entirety)

Appendix G

Wheelabrator Attestation



**ATTESTATION OF
WHEELABRATOR SHASTA ENERGY COMPANY, INC.**

I, Reg Goldie, am an authorized representative of Wheelabrator Shasta Energy Company Inc. ("Seller") with authority to submit this attestation on the Seller's behalf and attest to the matters set forth herein. I hereby declare that I have personal knowledge of the facts set forth herein and, subject to the limitations and qualifications set forth herein, under penalty of perjury, the information provided in this attestation is true and correct to the best of my knowledge. I hereby declare as follows:

1. The Seller's Shasta generation facility ("Facility") is a 54.9 MW biomass facility that has been in operation since 1987. The Facility is located in Anderson, California and has 50 employees. It uses biomass as its primary fuel and is certified as a Qualifying Facility in accordance with the Public Utilities Regulatory Policies Act of 1978. The equipment at the Facility is generally in good working order and no significant repairs to the equipment are currently anticipated.
2. The Facility seeks price relief from PG&E under the seller's current 49.9 MW PPA as a bridge until the start of a new Bilateral BIORAM Agreement with PG&E becomes effective.
3. Without the requested relief from PG&E for energy, Seller could not afford to continue to operate the Facility and would potentially have to shut down the Facility for economic reasons. With the price relief sought, Seller intends to continue to operate the Facility at historic levels, which should result in the production of electric energy consistent with the contract quantity of 195,653 MWh stated in the bridge amendment or (approximately 391,306 MWh on an annualized basis).
4. The proposed price relief set forth in the bridge agreement, serves as a bridge, allowing the Facility to continue operating and burning high hazard zones fuel, until a new longer term contract (bilateral BioRAM) is approved.
5. The Facility plans to procure a percentage of its fuel from designated high hazard zones, in accordance with a California Public Utilities Commission ("CPUC") resolution, to address the Governor's emergency proclamation.

As an authorized representative of Seller, and under penalty of perjury, I state that the above statements, including financial, historical and projected operating data, are true and correct to the best of my knowledge.



Date: 12/12/16

Name: Reg Goldie
Title: VP, Energy
Marketing and Sales

This Attestation may be disclosed by Seller and PG&E to the California Public Utility Commission to substantiate and verify the accuracy of the parties' compliance with the requirements of the proposed Amendment to the PPA between Seller and PG&E.

Appendix H

Executed Extension Agreement

(Redacted in its entirety)

Appendix I

Executed Wheelabrator PPA and Bilateral Rider

(Redacted in its entirety)

Appendix J

Redline of BioRAM Rider to Wheelabrator PPA Rider

(Redacted in its entirety)

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

AT&T	Division of Ratepayer Advocates	Office of Ratepayer Advocates
Albion Power Company	Don Pickett & Associates, Inc.	OnGrid Solar
Alcantar & Kahl LLP	Douglass & Liddell	Pacific Gas and Electric Company
Anderson & Poole	Downey & Brand	Praxair
Atlas ReFuel	Ellison Schneider & Harris LLP	Regulatory & Cogeneration Service, Inc.
BART	Evaluation + Strategy for Social Innovation	SCD Energy Solutions
Barkovich & Yap, Inc.	G. A. Krause & Assoc.	SCE
Bartle Wells Associates	GenOn Energy Inc.	SDG&E and SoCalGas
Braun Blaising McLaughlin & Smith, P.C.	GenOn Energy, Inc.	SPURR
Braun Blaising McLaughlin, P.C.	Goodin, MacBride, Squeri, Schlotz & Ritchie	San Francisco Water Power and Sewer
CENERGY POWER	Green Charge Networks	Seattle City Light
CPUC	Green Power Institute	Sempra Energy (Socal Gas)
California Cotton Ginners & Growers Assn	Hanna & Morton	Sempra Utilities
California Energy Commission	ICF	SoCalGas
California Public Utilities Commission	International Power Technology	Southern California Edison Company
California State Association of Counties	Intestate Gas Services, Inc.	Southern California Gas Company (SoCalGas)
Calpine	Kelly Group	Spark Energy
Casner, Steve	Ken Bohn Consulting	Sun Light & Power
Center for Biological Diversity	Leviton Manufacturing Co., Inc.	Sunshine Design
City of Palo Alto	Linde	Tecogen, Inc.
City of San Jose	Los Angeles County Integrated Waste Management Task Force	TerraVerde Renewable Partners
Clean Power	Los Angeles Dept of Water & Power	TerraVerde Renewable Partners, LLC
Clean Power Research	MRW & Associates	Tiger Natural Gas, Inc.
Coast Economic Consulting	Manatt Phelps Phillips	TransCanada
Commercial Energy	Marin Energy Authority	Troutman Sanders LLP
Cool Earth Solar, Inc.	McKenna Long & Aldridge LLP	Utility Cost Management
County of Tehama - Department of Public Works	McKenzie & Associates	Utility Power Solutions
Crossborder Energy	Modesto Irrigation District	Utility Specialists
Crown Road Energy, LLC	Morgan Stanley	Verizon
Davis Wright Tremaine LLP	NLine Energy, Inc.	Water and Energy Consulting
Day Carter Murphy	NRG Solar	Wellhead Electric Company
Defense Energy Support Center	Nexant, Inc.	Western Manufactured Housing Communities Association (WMA)
Dept of General Services	ORA	YEP Energy