

PUBLIC UTILITIES COMMISSION

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July 10, 2017

Advice Letter 5095-E

Erik Jacobson
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**Subject: 2017 RPS Sales Solicitation; Power Purchase and Sale
Agreements for Renewable Energy Credits Between
PG&E and Multiple Buyers**

Dear Mr. Jacobson:

Advice Letter 5095-E is effective as of June 16, 2017.

Sincerely,

A handwritten signature in cursive script that reads "Edward Randolph".

Edward Randolph
Director, Energy Division

June 16, 2017

Advice 5095-E

(Pacific Gas and Electric Company ID U39 E)

Public Utilities Commission of the State of California

Subject: 2017 RPS Sales Solicitation; Power Purchase and Sale Agreements for Renewable Energy Credits Between Pacific Gas and Electric Company and Multiple Buyers

I. Introduction
A. Identify the Purpose of the Advice Letter

Pacific Gas and Electric Company (“PG&E”) seeks California Public Utilities Commission (“Commission” or “CPUC”) approval of five power purchase and sale agreements (together, the “PPSAs” or “Transactions”) that seek to sell Renewables Portfolio Standard (“RPS”)-eligible products from PG&E’s existing procured energy portfolio to other load-serving entities (“LSEs”) or electric service providers. The purpose of these transactions is to further optimize PG&E’s RPS portfolio in light of PG&E’s forecasted bundled electric load forecast, which has changed considerably in recent years due to anticipated load departure resulting from the growth of Community Choice Aggregators (“CCA”) and behind-the-meter distributed generation. These transactions are consistent with the sales strategy approved as part of PG&E’s 2016 RPS Procurement Plan (“2016 RPS Plan”).¹

The counterparties and associated sale volumes are as follows:

Counterparty	Contract Volume (MWh)
3 Phases Renewables Inc. ("3PR")	75,000 - 100,000
Direct Energy Business Marketing, LLC ("Direct Energy")	839,230
EDF Trading North America, LLC ("EDF")	210,000
Exelon Generation Company, LLC ("Exelon")	500,000
Peninsula Clean Energy Authority ("PCE")	420,000
Total (using 3PR minimum volume)	2,044,230
Total (using 3PR maximum volume)	2,069,230

¹ Final PG&E Renewable Energy Procurement Plan, filed in R.15-02-020 on Jan. 23, 2017.

These short-term Transactions have energy delivery periods² commencing on May 1, 2017 and ending no later than December 31, 2017. The bundled renewable product will be provided from a number of operating solar photovoltaic (“PV”), solar thermal, wind, biomass, small hydroelectric (“hydro”), and geothermal facilities located within the state of California. All of the volumes are intended to provide energy and RPS-eligible Renewable Energy Credits (“RECs”) to the buyers, with the transfer of the associated RECs subject to Commission approval of this advice letter.

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

1. Project Name

The PPSAs allow PG&E to deliver bundled products from various facilities located throughout California and certified as RPS-eligible by the California Energy Commission (“CEC”) that are currently under contract with PG&E (collectively “Projects”). The Projects are listed in Tables 1 and 2, below. PG&E’s methodology for filling contract volumes from the Projects is described in Confidential Appendix D.

Table 1: Preferred Resource List for Executed Contracts (with exception of 3PR)

Name of Facility or Owner of Facility	Resource	Location	CEC RPS ID	Host Balancing Authority
Placer County Water Agency (“PCWA”) (French Meadows Powerhouse 2)	Small Hydro	Forestville, CA	60268A	California Independent System Operator (“CAISO”)
PCWA (Oxbow Powerhouse 1)	Small Hydro	Forestville, CA	60269A	CAISO
PCWA (Hell Hole Powerhouse 1)	Small Hydro	Forestville, CA	60234A	CAISO
Geysers Power Plant - Calpine Geothermal Unit 11	Geothermal	Middletown, CA	60025A	CAISO
Geysers Power Plant - Calpine Geothermal Unit 12	Geothermal	Middletown, CA	60004A	CAISO
Geysers Power Plant - Calpine Geothermal Unit 13	Geothermal	Middletown, CA	60005A	CAISO
Geysers Power Plant - Calpine Geothermal Unit 14	Geothermal	Middletown, CA	60026A	CAISO

² Each contract’s green attribute delivery period will end on the date PG&E has transferred the total volume of green attributes to the counterparty.

Name of Facility or Owner of Facility	Resource	Location	CEC RPS ID	Host Balancing Authority
Geysers Power Plant - Calpine Geothermal Unit 16	Geothermal	Middletown, CA	60006A	CAISO
Geysers Power Plant - Calpine Geothermal Unit 17	Geothermal	Middletown, CA	60007A	CAISO
Geysers Power Plant - Calpine Geothermal Unit 18	Geothermal	Middletown, CA	60008A	CAISO
Geysers Power Plant - Calpine Geothermal Unit 20	Geothermal	Middletown, CA	60009A	CAISO
Geysers Power Plant - Calpine Geothermal Unit 7-8	Geothermal	Middletown, CA	60003A	CAISO
Geysers Power Plant - Sonoma/Calpine Geyser	Geothermal	Middletown, CA	60010A	CAISO
Geysers Power Plant - Calistoga Power Plant	Geothermal	Middletown, CA	60117A	CAISO
Geysers Power Plant - Aidlin Power Plant	Geothermal	Middletown, CA	60115A	CAISO
AV Solar Ranch One	Solar PV	Lancaster, CA	60790A	CAISO
Genesis Solar Energy Project	Solar Thermal	Blythe, CA	60605A	CAISO
DTE Stockton	Biomass	Stockton, CA	60964A	CAISO
Mt. Poso	Biomass	Bakersfield, CA	60695A	CAISO
Woodland Biomass	Biomass	Woodland, CA	60095A	CAISO
Alpine Solar Project	Solar PV	Lancaster, CA	60755A	CAISO
Wadham Energy LP	Biomass	Williams, CA	60092A	CAISO
Montezuma Wind Energy Center	Wind	Rio Vista, CA	60543A	CAISO
Alpaugh 50	Solar PV	Alpaugh, CA	60945A	CAISO
El Dorado Irrigation District	Small Hydro	Pollock Pines, CA	60601A	CAISO
El Nido Biomass Facility	Biomass	El Nido, CA	60473A	CAISO
Chowchilla Biomass Facility	Biomass	Chowchilla, CA	60471A	CAISO
Dutch Flat #2 Powerhouse	Small Hydro	Nevada City, CA	60264A	CAISO
Rollins Powerhouse	Small Hydro	Grass Valley, CA	60265A	CAISO
Bowman Powerhouse	Small Hydro	Nevada City, CA	60171A	CAISO
Westlands Solar Farms	Solar PV	Huron, CA	61755A	CAISO
Sun City Project	Solar PV	Avenal, CA	60913A	CAISO
SFWP (South Feather Water & Power) - Kelly Ridge	Small Hydro	Oroville, CA	60266A	CAISO
SFWP (South Feather Water & Power) - Sly Creek	Small Hydro	Strawberry Valley, CA	60267A	CAISO

Name of Facility or Owner of Facility	Resource	Location	CEC RPS ID	Host Balancing Authority
Sand Drag	Solar PV	Avenal, CA	60914A	CAISO
Corcoran	Solar PV	Corcoran, CA	60948A	CAISO
White River	Solar PV	Alpaugh, CA	60949A	CAISO
Atwell Island	Solar PV	Alpaugh, CA	60947A	CAISO
Avenal Park	Solar PV	Avenal, CA	60912A	CAISO
Buena Vista Wind Project	Wind	Byron, CA	60124A	CAISO
Norman Ross Burgess - Three Forks Water Power Project	Small Hydro	Zenia, CA	60502A	CAISO
Big Creek Water Works, Ltd.	Small Hydro	Hyampon, CA	60900A	CAISO
Orion Solar	Solar PV	Arvin, CA	61570A	CAISO

Table 2: Preferred Resource List for 3PR Transaction

Name of Facility	Resource	Location	CEC RPS ID	Host Balancing Authority
Shiloh I Wind Project	Wind	Rio Vista, CA	60488A	CAISO
Kent South	Solar PV	Lemoore, CA	61262A	CAISO
Algonquin SKIC 20 Solar	Solar PV	Taft, CA	60853A	CAISO
SPI Anderson II	Biomass	Shasta, CA	62285A	CAISO

2. Technology (including level of maturity)

The Projects from which the energy and Renewable Energy Credits (“RECs”) are being sold consist of PV, solar thermal, wind, biomass, small hydro and geothermal renewable technologies, all of which are commercially-available technologies.

3. General Location and Interconnection Point

The Projects are all located within California and are interconnected with the CAISO.

4. Owner(s) / Developer(s)

a. Name(s)

The names or owners of the Projects are listed in Tables 1 and 2, above.

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

Ownership of Projects:

All geothermal, wind, PV, and solar thermal resources used for the sale are owned by limited liability companies. Most small hydro facilities are owned by California local

government entities, namely PCWA, Nevada Irrigation District (“NID”), El Dorado Irrigation District, and South Feather Water and Power Agency (“SFWP”). Big Creek Water Works is a private limited company, and Norman Ross Burgess is a privately-owned small hydro resource. Most of the biomass facilities are owned by limited liability companies, with the exception of Sierra Pacific Industries (“SPI”) Anderson II, Wadham Energy LP, and Woodland Biomass. SPI is a California corporation, Wadham Energy is a limited partnership, and Woodland Biomass Power is a private limited company.

Ownership of Buyers under the PPSAs:

- 3PR is an Energy Services Provider (“ESP”) that works with commercial and industrial companies to provide clean energy. 3PR also provides municipalities and CCAs a portfolio of specialized energy products.
- Direct Energy has operations and business activities throughout the United States and serves residential and business customers in five states with electricity and natural gas. In California, Direct Energy acts as an ESP working with CCAs and commercial and industrial customers.
- PCE is a CCA serving residential and business customers in San Mateo County.
- Exelon is an energy generation, transmission and distribution company with operations and business activities in 47 states. In California, Exelon owns generating resources and acts as an ESP through its ownership of Constellation NewEnergy, Inc.
- EDF is a subsidiary of the EDF Group, a diversified electric company headquartered in France with global operations. EDF is active in commercial and industrial retail markets in North America. In California, EDF acts as an ESP.

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

PG&E is not aware of any corporate affiliations between the Projects, PG&E, and the PPSA Buyers.

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

All the Projects that are expected to deliver volumes pursuant to the PPSAs are existing and operating facilities under current RPS contracts to deliver output to PG&E.

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

The PPSAs resulted from PG&E’s 2017 RPS Sales Solicitation (the “Solicitation”) and were evaluated and executed in accordance with the RPS Sales Framework approved as Appendix I to PG&E’s 2016 RPS Plan.³ PG&E consulted with the Independent Evaluator (“IE”) assigned to this Solicitation to develop a list of entities to include in market outreach. PG&E notified RPS-obligated entities likely to have an interest in the

³ The RPS Sales Framework is discussed more fully below and in Confidential Appendix A.

products and, to ensure a robust response, sent the market notice to the Wholesale Electric Power Procurement distribution list containing over 2,700 contacts. PG&E released the Solicitation on January 25, 2017, identifying price as the sole quantitative evaluation criterion and identifying credit, agreement modifications, previous commercial experience with the counterparty and counterparty concentration as the qualitative evaluation criteria. Bids were received on February 8, 2017. Further information regarding the Solicitation results is included in Confidential Appendices A and B. Relevant solicitation materials provided to bidders are provided in public Appendices G and H.

C. General Project(s) Description

The Projects are described in Section B.1., above. The terms of the Transactions are summarized as follows:⁴

⁴ PG&E has modified the table from the standard Advice Letter template to remove rows that are not directly applicable to these PPSAs, since they are not tied to a specific generation facility (i.e., Capacity, Capacity Factor, Initial Commercial Operation Date, Vintage, Location, Competitive Renewable Energy Zone, Control Area, Type of Cooling).

Project Name	3 Phases Renewables	Direct Energy	Peninsula Clean Energy Authority	Exelon Generation Company	EDF Trading NA
Technology	PV, Wind and Biomass	PV, Solar Thermal, Wind Small Hydro, Biomass, and Geothermal	PV, Solar Thermal, Wind Small Hydro, Biomass, and Geothermal	PV, Solar Thermal, Wind Small Hydro, Biomass, and Geothermal	PV, Solar Thermal, Wind Small Hydro, Biomass, and Geothermal
Contract Quantity(MWh/Year)	75,000 - 100,000	839,230	420,000	500,000	210,000
Date contract Delivery Term Begins	May 1, 2017	May 1, 2017	May 1, 2017	May 1, 2017	May 1, 2017
Delivery Term (Years)⁵	From May 1, 2017 to no later than December 31, 2017 (approximately 8 months)	From May 1, 2017 to no later than December 31, 2017 (approximately 8 months)	From May 1, 2017 to no later than December 31, 2017 (approximately 8 months)	From May 1, 2017 to no later than December 31, 2017 (approximately 8 months)	From May 1, 2017 to no later than December 31, 2017 (approximately 8 months)

⁵ The green attribute delivery period will end on the date PG&E has transferred the total volume of green attributes to the Buyer.

D. Project Location

1. Provide a general map of the generation facility's location.

Given the nature of the Transactions and the number of locations of the generation facilities that are expected to generate the products that will be sold pursuant to those Transactions, it is not practicable to include a locational map in this filing. However, all of the generation facilities are located in California and interconnected to the CAISO.

E. General Deal Structure

Describe general characteristics of contract, for example:

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

PG&E will sell bundled energy and RECs under the PPSAs. PG&E presently purchases the bundled renewable energy and RECs under contracts that PG&E expects would qualify as Portfolio Content Category 1 as to PG&E.⁶ PG&E will not transfer RECs to the Buyers until the Transactions receive final, non-appealable Commission approval.

2. Partial/Full Generation Output of Facility

PG&E has the right but not the obligation to deliver from the Projects listed above. PG&E is obligated under the terms of this sale to deliver each contract's Total Quantity of bundled energy and RECs within the Delivery Term. Thus, deliveries pursuant to the Transaction may, but need not, compromise the full output from any given Project. PG&E's methodology for filling contract volumes from the resource lists is described in Confidential Appendix D.

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

No.

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

NP-15.

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

Not applicable as the energy is sold at index. Under the terms of the PPSAs, PG&E or a third party designee will act as scheduling coordinator for the resources. The scheduling coordinator is responsible for scheduling energy from the resources into the CAISO market. The Buyer will take title to the energy from multiple resources at the NP-15 Trading Hub.

PG&E will financially settle the energy and RECs approximately four months after the energy was generated. For example, for energy generated in the month of May, the corresponding RECs will be created and deposited into PG&E's Western Renewable

⁶ PCC 1 products are defined in California Public Utilities Code Section 399.16(b)(1).

Energy Generation Information System (“WREGIS”) account at the end of August. In September, PG&E will invoice the Buyers for the delivered volume of energy at the hourly NP-15 Index Price and the associated RECs at the corresponding contract price. The invoice for energy will reflect a netting of energy payments in that PG&E as Scheduling Coordinator will have received CAISO revenues for the delivered energy and is obligated to remit those revenues to the Buyers; the Buyers are obligated to pay the NP-15 Index Price for the delivered energy to PG&E. The September invoice for May energy delivery will show a netting of CAISO NP-15 revenues received by PG&E and payment owed by Buyers for the same energy, resulting in an invoice price of \$0 for energy.

Following invoicing and receipt of payment for the RECs, PG&E will transfer RECs to the Buyers’ WREGIS accounts.

6. Diagram and Explanation of Delivery Structure

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

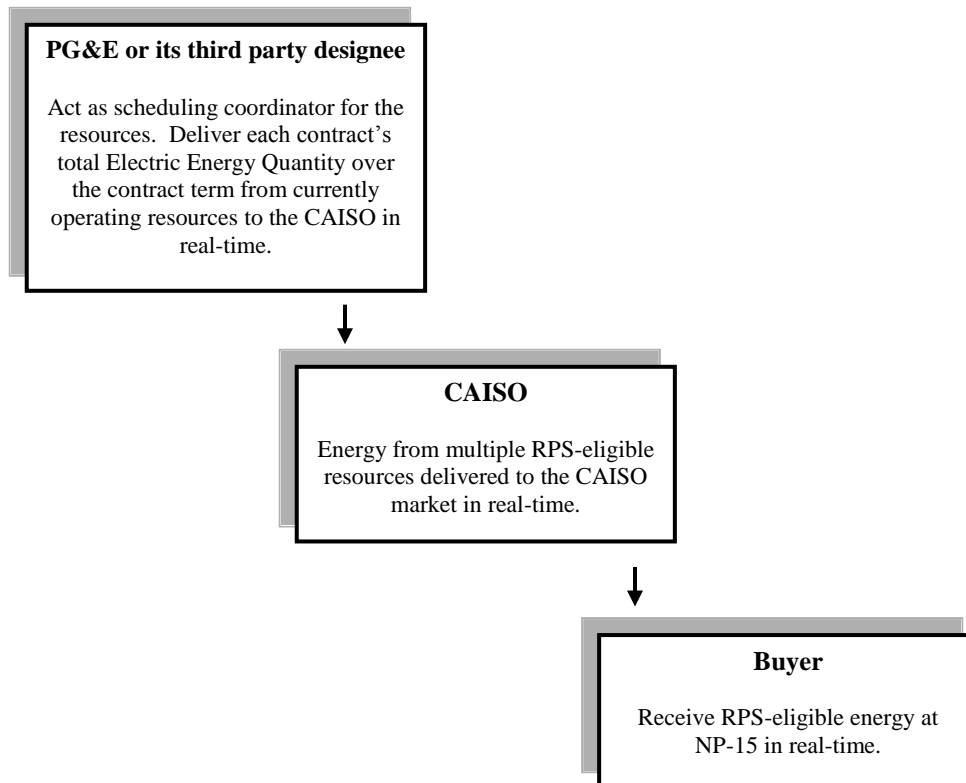
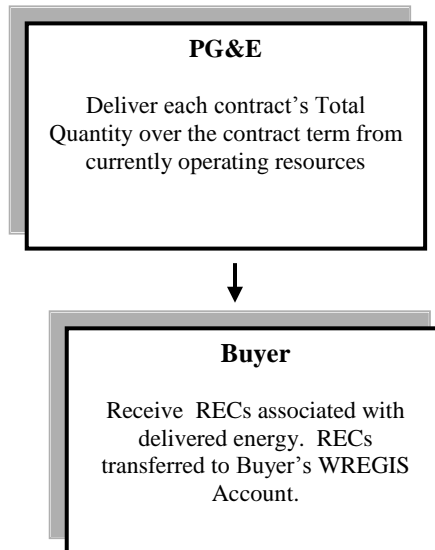


Figure 2: Delivery Structure of the RECs Portion of the PPSAs

F. RPS Statutory Goals and Requirements

1. **Briefly describe the Project's consistency with and contribution towards the RPS program's statutory goals set forth in Public Utilities Code §399.11. These goals include displacing fossil fuel consumption within the state; adding new electrical generating facilities within WECC; reducing air pollution in the state; meeting the state's climate change goals by reducing emissions of greenhouse gases associated with electrical generation; promoting stable retail rates for electric service; a diversified and balanced energy generation portfolio; meeting the state's resource adequacy requirements; safe and reliable operation of the electrical grid; and implementing the state's transmission and land use planning activities.**

Public Utilities Code §399.11 states that increasing California's reliance on eligible renewable energy resources is intended to displace fossil fuel consumption within the state, promote stable electricity prices, reduce greenhouse gas ("GHG") emissions, improve environmental quality and promote the goal of a diversified and balanced energy generation portfolio. The Projects are consistent with these goals because they generate clean energy and provide economic benefits to California as in-state projects. The Transactions contribute to the optimization of PG&E's portfolio of RPS-eligible resources, thereby promoting the stability and reasonableness of the impact on customer rates of that portfolio.

2. **Describe how procurement pursuant to the contract will meet IOU's specific RPS compliance period needs. Include Renewable Net Short calculation as part of response.**

Senate Bill (“SB”) 2 1X was enacted in 2011 and was implemented by the Commission in Decision (D.)11-12-020 to require retail sellers of electricity to meet the following RPS procurement quantity requirements beginning on January 1, 2011:

- An average of twenty percent of the combined bundled retail sales during the first compliance period (2011-2013).
- Sufficient procurement during the second compliance period (“CP 2”) (2014-2016) that is consistent with the following formula: $(.217 * 2014 \text{ retail sales}) + (.233 * 2015 \text{ retail sales}) + (.25 * 2016 \text{ retail sales})$.
- Sufficient procurement during the third compliance period (“CP 3”) (2017-2020) that is consistent with the following formula: $(.27 * 2017 \text{ retail sales}) + (.29 * 2018 \text{ retail sales}) + (.31 * 2019 \text{ retail sales}) + (.33 * 2020 \text{ retail sales})$.
- Thirty-three percent of bundled retail sales in 2021 and all years thereafter.

SB 350, enacted in 2015, extended the RPS statutory target to 50% by 2030 with interim requirements in 2024 and 2027. On December 20, 2016, the Commission issued a decision⁷ implementing the following compliance periods and procurement targets as mandated by SB 350:

- Sufficient procurement during a fourth compliance period (“CP 4”) (2021-2024) that is consistent with the following formula: $(.348 * 2021 \text{ retail sales}) + (.365 * 2022 \text{ retail sales}) + (.383 * 2023 \text{ retail sales})$.
- Sufficient procurement during a fifth compliance period (“CP 5”) (2025-2027) that is consistent with the following formula: $(.417 * 2025 \text{ retail sales}) + (.433 * 2026 \text{ retail sales}) + (.45 * 2027 \text{ retail sales})$.
- Sufficient procurement during a sixth compliance period (“CP 6”) (2028-2030) that is consistent with the following formula: $(.467 * 2028 \text{ retail sales}) + (.483 * 2029 \text{ retail sales}) + (.50 * 2030 \text{ retail sales})$.

Beginning in 2031, SB 350 requires three-year compliance periods and a minimum renewable procurement requirement of 50% of bundled retail sales indefinitely.

By ruling, the Commission has adopted a methodology for calculating a retail seller’s renewable net short (“RNS”) position relative to the RPS procurement targets adopted by SB 2 1X and implemented in D.11-12-020.⁸ PG&E is providing an RNS calculation in Appendix I1 that extends to 2037 and that is consistent in all other respects with the Commission’s adopted RNS methodology. PG&E is also providing an Alternative RNS calculation (the “Alternative RNS”) in Appendix I2. The confidential versions of the RNS and Alternative RNS tables are provided in Confidential Appendices J1 and J2, respectively.

⁷ See D.16-12-040.

⁸ See Administrative Law Judge’s Ruling on Renewable Net Short issued on May 21, 2014, including subsequent changes to the RNS reporting template per direction from the Energy Division on May 29, 2014.

There are two main differences between the RNS and the Alternative RNS. First, the Alternative RNS utilizes PG&E's internal Bundled Retail Sales Forecast for years 2017-2037. Second, the Alternative RNS presents a modified display of PG&E's RNS in order to adequately show the results from PG&E's stochastic optimization of its RPS position. Further details on PG&E's stochastic optimization approach can be found in PG&E's 2016 RPS Plan, which was filed in Rulemaking 15-02-020 on January 23, 2017.

As illustrated in PG&E's Alternative RNS, PG&E's existing RPS portfolio is expected to provide sufficient RPS-eligible deliveries to meet PG&E's RPS compliance requirements in CP2 through CP 6.

G. Confidentiality

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

In support of this Advice Letter, PG&E has provided the confidential information listed below. This information includes the PPSAs and other information that more specifically describes the rights and obligations of the parties involved. This information is being submitted in the manner directed by D.08-04-023 and the August 22, 2006, Administrative Law Judge's Ruling Clarifying Interim Procedures for Complying with D.06-06-066 to demonstrate the confidentiality of the material and to invoke the protection of confidential utility information provided under either the terms of the Investor Owned Utility Matrix, Appendix 1 of D.06-06-066 and Appendix C of D.08-04-023, or General Order 66-C. A separate Declaration Seeking Confidential Treatment is being submitted concurrently with this Advice Letter.

Confidential Attachments:

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

Appendix B – Solicitation Overview

Appendix C1 – Independent Evaluator Report – Confidential

Appendix D – Contract Summaries

Appendix E1 – Comparison of PPSA of 3 Phases Renewables Inc. with PG&E's 2017 Pro Forma RPS Short-Term Sales Confirmation⁹

Appendix E2 – Comparison of PPSA of Direct Energy Business Marketing, LLC with PG&E's 2017 Pro Forma RPS Short-Term Sales Confirmation

⁹ The Commission approved PG&E's form agreement for the sale of RPS products with terms of five years or less as part of its approval of PG&E's RPS Plan in D.16-12-044. That form agreement was included as Appendix I.3 to PG&E's RPS Plan.

- Appendix E3 – Comparison of PPSA of EDF Trading North America, LLC with PG&E’s 2017 Pro Forma RPS Short-Term Sales Confirmation**
- Appendix E4 – Comparison of PPSA of Exelon Generation Company, LLC with PG&E’s 2017 Pro Forma RPS Short-Term Sales Confirmation**
- Appendix E5 – Comparison of PPSA of Peninsula Clean Energy Authority with PG&E’s 2017 Pro Forma RPS Short-Term Sales Confirmation**
- Appendix F1 – Power Purchase and Sale Agreement with 3 Phases Renewables Inc.¹⁰**
- Appendix F2 – Power Purchase and Sale Agreement with Direct Energy Business Marketing, LLC**
- Appendix F3 – Power Purchase and Sale Agreement with EDF Trading North America, LLC**
- Appendix F4 – Power Purchase and Sale Agreement with Exelon Generation Company, LLC**
- Appendix F5 – Power Purchase and Sale Agreement with Peninsula Clean Energy Authority**
- Appendix I1 - PG&E’s Renewable Net Short Calculation (Confidential)**
- Appendix I2 – PG&E’s Alternative Renewable Net Short Calculation (Confidential)**

Public Attachments

- Appendix C2 – Independent Evaluator Report – Public**
- Appendix G – PG&E Notification of Solicitation Issuance**
- Appendix H – PG&E Solicitation Bid Form**
- Appendix I1 – PG&E’s Renewable Net Short Calculation (Redacted)**
- Appendix I2 – PG&E’s Alternative Renewable Net Short Calculation (Redacted)**

II. Consistency With Commission Decisions

A. RPS Procurement Plan

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

¹⁰ The PPSAs are in the form of confirms to the Edison Electric Institute (“EEI”) Master Contract for bilateral transactions (“EEI Master”). The EEI Master agreement, which is incorporated by reference into the PPSA, is available at the following link:

<http://www.eei.org/resourcesandmedia/mastercontract/Pages/default.aspx>. PG&E did not include the EEI Master in Appendices E or F for purposes of brevity.

PG&E's 2016 RPS Plan was approved in D.16-12-044 on December 15, 2016, and the final, conforming version of the 2016 RPS Plan was filed in Rulemaking 15-02-020 on January 23, 2017. PG&E complied with all procedural requirements with regard to the filing of its 2016 RPS Plan.

2. Describe the Procurement Plan's assessment of portfolio needs.

In PG&E's 2016 RPS Plan, PG&E demonstrated that under the 33% RPS by 2020 target, and an assumed "straight-line" trajectory implementing the SB 350 target of 50% RPS by 2030, PG&E is well-positioned to meet its RPS compliance requirements for the second (2014-2016), third (2017-2020), and fourth (2021-2024) compliance periods and will not have incremental procurement need until at least 2026.¹¹ PG&E believes that its existing portfolio of executed RPS contracts, its owned RPS-eligible generation, and its expected balances of surplus RPS generation from prior compliance periods will be adequate to ensure compliance with near-term RPS requirements.¹² Additionally, PG&E expects to procure additional volumes of incremental RPS-eligible contracts through mandated procurement programs in 2017 programs.¹³ In recognition of the fact that PG&E has no near-term RPS procurement need, the Commission approved PG&E's request to not hold an RPS solicitation in the 2016 RPS cycle.¹⁴

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

The proposed PPSAs are for the sale of energy and RECs generated in 2017. As described above, PG&E's 2016 RPS Plan concluded that PG&E is well-positioned to meet its near-term RPS compliance requirements until at least 2026.¹⁵ In light of its long position with respect to RPS targets, PG&E developed a framework, filed as Appendix I in the approved 2016 RPS Plan ("Sales Framework"), to assess whether to hold or sell surplus RPS volumes.¹⁶ Based on its then-current forecast of bundled retail sales and RPS volumes in its portfolio, PG&E explained in the 2016 RPS Plan that it expected to hold one or more RPS sales solicitations for bundled, bankable RPS volumes in 2017.¹⁷

As further described in Confidential Appendix A, these Transactions are consistent with the 2016 RPS Plan because the total quantity considered for sale (the ratable sales amount), the bids that PG&E selected for execution, and the solicitation process were fully consistent with the approved Sales Framework. The prices of the Transactions are

¹¹ PG&E 2016 RPS Plan at p. 1 and Appendix C.2. Note that PG&E has presented an updated RPS position and an updated RNS table in section I.F.2 of this document and in Appendices I and J, using the latest vintage of its RPS position modeling.

¹² *Id.* at p. 16.

¹³ *Ibid.*

¹⁴ D.16-12-044 at p. 68 (Ordering Paragraph ("OP") 8).

¹⁵ 2016 RPS Plan at p. 1.

¹⁶ *Id.* at p. 2.

¹⁷ *Ibid.*

within the sales price curve described in the Sales Framework. As a result of following the approved Sales Framework, the Transactions are designed to optimize PG&E's RPS portfolio by reducing customer costs while maintaining compliance with RPS targets.

Consistent with the Sales Framework, PG&E used the approved solicitation protocol and is providing comparisons of the executed Transactions against the approved pro forma short-term sales confirmation, which assumed the existence of an EEI Master Agreement between the parties. Because PG&E does not have EEI Master Agreements in place with Exelon, PCE and Direct Energy, PG&E added additional provisions from the EEI Master Agreement to the pro-forma confirmations with these three entities. The adherence to the pre-approved Sales Framework allows for the filing of the Transactions through this Tier 1 advice letter, consistent with the 2016 RPS Plan.¹⁸

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

Required deliverability characteristics, online dates, and location preferences do not apply to PG&E's approach to these sales. Under its approved solicitation protocol, PG&E sought bids that were primarily focused on price.

5. Sales

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

PG&E's approved Sales Framework, described more fully in Confidential Appendix A, is designed to ensure that sales of RPS products pursuant to the Sales Framework are in the best interest of PG&E's customers when considering the alternative options available to PG&E. The Sales Framework assesses the net present value of PG&E's expected future cost of RPS procurement against the net present value of the offers it receives to buy excess RPS procurement in 2017. This analysis, which is confidential given the market sensitivity of the proprietary REC value forecasts it includes, demonstrates that PG&E's sale of between 2,044,230 and 2,069,230 MWh of bundled renewable energy and green attributes through the PPSAs is reasonably expected to reduce overall RPS compliance costs for PG&E customers.

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

¹⁸ See 2016 RPS Plan at p. 85.

PG&E followed the Sales Framework approved in PG&E's 2016 RPS Plan to maximize benefit to customers. The Renewable Energy Sale Request for Offers Solicitation Protocol¹⁹ described the approach that would be used for the sales, including identifying sale price as the sole quantitative evaluation criterion. The Sales Framework described how PG&E would assess whether to hold or sell surplus RPS volumes.²⁰

6. Portfolio Optimization Strategy

a) **Describe how the proposed procurement (or sale) optimizes IOU's RPS portfolio (or entire energy portfolio). Specifically, a response should include:**

i. **Identification of IOU's portfolio optimization strategy objectives that the proposed procurement (or sale) are consistent with.**

See section II.A.3, above.

ii. **Identification of metrics within portfolio optimization methodology or model (e.g., PPA costs, energy value, capacity value, interest costs, carrying costs, transaction costs, etc.) that are increased/ decreased as a result of the proposed transaction.**

See Sections B and E.9 of Confidential Appendix D.

iii. **Identification of risks (e.g., non-compliance with RPS requirements, regulatory risk, over-procurement of non-bankable RPS-eligible products, safety, etc.) and constraints included in optimization strategy that may be decreased or increased due to proposed procurement (or sale).**

The Transactions are consistent with PG&E's objective of minimizing customer costs while achieving and maintaining RPS compliance. Through the timely sale of excess RPS-eligible energy at competitive prices, the PPSAs reduce the total cost impact of the RPS program to customers. Given PG&E's current long RPS position through at least 2026, it is highly unlikely that the PPSA will jeopardize PG&E's ability to meet RPS requirements.²¹

b) **Description of how proposed procurement (or sale) is consistent with IOUs overall planned activities and range of transactions planned to optimize portfolio.**

PG&E developed its Sales Framework as part of its approved 2016 RPS Plan in order to guide its overall activities and the range of transactions it would undertake to optimize its

¹⁹ 2016 RPS Plan, Appendix I.1.

²⁰ Confidential Appendix I, 2016 RPS Plan.

²¹ See Section II.A.2, *supra*.

portfolio by addressing PG&E's growing bank of RPS compliance products.²² The purpose of the Sales Framework is to assess whether to hold or sell surplus RPS volumes and minimize customer costs while maintaining an adequate RPS compliance position.

B. Least-Cost, Best-Fit (LCBF) Methodology and Evaluation

1. Briefly describe IOU's LCBF Methodology and how the Project compared relative to other offers available to the IOU at the time of evaluation.

PG&E used a solicitation to seek bids for this sale and applied its approved Sales Framework to evaluate those bids. The sole quantitative criterion under the Sales Framework is price. The bids and PG&E's evaluation of them are described more fully in Confidential Appendices A, B, and D.

2. Indicate when the IOU's Shortlist Report was approved by Energy Division.

The shortlist of bids received pursuant to this sales solicitation was presented to PG&E's Procurement Review Group at the March 21, 2017 meeting. Because this targeted sales solicitation pursuant to the approved Sales Framework was not a traditional RPS procurement solicitation, PG&E did not submit a shortlist report for Energy Division approval.

C. Compliance With Standard Terms and Conditions ("STCs")

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

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

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

²² PG&E's 2016 RPS Plan at 1, 4.

The locations of non-modifiable terms in the PPSAs are indicated in the table below:

Counterparty	Contract Reference	Non-Modifiable Term				
		STC 1: CPUC Approval	STC 6: Eligibility	STC 17: Applicable Law	STC REC 1: Transfer of RECs	STC REC 2: WREGIS Tracking of RECs
3PR	Section	2.14	6.1(a)	8.3(b)	6.1(b)	6.1(c)
	Page Number	5	12	15	12	12
Direct Energy	Section	2.18	6.1(a)	9.3(b)	6.1(b)	6.1(c)
	Page Number	9	15-16	18-19	16	16
EDF	Section	2.13	6.1(a)	8.3(b)	6.1(b)	6.1(c)
	Page Number	5	11-12	14	12	12
Exelon	Section	2.18	6.1(a)	9.3(b)	6.1(b)	6.1(c)
	Page Number	10	16	19	16	16
PCE	Section	2.17	6.1(a)	9.3(b)	6.1(b)	6.1(c)
	Page Number	9	16	19	16	16

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

Redlines comparing each of the executed PPSAs and the Form of Short-term RPS Sale Confirmation included as Attachment I.3 to PG&E's 2016 RPS Plan are included in Confidential Appendices E1-E5.

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

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

PG&E makes no representation about the compliance value to other load-serving entities of the RPS products that will be sold pursuant to the PPSAs, if approved. However, PG&E believes that each of the products that will be sold would meet the criteria for PCC 1 categorization as set forth in California Public Utilities Code section 399.16(b)(1) pursuant to the original power purchase agreements (PPAs) between PG&E and the respective generators.

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

PG&E will sell energy and associated RECs generated from California-based, CEC-certified eligible renewable energy resources that have their first point of interconnection

within a California balancing authority. Accordingly, deliveries to PG&E under the original PPAs between PG&E and the respective generators would generate a PCC 1 product as defined in California Public Utilities Code Section 399.16(b)(1) if used by PG&E for RPS compliance.²³ Furthermore, as defined under D.10-03-021, as modified by D.11-01-025, the proposed PPSAs transfer a bundled transaction since both renewable energy and its associated RECs are being sold together.

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

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

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

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

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

5. Use the table below to report how the procurement pursuant to the contract, if classified as claimed, will affect the IOU's portfolio balance requirements, established in D.11-12-052.

PG&E's current Portfolio Balance Requirements are listed in the table below. As the generation that may be sold pursuant to the PPSAs is a combination of PCC 0 and PCC 1 volumes,²⁴ PG&E will not know the exact allocation between the categories until the RECs have been transferred to the counterparties. PG&E estimates that the quantity of PCC 1 reduction to PG&E's portfolio from the PPSAs could be as high as 2,069,230 MWh, as reflected in the following table. As shown in the Renewable Net Short ("RNS") tables included in Appendices I and J, PG&E expects to be able to meet its CP 3 portfolio balance requirements notwithstanding the sale of the PCC 1 volumes pursuant to the PPSAs.

²³ The Project list identified in these Transactions includes grandfathered, PCC 0 products as described in Section 399.16(d) of the California Public Utilities Code, as to PG&E, but PG&E expects they would become PCC 1 products if transferred to one of the counterparties to the PPSAs.

²⁴ *Id.*

Forecast of Portfolio Balance Requirements (GWh)	Compliance Period 3 (2017-2020)
PCC 1 Balance Requirement <i>CP 3 = 75% of RECs applied to procurement quantity requirement</i>	
Quantity of PCC 1 RECs (under contract, not including proposed contract)	29,102
Quantity of PCC 1 RECs from proposed contract	2,069
Quantity of PCC 2 RECs	0
Quantity of PCC 2 RECs (under contract, not including proposed contract)	0
Quantity of PCC 2 RECs from proposed contract	0
PCC 3 Balance Limitation <i>CP 3 = 10% of RECs applied to procurement quantity requirement</i>	
Quantity of PCC 3 RECs (under contract, not including proposed contract)	0
Quantity of PCC 3 RECs from proposed contract	0

E. Long-Term Contracting Requirement

D.12-06-038 established a long-term contracting requirement that must be met in order for an IOU to count RPS procurement from contracts less than 10 years in length (“short-term contracts”) toward RPS compliance.

In D.12-06-038, the Commission adopted a threshold standard pursuant to SB 2 (1X) that requires load-serving entities to sign long-term contracts in each compliance period equal to at least 0.25 percent of their expected retail sales over that same compliance period. The proposed PPSAs are sales contracts, which are not subject to PG&E’s long-term contracting requirement.

1. Explain whether or not the proposed contract triggers the long-term contracting requirement.

As sales transactions, these PPSAs do not trigger PG&E’s long-term contracting requirement.

2. **If the long-term contracting requirement applies, provide a detailed calculation that shows the extent to which the utility has satisfied the long-term contracting requirement. If the requirement has not yet been satisfied for the current compliance period, explain how the utility expects to satisfy the quantity by the end of the compliance period to count the proposed contract for compliance.**

PG&E's long-term contracting requirement does not apply as these PPSAs are sales transactions.

F. Interim Emissions Performance Standard

In D.07-01-039, the Commission adopted a greenhouse gas Emissions Performance Standard (EPS) which is applicable to electricity contract for baseload generation, as defined, having a delivery term of five years or more.

1. **Explain whether or not the contract is subject to the EPS.**

Pursuant to D.07-01-039, the proposed PPSAs are not subject to EPS as they have delivery terms shorter than five years.

2. **If the contract is subject to the EPS, discuss how the contract is in compliance with D.07-01-039.**

See Section F.1 above.

3. **If the contract is not subject to EPS, but delivery will be firmed/shaped with specified baseload generation for a term of five or more years, explain how the energy used to firm/shape meets EPS requirements.**

See Section F.1 above.

4. **If the contract term is five or more years and will be firmed/shaped with unspecified power, provide a showing that the utility will ensure that the amount of substitute energy purchases from unspecified resources is limited such that total purchases under the contract (renewable and non-renewable) will not exceed the total expected output from the renewable energy source over the term of the contract.**

See Section F.1 above.

5. **If substitute system energy from unspecified sources will be used, provide a showing that:**
 - a. **the unspecified energy is only to be used on a short-term basis; and**
 - b. **the unspecified energy is only used for operational or efficiency reasons; and**

- c. **the unspecified energy is only used when the renewable energy source is unavailable due to a forced outage, scheduled maintenance, or other temporary unavailability for operational or efficiency reasons; or**
- d. **the unspecified energy is only used to meet operating conditions required under the contract, such as provisions for number of start-ups, ramp rates, minimum number of operating hours.**

Substitute system energy from unspecified sources will not be used.

G. Procurement Review Group (PRG) Participation

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

The Procurement Review Group (“PRG”) for PG&E includes the Commission’s Energy Division, the Office of Ratepayer Advocates, the Union of Concerned Scientists, The Utility Reform Network, the Coalition of California Utility Employees, and Coast Economic Consulting.

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

At the March 21, 2017 in-person PRG meeting, PG&E provided an overview of the potential Transactions. The PRG was updated of PG&E’s intent to execute via email on April 21, 2017.

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

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

H. Independent Evaluator (IE)

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

1. Provide name of IE.

The Independent Evaluator (“IE”) is Lewis Hashimoto of Arroyo Seco Consulting.

2. Describe the oversight provided by the IE.

The IE provided active oversight in the solicitation from before its issuance through execution. The IE provided input in advance of the solicitation’s launch with the goal of maximizing the effectiveness of PG&E’s outreach. During the solicitation, the IE reviewed e-mails exchanged between PG&E and the counterparties and participated on phone calls between PG&E and the counterparties.

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

The IE did not provide any findings to the PRG related to these PPSAs. The IE recommends that the Commission approve the Transactions in his IE report.

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

The public and confidential versions of the IE report is attached to this Advice Letter as Appendices C1 and C2.

III. Project Development Status

Since the Projects are already commercially operable, this section is not applicable.

IV. Contingencies and/or Milestones

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

Absent the delivery of the contract quantities of energy corresponding to eventually created Green Attributes, these short-term transactions have no guaranteed milestones. The Transactions for Green Attributes are conditioned upon CPUC Approval, as defined in the proposed PPSAs.

V. Safety Considerations

1. What terms in the PPA address the safe operation, construction and maintenance of the Project? Are there any other conditions, including but not limited to conditions of any permits or potential permits, that the IOU is aware of that ensure such safe operation, construction and decommissioning?

The Transactions cover the resale of energy and RECs purchased under existing PPAs. These Projects are existing resources currently performing under existing PPAs with PG&E. The Transactions that are the subject of this Advice Letter have no impact on the underlying PPAs and therefore raise no incremental safety matters related to the generation of the energy.

2. What has the IOU done to ensure that the PPA and the Project's operation are: consistent with Public Utilities Code Section 451; do not interfere with the IOU's safe operation of its utility operations and facilities; and will not adversely affect the public health and safety?

See Section V.1 above.

3. If PPA or amendment is with an existing facility, please provide a matrix that identifies all safety violations found by any entity, whether

government, industry-based or internal with an indication of the issue and if the resolution of that alleged violation is pending or resolved and what the progress or resolution was/is.

See Section V.1 above.

- 4. If PPA or amendment is with an existing facility, will the PPA or amendment lead to any changes in the structure or operations of the facility? Any change in the safety practices at the facility? If so, with what federal, state and local agencies did the developer confer or seek permits or permit amendments for these changes?**

See Section V.1 above.

VI. Request for Commission Disposition

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

1. Approval of each PPSA in its entirety;
2. A finding that each PPSA is consistent with the Sales Framework approved as part of PG&E's 2016 RPS Plan and that the sale of the bundled renewable electricity and green attributes under each of the PPSAs is reasonable and in the public interest;
3. A finding that all costs of the PPSAs are fully recoverable in rates over the life of the PPSAs, subject to CPUC review of PG&E's administration of the PPSAs; and
4. A finding that the payments received by PG&E pursuant to the PPSAs shall be credited to PG&E customers through PG&E's Energy Resource Recovery Account over the life of the PPSAs, subject to CPUC review of PG&E's administration of the PPSAs.

Protests

Anyone wishing to protest this Advice Letter may do so by letter sent via U.S. mail, facsimile or E-mail, no later than July 6, 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:

Erik Jacobson
Director, Regulatory Relations
c/o Megan Lawson
Pacific Gas and Electric Company
77 Beale Street, Mail Code B23A
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, Rule 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, Rule 3.11).

Effective Date

Consistent with the Sales Framework approved as part of its 2016 RPS Plan,²⁵ PG&E is filing this advice letter with a Tier 1 designation to be effective upon filing, June 16, 2017, pending final disposition.

²⁵ See 2016 RPS Plan at p. 85.

Notice

In accordance with General Order 96-B, Section IV, a copy of this Advice Letter excluding the confidential appendices is being sent electronically and via U.S. mail to parties shown on the list shown below, including the service list for R.15-02-020. Non-market participants who are members of PG&E's PRG and have signed appropriate Non-Disclosure Certificates will also receive the Advice Letter and accompanying confidential attachments by overnight mail. Address changes to the General Order 96-B service list should be directed to PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at Process_Office@cpuc.ca.gov. Advice letter filings can also be accessed electronically at <http://www.pge.com/tariffs>.

_____/S/

Erik Jacobson
Director, Regulatory Relations

cc: Service List for R.15-02-020
Paul Douglas – Energy Division
Cheryl Lee – Energy Division
Joseph Abhulimen – ORA
Karin Hieta – ORA
Cynthia Walker – ORA

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 PPSA itself, price information, and analysis of the PPSA, 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.

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: Kingsley Cheng

Phone #: (415) 973-5265

E-mail: k2c0@pge.com and PGETariffs@pge.com

EXPLANATION OF UTILITY TYPE

(Date Filed/ Received Stamp by CPUC)

ELC = Electric

GAS = Gas

PLC = Pipeline

HEAT = Heat

WATER = Water

Advice Letter (AL) #: **5095-E**

Tier: 1

Subject of AL: **2017 RPS Sales Solicitation; Power Purchase and Sale Agreements for Renewable Energy Credits Between Pacific Gas and Electric Company and Multiple Buyers**

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 #: N/A

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

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

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

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

Name(s) and contact information of the person(s) who will provide the nondisclosure agreement and access to the confidential information: Marie Fontenot, (415) 973-4985

Resolution Required? Yes No

Requested effective date: **June 16, 2017**

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 B23A

P.O. Box 770000

San Francisco, CA 94177

E-mail: PGETariffs@pge.com

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

PACIFIC GAS AND ELECTRIC COMPANY

**DECLARATION OF MARIE Y. FONTENOT
SEEKING CONFIDENTIAL TREATMENT
FOR CERTAIN DATA AND INFORMATION
CONTAINED IN ADVICE LETTER 5095-E**

I, Marie Y. Fontenot, declare:


1. I am a Manager of Competitive Solicitations within the Energy Policy and Procurement organization at Pacific Gas and Electric Company (PG&E). In this position, my responsibilities include negotiating the purchase and sale of RPS energy as well as designing and administering solicitations for the purchase and sale of energy and energy-related products. This declaration is based on my personal knowledge of PG&E's practices and my understanding of the Commission's decisions protecting the confidentiality of market-sensitive 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 the attachments to Advice Letter 5095-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 June 16, 2017 at San Francisco, California.


Marie Y. Fontenot

PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)
Advice Letter 5095-E
June 16, 2017

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
<p>Appendix A, Consistency with Commission Decisions and Rules and Project Development Status</p>	<p>VII(G) Renewable Resource Contracts under RPS program - Contracts without SEPs</p> <p>Item V(C): LSE Total Energy Forecast Bundled Customer (MWh)</p> <p>VI(B): Utility Bundled Net Open (Long or Short) Position for Energy</p> <p>May 21, 2014 ALJ Ruling</p> <p>Item VIII(B) Specific quantitative analysis involved in scoring and evaluation of participating bids.</p>	<p>This appendix contains a summary of the confidential terms and conditions of RPS-eligible contracts. Disclosure of this information would provide market sensitive information regarding the contracts.</p> <p>This appendix also contains details regarding PG&E’s confidential RPS Sales Framework. This information is expressly deemed confidential by the May 21, 2014 ALJ Ruling. Additionally, this information could be used to determine PG&E’s net open position for RPS-eligible products and constitutes analysis and evaluation of proposed RPS projects, including sales or transactions intended to create a compliance bank.</p> <p>This appendix also contains information regarding PG&E’s net open RPS position and bundled retail sales forecast in the front three years of the forecast.</p> <p>This appendix contains confidential bid information and specific bid evaluations from PG&E’s solicitation. If released publicly, this information would provide market sensitive information to PG&E’s competitors; therefore, this information should be considered confidential.</p>	<p>For Item VII(G): remain confidential for three years after the commercial operation date, or one year after expiration (whichever is sooner).</p> <p>For Item V(C): Three years.</p> <p>For Item VI(B): Three years of forecast data confidential</p> <p>May 21, 2014 ALJ Ruling: Indefinite.</p> <p>For information covered under Item VIII(B), remain confidential for three years after winning bidders selected.</p>
<p>Appendix B, Solicitation Overview</p>	<p>Item VIII(B) Specific quantitative analysis involved in scoring and evaluation of participating bids.</p>	<p>This appendix contains confidential bid information and specific bid evaluations from PG&E’s solicitation. If released publicly, this information would provide market sensitive information to PG&E’s competitors; therefore, this information should be considered confidential.</p>	<p>For information covered under Item VIII(B): remain confidential for three years after winning bidders selected.</p>

PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)
Advice Letter 5095-E
June 16, 2017

IDENTIFICATION OF CONFIDENTIAL INFORMATION

Redaction Reference	Category from D.06-06-066, Appendix 1, or Separate Confidentiality Order That Data Corresponds To	Justification for Confidential Treatment	Length of Time
Appendix C2, IE Report	<p>Item VII(G) Renewable Resource Contracts under RPS program - Contracts without SEPs.</p> <p>Item VII (un-numbered category following VII(G)) Score sheets, analyses, evaluations of proposed RPS projects.</p> <p>Item VIII(B) Specific quantitative analysis involved in scoring and evaluation of participating bids.</p> <p>General Order 66-C.</p>	<p>This appendix contains the IE report, which includes confidential bid information and specific bid evaluations from the solicitation. The confidential IE report also discusses, analyzes and evaluates the Project and the terms of the PPSAs. Disclosure of this information would provide valuable market sensitive information to competitors. Release of this information would be damaging to future negotiations with other counterparties for similar product and should remain confidential.</p>	<p>For information covered under Item VII(G): remain confidential for three years after the commercial operation date, or one year after expiration (whichever is sooner).</p> <p>For information covered under Item VII (un-numbered category following VII(G)): remain confidential for three years.</p> <p>For information covered under Item VIII(B): remain confidential for three years after winning bidders selected.</p> <p>For information covered under G.O. 66-C: remain confidential indefinitely.</p>

PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)
Advice Letter 5095-E
June 16, 2017

IDENTIFICATION OF CONFIDENTIAL INFORMATION

Redaction Reference	Category from D.06-06-066, Appendix 1, or Separate Confidentiality Order That Data Corresponds To	Justification for Confidential Treatment	Length of Time
Appendix D, Summary of Contracts	VII(G) Renewable Resource Contracts under RPS contracts Item V(C): LSE Total Energy Forecast – Bundled Customer (MWh) VI(B): Utility Bundled Net Open (Long or Short) Position for Energy	This attachment contains an analysis of the benefits of the confidential contracts. Disclosure of this information would provide market sensitive information regarding the RPS-eligible contract amendments. The redacted information could be manipulated in conjunction with publicly-available information to determine PG&E's internal and proprietary forecast of its bundled customer total energy requirements.	For Item VII(G): remain confidential for three years after the commercial operation date, or one year after expiration (whichever is sooner). For Item V(C): Three years For Item VI(B): Three years of forecast data confidential
Appendix E, Red-line of Contracts compared to Pro Forma	Item VII(G) Renewable Resource Contracts under RPS program	This appendix contains each of the PPSAs for which PG&E seeks approval in the Advice Letter filing. Public disclosure of certain terms of the PPSAs would provide valuable market sensitive information to PG&E's competitors. Release of this information publicly would be damaging to PG&E's future negotiations with other counterparties for similar products; therefore, this information should remain confidential.	For information covered under Item VII(G): remain confidential for three years after the commercial operation date, or one year after expiration (whichever is sooner).
Appendix F, Contracts	Item VII(G) Renewable Resource Contracts under RPS program	This appendix contains each of the PPSAs for which PG&E seeks approval in this advice letter filing. Public disclosure of certain terms of the PPSAs would provide valuable market sensitive information to PG&E's competitors. Release of this information publicly would be damaging to PG&E's future negotiations for similar products with other counterparties; therefore, this information should remain confidential.	For information covered under Item VII(G): remain confidential for three years after the commercial operation date, or one year after expiration (whichever is sooner).

PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)
Advice Letter 5095-E
June 16, 2017

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
<p>Appendix J.1 and J.2, Renewable Net Short Calculations – grey shaded sections</p>	<p>Item V(C): LSE Total Energy Forecast Bundled Customer (MWh)</p> <p>VI(B): Utility Bundled Net Open (Long or Short) Position for Energy</p> <p>May 21, 2014 ALJ Ruling</p>	<p>For rows A, C, E, Ga and Gb, this information shows PG&E's net position for RPS-eligible energy in the periods within the front three years of the forecast.</p> <p>The redacted information in Rows A, C, E, Ga, and Gb could also be manipulated in conjunction with publicly-available information to determine PG&E's internal and proprietary forecast of its bundled customer total energy requirements.</p> <p>The redacted information for rows Ha, Hb, H, Ia, Ib, J, J0, J1, J2, La and Lb relates to PG&E's optimized RNS, including: PG&E's assumptions for its overall portfolio optimization strategy; any plans to sell forecast RECs above the PQR; application of forecast RECs above the PQR towards a future RPS compliance requirement; and any plan to procure of RECs above the PQR in future years. This information is expressly deemed confidential by the May 21, 2014 ALJ Ruling. Additionally, this information could be used to determine PG&E's net open position for RPS-eligible products and constitutes analysis and evaluation of proposed RPS projects, including sales or transactions intended to create a compliance bank.</p>	<p>For Item V(C): Three years.</p> <p>For Item V(B): Three years of forecast data confidential</p> <p>May 21, 2014 ALJ Ruling: Indefinite.</p>

PACIFIC GAS AND ELECTRIC COMPANY

APPENDIX A

CONSISTENCY WITH COMMISSION DECISIONS AND RULES

AND PROJECT DEVELOPMENT STATUS

2017 PG&E SALES SOLICITATION ADVICE LETTER

(CONFIDENTIAL IN ITS ENTIRETY)

PACIFIC GAS AND ELECTRIC COMPANY

APPENDIX B

SOLICITATION OVERVIEW

(CONFIDENTIAL IN ITS ENTIRETY)

PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX C2
REPORT OF THE INDEPENDENT EVALUATOR ON
CONTRACTS FOR SALE OF RENEWABLE ENERGY TO
FIVE BUYERS
(REDACTED)

ARROYO SECO CONSULTING

PACIFIC GAS AND
ELECTRIC COMPANY
BILATERAL CONTRACT
EVALUATION

REPORT OF THE INDEPENDENT
EVALUATOR ON CONTRACTS FOR SALE OF
RENEWABLE ENERGY TO FIVE BUYERS

MAY 25, 2017

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1. EXECUTIVE SUMMARY

This report provides an independent evaluation of agreements between the Pacific Gas and Electric Company (“PG&E”) and five buyers for the sale by the utility of renewable energy in Portfolio Content Category 1 (PCC 1). 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 agreement. The buyers include:

- 3 Phases Renewables Inc., a renewable energy solutions provider active in renewable energy and offset credit supply, on-site generation, and consulting;
- Exelon Generation Company, LLC, a subsidiary of Exelon Corp. (holding company for Commonwealth Edison, Baltimore Gas & Electric, and Philadelphia Electric) that houses the parent’s power production activities including nuclear generation;
- Direct Energy Business Marketing, LLC, a subsidiary of Centrica (parent company of British Gas) that provides retail gas and electricity in north America;
- EDF Trading North America, LLC (“EDFT NA”), a wholesale gas and power marketing and trading subsidiary of EDF Group (parent company of Electricite de France); and
- Peninsula Clean Energy Authority (“PCE”), a Community Choice Aggregator (CCA) serving retail electricity customers in San Mateo County.

This report of Arroyo Seco Consulting, serving as Independent Evaluator (“IE”) of PG&E’s contracting for renewable energy, provides a review of:

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

Arroyo’s opinion is that PG&E’s outreach to potential buyers was adequate and that the solicitation was modestly robust. PG&E’s methodology was designed fairly and, overall, administered fairly. Contract negotiations were conducted in a manner fair to ratepayers and to competing buyers, overall. Arroyo believes that the contract prices are reasonable, although the market is illiquid and not transparent and the lowest-priced accepted bids were lower in price than the range of recent publicly observable comparable market transactions. The sales are consistent with PG&E’s 2016 RPS procurement plan. Based on these observations, Arroyo’s opinion is that the executed contracts likely merit CPUC approval.

2. ROLE OF THE INDEPENDENT EVALUATOR

This chapter describes key roles of the IE and summarizes activities undertaken to fulfill those roles in PG&E's process of seeking bids for the sale of bundled renewable energy.

A. KEY INDEPENDENT EVALUATOR ROLES

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

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

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

B. IE ACTIVITIES

To fulfill the role of evaluating the renewable energy contracts between PG&E and the five buyers, Arroyo performed various key tasks:

- Reviewed the draft solicitation protocol and other materials;
- Discussed with the PG&E team its plan to pursue sales of bundled renewable energy, and suggested possible improvements to its outreach efforts;
- Observed (telephonically) negotiations between the parties;
- Reviewed marked-up drafts of confirmation agreements as parties proposed changes to PG&E’s draft form confirmation agreement and PG&E sought to evolve the form to a common version that was acceptable to all buyers;
- Researched comparable transactions for publicly available market pricing data.

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

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

On January 25, 2017, PG&E directly emailed a market notice for the solicitation to its standing Request for Offer (RFO) contact list of nearly 3,000 individuals, and to a more focused Renewable Energy Credit (REC) contact list of [REDACTED] potential bidders. In the communication, PG&E provided a link to its public webpage that provided a draft of an Edison Electric Institute (EEI) short-form confirmation agreement, a bid form composed as a spreadsheet, and a solicitation protocol. PG&E received [REDACTED], all timely submitted prior to the deadline.

A. ADEQUACY OF SOLICITATION OUTREACH

PG&E previously held an e-mail-based solicitation to sell non-bankable PCC 1 energy in 2016, and had developed a REC-specific contact list of potential buyers for that effort. For this year's solicitation, PG&E augmented the prior focused list with additional contacts among CCAs, energy service providers, and public utilities (Arroyo also provided suggestions). The REC-specific contact list does not represent a thoroughly comprehensive list of all potential parties that might possibly have an interest and capability of purchasing bundled renewable energy from PG&E, but it represents a solid list of leads and an improvement over the 2016 REC-specific outreach list.

One of the companies that submitted bids had individual contacts on the general RFO contact list, but was not on the REC-specific contact list. The principal at the company seeking to buy energy from PG&E apparently was unaware of the request for bids when contacting the utility to pursue a possible transaction, after issuance of the market notice. This illustrates the challenge for the utility in identifying the right contacts within large corporations for conducting outreach for such a specialized solicitation.

For this focused effort, the utility did not pursue broad outreach through public media such as the electricity trade press. PG&E did not convene a bidders' conference, as it does with RAM RFOs, greenhouse compliance instruments solicitations, and others.

PG&E also sent the market notice to its standing RFO contact list. This list, while long, includes individuals active in the development of new renewable generation or operation of existing renewable generation, individuals from firms that support such companies including attorneys, consultants, hardware vendors, and engineering and construction firms, and a variety of other sectors not related to electricity supply. Arroyo would not expect a significant yield of participants from this list because of limited representation of energy suppliers, aggregators, municipal utilities, and wholesale marketers and traders.

Arroyo's opinion is that PG&E's outreach effort for this solicitation was adequate. For future efforts, it could help if PG&E includes additional CCAs that are just now ramping up

their start-up activities but may not yet have been positioned to respond to the current solicitation, such as Silicon Valley Clean Energy², Monterey Bay Community Power, Redwood Coast Energy Authority, East Bay Community Energy, Valley Clean Energy Alliance, Apple Valley Choice Energy, Los Angeles Community Choice Energy, etc. Contacting more CCAs directly would help mitigate concerns that PG&E is unfairly favoring for-profit intermediaries in its outreach efforts. Arroyo would also suggest developing additional contacts with public utilities known to have a net short RPS position.

B. CLARITY AND CONCISION OF SOLICITATION MATERIALS

PG&E published a written public protocol to document the requirements of the request for bids and to state the evaluation criteria that the utility would use to make its selection decision. The protocol was 9 pages long, which is quite concise for any California IOU's solicitation, for which protocols typically run to dozens of pages. The notice e-mail was also concise; it relied on a link to the solicitation website for participants to obtain details.

Arroyo's opinion is that, with one exception, solicitation materials were clear to potential bidders. Each participant provided sufficient information in its bid package for PG&E to conduct its evaluation. Questions posed by potential participants prior to the bid due date mostly concerned technical issues of how to submit certain information or how renewable energy credits (RECs) would be transferred, and so had the nature of seeking more detail on mechanics rather than expressing concern or confusion about the solicitation's basics. To the extent that bid packages were deficient or in need of augmentation, Arroyo believes that, with the one exception, this was not due to opaqueness in the solicitation materials.

An issue arose with the clarity of the protocol's wording related to what PG&E would accept as delivery term. The product attributes section stated:

- “4. Scheduled Energy Deliveries: Buyer may propose energy delivery beginning April 2017 or later. Energy deliveries may be in any months or hours that are mutually agreeable.
- 5. Delivery Term: Up to 1 year.”

Most participants and Arroyo too read this text to mean that PG&E would accept, for example, a proposal seeking twelve months of delivery beginning at the start of April 2017 and ending at the end of March 2018. As it turned out, PG&E's intent was to limit energy to be delivered within calendar 2017, so that no energy deliveries would be made after the end of December 2017.³ This required some dialogue with participants and re-submittal of altered bids to conform to that requirement. In future solicitations, it would be helpful to edit this sort of text to clarify the delivery timing requirement.

² For example, Silicon Valley Clean Energy's board recently voted on a staff recommendation to increase its planned procurement of PCC 1 renewable energy to compensate for difficulties securing sufficient PCC 2 energy to meet its goals.

³ Given the mechanics of how WREGIS issues renewable energy certificates, PG&E anticipates that the RECs associated with energy deliveries in, for example, December 2017 would be delivered to the buyers' accounts sometime later in 2018 after a lag for WREGIS processing.

A minor source of confusion was that the protocol required participants to submit three documents to make a complete bid, including an introductory letter. The protocol stated that the three documents “are on the 2017 Renewable Energy Sale RFO website”, but the website did not have a version of an introductory letter and provided no information about what it should include. It is helpful to the PG&E team for a bidder with whom PG&E has not previously conducted business to provide information about itself in an introductory letter, but perhaps the protocol or website should provide guidance about what content to include, or the letter could be made optional rather than mandatory.

One indicator of clarity is that of [REDACTED] that registered for the solicitation on the PowerAdvocate platform, [REDACTED] submitted complete proposals, suggesting that solicitation materials were on point for bidders’ needs. [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] The fact that most registrants had a business need to purchase eligible renewable energy suggests that PG&E’s outreach approach was clear enough to reach and inform the targeted segment of the industry.

C. BIDDERS’ CONFERENCE

PG&E did not hold a bidders’ conference. In most of its competitive solicitations the utility holds a webinar in order to provide detailed guidance about the product and process and to give potential participants an opportunity to ask questions. For this solicitation, participants needed instead to rely on the written solicitation materials or on direct e-mail correspondence with PG&E. Instead of a single forum for posing questions to the PG&E team, potential participants used e-mail to inquire and receive guidance about topics such as the timing of delivery term, early acceptance of bids, which bid form to use, whether a pre-existing master agreement is mandatory, what is required in the mandatory introductory letter, to what accounts the WREGIS certificates can be transferred, etc.

For most solicitations, PG&E includes on a public webpage a link to a questions-and-answers document listing what questions were asked about the solicitation and what answers were provided. This ensures that all participants have the opportunity to obtain otherwise non-public guidance that some participant has sought. Typically, this Q&A document begins with the questions posed to PG&E at a webinar, so that potential participants that did not observe the webinar can get the benefit of the insights provided to attendees. In the absence of such a public posting of Q&A most participants would remain unaware of details about the solicitation that were made available to only those who asked. It would be better hygiene for the transparency of future renewable energy sale solicitations if PG&E were to employ this technique to ensure equal access to otherwise non-public information.

D. ROBUSTNESS OF THE SOLICITATION

PG&E did not publicly state a quantitative target for this solicitation. In its 2016 RPS procurement plan it provided a framework for sales of excess RPS volumes [REDACTED]
[REDACTED]

[REDACTED]. This amount was not stated as a goal or target [REDACTED] bids were received, from [REDACTED] entities, all of which had been contacted by e-mail using the focused contact list. The total volume of the initial bids [REDACTED]. This compares favorably to PG&E's effort in 2016 to seek buyers for a volume of renewable energy, [REDACTED].

There may be several factors, mostly beyond PG&E's control, at work in limiting the robustness of a market response to such a request for bids for renewable energy:

- Only a modest number of California retail energy providers appear to hold net short RPS compliance positions for the current compliance period. The IOUs hold long positions, leaving some but not all municipal utilities, CCAs (or their energy service providers), and direct access providers as likeliest potential buyers.
- Others may lack interest in procuring renewable energy through short-term purchases from existing facilities, as opposed to executing long-term contracts with proposed new projects, given their compliance and procurement strategies. Some CCAs have faced criticism from stakeholders for purchasing RECs from existing facilities rather than promoting construction of new renewable generators.
- Some potential buyers appear to have narrow requirements for RPS volumes, such as Green-e certification, that only a fraction of PG&E's supply portfolio can satisfy.
- PG&E sent its request for bids on January 25 and required bids to be submitted on the PowerAdvocate web platform by February 8; this provided ten business days to compose bids. It may be challenging for some entities such as municipal utilities to respond on short notice. PG&E's recent RFOs for RPS-eligible energy and greenhouse gas compliance products gave potential respondents between 4 and 5 weeks to submit responses.
- Some participants had not previously registered for the PowerAdvocate platform when the request for bids was issued, and encountered minor problems and delays when attempting to register. [REDACTED]

[REDACTED]
While PowerAdvocate appears to be in common use among utilities for vendors and contractors, it seems questionable whether most energy brokers, wholesale trading desks, or CCAs would have encountered it in the normal course of business.

Overall, Arroyo views the response as moderately robust. If PG&E makes annual requests for bids for renewable energy, and as more CCAs act directly and not through intermediaries to procure renewable energy, it seems possible that PG&E's efforts to improve its outreach program could yield more robust results in the future.

E. PARTICIPANTS' FEEDBACK ABOUT THE PROCESS

PG&E sought feedback about the solicitation for bids from both participants and from non-participants on its focused REC contacts list. The feedback had not yet been received at the time this IE report was finalized.

4. FAIRNESS OF PG&E'S EVALUATION METHODOLOGY

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

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

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

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

Some additional considerations appear relevant to PG&E's specific situation. Unlike some utilities, PG&E does not rely on weighted-average calculations of scores for evaluation criteria to arrive at a total aggregate score. In most PG&E solicitations for transactions for renewable energy, the team ranks proposals by Portfolio Adjusted Value ("PAV").

- The methodology should identify how non-valuation measures will be considered; all non-valuation criteria used in selecting offers should be transparent to participants.
- The logic of how non-valuation criteria or preferences are used to reject higher-value offers and select lower-value offers should be applied consistently and without bias.
- The valuation methodology should be reasonably consistent with industry practices.
- CCAs should not be systematically disadvantaged by using neutral-appearing criteria that discriminate against the class of CCAs.

B. PG&E'S METHODOLOGY

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

Pricing. PG&E sought to maximize the benefit to ratepayers of selling PCC 1 renewable energy by preferring higher-priced bids to lower-priced bids. The utility team did not employ its Portfolio-Adjusted Value (PAV) methodology specified in its approved 2015 RPS procurement plan for analyzing offers (as opposed to bids) for value and portfolio fit. However, in this situation where multiple bids pursue purchases of RPS-eligible energy for roughly the same period of time⁴, priced at market index plus a fixed REC bid premium in \$/MWh, the PAV ranking of competing bids should be roughly identical to the ranking by bid REC price. On that basis, the use of PAV as the metric for value and fit should lead to a result similar to ranking by REC price; the methodologies are roughly equivalent. Ranking bids by price premium is less burdensome than running PG&E's PAV algorithm.

Credit. PG&E stated it would evaluate the creditworthiness of bidders, focusing on their ability to fulfill financial obligations, and on whether entering new agreements may cause excess credit concentration in the utility's exposure to participants or banks.

Modifications. PG&E stated its intent to evaluate whether modifications that a participant proposes to PG&E's form confirmation agreement might have a material impact on the costs or risks of entering into a contract.

Other criteria. In its protocol, PG&E left open its ability to employ other qualitative criteria in evaluating bids. These included but were not limited to consideration of the utility's past commercial experience doing business with any specific participant, the degree of concentration of exposure to a participant, and whether or not PG&E has already negotiated and executed an EEI master agreement with a participant, which would make negotiation of a short-form confirmation agreement easier.

PG&E did not cite any other criteria employed in prior RPS RFOs, such as supplier diversity, RPS goals, etc. It is unclear whether these would be relevant to a situation where the participants bid to buy power from PG&E.

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

This section summarizes some of the attributes of PG&E's approach to evaluating bids to purchase PCC 1 renewable energy from its supply portfolio.

Consistency with RPS Procurement Plan. PG&E's 2016 RPS procurement plan, accepted in CPUC Decision 16-12-044, states "PG&E will consider selling surplus RPS

⁴ [REDACTED]

volumes if it can still maintain an adequate Bank and if market conditions are favorable.”⁵ This contrasts to the 2015 plan, in which PG&E proposed to consider selling non-bankable RECs; in the current solicitation, the PCC 1 energy can include bankable and non-bankable RECs bundled with energy. PG&E views the volumes to be sold in these contracts to be surplus to its needs, and the size of the sales is small compared to the utility’s overall banked volume. As for market conditions, the plan also states “...PG&E’s optimization strategy includes consideration of sale of surplus procurement that provide a value to customers”.⁶

The sales to the five bidders would be consistent with the RPS procurement plan if the volume is surplus to needs and provides a value to ratepayers beyond what would be realized with alternative uses of the RECs. Arroyo is not privy to confidential portions of PG&E’s current projections of its bank size and its needs. PG&E believes that selling the RECs will provide higher net present value than banking them for future compliance needs. Arroyo does not have a view on future REC pricing that would either support or refute this view and so cannot comment on the claim that this approach is more valuable to ratepayers.

PG&E included a detailed but confidential framework for its approach to pursuing sales of excess RPS volumes in Appendix J of its 2016 RPS procurement plan. The quantitative evaluation of bids described in the solicitation protocol is consistent with the more detailed and specific elements of the framework described in Appendix J.

Market Valuation. PG&E did not calculate Portfolio-Adjusted Values for the bids for these renewable energy volumes. Explicit use of the PAV metric would have been consistent with its past practice in renewable energy procurement and with the 2016 RPS procurement plan’s statement that the use of PAV ensures procurement providing the best fit for PG&E’s portfolio at the least cost. However, in the context of this solicitation, ranking bids by highest price should be roughly equivalent to a ranking by highest PAV but for the subtle distinction described in footnote 4. Differences in transmission costs, congestion costs, capacity value, project viability, and other valuation components are in effect rendered identical across bids because they are attributes of the same energy volumes regardless of buyer. [REDACTED]

[REDACTED] Only a difference in timing of delivery volumes by month might cause a price ranking to vary from a PAV ranking, and in the actual event such a variance between contracts was not realized [REDACTED]

Other issues. In contrast to its e-solicitation to sell excess non-bankable RECs in 2016, in this more formal solicitation PG&E described in specific terms the qualitative evaluation criteria such as creditworthiness and modifications to form agreements. Arroyo views this as an improvement in transparency and fairness with how the 2017 solicitation was conducted.

⁵ Pacific Gas and Electric Company, “Pacific Gas and Electric Company’s (U39 E) August 8, 2016 Draft Renewable Energy Procurement Plan”, August 8, 2016, page H-5.

⁶ Op. cit., page 21.

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

This section provides a narrative of how PG&E administered its evaluation and selection process and selected a short list for its 2017 renewable energy sale solicitation.

A. GUIDELINES TO DETERMINE FAIRNESS OF EVALUATION PROCESS

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

- Were all proposals treated the same regardless of the identity of the bidder?
- Were participants' questions answered fairly and consistently and the answers made available to all participants?
- Did the utility ask for "clarifications" that provided one participant an advantage over others?
- Was the economic evaluation of the proposals fair and consistent?
- Was there a reasonable justification for any fixed parameters that were a part of the IOU's LCBF methodology?
- Were the qualitative and quantitative factors used to evaluate bids fair to all bids?

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

- Were the decisions to reject higher-valued proposals from the short list because of low scores in criteria or preferences other than market valuation applied consistently across all proposals? Were the selections of lower-valued proposals in preference to higher-valued ones based on their superior attributes in non-valuation criteria made consistently, or were high-valued proposals skipped over unfairly?
- If PG&E did not select the proposals that provide the best overall value while meeting PG&E's compliance needs, what factors prevented those projects from being selected? Was their rejection based on considerations that were communicated transparently to participants in the solicitation protocol?
- Were the judgments used to make a selection based on evaluation criteria and preferences that were publicly disseminated to participants prior to bid submittal?

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

PG&E used the pricing criterion to rank bids. [REDACTED] passed a review for the qualitative criterion of creditworthiness.

[REDACTED]. Given the state of the markets, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

This selection was consistent with the sales framework laid out in Appendix J. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Credit. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Other. [REDACTED]

C. RESULTS ANALYSIS

Overall, Arroyo agreed with PG&E's selection of a short list.

Non-conforming bids. With one exception, the participants submitted complete bid packages by the February 8 deadline. [REDACTED]
[REDACTED]

The major deviation between bids and PG&E's requirements arose from confusion about the utility's stated requirements for delivery term. As mentioned above, one can read the text of the solicitation protocol to imply that the solicitation allowed bids for delivery term of up to one year that could begin any time after the start of April 2017. PG&E's interpretation of the protocol text was that energy deliveries could not extend beyond the end of 2017. [REDACTED]

[REDACTED] Upon notice from PG&E that these delivery terms rendered the bids ineligible, [REDACTED] revised their proposed delivery terms [REDACTED].

Arroyo's opinion is that PG&E's handling of these deviations was fair to both the participants [REDACTED] and to [REDACTED]

[REDACTED]. The confusion about what timing of deliveries was acceptable to PG&E was cleared up quickly.

[REDACTED]

Observations regarding the administration of the evaluation methodology:

- PG&E performed bid evaluation without involving any third party or the Independent Evaluator to conduct any portion of its evaluation.
- The key input parameter used in the quantitative evaluation was [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- Because PG&E used bid price as the quantitative evaluation criterion, it did not take into account transmission costs or integration adders in selection. However, without knowing in advance which specific resources in PG&E's supply portfolio would be used to serve which sales contract, there is no basis for distinguishing between bids using transmission costs or integration adders, and it would seem inappropriate to use these elements of the PAV methodology. The key attribute that distinguished bids was the bidders' proposed REC pricing, not energy pricing.
- [REDACTED]
[REDACTED]
[REDACTED]
- Arroyo agrees that based on PG&E's framework for evaluating bids to sell renewable energy, the utility made reasonable and justifiable decisions to select its short list [REDACTED]. If Arroyo has a concern or disagreement with PG&E's approach, it is that [REDACTED]
[REDACTED]
[REDACTED] this choice is entirely consistent with the CPUC-approved framework that PG&E proposed in its 2016 RPS procurement plan to maximize value of the product compared to future uses, so [REDACTED]

should be deemed reasonable and justifiable if the inputs to the framework are reasonable, discussed in the last chapter.

- [REDACTED]
- Arroyo believes that all bids were treated the same in the evaluation and selection process regardless of bidder, even though PG&E had done business previously with some bidders and not with others, some are subsidiaries of large corporations vs. others that include a small private company and a public entity, and some bidders were investment-grade credits while others lack a credit rating.

Arroyo's opinion is that, overall, PG&E's evaluation of bids was fairly administered.

[REDACTED]

6. FAIRNESS OF CONTRACT-SPECIFIC NEGOTIATIONS

This chapter provides an independent review of the extent to which PG&E's negotiations with bidders were conducted fairly with respect to competitors and to ratepayers. PG&E notified buyers that their bids had been selected or rejected on February 17, 2017. The parties began negotiations the following week, concluding with execution of five agreements on April 28, 2017, and [REDACTED].

Arroyo telephonically observed negotiation sessions between the commercial teams of PG&E and the individual buyers. Arroyo also reviewed multiple marked-up draft contracts to identify specific proposals and counterproposals parties made during discussions. The starting point for negotiations with parties that already had EEI master agreements with PG&E (3 Phases Renewables and EDFT NA) was a PG&E-edited version of a EEI short-form confirmation agreement. For the others, the negotiations focused on a long-form confirmation agreement that had been enlarged by PG&E to deal with necessary terms for a transaction between parties that do not have an EEI master agreement in place.

Arroyo's opinion is that PG&E's negotiations with the five counterparties were conducted in a manner that was fair to ratepayers and to competitors.

A. PRINCIPLES FOR EVALUATING THE FAIRNESS OF NEGOTIATIONS

Arroyo took into account several principles to evaluate the degree of fairness with which PG&E handled negotiations to sell renewable energy to the five bidders.

- Were bidders treated fairly and consistently by PG&E during negotiations? Were all bidders given equitable opportunities to advance proposals towards final PPAs? Were individual bidders given unique opportunities to move their proposals forward or concessions to improve their contracts' commercial value, opportunities not provided to others?
- Was the distribution of risk between seller and buyer in the agreements distributed equitably across contracts? Did PG&E's ratepayers take on a materially disproportionate share of risks in some contracts and not others? Were individual buyers given opportunities to shift their commercial risks towards ratepayers, opportunities that were not provided to others?
- Was non-public information provided by PG&E shared fairly with all buyers? Were individual buyers uniquely given information that advantaged them in securing contracts or realizing commercial value from those contracts?
- If any individual buyer was given preferential treatment by PG&E in the course of negotiations, is there evidence that other buyers were disadvantaged by that

treatment? Were other proposals of comparable value to ratepayers assigned lower priority?

B. NEGOTIATIONS BETWEEN PG&E AND 3 PHASES RENEWABLES

3 Phases Renewables, Inc. is an El Segundo-based energy service provider that provides renewable energy, RECs, and distributed generation facilities to companies, municipalities, and CCAs. It has, for example, contracted to provide 100% renewable energy to the city of Santa Monica as direct access provider, and has provided bundled RPS-eligible energy to Marin Clean Energy and wind energy to Lancaster Clean Energy. Silicon Valley Clean Energy recently reported the execution of an EEI master agreement and a confirmation agreement for purchase of renewable energy from 3 Phases Renewables.⁷

The parties' negotiations covered contract terms such as:

- [REDACTED]
- [REDACTED]

⁷ Silicon Valley Clean Energy Authority Board of Directors meeting agenda packet, February 8, 2017, staff report item 7, page 1.

⁸ [REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]

The negotiations produced a transaction that differed from the original bid proposal, but in ways that were acceptable to both parties and that conformed to the product definition specified in the solicitation protocol. Arroyo views the outcome as a contract that incorporates some features unique to the needs of the buyer but not ones that unfairly disadvantaged its competitors or represented unfairly favorable treatment by PG&E.

C. NEGOTIATIONS BETWEEN PG&E AND DIRECT ENERGY

Direct Energy is a Houston-based subsidiary of Centrica, the parent corporation of British Gas. It provides natural gas and electricity to retail customers in several jurisdictions in the U.S. The CCAs Lancaster Choice Energy and Peninsula Clean Energy have entered into contracts with Direct Energy for energy supply and scheduling services.

PG&E's negotiations with Direct Energy covered issues such as:

- [REDACTED]

[Redacted text block]

- [Redacted list item]

[Redacted text block]

[Redacted text block]

- [Redacted list item]

- [Redacted list item]

[REDACTED]

- [REDACTED]

Arroyo views the changes that PG&E accepted based on Direct Energy’s requests to be either specific to the buyer’s situation or helpful clarifications to PG&E’s text. Arroyo believes that PG&E handled negotiations fairly and did not unfairly provide Direct Energy concessions that shifted costs or risks to ratepayers or materially disadvantage competitors.

D. NEGOTIATIONS BETWEEN PG&E AND EDFT NA

EDF Trading North America, LLC is a Houston-based subsidiary of the EDF Group, the parent company of Electricite de France; it provides a range natural gas and electric power commodity products and services in the U.S. including wholesale marketing and trading of renewable energy. While an affiliated generation development company, EDF Renewable Energy, has contracted to provide renewable energy to Marin Clean Energy from its solar projects, it does not appear that EDFT NA is currently involved in medium- or long-term sales to CCAs. [REDACTED]

[REDACTED]

Negotiations between PG&E and EDFT NA included discussions of:

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

[REDACTED]

- [REDACTED]

Overall, the contract with EDFI NA adhered closely to PG&E’s view of terms and conditions that protect ratepayer interests. Arroyo believes that it was reasonable for PG&E to agree to increase the contract volume [REDACTED] from the selected bid volume, [REDACTED]; a lengthier discussion of price reasonableness is provided in the last chapter.

E. NEGOTIATIONS BETWEEN PG&E AND EXELON

Exelon Generation Company, LLC is a subsidiary of Exelon Corporation, the parent corporation of Commonwealth Edison, Philadelphia Electric Company, Baltimore Gas & Electric, and other utilities. It owns regulated and unregulated generation facilities including Exelon’s nuclear fleet, and provides natural gas and power wholesale marketing and trading services. An affiliate, Constellation Energy, is a direct access retail energy provider in California. Exelon Generation Company is contracted to deliver energy to Marin Clean Energy from wind generation in the Northwest. Silicon Valley Clean Energy shortlisted Exelon Generation Company as a potential energy service provider and authorized execution of an EEI master agreement with it in December 2016. Exelon has been an energy service provider to Sonoma Clean Power since the start of deliveries in 2014.

Previously, in February 2016, PG&E executed a contract to sell 60 GWh of non-bankable PCC 1 renewable energy to Exelon Generation Company for delivery within 2016; this originated in a “mini-solicitation” conducted by PG&E and was approved by the CPUC.

Issues discussed by PG&E and Exelon Generation Company include:

- [REDACTED]

[REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

Arroyo believes that PG&E's treatment of Exelon during negotiations was fair to ratepayers and to competitors.

F. NEGOTIATIONS BETWEEN PG&E AND PENINSULA CLEAN ENERGY

Peninsula Clean Energy Authority is a Community Choice Aggregator organized by San Mateo County and all twenty cities in the county, that began serving some retail customers in October 2016. Its second phase began in April 2017. It has contracted with Direct Energy

as energy service provider and has also begun signing long-term contracts directly with generators for supply. Issues discussed by PG&E and PCE included:

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

- [Redacted text block]

- [Redacted text block]

- [Redacted text block]

- [Redacted text block]

- [Redacted text block]

[Redacted text block]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Summary. In Arroyo’s judgment, the balance of rights, costs, risks, and benefits between buyer and seller in the five contracts is consistent with what PG&E has provided to other creditworthy counterparties. No individual buyer received preferential treatment that Arroyo judges to be unfair; [REDACTED] appears to have been within PG&E’s allowed discretion to exercise its business judgment and not unfair to that one potential buyer. Arroyo does not believe that PCE suffered any discriminatory treatment in negotiations solely because of its status as a CCA. On that basis, Arroyo’s opinion is that contract-specific negotiations with the bidders were handled fairly.

7. MERIT FOR CPUC APPROVAL

This chapter provides an independent opinion on whether PG&E's contracts with the five buyers merit approval by the CPUC. It also addresses other required topics identified in the Energy Division's template for Independent Evaluators to use in preparing reports.

A. FAIRNESS OF SOLICITATION

PG&E solicited bids to buy PCC 1 renewable energy within calendar 2017. It provided public solicitation materials that clearly stated the evaluation criteria to be used; in the actual administration of the evaluation and selection process it generally adhered to the use of those stated criteria. [REDACTED]

[REDACTED] The methodology for evaluation and selection was consistent with PG&E's 2016 RPS procurement plan. While the utility did not use Portfolio-Adjusted Value as the metric for evaluation, using price as metric was roughly consistent with ranking the bids by PAV (which is the approved methodology for PG&E's least-cost, best-fit valuation approach), and the framework used for screening bids based on price was fully consistent with that stated in the CPUC-approved procurement plan.

Overall, Arroyo believes that the solicitation's outcomes were consistent with CPUC Decisions and consistent with PG&E's approved LCBF methodology.

B. BEST BIDS RECEIVED

PG&E selected for its short list the best [REDACTED] bids submitted in terms of ratepayer value as indicated by bid price; it rejected [REDACTED] lowest-value bids.

C. CONSISTENCY WITH PROTOCOL AND PROCUREMENT PLAN

PG&E's sale of PCC 1 renewable energy is consistent with its 2016 RPS procurement plan, in which the utility states its intent to sell RPS volumes, and more specifically conforms to the framework for excess sales provided within the plan. The sale conforms to the needs of PG&E's portfolio and its RPS requirements, because it reduces the excess RPS procurement level and the excess REC bank that PG&E is carrying forward. The selection of bids for the short list was consistent with the public solicitation protocol.

D. MERIT FOR CPUC APPROVAL

This section reports on the IE’s view of the merits of the five sales contracts.

Pricing and market value. The contracts set prices for PCC 1 renewable energy [REDACTED]. There are relatively few public benchmarks available to ascertain whether these are reasonable prices, given the illiquidity and opaqueness of the market for California RPS-eligible energy. Arroyo is not a participant in REC markets and cannot directly monitor private transactions other than PG&E’s.

PG&E’s most recent sale of renewable energy, to Exelon Generation Company in February 2016, was priced at market index [REDACTED]

There are pricing data for recent renewable energy sales to or from municipal utilities and CCAs that have been made public:

- At the beginning of 2016, Silicon Valley Power (the city of Santa Clara) offered a ten-year agreement to sell 36.3 GWh/year of PCC 1 energy to Alameda Municipal Power for the 2018 – 2027 period at market index + \$15/MWh. The latter opted instead to execute a fixed price contract.
- Alameda Municipal Power held a solicitation in August 2016 and selected a short list of two proposals for PCC 1 energy in the 2017 – 2019 period; both bids were priced at “approximately” market index + \$13/MWh. The winning bidder was Shell Energy North America, which will buy about 180 GWh/year of AMP’s energy at market index + \$13.15/MWh.
- The city of Roseville executed a ten-year contract in early 2015 with Powerex to provide 75 GWh/year of PCC 1 energy. The pricing of deliveries escalates with each contract year. The contract pricing for deliveries to Roseville in calendar 2017 is market index + \$13.40/MWh.
- In summer 2016, the city council of Pasadena approved a four-year contract with Powerex to buy both PCC 1 and PCC 2 energy in the 2017 – 2020 period. The sale includes a total of 17.5 GWh of PCC 1 energy priced at market index + \$13.95/MWh.
- Marin Clean Energy has made multiple purchases of renewable energy recently, though it is somewhat challenging for an outside observer to interpret pricing given the cryptic way in which transactions are publicly summarized:
 - An April 2016 purchase from Avangrid’s share of the Shiloh I wind project of approximately 75 GWh between June and December 2018. This sale appears to be priced between market index + \$19 and \$20/MWh; actual price may depend on outcomes.

- Two August 2016 purchases from Powerex, one for 60 GWh to be delivered in the twelve months of 2017 apparently priced at market index + \$13.50/MWh, the other for 450 GWh delivered over three years in 2017 – 2019 apparently priced at market index + \$3.35/MWh, presumably PCC 2 energy from the Pacific Northwest.
- An August 2016 purchase from Silicon Valley Power (city of Santa Clara) of 200 GWh of PCC 1 energy to be delivered over the twelve months of 2017, apparently priced at market index + \$14.50/MWh.
- An October 2016 purchase from NextEra Energy Resources of 200 GWh of renewable energy from the Blythe Solar 110 facility, for delivery in 2017, apparently priced at market index + \$14.75/MWh.

Other older transactions for PCC 1 energy are also publicly visible, but these may be poorer benchmarks for a transaction for 2017 deliveries. The transactions listed above appear to be comparable to the PCC 1 contracts that PG&E has executed, and most have priced the RECs in the range of \$13.15 to \$14.75/MWh for 2017 deliveries.

With the exception of [REDACTED]

Because Arroyo does not participate in the opaque market for PCC 1 energy or unbundled RECs, it cannot access as much information as PG&E does for constructing a robust view of REC market pricing. However, Arroyo recommends that when PG&E conducts another solicitation to sell PCC 1 energy it should examine more closely its assumption for forward pricing lest an input to the decision-making [REDACTED] turns out to be too low by market standards. The PG&E team obtained a broker bid quote [REDACTED]. Arroyo regards the pricing [REDACTED] as below publicly observable quotes for 2017 market pricing and questions whether PG&E's choice [REDACTED] input parameter for target price is reasonable. Given that PG&E's selection of bids is fully consistent with the CPUC-approved framework for excess RPS sales, [REDACTED] should be deemed reasonable if the input parameter is reasonable.

Portfolio fit. The RECs intended for use in these sales contracts are surplus to PG&E's needs. Arroyo believes that it is advantageous to ratepayers for PG&E to sell surplus RECs at or above market price rather than to use them for RPS compliance, having used an interpretation of the rules for excess procurement of RECs, set by the CPUC in Decision

12-06-038, is that if PG&E were to use RECs produced under a short-term contract for compliance needs this year it would reduce the utility's ability to bank excess procurement from 2017 to later years by an equal amount. If this interpretation is accurate, it would strongly support selling RECs derived from short-term contracts rather than retiring them and reducing REC volume bankable for the future. PG&E does not agree with this interpretation of the rules, and believes that any RECs associated with short-term transactions that are retired for use in 2017-2020 will be bankable. Arroyo believes that PG&E's interpretation eliminates the stronger argument that the REC sales fit well with the portfolio because use of the RECs for this year's compliance needs reduces the volume of RECs that can be carried forward. However, Arroyo speculates that the sales transactions would still provide a good fit with portfolio needs based on their consistency with the CPUC-approved sales framework for selling excess RECs.

[REDACTED]

PG&E's estimates indicate that its renewable net position in the second compliance period is long, so the five sales contracts fit with the utility's portfolio strategy of reducing the surplus 2017 REC position and monetizing part of the surplus for near-term value through REC sales.

Summary. The five sale transactions were consummated at prices that appear to be within the range of market pricing for PCC 1 RECs for 2017 delivery, with the exception of [REDACTED]. The sale of RECs is consistent with PG&E's 2016 RPS procurement plan and fits well with PG&E's strategy for RPS portfolio management. Such a sale creates value for ratepayers that alternative uses of these RECs might not. Arroyo's opinion is that the methodology for evaluating and selecting a short list and the administration of that methodology were fair, although Arroyo is unsure, based on limited public information about comparable transactions, that the input parameter [REDACTED] was reasonable.

Arroyo believes that PG&E's negotiations with the counterparties were handled fairly, although [REDACTED]. Arroyo however believes that the decision to [REDACTED] falls within the allowed discretion that PG&E has to exercise its best business judgment and can be reconciled with the solicitation protocol's statements about qualitative evaluation criteria.

¹⁰ [REDACTED]

On that basis, Arroyo's opinion is that the five contracts likely merit CPUC approval, although Arroyo has reservations about whether the input parameter that led to the selection of [REDACTED] was reasonable.

PACIFIC GAS AND ELECTRIC COMPANY

APPENDIX D

SUMMARY OF CONTRACTS: 2017 PG&E SALES

SOLICITATION ADVICE LETTER

(CONFIDENTIAL IN ITS ENTIRETY)

PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX E1 – E5
COMPARISONS WITH PRO FORMA SALES CONFIRMATION
(CONFIDENTIAL IN THEIR ENTIRETY)

PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX F1 – F5
POWER PURCHASE AND SALES AGREEMENTS
(CONFIDENTIAL IN THEIR ENTIRETY)

PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX G
NOTIFICATION OF SOLICITATION ISSUANCE

Appendix G

Notification of Solicitation Issuance

As mentioned in section I.B.6. of this Advice Letter, PG&E notified previously-identified RPS-obligated entities likely to have an interest in the product and, to ensure a robust response, sent the market notice to PG&E's Wholesale Electric Power Procurement distribution list containing over 2,700 contacts. A sample of the electronic market notice of the 2017 Renewable Energy Sale Solicitation issuance is provided below.



[View this email in your browser](#)

Market Participants,

PG&E is pleased to announce the issuance of its 2017 Renewable Energy Sale Solicitation for sales of Portfolio Content Category 1 (PCC 1) bundled Renewable Portfolio Standard (RPS) - eligible energy and corresponding Renewable Energy Credits (RECs) pursuant to a confirmation.

For parties interested in finding out more information on the 2017 Renewable Energy Sale Solicitation, all solicitation materials are available on PG&E's website at:

https://www.pge.com/en_US/for-our-business-partners/energy-supply/electric-rfo/wholesale-electric-power-procurement/jan-2017-bundled-rps-energy-sale.page

Please see the below target schedule for this solicitation:

SCHEDULE

All times are in Pacific Prevailing Time (PPT):

Event	Date/Time (PPT)
PG&E issues the solicitation.	Week of January 23, 2017
Bids Due. Bid(s) must be submitted to the online platform at Power Advocate.	February 8, 2017 at 1:00PM

PG&E notifies shortlisted Participants.	Week of February 13, 2017
PG&E and shortlisted Participants complete negotiation of an Agreement, which shall be subject to "CPUC Approval," as provided in the Agreement.	Week of March 20, 2017
PG&E submits Agreements for CPUC Approval.	Approx. 30 days after execution

General information regarding other RFOs can be found at www.pge.com/rfo. Any questions regarding this solicitation may be directed to: RECSolicitations@pge.com <<mailto:RECSolicitations@pge.com>>. We look forward to your participation.

Regards,
PG&E

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You are receiving this email because you were listed on our distribution list, expressed interest in a RFO, or attended a RFO event. If you choose to unsubscribe, this will remove you from receiving any RFO notices. You may update your program/product interests by clicking on the update link below. Thank you and have a safe day.

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PACIFIC GAS AND ELECTRIC COMPANY

APPENDIX H

SOLICITATION BID FORM



January 2017 Bundled RPS Energy Sale Solicitation Bid Form

0 of 35 required cells populated

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

Product & Bid Information	
Product:	
Delivery Period:	
Delivery Location:	
Payment Index:	
Premium (+)/Discount (-) to Payment Index (\$/MWh):	
Bid Quantity:	
Schedule or delivery requirements:	

Acknowledgement of Protocol	
<p>By selecting "Yes" Participant hereby agrees to the terms of the Solicitation Protocol. Participant acknowledges that any costs incurred to become eligible or remain eligible for the solicitation, and any costs incurred to prepare a bid for this solicitation are solely the responsibility of Participant.</p>	

Title:	
Electronic Signature:	
Select "Yes" to certify that the typed name acts as your electronic signature.	

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

Attestation	
By providing the electronic signature below Participant hereby attests that all information provided in this Bid Package and in response to this REC Solicitation is true and correct to the best of Participant's knowledge as of the date such information is provided.	
Title:	
Electronic Signature:	
Select "Yes" to certify that the typed name acts as your electronic signature.	

PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX I.1
RENEWABLE NET SHORT CALCULATION
(REDACTED)

Table 1: Renewable Net Short Calculation (January 2017 Contract Vintage, March 2017 Bundled Sales Forecast through 2020) - 50%

Net Short Calculation Using PG&E Bundled Retail Sales Forecast In Near Term (2017 - 2020) and LTPP Methodology (2021 - 2037)

Variable	Calculation	Forecast Year	Item	Deficit from RPS prior to Reporting Year	2011 Actuals	2012 Actuals	2013 Actuals	2011-2013	2014 Actuals	2015 Actuals	2016 Actuals	2014-2016	2017 Forecast	2018 Forecast	2019 Forecast	2020 Forecast	2017-2020	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast	2021 - 2024	2025 Forecast	2026 Forecast	2027 Forecast	2025 - 2027	2028 Forecast	2029 Forecast	2030 Forecast	2028 - 2030	2031 Forecast	2032 Forecast	2033 Forecast	2031 - 2033	2034 Forecast	2035 Forecast	2036 Forecast	2034 - 2036	2037 Forecast	
Annual RPS Requirement								CP1				CP2					CP3																							
A	Bundled Retail Sales Forecast (LTPP) ¹				74,864	76,205	75,705	226,774	74,547	72,113	66,441	213,101		52,450		39,035		61,688	61,477	61,047	60,622	244,835	60,369	60,116	59,865	180,300	59,615	59,366	59,118	178,100	58,871	58,625	58,381	175,878	58,137	57,894	57,652	173,683	57,413	
B	RPS Procurement Quantity Requirement (%)				20.0%	20.0%	20.0%	20.0%	21.7%	23.3%	25.0%	23.3%		29.0%		33.0%		34.8%	36.5%	38.3%	40.0%	37.4%	41.7%	43.5%	45.0%	43.3%	46.7%	48.3%	50.0%	48.3%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
C	A*B		Gross RPS Procurement Quantity Requirement (GWh)		14,973	15,241	15,141	45,355	16,177	16,802	17,110	50,889		15,210		12,882		21,437	22,439	23,351	24,249	91,475	25,174	26,030	26,939	78,144	27,840	28,674	29,559	86,073	29,436	29,313	29,190	87,939	29,068	28,947	28,826	86,841	28,707	
D			Voluntary Margin of Over-procurement ²		-	-	-	-	-	-	-	-		-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
E	C+D		Net RPS Procurement Need (GWh)		14,973	15,241	15,141	45,355	16,177	16,802	17,110	50,889		15,210		12,882		21,437	22,439	23,351	24,249	91,475	25,174	26,030	26,939	78,144	27,840	28,674	29,559	86,073	29,436	29,313	29,190	87,939	29,068	28,947	28,826	86,841	28,707	
RPS-Eligible Procurement																																								
Fa			Risk-Adjusted RECs from Online Generation ³		14,699	14,513	17,212	46,424	20,207	21,285	22,540	64,031	22,249	20,155	20,968	19,728	82,200	19,376	16,985	16,625	16,346	69,313	16,335	15,670	15,418	47,323	15,371	14,801	14,732	44,903	13,961	13,429	12,992	39,982	10,915	9,864	9,191	29,970	8,328	
Faa			Forecast Failure Rate for Online Generation (%)		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Fb			Risk-Adjusted RECs from RPS Facilities in Development ⁴		-	-	-	-	0	0	0	0	300	1,068	1,615	1,685	4,759	1,727	1,650	1,258	1,254	5,889	1,245	1,238	1,225	3,707	1,221	1,212	1,205	3,637	1,199	1,177	1,133	3,509	762	757	755	2,274	513	
Fbb			Forecast Failure Rate for RPS Facilities in Development (%)		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Fc			Pre-Approved Generic RECs		-	-	-	-	-	-	0	-	61	575	1,165	1,330	3,130	1,332	1,331	1,329	1,330	5,322	1,325	1,324	1,322	3,971	1,324	1,318	1,317	3,969	1,315	1,317	1,312	3,943	1,310	1,308	1,310	3,928	1,305	
Fd			Executed REC Sales		-	-	(142)	(142)	(50)	-	(60)	(110)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
F	Fa + Fb + Fc - Fd		Total RPS-Eligible Procurement (GWh) ⁵		14,699	14,513	17,069	46,281	20,157	21,285	22,480	63,922	22,699	21,799	22,848	22,743	90,089	22,436	19,946	19,212	18,930	80,524	18,805	18,231	17,965	55,001	17,915	17,331	17,254	52,500	16,475	15,923	14,637	47,034	12,887	11,929	11,256	36,172	10,146	
F0			Category 0 RECs		14,651	13,049	14,163	41,863	16,899	17,411	17,850	52,161	17,117	14,972	14,584	14,314	60,987	13,990	11,406	11,311	11,079	60,216	11,002	10,452	10,216	31,670	10,173	9,642	9,595	29,411	8,897	8,802	8,173	25,872	7,542	7,096	7,088	21,726	7,089	
F1			Category 1 RECs		48	1,464	2,906	4,418	3,237	3,873	4,630	11,761	5,592	6,826	8,265	8,429	29,102	8,446	8,340	7,901	7,851	32,538	7,803	7,779	7,749	23,331	7,741	7,689	7,659	23,089	7,578	7,121	6,463	21,162	5,445	4,833	4,168	14,446	3,097	
F2			Category 2 RECs		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
F3			Category 3 RECs		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gross RPS Position (Physical Net Short)																																								
Ga	F-E		Annual Gross RPS Position (GWh)		(274)	(726)	1,928	926	3,980	4,482	5,370	13,832		6,588		9,861		1,000	(2,494)	(4,138)	(5,318)	(10,951)	(6,569)	(7,999)	(8,975)	(25,143)	(9,926)	(11,341)	(12,506)	(33,574)	(12,961)	(13,990)	(14,554)	(40,905)	(16,082)	(17,017)	(17,570)	(50,669)	(18,680)	
Gb	F/A		Annual Gross RPS Position (%)		19.6%	19.0%	22.5%	20.4%	27.0%	29.5%	32.8%	29.7%		41.6%		38.3%		36.4%	32.4%	31.5%	31.2%	32.9%	31.2%	30.3%	30.5%	30.3%	30.3%	29.2%	29.2%	28.0%	27.2%	25.1%	26.7%	22.3%	20.6%	19.5%	20.8%	17.6%		
Application of Bank																																								
Ha	H - Hc (from previous year)		Existing Banked RECs above the PQR ^{6,7}		-	(274)	(1,033)	-	861	4,815	9,274	861	14,625	20,816	27,484	37,643	14,625	46,904	47,904	47,904	47,904	46,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904
Hb			RECs above the PQR added to Bank		(274)	(726)	1,928	926	3,980	4,482	5,370	13,832		6,588		9,861		1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hc			Non-bankable RECs above the PQR		-	31	34	65	26	23	20	48		128		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	Ha+Hb		Gross Balance of RECs above the PQR		(274)	(1,002)	895	926	4,841	9,297	14,645	14,693	20,943	27,404	37,643	46,904	47,032	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904	47,904
Ia			Planned Application of RECs above the PQR towards RPS Compliance ⁸		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ib			Planned Sales of RECs above the PQR ⁹		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
J	H+Ia-Ib		Net Balance of RECs above the PQR ⁸		(274)	(1,002)	895	926																																
J0			Category 0 RECs		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
J1			Category 1 RECs		-	-	895	895	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
J2			Category 2 RECs		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Expiring Contracts																																								
K			RECs from Expiring RPS Contracts ¹⁰		N/A	N/A	N/A	N/A	N/A	N/A	-	-	99	1,872	2,198	2,464	6,634	2,720	5,154	5,834	6,105	19,812	6,134	6,661	6,871	19,666	6,917	7,399	7,425	21,740	7,755	8,304	9,483	25,343	11,076	12,081	12,843	36,000	13,859	
Net RPS Position (Optimized Net Short)																																								
La	Ga + Ia - Ib - Hc		Annual Net RPS Position after Bank Optimization (GWh) ¹¹		(274)	(799)	1,894	861	3,954	4,460	5,350																													

PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX I.2
ALTERNATE RENEWABLE NET SHORT
(REDACTED)

Table 2: Alternative Renewable Net Short Calculation (January 2017 Contract Vintage, March 2017 Bundled Sales Forecast) - 50%
Stochastically-Optimized Net Short Calculation Using PG&E Bundled Retail Sales Forecast and Corrections to Formulas

Variable	Calculation in Energy Division RNS Calculation Template	Revised Calculation Correcting Apparent Errors in Energy Division Template	Item	2011 Actuals	2012 Actuals	2013 Actuals	2011-2013 Actuals	2014 Actuals	2015 Actuals	2016 Actuals	2014-2016 Actuals	2017 Forecast	2018 Forecast	2019 Forecast	2020 Forecast	2017-2020 Forecast	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast	2021 - 2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast	2025 - 2027 Forecast	2028 Forecast	2029 Forecast	2030 Forecast	2028 - 2030 Forecast	2031 Forecast	2032 Forecast	2033 Forecast	2031 - 2033 Forecast	2034 Forecast	2035 Forecast	2036 Forecast	2034 - 2036 Forecast	2037 Forecast	
			Forecast Year	-	-	-	CP1	-	-	-	CP2	-	-	-	-	CP3	-	-	-	-	CP4	-	-	-	CP5	-	-	-	CP6	-	-	-	CP7	-	-	-	CP8	-	
Annual RPS Requirement																																							
A			Bundled Retail Sales Forecast (Alternate) ¹	74,864	76,205	75,705	226,774	74,547	72,113	68,441	215,101		52,450		39,035		36,166	33,800	33,014	32,631	135,611	32,557	32,555	32,668	97,780	32,963	33,285	33,738	99,986	34,277	34,927	35,742	104,946	36,655	37,698	38,948	113,301	39,882	
B			RPS Procurement Quantity Requirement (%)	20.0%	20.0%	20.0%	20.0%	21.7%	23.3%	25.0%	23.3%	27.0%	29.0%	31.0%	30.0%	34.8%	36.5%	38.3%	40.0%	37.4%	41.7%	43.3%	45.0%	43.3%	46.7%	48.3%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	
C	A*B		Gross RPS Procurement Quantity Requirement (GWh)	14,973	15,241	15,141	45,355	16,177	16,802	17,110	50,089		15,210		12,882		12,568	12,337	12,628	13,052	50,585	13,576	14,096	14,700	42,373	15,394	16,077	16,869	48,339	17,139	17,463	17,871	52,473	18,328	18,849	19,474	56,651	19,941	
D			Voluntary Margin of Over-procurement ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
E	C+D		Net RPS Procurement Need (GWh)	14,973	15,241	15,141	45,355	16,177	16,802	17,110	50,089		15,210		12,882		12,568	12,337	12,628	13,052	50,585	13,576	14,096	14,700	42,373	15,394	16,077	16,869	48,339	17,139	17,463	17,871	52,473	18,328	18,849	19,474	56,651	19,941	
RPS-Eligible Procurement																																							
Fa			Risk-Adjusted RECs from Online Generation ³	14,699	14,513	17,212	46,424	20,207	21,285	22,540	64,031	22,249	20,155	20,048	19,729	82,200	19,376	16,965	16,625	16,346	69,313	16,235	15,670	15,418	47,323	15,371	14,801	14,712	44,903	13,961	13,429	12,932	39,282	10,915	9,864	9,191	29,970	8,328	
Faa			Forecast Failure Rate for Online Generation (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Fb			Risk-Adjusted RECs from RPS Facilities in Development ⁴	-	-	-	-	-	-	0	0	390	1,068	1,615	1,685	4,759	1,727	1,650	1,258	1,254	5,889	1,245	1,238	1,225	3,707	1,221	1,212	1,205	3,637	1,199	1,177	1,133	3,509	762	757	755	2,274	513	
Fbb			Forecast Failure Rate for RPS Facilities in Development (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Fc			Pre-Approved Generic RECs	-	-	-	-	-	-	-	-	61	575	1,165	1,330	3,130	1,332	1,331	1,329	1,330	5,322	1,325	1,324	1,322	3,971	1,324	1,318	1,317	3,959	1,315	1,317	1,312	3,943	1,310	1,308	1,310	3,928	1,305	
Fd			Executed REC Sales	-	-	(142)	(142)	(50)	-	(60)	(110)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
F	Fa + Fb + Fc - Fd		Total RPS Eligible Procurement (GWh) ⁵	14,699	14,513	17,069	46,281	20,157	21,285	22,480	63,922	22,699	21,799	22,848	22,743	90,089	22,436	19,946	19,212	18,930	80,524	18,805	18,231	17,965	55,001	17,915	17,331	17,254	52,500	16,475	15,923	14,637	47,034	12,987	11,929	11,256	36,172	10,146	
F0			Category 0 RECs	14,651	13,049	14,163	41,863	16,899	17,411	17,850	52,161	17,117	14,972	14,584	14,314	60,987	13,990	11,606	11,311	11,079	47,986	11,002	10,452	10,216	31,670	10,173	9,642	9,595	29,411	8,897	8,802	8,173	25,872	7,542	7,096	7,088	21,726	7,049	
F1			Category 1 RECs	48	1,464	2,906	4,418	3,257	3,873	4,630	11,761	5,582	6,826	8,265	8,429	29,102	8,446	8,340	7,901	7,851	32,538	7,803	7,779	7,749	23,331	7,741	7,689	7,669	23,089	7,578	7,121	6,463	21,162	5,445	4,833	4,168	14,446	3,097	
F2			Category 2 RECs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
F3			Category 3 RECs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Step 1 Result: Physical Net Short⁶																																							
Ga	F-E		Annual Gross RPS Position (GWh)	(274)	(728)	1,928	926	3,980	4,482	5,370	13,832		6,588		9,861		9,868	7,609	6,585	5,878	29,940	5,229	4,135	3,264	12,628	2,521	1,255	385	4,160	(664)	(1,541)	(3,234)	(5,439)	(5,341)	(6,920)	(8,218)	(20,478)	(9,795)	
Gb	F/A		Annual Gross RPS Position (%)	19.6%	19.0%	22.5%	20.4%	27.0%	29.5%	32.8%	29.7%		41.6%		58.3%		62.0%	59.0%	58.2%	58.0%	59.4%	57.8%	56.0%	55.0%	56.2%	54.3%	52.1%	51.1%	52.5%	48.1%	45.6%	41.0%	44.8%	35.4%	31.6%	28.9%	31.9%	25.4%	

PG&E's Alternative RNS Table - Stochastic-Adjustment (2011-2030)⁷

Variable	Calculation in Energy Division RNS Calculation Template	Revised Calculation Correcting Apparent Errors in Energy Division Template	Item	2011 Actuals	2012 Actuals	2013 Actuals	2011-2013 Actuals	2014 Actuals	2015 Actuals	2016 Actuals	2014-2016 Actuals	2017 Forecast	2018 Forecast	2019 Forecast	2020 Forecast	2017-2020 Forecast	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast	2021 - 2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast	2025 - 2027 Forecast	2028 Forecast	2029 Forecast	2030 Forecast	2028 - 2030 Forecast	2031 Forecast	2032 Forecast	2033 Forecast	2031 - 2033 Forecast				
Step 2 Result: Stochastically-Adjusted Net Short (Physical Net Short + Stochastic Risk-Adjustment)⁸																																					
Gd			Stochastically-Adjusted Annual Gross RPS Position (GWh)	(274)	(728)	1,928	926	3,980	4,482																												
Ge			Stochastically-Adjusted Annual Gross RPS Position (%)	19.6%	19.0%	22.5%	20.4%	27.0%	29.5%																												
Application of Bank																																					
Ha	H - Hc (from previous year)	J - Hc (from previous year)	Existing Banked RECs above the PQR (The Bank at Beg. Of Period) ^{9,10}	-	-	-	-	861	4,899		861																										
Hb			RECs above the PQR added to Bank	(274)	(728)	1,928	926																														
Hc			Non-bankable RECs above the PQR	-	31	34	65	26	23	20	68	128	-	-	-	128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
H	Ha+Hb		Gross Balance of RECs above the PQR	(274)	(728)	1,928	926																														
Ia			Planned Application of RECs above the PQR towards RPS Compliance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Ib			Planned Sales of RECs above the PQR ¹¹	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
J	H-Ia-Ib		Net Balance of RECs above the PQR (The Bank at End of Period) ⁹	(274)	(728)	1,928	926																														
J0			Category 0 RECs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
J1			Category 1 RECs	(274)	(728)	1,928	926																														
J2			Category 2 RECs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Expiring Contracts																																					
K			RECs from Expiring RPS Contracts ¹²	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	99	1,872	2,198	2,464	6,634	2,720	5,154	5,834	6,105	19,812	6,134	6,661	6,871	19,666	6,917	7,399	7,425	21,740	7,755	8,304	9,483	25,543				
Step 3 Result: Stochastically-Optimized Net Short (Stochastically-Adjusted Net Short + Application of Bank)¹³																																					
La	Ga + Ia - Ib - Hc	Gd+Ia-Ib	Annual Net RPS Position after Bank Optimization (GWh)	(274)	(728)	1,928	926																														
Lb	(F + Ia - Ib - Hc)/A	(Gd+Ia-Ib+E)/A	Annual Net RPS Position after Bank Optimization (%)	20%	19%	23%	20.4%																														

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

(1) (Row A) PG&E uses its March 2017 internal bundled retail sales forecast less interdepartmental (metered usage at PG&E-owned facilities) and GTSR sales for its procurement decisions.

(a) 2017 retail sales forecast shown here includes actuals through April 2017.

(2) (Row D) As a portion of the Bank will be used as VMOP, Row D will remain zero. See 2016 RPS Plan for a description of PG&E's VMOP.

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

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

AT&T	Division of Ratepayer Advocates	Office of Ratepayer Advocates, Electricity Planning and Policy B
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)
CalCom Solar	Hanna & Morton	Sempra Utilities
California Cotton Ginners & Growers Assn	ICF	SoCalGas
California Energy Commission	International Power Technology	Southern California Edison Company
California Public Utilities Commission	Intestate Gas Services, Inc.	Southern California Gas Company (SoCalGas)
California State Association of Counties	Kelly Group	Spark Energy
Calpine	Ken Bohn Consulting	Sun Light & Power
Casner, Steve	Leviton Manufacturing Co., Inc.	Sunshine Design
Center for Biological Diversity	Linde	Tecogen, Inc.
City of Palo Alto	Los Angeles County Integrated Waste Management Task Force	TerraVerde Renewable Partners
City of San Jose	Los Angeles Dept of Water & Power	TerraVerde Renewable Partners, LLC
Clean Power	MRW & Associates	Tiger Natural Gas, Inc.
Clean Power Research	Manatt Phelps Phillips	TransCanada
Coast Economic Consulting	Marin Energy Authority	Troutman Sanders LLP
Commercial Energy	McKenna Long & Aldridge LLP	Utility Cost Management
Cool Earth Solar, Inc.	McKenzie & Associates	Utility Power Solutions
County of Tehama - Department of Public Works	Modesto Irrigation District	Utility Specialists
Crossborder Energy	Morgan Stanley	Verizon
Crown Road Energy, LLC	NLine Energy, Inc.	Water and Energy Consulting
Davis Wright Tremaine LLP	NRG Solar	Wellhead Electric Company
Day Carter Murphy	Nexant, Inc.	Western Manufactured Housing Communities Association (WMA)
Defense Energy Support Center	ORA	YEP Energy
Dept of General Services	Office of Ratepayer Advocates	Yelp Energy