

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE



April 23, 2020

**Advice Letter 5789-E**

Erik Jacobson  
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San Francisco, CA 94177

**SUBJECT: December 2019 Bundled RPS Energy Sale Solicitation; Power Purchase and Sale Agreement Between Pacific Gas and Electric Company and Silicon Valley Clean Energy Authority.**

Dear Mr. Jacobson:

Advice Letter 5789-E is effective as of March 23, 2020.

Sincerely,

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

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

March 23, 2020

**Advice 5789-E**

(Pacific Gas and Electric Company ID U39 E)

Public Utilities Commission of the State of California

**Subject: December 2019 Bundled RPS Energy Sale Solicitation; Power Purchase and Sale Agreement Between Pacific Gas and Electric Company and Silicon Valley Clean Energy Authority**

**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 a power purchase and sale agreement ("PPSA" or "Transaction") that seeks to sell Renewables Portfolio Standard ("RPS")-eligible products from PG&E's existing procured energy portfolio to another load-serving entity ("LSE").

This Transaction is consistent with the sales strategy approved as part of PG&E's 2018 RPS Procurement Plan ("2018 RPS Plan"), and is consistent with PG&E's ongoing management of its RPS portfolio in light of recent and forecasted bundled electric load departures resulting from the growth of Community Choice Aggregators ("CCA") and behind-the-meter distributed generation.<sup>1</sup> This Advice Letter includes one Transaction resulting from PG&E's December 2019 Bundled RPS Energy Sale Solicitation ("Solicitation").

The counterparty and associated sale volume resulting from the Solicitation is as follows:

| <b>Counterparty</b>  | <b>Contract Volume (MWh)</b> | <b>Delivery Term</b> |
|--|------------------------------|----------------------|
| Silicon Valley Clean Energy Authority ("SVCEA" or "Buyer") | 120,000                      | 2020                 |
| <b>Total</b>   | <b>120,000 MWh</b>           |                      |

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<sup>1</sup> Final 2018 PG&E Renewable Energy Procurement Plan, filed in R.18-07-003 on March 15, 2019.

This short-term Transaction is for the sale of bundled energy and associated Renewable Energy Credits (“RECs”) generated in 2020 and the energy delivery period will conclude on December 31, 2020.<sup>2</sup>

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

**1. Project Name**

A list of facilities from which PG&E may currently deliver the bundled RPS products sold in the Transaction is included as Appendix K (the “Preferred Projects”), although PG&E has the ability under the Transaction to update this list with notice to the counterparty. PG&E’s methodology for filling contract volumes from the Projects is described in Confidential Appendix D.

**2. Technology (including level of maturity)**

The technologies of the Preferred Projects are listed in Appendix K.

**3. General Location and Interconnection Point**

The Preferred Projects are located in California, Arizona, or Nevada, and are interconnected with the California Independent System Operator Corporation (“CAISO”)-controlled grid.

**4. Owner(s) / Developer(s)**

**a. Name(s)**

The names of the Preferred Projects are listed in Appendix K.

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

There are two categories of entities that may be of interest: (1) the generating entity selling the RPS-eligible products to PG&E; and (2) the current counterparty, to whom PG&E is reselling the RPS-eligible products.

With regard to the types of entities that own the Preferred Projects, to PG&E’s actual knowledge, given the information PG&E has in its possession, all of the Preferred Projects are owned by (1) corporations, limited liability companies, or through limited partnerships or trusts, or (2) water or irrigation districts. The following information applies to the Buyer under the PPSA:

SVCEA is a CCA serving residential and business customers in Santa Clara County.

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<sup>2</sup> 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.

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

PG&E is not aware of any corporate affiliations between PG&E and the PPSA Buyer, and is not aware of any corporate affiliations between the non-PG&E owned Projects and the PPSA Buyer.

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

All of the Projects that are expected to deliver volumes pursuant to the PPSA are existing and operating facilities that are either UOG or are under current RPS contracts to deliver output to PG&E.

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

The PPSA resulted from PG&E's December 2019 Bundled RPS Energy Sale Solicitation (the "Solicitation"). The solicitation bid was evaluated and executed in accordance with the RPS Sales Framework ("Sales Framework") approved as Appendix G to PG&E's 2018 RPS Plan.<sup>3</sup> PG&E consulted with the Independent Evaluator ("IE") assigned to the 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 products and, to ensure a robust response, sent a market notice to PG&E's Wholesale Electric Power Procurement distribution list containing over 2,600 contacts.

PG&E released the Solicitation on December 16, 2019, seeking bids for delivery year 2020. PG&E identified total revenue as the sole quantitative evaluation criterion and identified credit, agreement modifications, previous commercial experience with the counterparty, and counterparty concentration as the qualitative evaluation criteria. Bids were received on January 14, 2020, and were evaluated using the evaluation criteria outlined above.

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 Transaction are summarized as follows:<sup>4</sup>

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<sup>3</sup> The Sales Framework is discussed more fully below and in Confidential Appendix A.

<sup>4</sup> PG&E has modified the table from the standard Advice Letter template to remove rows that are not directly applicable to the PPSA, 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).

| <b>Project Name</b> | <b>Technology</b>   | <b>Contract Quantity (MWh/Year)</b> | <b>Date Contract Delivery Term Begins</b>                            | <b>Delivery Term (Months)</b>   |
|---------------------|---|-------------------------------------|--|---|
| SVCEA               | solar PV,<br>solar thermal,<br>wind,<br>hydroelectric,<br>small hydro,<br>biomass,<br>biomethane,<br>and<br>geothermal<br>renewable<br>technologies | 120,000<br>(2020)                   | The later of<br>March 1,<br>2020 and the<br>date of CPUC<br>Approval | From date<br>contract<br>delivery term<br>begins to no<br>later than<br>December 31,<br>2020<br>(approximately<br>9 months) |

#### **D. Project Location**

Given the nature of the Transaction and the number of locations of the generation facilities that are expected to generate the products that will be sold pursuant to the Transaction, it is not practical to include a locational map in this submittal. However, generation facilities are located in California, Nevada, and Arizona and are 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 PPSA. PG&E either owns or purchases the bundled product under contracts that PG&E expects would qualify as Portfolio Content Category ("PCC") 1 to PG&E.<sup>5</sup> The Transaction must receive final, non-appealable Commission approval before energy deliveries and the transfer of RECs to Buyers may begin under the PPSA.

##### **2. Partial/Full Generation Output of Facility**

PG&E has the right to deliver from the Preferred Projects, or from other facilities identified pursuant to the PPSA. PG&E is obligated under the terms of each PPSA to deliver the contract's total quantity of bundled energy and RECs during the delivery term. PPSA Deliveries may consist of the full or partial output from any given Project.

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

<sup>5</sup> PCC 1 products are defined in California Public Utilities Code Section 399.16(b)(1).

The Transaction involves only the sale of bundled energy and RECs.

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

The point of delivery under the Transactions is at NP-15, SP-15, and/or ZP-26.

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

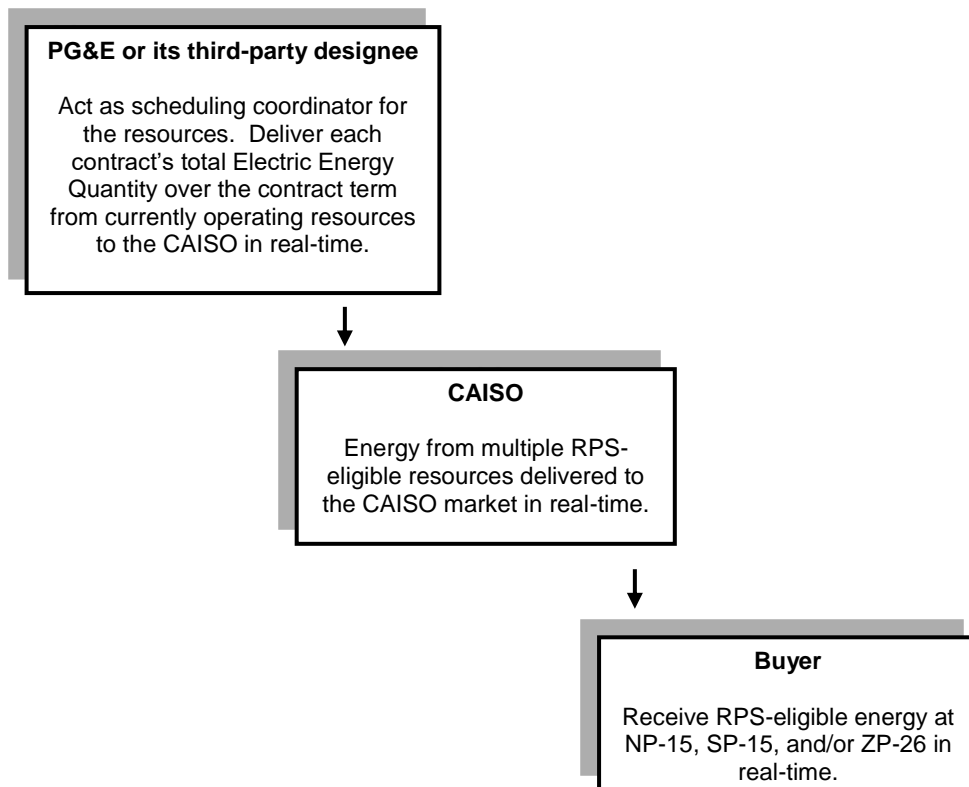
Under the terms of the PPSA, PG&E or a third-party designee will act as scheduling coordinator for the resources. The scheduling coordinator is responsible for scheduling energy from the resources into the CAISO market. The Buyer will take title to the energy from multiple resources at the NP-15, SP-15, and/or ZP-26 Trading Hubs.

PG&E will financially settle the energy and RECs approximately four months after the energy was generated. For example, for energy generated in the month of May, the corresponding RECs will be created and deposited into PG&E's Western Renewable Energy Generation Information System ("WREGIS") account at the end of August. In September, PG&E will invoice the Buyer for the delivered volume of energy at the hourly NP-15, SP-15, and/or ZP-26 Index Price and the associated RECs at the corresponding contract price. The invoice for energy will reflect a netting of energy payments. PG&E as scheduling coordinator will have received CAISO revenues for the delivered energy and is obligated to remit those revenues to the Buyer, and the Buyer is obligated to pay the NP-15, SP-15, and/or ZP-26 Index Price for the delivered energy to PG&E. The September invoice for May energy delivery would therefore show a netting of CAISO NP-15, revenues received by PG&E and payment owed the Buyers for the same energy, resulting in an invoice price of \$0 for energy.

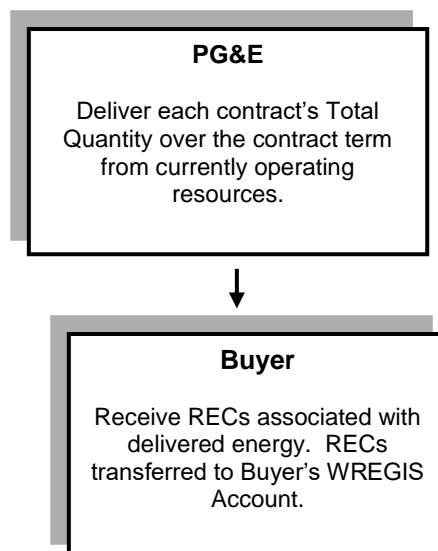
PG&E will transfer the RECs to the Buyer's WREGIS account as described in the PPSA.

## 6. Diagram and Explanation of Delivery Structure

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



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



## **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 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 predominantly in-state projects. The Transaction contributes 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 D.16-



12-040 implementing following compliance periods and procurement targets as mandated by SB 350, that were superceded by D.19-06-026.

SB 100, enacted in 2018, changed the RPS statutory target to 60% by 2030, with updated interim requirements of 44% by 2024 and 52% by 2027. In June 2019, the Commission issued D.19-06-023, implementing SB 100 and establishing same straight-line methodology adopted by the Commission in the past to determine total Compliance Period Requirements. Specifically:

- Sufficient procurement during 2021-2024 that is consistent with the following formula:  $(.3575 * 2021 \text{ retail sales}) + (.3850 * 2022 \text{ retail sales}) + (.383 * 2023 \text{ retail sales}) + (.4125 * 2024 \text{ retail sales})$ .
- Sufficient procurement during 2025-2027 that is consistent with the following formula:  $(.4667 * 2025 \text{ retail sales}) + (.4933 * 2026 \text{ retail sales}) + (.52 * 2027 \text{ retail sales})$ .
- Sufficient procurement during 2028-2030 that is consistent with the following formula:  $(.5467 * 2028 \text{ retail sales}) + (.5733 * 2029 \text{ retail sales}) + (.60 * 2030 \text{ retail sales})$ .

For the compliance period 2031-2033, and for each compliance period thereafter, the RPS procurement quantity requirement of each retail seller should be: MWh of RPS-eligible energy required =  $.60 * (\text{Year 1 of period retail sales} + \text{Year 2 of period retail sales} + \text{Year 3 of period retail sales})$ , where retail sales are expressed in MWh.

PG&E's assumptions in its Renewable Net Short ("RNS") calculations, described more fully below, are consistent with D. 19-06-023.

By ruling, the Commission 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. PG&E is providing an RNS calculation in Appendix I that extends to 2036 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 J.

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 2019 - 2036. 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 2018 RPS Plan.

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 through 2030 and beyond, prior to consideration of the Transaction. Appendix A further quantifies the impact of the Transaction on PG&E's near-term RPS compliance position. The combination of these calculations demonstrates that the Transaction will not create any material risk of near-term RPS noncompliance for PG&E.

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

### **Confidential Attachments:**

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

Appendix B – Solicitation Overview

Appendix C1 – Independent Evaluator Report – Confidential

Appendix D – Summary of Contracts

Appendix E1 – Comparison of PPSA of Silicon Valley Clean Energy Authority with PG&E's 2018 Pro Forma RPS Short-Term Sales Confirmation<sup>6</sup>

Appendix F1 – Power Purchase and Sale Agreement with Silicon Valley Clean Energy Authority<sup>7</sup>

Appendix I1 - PG&E's Renewable Net Short Calculation (Confidential)

Appendix J1 – PG&E's Alternative Renewable Net Short Calculation (Confidential)

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<sup>6</sup> 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 2018 RPS Plan, filed in R.18-07-003 and approved in D.19-02-007. That form agreement was included as Appendix F.3 to PG&E's 2018 RPS Plan.

<sup>7</sup> The PPSA is in the form of confirm 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.

**Public Attachments:****Appendix C2 – Independent Evaluator Report – Public****Appendix G – PG&E Notification of Solicitation Issuance****Appendix H – PG&E Solicitation Bid Form****Appendix I2 – PG&E’s Renewable Net Short Calculation (Redacted)****Appendix J2 – PG&E’s Alternative Renewable Net Short Calculation (Redacted)****Appendix K – Preferred Project List****II. Consistency With Commission Decisions****A. RPS Procurement Plan**

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

PG&E’s 2018 RPS Plan was approved in D.19-02-007 on February 28, 2019, and the final, conforming version of the 2018 RPS Plan was filed in Rulemaking 18-17-003 on March 15, 2019. PG&E complied with all procedural requirements with regard to the submittal of its 2018 RPS Plan.

- 2. Describe the Procurement Plan’s assessment of portfolio needs.**

In PG&E’s 2018 RPS Plan, PG&E demonstrated that under the 33% RPS by 2020 target, and a “straight-line” trajectory implementing the SB 350 target of 50% RPS by 2030, PG&E was well-positioned to meet its RPS compliance requirements through CP 5 (2025-2027) and would not have incremental RPS physical need until at least 2029. 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 and through at least 2033.

- 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 PPSA is for the sale of bundled energy and associated RECs generated in 2020. As described above, PG&E’s 2018 RPS Plan concluded that PG&E is well-positioned to meet its near-term RPS compliance requirements until at least 2033. In light of its long position with respect to RPS targets, PG&E developed the Sales Framework, filed as Appendix G in the approved 2018 RPS Plan, to assess whether to hold or sell surplus RPS volumes. Based on its then-current forecast of bundled retail sales and RPS volumes in its portfolio, PG&E explained in the 2018 RPS Plan that it expected to sell short-term, bundled RPS volumes in 2019.

As further described in Confidential Appendix A, the Transaction is consistent with the 2018 RPS Plan because the total quantity considered for sale and the prices of the Transaction align with what is described in the Sales Framework filed in the 2018 RPS Plan. As a result, the Transaction will benefit PG&E's RPS portfolio by reducing customer costs while maintaining compliance with RPS targets, as intended by the Sales Framework.

The Transaction are also consistent with the approval granted by the Commission in D.19-02-007, Ordering Paragraph 9, which provides in relevant part:

PG&E is authorized to conduct solicitations for short-term sales of 5 years or less, of sales of RPS volumes if the sales agreement for any such sale is executed during the period after the Commission's adoption of this decision and prior to adoption of a subsequent RPS Plan. Deliveries may commence at any time after the Commission's approval of the contract, and continue until the expiration of the contract's term. PG&E must seek Commission approval of short-term and long-term sales resulting from a solicitation or any bilateral transaction that both utilizes the pro forma sales agreement submitted with its 2018 RPS Procurement Plan, showing any necessary modifications, and is executed after PG&E receives bids for a sales solicitation resulting from its 2018 RPS Procurement Plan.

The Transaction is consistent with Ordering Paragraph 9. First, the Transaction is short-term, meaning five years or less. Second, PG&E executed the Transaction during the timeframe covered by the 2018 RPS Plan and prior to the Commission issuing a decision on the 2019 RPS Procurement Plans. Third, the deliveries under the Transaction may commence after the Commission's approval of the PPSA. Fourth, as required, PG&E is submitting this Tier 1 Advice Letter for Commission approval of the Transaction.

Consistent with the 2018 RPS Plan, the Transaction used PG&E's pro forma Sales Agreement and PG&E is providing comparisons of the executed Transaction against the approved pro forma short-term sales confirmation. The adherence to PG&E's pre-approved Sales Framework and the use of the approved pro forma short-term sales confirmation allows for the submittal of the Transaction through this Tier 1 advice letter, which is consistent with the 2018 RPS Plan and D.19-02-007.

**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 bundled RPS sales.

**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).**

Assessing the current or future value of a banked REC requires incorporating a range of highly uncertain policy and market assumptions. Given that PG&E's current net short position is significantly far into the future, there are too many future uncertainties to determine an appropriate banked REC value. Any attempt at producing a value would be misleading. Furthermore, PG&E notes that any price comparison analysis is not part of the Commission-approved Sales Framework and does not impact PG&E approach to executing volumes.

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

PG&E followed the approved Sales Framework to evaluate bids received in the Solicitation and to maximize benefit to customers. The December 2019 Bundled RPS Energy Sale Solicitation Protocol described the approach that would be used to evaluate bids for each delivery year independently, and identified sale price as the sole quantitative evaluation criterion.

**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 G.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 Transaction is consistent with PG&E's objective of minimizing customer costs while achieving and maintaining RPS compliance. Through the timely sale of surplus RPS-eligible energy at competitive prices, the PPSA reduces the total cost impact of the RPS

program to customers. Given PG&E's current long RPS position, it is highly unlikely that the PPSA will jeopardize PG&E's ability to meet RPS requirements.

**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 filed its Sales Framework as part of its approved 2018 RPS Plan in order to guide its overall sales activities and to optimize its portfolio by addressing PG&E's growing bank of RPS compliance products. This transaction was conducted within the guidelines outlined in the Sales Framework.

**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.**

Because the Transaction is sales rather than procurement, PG&E has used its approved Sales Framework to evaluate the offers rather than the procurement LCBF evaluation methodology. Nonetheless, PG&E has provided LCBF values in Confidential Appendix A.

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

The qualified bids received pursuant to the Solicitation were shared with PG&E's Procurement Review Group ("PRG"), which includes Commission Energy Division staff, on January 15, 2020. On January 24, 2020, the PRG was also notified of the quantities that PG&E proposed to execute as a result of the Solicitation. On February 11, 2020, the PRG was notified of the actual quantities executed as a result of the Solicitation. Because the Solicitation was pursuant to the approved Sales Framework and because the Commission's decision adopting the 2018 RPS Plan did not require submission of a formal shortlist report as part of the 2018 RPS Plan procurement cycle, PG&E did not submit a formal 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 PPSA 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.**

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

| Counter party | Contract Reference | Non-Modifiable Term        |  |                             |
|---------------|--------------------|----------------------------|--|-----------------------------|
|               |                    | STC 1:<br>CPUC<br>Approval | STC 6: Seller's<br>Representations<br>, Warrenties, and<br>Covenants | STC 17:<br>Governing<br>Law |
| SVCEA         | Section            | 2.15                       | 6.1(a), 6.1(b), and<br>6.1(c)  | 8.3(b)                      |
|               | Page<br>Number     | 6                          | 13   | 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 PPSA to the form of Short-Term Sales Confirmation included as Attachment I.3 to PG&E's 2018 RPS Plan are included in Confidential Appendix E. The non-modifiable terms have been highlighted in each redlined comparison.

**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 LSEs, such as the Buyers, of the RPS-eligible products that will be sold pursuant to the PPSA, if approved. However, PG&E presently purchases the bundled product under contracts that PG&E expects would qualify as PCC 1 or PCC 0 to PG&E.

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

PG&E will sell energy and associated RECs generated from California-, Nevada-, or Arizona-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.<sup>8</sup> Furthermore, as defined under D.10-

<sup>8</sup> The Project list identified in the Transaction 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 the counterparty to the PPSA.

03-021, as modified by D.11-01-025, the proposed PPSA transfer a bundled product since both renewable energy and its associated RECs are being sold together.

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

There is no known risk that the products conveyed by the PPSA would not be categorized as PCC 0 or 1 if used by PG&E for RPS compliance.

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

**1. Contract is classified as claimed**

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

The value to PG&E's customers of the Transaction does not depend on the ultimate categorization of the transferred RPS products by the verifying regulatory agencies, since PG&E has not assumed compliance value risk under the Transaction. For the counterparty, the value to the SVCE's customers may 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 PPSA may be a combination of PCC 0 and PCC 1 volumes if used for compliance by PG&E, PG&E will not know the exact allocation between the categories until the RECs have been transferred to SVCE. PG&E estimates that the quantity of any PCC 1 reduction to PG&E's portfolio resulting from the PPSA could be as high as 120 GWh, as reflected in the following table. Given that PG&E's currently delivering RPS procurement portfolio is made up entirely of products expected to qualify as PCC 1 or PCC 0, as shown below, PG&E expects to be able to meet its Compliance Period 3 portfolio balance requirements notwithstanding the Transaction.

| <b>Forecast of Portfolio Balance Requirements (GWh)</b>  | <b>Compliance Period 3 (2017-2020)</b> |
|--|--|
| PCC 1 Balance Requirement<br><i>CP 3 = 75% of RECs applied to procurement quantity requirement</i> |  |
| Quantity of PCC 0 and 1 RECs<br>(under PG&E contract, not including proposed contracts)            | 62,507                                 |
| Quantity of PCC 0 and/or PCC 1 RECs* from proposed contracts                                       | 120                                    |
| Quantity of PCC 2 RECs   | 0                                      |



|  |   |
|--|---|
| Quantity of PCC 2 RECs<br>(under PG&E contract, not<br>including proposed contracts) | 0 |
| Quantity of PCC 2 RECs<br>from proposed contracts                                    | 0 |

### **E. Long-Term Contracting Requirement**

In D.12-06-038, the Commission adopted a threshold standard pursuant to SB 2 (1X) that requires LSEs 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. Senate Bill 350 established a new long-term contracting requirement for procurement used for RPS compliance. Specifically, Public Utilities Code section 399.13(b) requires that beginning in January 2021 (or January 2017 for retail sellers, like PG&E, that elect early compliance), at least 65 percent of procurement counted toward the RPS procurement requirement of each compliance period must be from contracts of 10 years or more in duration or in ownership or ownership agreements for RPS resources. Procurement from RPS contracts signed prior to June 1, 2010 that meets the requirements set forth in California Public Utilities Code section 399.16(d) is counted as long-term for the purposes of SB 350's long-term contracting requirement. Although the proposed PPSA will draw from PG&E's portfolio of long-term contracts, the absence of this generation will not materially impact PG&E's ability to comply with either the SB 2 (1X) or the SB 350 long term contracting requirements given the predominance of long-term contracts in PG&E's RPS portfolio.

### **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 PPSA is not subject to the EPS as the PPSA does not involve the long-term commitment to procure baseload generation. Rather, the PPSA is a contract for the sale of RPS-eligible products from PG&E's existing procured energy portfolio with delivery terms that are less 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 II. 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.**

No firming or shaping will occur under the PPSA.

- 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 Sections II. F.1 and F.3 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.**

See Sections II. F.1 and F.3 above.

#### **G. Procurement Review Group (PRG) Participation**

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

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

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

On December 2, 2019, PG&E provided an update via email to the PRG with an overview of the Solicitation rationale, objective, and timeline.

On January 15, 2020, PG&E provided an update via email to the PRG regarding the bids received and qualified bid list.

On January 24, 2020, PG&E updated the PRG via email of PG&E's intent to execute list.

On February 11, 2020, PG&E updated the PRG via email with an update to PG&E's intent to execute list.

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

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

**H. Independent Evaluator (IE)**

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

**1. Provide name of IE.**

The IE is Lewis Hashimoto of Arroyo Seco Consulting.

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

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

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

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

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

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

**III. Project Development Status**

Since the Projects are operating facilities, this section is not applicable.

**IV. Contingencies and/or Milestones**

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

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

## **V. Safety Considerations**

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

## **VI. Request for Commission Disposition**

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

1. Approval of the PPSA in its entirety, including payments to be received by PG&E, subject to CPUC review of PG&E's administration of the PPSA;
2. A finding that the PPSA is consistent with the Sales Framework approved as part of PG&E's 2018 RPS Plan and is consistent with Ordering Paragraph 9 of Decision 19-02-007, and that the sale of the bundled renewable electricity and green attributes under each of the PPSA is reasonable and in the public interest;
3. A finding that all costs of the PPSA are fully recoverable in rates over the life of the PPSA, subject to CPUC review of PG&E's administration of the PPSA; and
4. A finding that the payments received by PG&E pursuant to the PPSA shall be credited against costs recorded to the Portfolio Allocation Balancing Account ("PABA") on a pro-rata basis, or in accordance with any Commission decision issued in the future in Phase 2, Track 1 of R.17-06-026.

## **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 April 13, 2020, which is 21 days<sup>9</sup> after the date of this submittal. Protests must be submitted to:

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

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

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<sup>9</sup> The 20-day protest period concludes on a weekend, therefore, PG&E is moving this date to the following business day.

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

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

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

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

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

### **Effective Date**

Consistent with its approved 2018 RPS Plan, PG&E is submitting this advice letter with a Tier 1 designation to be effective upon submittal. PG&E will begin deliveries upon receiving final and non-appealable CPUC Approval.

### **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 submittals 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  
Cheryl Lee – Energy Division

**Limited Access to Confidential Material**

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



# ADVICE LETTER SUMMARY

ENERGY UTILITY



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

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

Utility type:

☒ ELC ☐ GAS ☐ WATER  
☐ PLC ☐ HEAT

Contact Person: Annie Ho

Phone #: (415) 973-8794

E-mail: PGETariffs@pge.com

E-mail Disposition Notice to: AMHP@pge.com

EXPLANATION OF UTILITY TYPE

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

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 5789-E

Tier Designation: 1

Subject of AL: December 2019 Bundled RPS Energy Sale Solicitation; Power Purchase and Sale Agreement Between Pacific Gas and Electric Company and Silicon Valley Clean Energy Authority

Keywords (choose from CPUC listing): Compliance,

AL Type: ☐ Monthly ☐ Quarterly ☐ Annual ☒ One-Time ☐ Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #:

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

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

Confidential treatment requested? ☒ Yes ☐ No

If yes, specification of confidential information: Brendan Lucker, (415) 973-7108

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information: Yes. See the attached matrix that identifies all of the confidential information.

Resolution required? ☐ Yes ☒ No

Requested effective date:

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<sup>1</sup>: N/A

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

<sup>1</sup>Discuss in AL if more space is needed.

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

CPUC, Energy Division  
Attention: Tariff Unit  
505 Van Ness Avenue  
San Francisco, CA 94102  
Email: [EDTariffUnit@cpuc.ca.gov](mailto:EDTariffUnit@cpuc.ca.gov)

Name: Erik Jacobson, c/o Megan Lawson  
Title: Director, Regulatory Relations  
Utility Name: Pacific Gas and Electric Company  
Address: 77 Beale Street, Mail Code B13U  
City: San Francisco, CA 94177  
State: California Zip: 94177  
Telephone (xxx) xxx-xxxx: (415)973-2093  
Facsimile (xxx) xxx-xxxx: (415)973-3582  
Email: [PGETariffs@pge.com](mailto:PGETariffs@pge.com)

Name:  
Title:  
Utility Name:  
Address:  
City:  
State: District of Columbia Zip:  
Telephone (xxx) xxx-xxxx:  
Facsimile (xxx) xxx-xxxx:  
Email:

Clear Form



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

**PACIFIC GAS AND ELECTRIC COMPANY**

**DECLARATION OF BRENDAN LUCKER  
SEEKING CONFIDENTIAL TREATMENT  
FOR CERTAIN DATA AND INFORMATION CONTAINED  
IN ADVICE LETTER 5789-E**

I, Brendan Lucker, declare:

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

2. Based on my knowledge and experience, and in accordance with Decisions 06-06-066, 08-04-023, and relevant Commission rules, I make this declaration seeking confidential treatment for certain data and information contained in the attachments to Advice Letter 5789-E.

3. Attached to this declaration is a matrix identifying the data and information for which PG&E is seeking confidential treatment. The matrix specifies that the material PG&E is seeking to protect constitutes confidential market sensitive data and information covered by Public Utilities Code section 454.5(g), D.06-06-066, D.08-04-023 and/or relevant Commission rules. The matrix also specifies why confidential protection is justified. Further, the data and information: (1) is not already public; and (2) cannot be aggregated, redacted, summarized or

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

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct. Executed on March 20, 2020 at San Francisco, California.

/s/ Brendan Lucker

Brendan Lucker

Structured Energy Transactions Manager

Pacific Gas & Electric Company

**PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)**  
**Advice Letter 5789-E**  
**March 23, 2020**

**IDENTIFICATION OF CONFIDENTIAL INFORMATION**

| Redaction Reference  | Category from D.06-06-066, Appendix 1, or Separate Confidentiality Order That Data Corresponds To   | Justification for Confidential Treatment  | Length of Time   |
|--|---|---|--|
| Appendix A, Consistency with Commission Decisions and Rules and Project Development Status | <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 V(C): LSE Total Energy Forecast -- Bundled Customer (MWh)</p> <p>VI(B): Utility Bundled Net Open (Long or Short) Position for Energy (MWh)</p> <p>May 21, 2014 <i>Administrative Law Judge's Ruling on Renewable Net Short</i> issued in Rulemaking 11-05-005 ("May 21, 2014 ALJ Ruling")</p> <p>Item VIII(A): Bid Information</p> <p>Item VIII(B): Specific quantitative analysis involved</p> | <p>This appendix contains information regarding the confidential terms and conditions of the power purchase and sale agreements ("PPSAs") that seek to sell RPS-eligible products. Disclosure of this information would provide valuable market sensitive information to market participants regarding the contracts and could be damaging to PG&amp;E's future negotiations with other counterparties for similar products. Therefore, this information should remain confidential.</p> <p>This appendix also contains details regarding PG&amp;E's confidential RPS Sales Framework, its Alternative Renewable Net Short ("RNS") calculation, and the impact of the sales under the PPSAs on PG&amp;E's RPS compliance position. This information is expressly deemed confidential by the May 21, 2014 ALJ Ruling. Additionally, this information could be used to determine PG&amp;E's net open position for RPS-eligible products and its internal and proprietary forecast of its bundled customer total energy requirements, and also constitutes analysis and evaluation of proposed RPS projects, including sales or transactions intended to create or manage a compliance bank. In addition, if other market participants learned of market sensitive information concerning PG&amp;E's sales strategy, they could change their bidding behavior and affect market pricing. This could detrimentally impact PG&amp;E's customers.</p> <p>Finally, this appendix contains confidential bid information and specific bid evaluations from PG&amp;E's solicitation. If released publicly, this information would provide valuable market sensitive information to market participants; therefore, this information should remain confidential.</p> | <p>For Item VII(G): Three years from date contract states deliveries to begin, or one year after expiration (whichever is sooner)</p> <p>For Item VII (un-numbered category following VII(G)): Three years</p> <p>For Items V(C) and VI(B): Front three years of forecast data confidential</p> <p>May 21, 2014 ALJ Ruling: Indefinite</p> <p>For Items VIII(A) and VIII(B): Three years after winning bidders selected</p> <p>Public Utilities Code § 454.5(g): Three years</p> |

**PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)**  
**Advice Letter 5789-E**  
**March 23, 2020**

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

**PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)**  
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**March 23, 2020**

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|---|--|--|---|
| Appendix C, Independent Evaluator Report – grey shaded sections | <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(A): Bid Information</p> <p>Item VIII(B): Specific quantitative analysis involved in scoring and evaluation of participating bids</p> <p>Public Utilities Code section 454.5(g)</p> <p>May 21, 2014 ALJ Ruling</p> | <p>This appendix contains the IE report, which includes confidential bid information and bid evaluations from PG&amp;E’s solicitation. The confidential IE report also discusses, analyzes and/or evaluates the terms of the PPSAs and confidential negotiations between PG&amp;E and counterparties. If released publicly, this information would provide valuable market sensitive information to market participants, could be damaging to future PG&amp;E contract negotiations and ultimately detrimental to PG&amp;E’s customers, and could create a disincentive to do business with PG&amp;E and other regulated utilities. Therefore, this information should remain confidential.</p> <p>This appendix also contains information relating to PG&amp;E’s confidential RPS Sales Framework, which is deemed confidential by the May 21, 2014 ALJ Ruling. In addition, if other market participants learned of market sensitive information concerning PG&amp;E’s sales strategy, they could change their bidding behavior and affect market pricing. This could detrimentally impact PG&amp;E’s customers.</p> | <p>For Item VII(G): Three years from date contract states deliveries to begin, or one year after expiration (whichever is sooner)</p> <p>For Item VII (un-numbered category following VII(G)): Three years</p> <p>For Items VIII(A) and VIII(B): Three years after winning bidders selected</p> <p>Public Utilities Code § 454.5(g): Three years</p> <p>May 21, 2014 ALJ Ruling: Indefinite</p> |

**PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)**  
**Advice Letter 5789-E**  
**March 23, 2020**

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|----------------------------------|--|---|---|
| Appendix D, Summary of Contracts | <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 V(C): LSE Total Energy Forecast – Bundled Customer (MWh)</p> <p>VI(B): Utility Bundled Net Open (Long or Short) Position for Energy (MWh)</p> <p>Item VIII(B): Specific quantitative analysis involved in scoring and evaluation of participating bids</p> | <p>This appendix summarizes and analyzes the PPSAs, and contains bid evaluation information. If released publicly, this information would provide valuable market sensitive information to market participants and could be damaging to PG&amp;E's future negotiations with other counterparties for similar products. Therefore, this information should remain confidential.</p> <p>This appendix also contains information that could be manipulated in conjunction with publicly-available information to determine PG&amp;E's net open position for RPS-eligible products and its internal and proprietary forecast of its bundled customer total energy requirements.</p> | <p>For Item VII(G): Three years from date contract states deliveries to begin, or one year after expiration (whichever is sooner)</p> <p>For Item VII (un-numbered category following VII(G)): Three years</p> <p>For Items V(C) and VI(B): Front three years of forecast data confidential</p> <p>For Item VIII(B): Three years after winning bidders selected</p> |

**PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)**  
**Advice Letter 5789-E**  
**March 23, 2020**

**IDENTIFICATION OF CONFIDENTIAL INFORMATION**

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|--|--|--|---|
| Appendices E1 Comparison of PPSAs with PG&E's 2018 Pro Forma RPS Short-Term Sales Confirmation   | Item VII(G): Renewable Resource Contracts under RPS program - Contracts without SEPs   | These appendices contain each of the PPSAs for which PG&E seeks approval in this Advice Letter filing. Public disclosure of the terms of the PPSAs would provide valuable market sensitive information to market participants and could be damaging to PG&E's future negotiations with other counterparties for similar products. Therefore, this information should remain confidential.  | For Item VII(G): Three years from date contract states deliveries to begin, or one year after expiration (whichever is sooner)  |
| Appendices F1 Power Purchase and Sale Agreement  | Item VII(G): Renewable Resource Contracts under RPS program - Contracts without SEPs   | These appendices contain each of the PPSAs for which PG&E seeks approval in this Advice Letter filing. Public disclosure of the terms of the PPSAs would provide valuable market sensitive information to market participants and could be damaging to PG&E's future negotiations with other counterparties for similar products. Therefore, this information should remain confidential.  | For Item VII(G): Three years from date contract states deliveries to begin, or one year after expiration (whichever is sooner)  |
| Appendices I and J, PG&E's Renewable Net Short Calculation and PG&E's Alternative Renewable Net Short Calculation – grey shaded sections | Item V(C): LSE Total Energy Forecast -- Bundled Customer (MWh)<br><br>VI(B): Utility Bundled Net Open (Long or Short) Position for Energy (MWh)<br><br>May 21, 2014 ALJ Ruling<br><br>Item VII (un-numbered category following VII(G)): Score sheets, analyses, evaluations of proposed RPS projects | For Table 1:<br><br>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.<br><br>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.<br><br>The redacted information for rows Ia, Ib, J, J0, J1, J2, La and Lb relates to PG&E's optimized RNS, including: PG&E's assumptions for its overall portfolio optimization strategy; any plans to sell forecast RECs above the PQR; application of forecast RECs above the PQR towards a future RPS compliance requirement; and any plan to procure RECs above the PQR in future years. This information is expressly deemed confidential by the May 21, 2014 ALJ Ruling. Additionally, this information could be used to determine PG&E's net open position for RPS-eligible products and constitutes analysis and evaluation | For Items V(C) and VI(B): Front three years of forecast data confidential<br><br>May 21, 2014 ALJ Ruling: Indefinite<br><br>For Item VII (un-numbered category following VII(G)): Three years |

**PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)**  
**Advice Letter 5789-E**  
**March 23, 2020**

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



**PACIFIC GAS AND ELECTRIC COMPANY**  
**APPENDIX A**  
**CONSISTENCY WITH COMMISSION DECISIONS AND RULES**  
**AND PROJECT DEVELOPMENT STATUS**  
  
**(CONFIDENTIAL IN ITS ENTIRETY)**

**PACIFIC GAS AND ELECTRIC COMPANY**

**APPENDIX B**

**SOLICITATION OVERVIEW**

**(CONFIDENTIAL IN ITS ENTIRETY)**

**PACIFIC GAS AND ELECTRIC COMPANY**

**APPENDIX C2**

**INDEPENDENT EVALUATOR REPORT**

**(REDACTED)**

ARROYO SECO CONSULTING

PACIFIC GAS AND  
ELECTRIC COMPANY:  
DECEMBER 2019  
BUNDLED RPS ENERGY  
SALE SOLICITATION

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

MARCH 9, 2020

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# 1. EXECUTIVE SUMMARY

This report provides a review of an agreement between the Pacific Gas and Electric Company (“PG&E”) and Silicon Valley Clean Energy Authority (“SVCE”) for renewable energy to be delivered from PG&E’s supply portfolio. SVCE is a joint powers authority and Community Choice Aggregator (“CCA”) that serves customers in Santa Clara county, excluding Palo Alto, San Jose, and Santa Clara. The transaction originated from PG&E’s December 2019 Bundled RPS Energy Sale solicitation. An independent evaluator (IE), Arroyo Seco Consulting (“Arroyo”), conducted various activities to observe, test, and check PG&E’s processes as participants sought to negotiate agreements.

This report includes discussions of:

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

Arroyo’s opinion is that PG&E’s outreach to potential buyers was adequate, the solicitation was robust, and PG&E’s methodology was designed fairly and administered fairly. Arroyo’s opinion is that contract negotiations were conducted in a manner that was fair to competing buyers and to ratepayers.

Arroyo believes that the price and market value of the contract is reasonable, although the market for Portfolio Content Category 1 (“PCC1”) energy is illiquid and not transparent so that fresh comparable pricing information is scarce. The transaction is consistent with the sales framework that was approved with PG&E’s CPUC-approved 2018 RPS procurement plan.<sup>1</sup> The portfolio fit of the contract ranks high. Based on these observations, Arroyo’s opinion is that the executed SVCE contract merits CPUC approval.

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<sup>1</sup> As detailed in this report, the CPUC’s Decision 19-12-042 that authorizes PG&E to execute short-term sales contracts for RPS-eligible energy in calendar 2020, such as SVCE’s agreement, approved PG&E’s 2019 RPS procurement plan, which differs in some details such as evaluation criteria from PG&E’s 2018 plan upon which this solicitation was based. Arroyo believes that the resulting bid selection would have been the same had PG&E used the 2019 plan and framework instead of 2018’s.

## 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.

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### A. KEY INDEPENDENT EVALUATOR ROLES

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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.”<sup>2</sup> The Energy Division has provided IEs with a standard template for use in reporting about RPS transactions for which utilities seek approval through advice letters, specifying that such a report should cover topics including:

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

The structure of this report is organized around these major topics.

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### B. IE ACTIVITIES

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

- Reviewed the solicitation protocol and other materials;
- Discussed with the PG&E team its plan to pursue sales of bundled renewable energy;
- Observed (telephonically) negotiations between the parties;
- Reviewed briefings about the solicitation that were presented to PG&E’s Procurement Review Group;
- Reviewed marked-up drafts of the confirmation agreement as parties discussed edits to PG&E’s initial draft form confirmation agreement; and
- Researched recent comparable transactions of PCC1 renewable energy for publicly available market pricing data to serve as benchmarks for price reasonableness.

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<sup>2</sup> 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 December 16, 2019, PG&E released a market notice for the solicitation. In the e-mailed notice, PG&E provided a link to its public webpage for the solicitation that provided a CPUC-approved version of an Edison Electric Institute (EEI) short-form confirmation agreement<sup>3</sup>, a bid form composed as a spreadsheet, a solicitation protocol, and a non-disclosure agreement. The notice also included registration information for a participants' webinar. PG&E received nine bid packages, of which eight were timely submitted prior to the deadline.

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#### A. ADEQUACY OF SOLICITATION OUTREACH

---

PG&E previously held solicitations for short-term sales of RPS-eligible energy in 2016<sup>4</sup>, 2017, 2018, and early 2019, and had developed a customized contact list of potential renewable energy buyers for those efforts. For the current solicitation, PG&E used an updated version of the prior list with additional contacts. This list does not represent a thoroughly comprehensive list of all parties that might ever have an interest and capability of buying bundled renewable energy, but it represents a solid list of leads and shows continued enhancement over prior lists. Figure 1 displays the composition of the focused contact outreach list used for the market notice for the issuance of the solicitation by type of entity; "other" includes IOUs, a solar developer, and a solo consultant.

Additionally, PGE e-mailed the market notice to its standing RFO contact list, which the utility uses for outreach for energy procurement solicitations for buying products. This much larger list (about 2,700 contacts) is primarily composed of generation developers and businesses that service their needs, and therefore does not focus on the likeliest candidates to seek to buy RPS-eligible energy rather than to sell it. Figure 2 displays the composition of this RFO contact list. Among the sectors likeliest to participate in this specific solicitation, wholesale marketers, direct access energy services providers (ESPs), and utilities including CCAs were included. PG&E also followed up with two e-mail reminders sent on January 10 and 13 to both lists to remind potential participants of the impending deadline on the 14<sup>th</sup>.

In the actual event, all the participants in the solicitation except two ( [REDACTED] ) were contacted through the energy sale-specific [REDACTED]

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<sup>3</sup> PG&E was authorized by CPUC Decision 19-12-042 to sell RPS volumes for five years or less. PG&E chose in this solicitation to seek bids for energy delivery within calendar year 2020 and did not offer deliveries in other years.

<sup>4</sup> The 2016 effort was an informal "e-solicitation" using e-mail to contact a list of potential participants rather than broad public outreach: it did not use a formal solicitation protocol.



Figure 1.

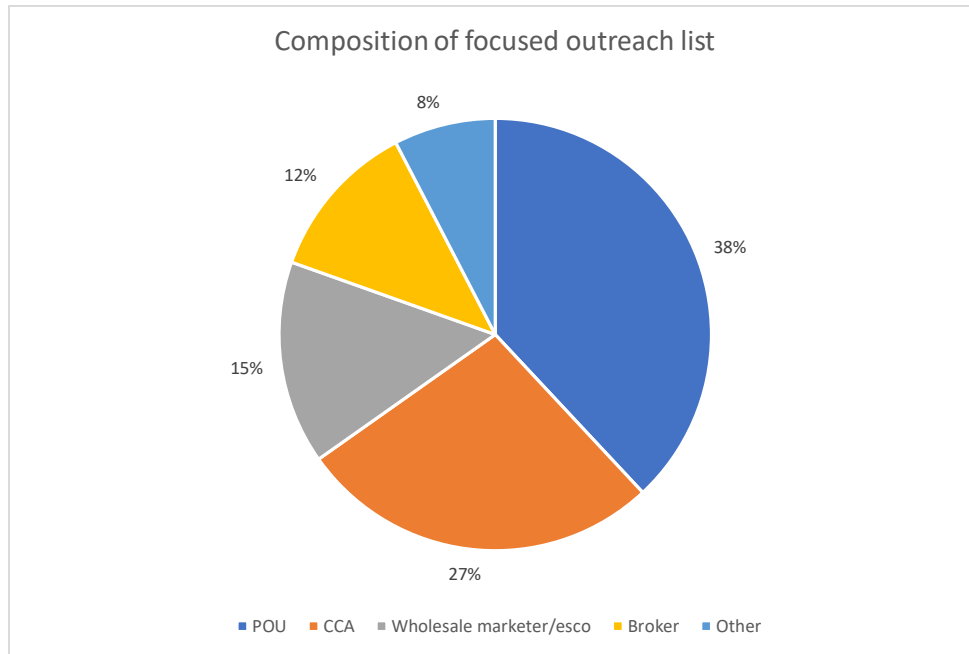
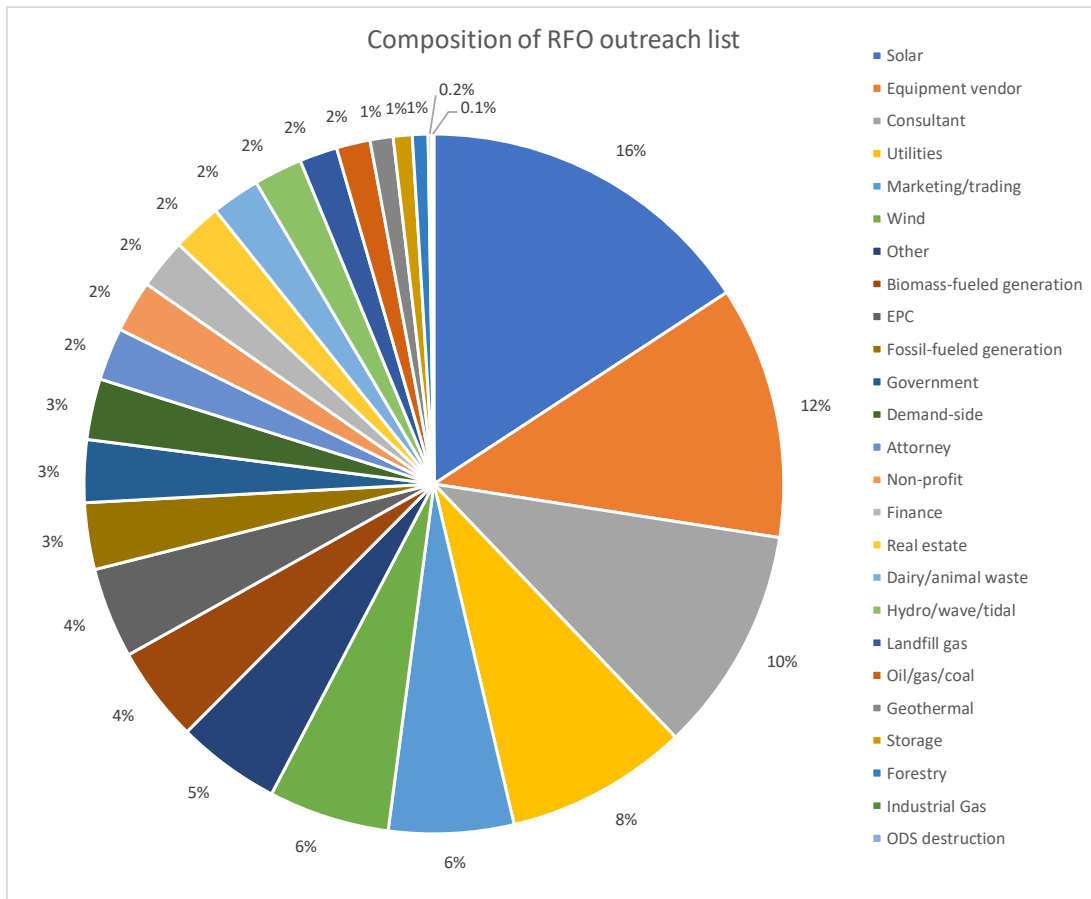


Figure 2.



contact list; the latter appears to have been contacted through its external consultant, who also served a directly competing participant in the solicitation, [REDACTED].<sup>5</sup> [REDACTED] was contacted through use of the standing generic RFO contact list, which was originally designed to reach sellers of energy and capacity products rather than buyers. It appears that this participant was added to the contact list at its request sometime in 2019.

For this effort, focused on the small universe of RPS compliance entities and those who serve their wholesale power needs, the utility did not pursue broad outreach through public media such as the electricity trade press or media releases. Arroyo's opinion is that PG&E adequately distributed notices of this solicitation. For future sales solicitations, PG&E might benefit by adding to its outreach contact list some CCAs that are pursuing their start-up activities or growing their customer base, but may not yet have been positioned to respond directly to the current solicitation, or have not yet engaged with PG&E as a counterparty. Examples might include Solana Energy Alliance, Desert Community Energy, Western Community Energy, Redwood Coast Energy, King City Community Power, and others.

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## **B. CLARITY AND CONCISION OF SOLICITATION MATERIALS**

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PG&E published on its website a written public protocol to document the requirements of the request for bids and to communicate the evaluation criteria that the utility would use to make its selection decision. The protocol was ten pages long, which is quite concise for California IOUs' solicitations, for which protocols typically run to dozens of pages. For example, San Diego Gas & Electric Company's protocol for its 2019 BioRAM Renewable Energy Sale RFP was 16 pages in length. PG&E's market notice e-mail was also succinct; it relied on a link to the solicitation website for participants to obtain details.

Arroyo's opinion is that solicitation materials were generally clear to most potential bidders. Questions posed by potential participants prior to the due date mostly stemmed from the interest by first-time bidders to PG&E's short-term RPS solicitations. These queries had the nature of seeking more detail on mechanics about how to bid or what documents to submit. Additionally, there were specific inquiries about whether non-conforming bids would be accepted and reviewed; in these cases, the potential participants had read and understood the solicitation materials well enough to recognize that what they would prefer to propose would fail to conform to the requirements of the solicitation. In the actual event all participants submitted conforming bids; some of the issues raised about non-conformance are discussed further in Chapter 6.

One indicator of clarity is that of [REDACTED] that registered for the solicitation on the on-line platform, [REDACTED] submitted proposals, suggesting that solicitation materials were on point for most of the entities that actively responded to the outreach notices. The other registrants included [REDACTED]

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<sup>5</sup> Arroyo observes that the consultant prepared both bid spreadsheets for two directly competing bidders, [REDACTED]

[REDACTED]

[REDACTED] It would generally be illogical for generation and energy storage developers to participate in a utility's solicitation to sell energy. Arroyo's inference is that these other registrants lacked clarity about what PG&E's intent for this energy sale solicitation was. It is not clear to Arroyo whether any deficiency in the solicitation materials could account for confusion on the part of these registrants or whether any improvements in the materials could have reduced their degree of misunderstanding.

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### C. BIDDERS' CONFERENCE

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PG&E convened a participants' webinar on December 19 to provide information to potential participants. The presentation covered an overview of the solicitation's product, delivery term, and schedule, a review of the confirmation agreement, a discussion of the evaluation criteria, and detail of the logistics of submitting bid packages. At the end of the webinar PG&E took questions from the audience and provided answers. Questions and answers were posted on the utility's public website along with the presentation package, an audio file, and a transcript in order that potential participants that did not attend the live webinar could benefit from the discussion.

Only one question was posed in the public webinar, regarding the generation resources that will be used to meet the deliveries from the short-term contracts vs. any new agreements that could be executed as a result of PG&E's 2019 Long-Term Bundled RPS Energy Sale solicitation. The two different solicitations were held at roughly similar times so there could have been some potential for confusion about the two on the part of potential participants. PG&E's answer clarified that the two solicitations would lead to deliveries in different years. In the actual event no proposals for long-term energy sales were submitted to the on-line platform for the short-term energy sale solicitation, and vice versa, suggesting that the distinction between the two was clear to participants.

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### D. ROBUSTNESS OF THE SOLICITATION

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PG&E did not publicly state a quantitative target for this solicitation. In both its 2018 and 2019 renewable energy procurement plan filings it provided a confidential framework for sales of excess RPS volumes. [REDACTED]

[REDACTED]. This amount was not explicitly stated as a goal [REDACTED]

Bids were received from [REDACTED]. The total volume of the bids [REDACTED]. This was a robust response, though less robust than that of PG&E's early 2019 solicitation that sought sales for delivery in both 2019 and 2020, [REDACTED]

Most bids conformed to the requirements of the solicitation protocol. However, one bid was tardy, and was not submitted through the on-line PowerAdvocate portal as specified in

the protocol but was rather sent by e-mail, about eleven minutes after the 1 p.m. deadline. The participant claimed to have experienced system problems; its bid package was submitted not by the load-serving participant but by its external consultant (eventually the actual participant re-submitted the bid form several hours later by e-mail, after the close of business). [REDACTED]

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

- Only a modest number of California load-serving entities (LSEs) appear to hold net short RPS compliance positions for the third and fourth compliance periods. The IOUs hold long positions, leaving some but not all publicly-owned utilities, CCAs (or their ESPs), and direct access providers as likeliest potential buyers. Some CCAs have reported that they have fulfilled their compliance needs for 2020. There seems to be no appetite for California RPS-eligible energy among out-of-state utilities.
- Other compliance entities may lack interest in procuring renewable energy through short-term purchases of energy produced in existing facilities, as opposed to long-term contracts with proposed new projects that would bring additional renewable generation into the market, given their compliance and procurement strategies. Some CCAs have faced criticism from stakeholders for purchasing RECs originating from existing facilities as opposed to creating additional renewable energy supply. Since there is a compliance requirement for long-term contracts beginning in 2021 anyway, potential buyers may prefer to seek deliveries from new facilities starting in 2020 instead of making short-term purchases.
- Some CCAs and POUs have stated a preference for local generation; a few have demonstrated their willingness to enter into PPAs to buy uncompetitively high-priced RPS-eligible energy from facilities sited within their service territories. This choice is consistent with the high priority placed by these entities on supporting local economic development. PG&E's list of facilities that will produce the volumes is largely made up of projects sited outside any existing CCAs' and POU's territories, which simply reflects the geography of solar, wind, and other renewable resources.
- Some CCAs seem to prefer to procure new RPS-eligible energy through their own RFOs rather than responding to PG&E's solicitations. It lets them design specific contract terms, which differ in details from what PG&E's form agreement provides.
- There is some uncertainty about the outcome of the CPUC's rulemaking on the Power Charge Indifference Adjustment (PCIA) which could involve LSEs voluntarily participating in IOUs' sales of RPS-eligible energy through long-term contracts. Regulatory uncertainty could have influenced some LSEs to await further clarity before committing to an RPS energy procurement strategy involving short-term purchases at this point in time.
- At least one potential bidder appears to have chosen not to bid because it preferred a non-conforming bid and a contract with significant modifications. [REDACTED]



The response to the solicitation was robust. Arroyo speculates that some CCAs and POUs still need to fulfill their procurement targets for the remainder of 2020. Some CCAs are still adding new cities to their service territories and may be planning to fulfill their increasing compliance obligations through the IOUs' current round of sales solicitations.

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#### **E. PARTICIPANTS' FEEDBACK ABOUT THE PROCESS**

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

PG&E circulated a survey to participants and non-participants following its early 2019 solicitation that closely resembled the current request for proposals; observations from the feedback to that prior survey included:

- Some non-participants stated that they did not submit bids because of the bid submission deadline or the form contract's terms and conditions; others apparently did not have a compliance need for RECs or did not understand the nature of the solicitation.
- All respondents that participated in the solicitation agreed that PG&E's instructions for submitting bids were clear.
- More than 80% of respondents agreed that PG&E clearly identified the evaluation criteria for the solicitation.
- Most participants found the on-line platform for bid submission easy to use; at least one found it confusing and not intuitive.
- Qualitative feedback included:
  - A preference for PG&E to allow bid curves, e.g. tiered bids, which were prohibited in this solicitation<sup>6</sup>;
  - A desire for PG&E to be open to bilaterally negotiated contracts for REC sales rather than a competitive solicitation; and
  - A preference for a one-page attachment to the market notice summarizing the bid opportunity and next steps

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<sup>6</sup>

<sup>7</sup>

## 4. FAIRNESS OF PG&E'S EVALUATION METHODOLOGY

This section describes PG&E's methodology for evaluating bids and selecting proposals in this solicitation and assesses its fairness to ratepayers and participants.

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

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The Energy Division of the CPUC has suggested a set of principles for evaluating the process used by IOUs for selecting proposals 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 bids. These criteria should be applied consistently to all bids.
- The LCBF methodology should evaluate proposals in a technology-neutral manner.
- The LCBF methodology should allow for consistent evaluation and comparison of proposals of different sizes, in-service dates, and contract length.

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

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

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### B. PG&E'S METHODOLOGY

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

Quantitative criterion. In this sale solicitation, PG&E sought to maximize the revenue from bids received; this is consistent with PG&E's approved 2018 RPS procurement plan. This criterion differs from some of PG&E's prior Bundled RPS Energy Sales solicitations, in which the sole quantitative criterion was price. These two criteria would generally be

expected to lead to identical or similar selection results, however there are hypothetical bidding situations in which selections would differ between the two different criteria.

Similarly, applying PG&E's CPUC-approved least-cost/best-fit Portfolio-Adjusted Value (PAV) methodology could lead to a selection that differs from one based on maximum revenue. This is because the PAV methodology ranks based on an intrinsic variable, just as price is an intrinsic variable, rather than on an extrinsic variable such as revenue. The difference between using price and using total revenue as criterion is subtle, so Arroyo doubts that using total revenue would frequently result in bid selections that differ from those that would be made using the LCBF methodology. In any case, the criterion of maximum total revenue was stated clearly within PG&E's 2018 RPS procurement plan that received CPUC approval in Decision 19-02-007, whether it is inconsistent with the utility's previously approved LCBF methodology or not.

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

Agreement Modifications. PG&E stated its intent to evaluate the materiality and cost of any modifications that a participant proposes to alter PG&E's pro forma contract. The protocol acknowledged that the utility would consider bidders' proposed edits to terms involving price, quantity, and credit terms.

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

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

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

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

Consistency with RPS Procurement Plan. In PG&E's 2018 RPS procurement plan, accepted with modifications in CPUC Decision 19-02-007, the utility sought and received approval for a framework "to assess whether to hold or sell excess RPS volumes". PG&E views the volumes to be sold in the contract to be surplus to its compliance needs. The current solicitation was anticipated within the 2018 plan, that stated that PG&E intended to

issue a minimum of two short-term sales solicitations in 2019. In Decision 19-02-007 the CPUC found PG&E's proposed sales framework, after modifications that it required, to be reasonable and authorized the utility to conduct solicitations to sell excess RPS volumes for sales agreements of five years or less. Such contracts are allowed if they use the pro forma sales agreement included in PG&E's 2018 RPS procurement plan and are executed "prior to the adoption of a subsequent RPS plan". In other words, the authority for PG&E to make short-term sales using the specific framework of the approved 2018 plan was limited to contracts signed before PG&E's 2019 RPS procurement plan was adopted by the CPUC.

The solicitation protocol and design of the December 2019 solicitation were drafted, finalized, and circulated before the CPUC issued its Decision 19-12-042 approving (with modifications) PG&E's draft 2019 RPS procurement plan. That Decision provided authority for any short-term RPS energy sales agreements executed "after the Commission's adoption of this decision". The Decision was issued on December 30, 2019. PG&E filed the final version of its 2019 RPS procurement plan on January 29, 2020, stating that the utility will deem that final plan to be accepted by the CPUC if the filing is not suspended by the Energy Division by February 8. The SVCE sales contract was signed on February 7, before PG&E considered its final plan to be accepted. On that basis PG&E considers that the solicitation was fully consistent with the 2018 procurement plan and that it is the 2018 RPS plan that is applicable to a sales contract executed on or before February 8, 2020.

PG&E's 2018 and 2019 RPS procurement plans differed in specific respects including the quantitative evaluation criterion to be used to evaluate and select bids. Arroyo believes that use of either the 2018 or 2019 plan would have resulted in exactly the same selection of bids. In Arroyo's opinion the process for evaluation and selection of bids for short-term sales was consistent with PG&E's CPUC-approved sales framework as laid out in confidential Appendix G of the 2018 RPS procurement plan.

The version of the pro forma confirmation agreement issued with the solicitation protocol and used in the SVCE contract was slightly inconsistent with the versions submitted in PG&E's 2018 and 2019 RPS plans; it contained an additional sentence in the section on payment date. Arroyo views this as a conscious update that serves to improve ratepayer protections, rather than any real source of concern about consistency.

Market Valuation. PG&E did not calculate Portfolio-Adjusted Values for the bids for these renewable energy volumes. Directly using the PAV metric would have been consistent with its past practice in renewable energy procurement and with the 2019 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.

The generation resources from which sales volumes will be sourced will be selected during the delivery periods by PG&E from lists of projects identified in an appendix to the contract. Specific generators that actually produce the delivered RPS-eligible energy will not be chosen far in advance of delivery. As the valuation method directly followed PG&E's framework detailed in its Appendix G of the 2018 RPS procurement plan, bid rankings were calculated in a manner consistent with the protocol and with CPUC Decision 12-02-007. PG&E did not include any costs or benefits that should not have been included.



[REDACTED]

[REDACTED]

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

In this solicitation, PG&E made it clear to participants that it strongly preferred standard agreements rather than accommodating requested contract modifications, both in the written solicitation and in other party-to-party dialogues.

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

This section provides a narrative of how PG&E administered its evaluation and selection process to choose bids for contracting in its December 2019 Bundled RPS Energy Sale solicitation. Arroyo's opinion is that the bid evaluation process was fairly administered.

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### A. GUIDELINES TO DETERMINE FAIRNESS OF EVALUATION PROCESS

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

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

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

- Were any decisions to reject higher-value proposals because of preferences other than market valuation applied consistently across all proposals? Were selections of lower-value proposals in preference to higher-valued ones based on their superior attributes in non-valuation criteria made consistently, or were high-value proposals skipped over unfairly?
- If PG&E chose to contract for a different volume or pricing of sales than strictly based on the approved framework, was the decision made fairly in how it affected bidders, and based on factors stated in Appendix F of the 2019 RPS procurement plan that detailed the framework applicable to 2020 sales agreements?
- Were the judgments used to make a selection based on evaluation criteria and preferences that were publicly disseminated to participants prior to bid submittal?
- Did PG&E disadvantage any class of participants (such as CCAs) in its administration of the selection methodology?

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

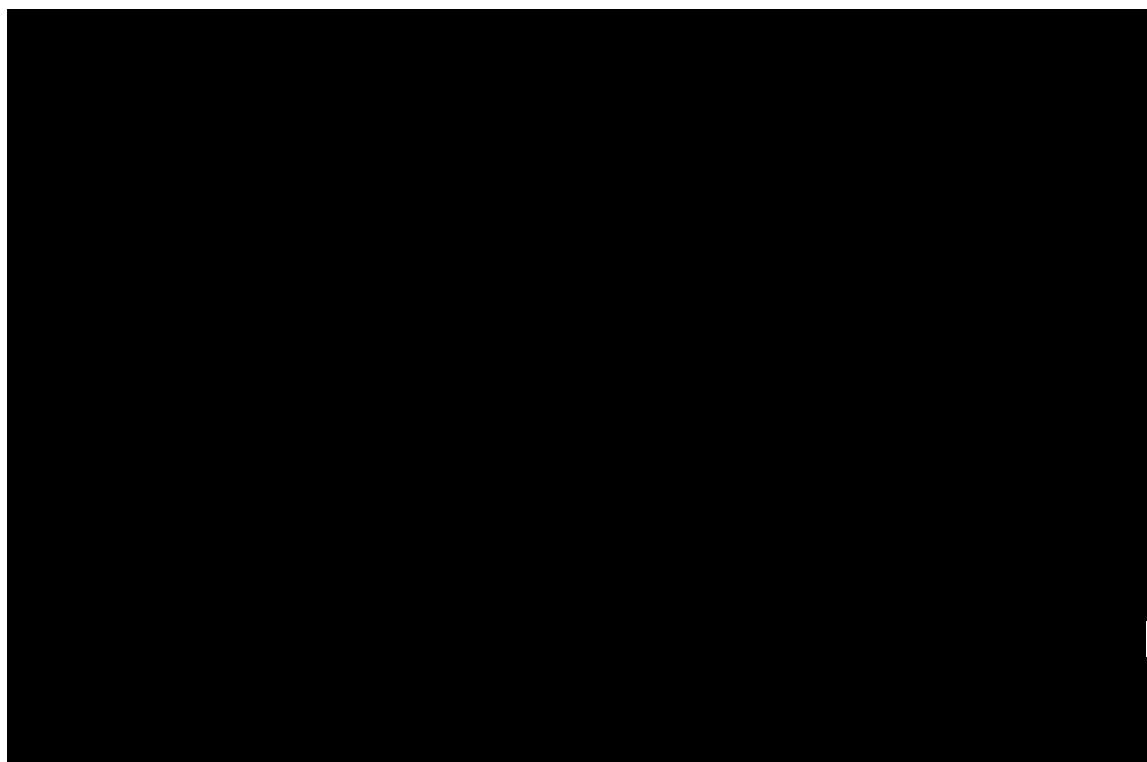
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PG&E used the criterion of maximum total revenue to rank and select bids, rather than price. [REDACTED] passed a review for the qualitative criteria of creditworthiness and modifications. Several bid packages did not initially meet the requirements of the solicitation protocol, having omitted required documents such as documentation of legal status or red-lined mark-ups of PG&E's form confirmation agreement in Microsoft Word format indicating requested modifications. Upon prompting by e-mail on January 14, the participants with incomplete bid packages remedied these omissions.

Market Valuation. Eight bid forms were submitted timely before the deadline, plus one was submitted tardily but still accepted by PG&E. Figure 3 displays the bid supply curve that shows how these initial bid prices compared to the [REDACTED]

[REDACTED]

Figure 3.



[REDACTED] PG&E contacted [REDACTED] on January 17 and notified them that it would not transact a sales contract with them based on their submitted bids. However, it offered each an opportunity to refresh the bid price by a deadline of January 21.

[REDACTED] bidders submitted improved bid prices by the deadline: [REDACTED]

PG&E used the framework specified in confidential Appendix G of its 2018 RPS procurement plan to evaluate these proposals. [REDACTED]

This evaluation was in Arroyo’s opinion consistent with the sales framework laid out in the 2018 plan’s Appendix G using PG&E’s currently assumed input parameters. In the actual event the bid selections were also consistent with PG&E’s 2019 plan’s Appendix F, although the 2019 plan stated a different quantitative evaluation criterion.

Credit.

PG&E's pro forma confirmation agreement, that had been approved by the CPUC and was shared with potential participants, stated a collateral posting requirement of 15% times the volume of as-yet-undelivered RECs times the \$/MWh contract price of RECs. [REDACTED]

[REDACTED]

[REDACTED]

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

[REDACTED]

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### C. RESULTS ANALYSIS

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Arroyo agreed with PG&E's selection of qualified bids. Arroyo agrees that PG&E made reasonable and justifiable decision to qualify bids and to exclude bids, consistent with the CPUC-approved framework outlined in PG&E's 2018 RPS procurement plan. Arroyo believes that the outcome of the selection process was identical to what would have resulted from using the framework approved in PG&E's 2019 RPS procurement plan.

Non-conforming bid packages. With the exception of the one tardy bid and of the bid packages that initially omitted the red-lined confirmation agreement or documentation of legal status, participants submitted packages that conformed to the requirements of the solicitation.

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

- There were no instances in which Arroyo and PG&E disagreed about the utility's handling of the evaluation and selection process.
- PG&E evaluated bids without involving any third party or the Independent Evaluator to conduct any portion of its analysis.
- Arroyo did not observe PG&E treating participants that submitted conforming bids in disparate ways; for example, its evaluation of bids from CCAs did not differ from that of bids from energy service providers and other entities.
- The economic evaluation of bids was fair and consistent.
- Questions from participants were answered fairly and consistently.

- The judgments that served as the basis for selecting bids were based solely on evaluation criteria that were stated publicly in the solicitation protocol.
- The key parameters used in the quantitative evaluation were [REDACTED]  
[REDACTED]
- Because PG&E used maximizing revenue as its sole quantitative evaluation criterion, it did not consider transmission costs or integration adders in selection. Without knowing in advance which specific resources in PG&E's supply portfolio will be used to serve which sales contract, there is no basis for distinguishing between bids using transmission costs or integration adders, and it would be inappropriate to involve such transmission and integration costs in bid evaluation. The key attributes that distinguished bids was the participants' proposed pricing for green attributes and volume, not energy pricing.
- Arroyo believes that PG&E's conduct of the December 2019 solicitation was fully consistent with its approved 2018 RPS procurement plan. While the SVCE contract was executed after the CPUC issued its Decision approving PG&E's 2019 RPS plan, a plan that featured a somewhat different framework from the 2018 plan, the contract was signed before PG&E deemed the final version of the 2019 RPS plan to have been accepted by the CPUC. Arroyo believes that PG&E's selection of bids would have led to the same result regardless of whether the 2018 plan or 2019 plan had been employed.

[REDACTED]

- Arroyo agrees that based on PG&E's 2018 framework for evaluating bids to sell renewable energy, the utility made reasonable and justifiable decisions to select bids for negotiation.

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

## 6. FAIRNESS OF CONTRACT-SPECIFIC NEGOTIATIONS

This chapter provides an independent review of the extent to which PG&E's negotiations with bidders were conducted fairly with respect to competitors. PG&E first notified participants that proposals had been selected or rejected as qualified bids on January 14, 2020. The utility provided an opportunity for all participants whose proposals were not initially selected to update their bid prices; final notifications of selection or rejection were sent on January 23. PG&E began negotiations that week, concluding with execution of the agreement with Silicon Valley Clean Energy Authority on February 7.

Arroyo telephonically observed negotiation sessions between commercial teams of PG&E and individual participants. Arroyo also reviewed marked-up draft contracts to identify specific proposals and counterproposals parties made during discussions. The starting point for negotiations with parties that already had in place EEI master agreements with PG&E was the pro forma EEI short-form confirmation agreement that was posted publicly with solicitation materials.

Arroyo's opinion is that PG&E's negotiations were conducted in a manner that was fair to counterparties and to their competitors. The last chapter of this report describes how the contract that resulted from negotiations also meets the requirements of the approved framework for surplus energy sales and is fair to ratepayers.

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### A. PRINCIPLES FOR EVALUATING THE FAIRNESS OF NEGOTIATIONS

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

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

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

---

**B. NEGOTIATIONS BETWEEN PG&E AND [REDACTED]**

---

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

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**C. NEGOTIATIONS BETWEEN PG&E AND SILICON VALLEY CLEAN ENERGY AUTHORITY**

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Silicon Valley Clean Energy Authority is a joint powers authority and CCA organized by Santa Clara County that began serving retail customers in April 2017. Its service territory includes unincorporated Santa Clara County and most municipalities in the county excluding San Jose (which has its own CCA), Palo Alto, and Santa Clara (which have municipal utilities). PG&E and SVCE previously executed sale transactions resulting from the utility's spring 2018 and early 2019 solicitations. Because the parties had recently negotiated agreed-upon provisions for contracts, the issues discussed for this solicitation were minimal:

[REDACTED]

[REDACTED]

---

<sup>8</sup> [REDACTED]

[REDACTED]

[REDACTED]; the contract was executed on February 7.

---

**D. FAIRNESS OF NEGOTIATIONS**

---

In Arroyo's opinion, negotiations between PG&E and participants in this solicitation were conducted fairly. As signaled in the solicitation protocol, PG&E endeavored to avoid any significant modifications of the confirmation agreements from the pro forma version that was publicly posted upon opening the solicitation, and generally succeeded. Each participant was, in Arroyo's opinion, given an equitable opportunity to advance its proposals towards execution, under the constraint of adhering closely to the pro forma contract. The distribution of risk between buyer and seller is the same in SVCE's contract as in prior sales agreements that PG&E has negotiated with similar counterparties. Arroyo did not observe PG&E providing any individual participant with any non-public information that materially advantaged a buyer against ratepayers or competitors.

Credit requirements. [REDACTED]

Arroyo's opinion is that the treatment of the buyer [REDACTED] was based on [REDACTED], and on the [REDACTED], rather than on any unfairly favorable treatment of familiar counterparties or discrimination against any class of counterparty. [REDACTED]

Modifications. [REDACTED]

Failed negotiation. Although PG&E selected [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

CCA Code of Conduct. The CPUC adopted a code of conduct for IOUs' interactions with CCAs in Decision 12-02-009. Most of the elements of the code govern IOU marketing

and lobbying activities, but rule 20 (which restates ordering paragraph 5 from Resolution E-4250) applies to PG&E's conduct of its efforts to make renewable energy sales:

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

In Arroyo's opinion, PG&E did not refuse to make economic sales of surplus RPS-eligible energy to any CCAs involved in this solicitation, nor did it refuse in advance to deal with any CCAs. It performed outreach to numerous CCAs in an effort to obtain their participation. [REDACTED]

[REDACTED] Therefore, Arroyo's opinion is that PG&E complied with the requirements of the CCA code of conduct in how it handled its solicitation.

Summary. Arroyo's opinion is that PG&E's contract-specific negotiations with participants were handled fairly with respect to competitors. Bids were accepted or rejected entirely based upon PG&E's approved 2018 framework for short-term RPS energy sales and on evaluation criteria stated in the public protocol. No individual counterparty was materially disadvantaged by more favorable treatment of its competitors. Arroyo believes that PG&E's negotiations were consistent with the requirements of the CCA Code of Conduct. Further discussion of the fairness to PG&E's ratepayers of the outcome of these negotiations is provided in the next chapter.

## 7. MERIT FOR CPUC APPROVAL

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

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### A. FAIRNESS OF SOLICITATION

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PG&E solicited bids in order to sell RPS-eligible energy for delivery in calendar 2020. It provided public solicitation materials that clearly stated the evaluation criteria; in the actual administration of the evaluation and selection process it adhered to the use of those stated criteria and adhered to its protocol and to its previously approved 2018 renewable energy procurement plan.

The utility did not use its approved least-cost, best fit methodology of Portfolio-Adjusted Value as the metric for evaluation; the evaluation criterion of maximizing revenue is slightly inconsistent with the approved LCBF methodology. However, the methodology used for evaluating and selecting bids was fully consistent with the framework laid out in confidential Appendix G of PG&E's 2018 procurement plan that was approved by the CPUC. Arroyo believes that had PG&E strictly applied its PAV methodology it would have arrived at the same selection of bids. PG&E's negotiations with participants were handled fairly with respect to competitors and to ratepayers, and PG&E adhered to the evaluation criteria stated in its protocol to select and reject proposals. Arroyo's opinion is that PG&E's handling of the solicitation complied fully with the CPUC's CCA Code of Conduct.

Arroyo believes that PG&E ran a fair solicitation that was consistent with its solicitation protocol and with the 2018 RPS procurement plan approved by CPUC Decision 19-02-007.

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### B. BIDS WITH BEST OVERALL VALUE TO RATEPAYERS

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PG&E selected the best proposals among bid packages received, best in terms of maximizing total solicitation revenue by using the approved sales framework. [REDACTED]

[REDACTED]

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### C. CONSISTENCY WITH PROTOCOL AND PROCUREMENT PLAN

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PG&E's sale of bundled energy in this contract conforms to its 2018 RPS procurement plan, in which the utility states its intent to sell RPS volumes, and more specifically conforms to the detailed framework for excess sales provided within the plan. The CPUC Decision



- The city of Roseville executed a ten-year contract in early 2015 with Powerex to purchase 75 GWh/year of PCC1 energy. The pricing of deliveries escalates with each contract year. The contract pricing for deliveries to Roseville is market index + \$15.30/MWh in 2020.
- In summer 2016, the city of Pasadena approved a four-year contract with Powerex to buy both PCC1 and PCC2 energy in the 2017 – 2020 period. The sale includes a total of 17.5 GWh/year of PCC1 energy priced at market index + \$13.95/MWh.

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

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

In March 2019, the RCEA board approved an amendment to the PPA that increased the pricing of deliveries of surplus energy from DG Fairhaven to market index + \$17/MWh from the 2018 contract's index + \$14.50/MWh. This increase had been requested by DG Fairhaven. The RCEA staff had negotiated the \$17/REC price with the seller "to accommodate market changes."

Arroyo notes that the base contract price for this PPA is far above market price for PCC1 energy, but the CCA counts among its objectives the development of local renewable resources and energy-related economic advancement. The pricing of surplus delivered energy, however, appears to be priced at the CCA's and seller's then-current view of fair market price for PCC1 energy deliveries at the time the contract or its amendment were negotiated. The change implies a view that market price increased between 2018 and 2019.

RCEA's board approved an extension of this PPA in September 2019, again with a price of index + \$17/MWh for surplus deliveries.


- In December 2017, the Southern California Public Power Authority, acting as agent on behalf of the cities of Anaheim, Burbank, and Vernon, entered a 25-year PPA with Desert Harvest II for deliveries of PCC1 energy at a price of market index + \$15.25/MWh. Deliveries will commence upon commercial operation, which was expected to be December 2020.
- In 2018, the city of Santa Clara and 3Degrees Group, Inc. amended an existing contract to accommodate purchases of RECs for delivery to customers of the

municipal through 2021. The RECs are priced at \$15/MWh, to be matched with customer usage. However, this is not necessarily an apples-to-apples comparison with PG&E's bundled RPS energy sale, because 3Degrees is delivering Green-e Energy Certified RECS that may be sourced from solar projects anywhere in the WECC with a "preferred generation location of California."

- In September 2019, the staff of the City of Riverside reported to its city council that it was assuming a 2020 market price of \$20/REC for PCC1 RPS energy for the purposes of analyzing long-term PPAs as an alternative.
- Valley Clean Energy, the CCA for unincorporated Yolo County and the cities of Davis and Woodland, launched its retail offerings in 2018 and has outsourced its energy procurement to Sacramento Municipal Utility District. It has relied on SMUD's wholesale purchases of RPS-eligible energy on its behalf to achieve compliance. In January 2020, it reported that the short-term REC contracts in its portfolio averaged \$13.79/MWh for renewable premiums. This may not be directly comparable to the pricing of the SVCE contract, because VCE reports that its current RPS-eligible energy supply comes mostly from wind generation in the Pacific Northwest, which implies heavy reliance on PCC2 and/or PCC3 RECs, which are lower-priced than PCC1 RECs.
- In July 2019, the City of Santa Clara executed a five-year PPA for RPS energy deliveries starting in September 2019 from the Olcese Water District. The energy is generated by the Rio Bravo hydroelectric plant on the lower Kern River. Deliveries are priced at market index + \$17/MWh.

Other older transactions for PCC1 energy are also publicly visible, but these may be poorer benchmarks for a transaction for 2019 and 2020 deliveries.

Contract deliveries in 2020 from the agreement with SVCE



Arroyo's inference from this mix of data is that the pricing of PG&E's contract with SVCE is likely fair and reasonable. There will always be some uncertainty about such



judgments when dealing with a market that is illiquid and opaque, as the California market for PCC1 energy is.

Portfolio fit. The RECs intended for use in the sales contract are expected to be surplus to PG&E's compliance needs. Arroyo believes that it is advantageous to ratepayers for PG&E to sell surplus RECs at or above market price rather than to hold them for RPS compliance needs later. PG&E's estimates indicate that its RPS net position in the third compliance period is long, so the sales contract fits with the utility's portfolio strategy of reducing the surplus REC position in 2020 through short-term sales and monetizing part of the surplus for near-term value for ratepayer benefit.

Summary. The sales transaction was consummated at a price that falls [REDACTED]

[REDACTED]  
[REDACTED] and on [REDACTED]

[REDACTED]. The contract is consistent with PG&E's 2018 RPS procurement plan and its framework for sales of surplus RPS-eligible energy, and fits well with PG&E's strategy for RPS portfolio management. Arroyo also believes the outcome of the solicitation in selecting the SVCE bid for execution would have been consistent with using 2019 RPS procurement plan and its newer framework for sales, had they been employed. Arroyo's opinion is that the methodology for evaluating and selecting a short list and the administration of that methodology were fair.

Arroyo believes that PG&E's negotiations with participants were handled fairly with respect to competitors and ratepayers. The allocation of costs and risks between ratepayers and buyers that resulted from negotiations was consistent with PG&E's past practice and did not disadvantage any current participant. Arroyo's opinion is that PG&E's actions in negotiating and transacting or not transacting with CCAs were compliant with the CCA Code of Conduct.

On that basis, Arroyo's opinion is that the contract with Silicon Valley Clean Energy Authority merits CPUC approval.

**PACIFIC GAS AND ELECTRIC COMPANY**

**APPENDIX D**

**SUMMARY OF CONTRACTS**

**(CONFIDENTIAL IN ITS ENTIRETY)**

**PACIFIC GAS AND ELECTRIC COMPANY**

**APPENDIX E1**

**COMPARISON OF PPSA OF SILICON VALLEY CLEAN ENERGY**

**AUTHORITY WITH PG&E'S 2018 PRO FORMA RPS**

**SHORT-TERM SALES CONFIRMATION**

**(CONFIDENTIAL IN ITS ENTIRETY)**

**PACIFIC GAS AND ELECTRIC COMPANY**  
**APPENDIX F1**  
**POWER PURCHASE AND SALE AGREEMENT WITH SILICON**  
**VALLEY CLEAN ENERGY AUTHORITY**  
  
**(CONFIDENTIAL IN ITS ENTIRETY)**

**PACIFIC GAS AND ELECTRIC COMPANY**

**APPENDIX G**

**PG&E 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 2,600 contacts. A sample of the electronic market notice of the December 2019 Renewable Energy Sale Solicitation issuance is provided below.

[View this email in your browser](#)

Market Participants,

Pacific Gas & Electric (PG&E) is pleased to announce the issuance of its December 2019 Bundled RPS Energy Sale (Short-Term REC Sales) Solicitation for sales of bundled Renewable Portfolio Standard (RPS) - eligible energy and corresponding Renewable Energy Credits (RECs) generated in 2020 pursuant to a confirmation. To be considered in this solicitation, all bids are due no later than 1:00 PM Pacific Prevailing Time (PPT) on January 14, 2020.

For parties interested in finding out more information on the REC Solicitation, all solicitation materials are available on PG&E's website at: [www.pge.com/rfo](http://www.pge.com/rfo) under "December 2019 Bundled RPS Energy Sale Solicitation."

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

For additional information on this Solicitation, PG&E will be hosting a Participants' Webinar. Details of the Participants' Webinar are as follows:

- Date: Thursday, December 19, 2019
- Time: 10:00 - 11:00 AM (PPT)

- Webcast Info: Please note that for optimal viewing, it is best not to use VPN, but instead to connect directly to the internet. Please disable your pop-up blockers in order to view the content in its entirety. This event is being streamed. It is recommended that you listen via your computer speakers.
  - Webinar: <https://engage.vevent.com/rt/pge~12192019>
  - Additional options for audio listening: Toll-Free Attendee Dial In: 866-294-4341 / Conference ID: 4651619

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

Regards,  
PG&E

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Pacific Gas & Electric Company

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San Francisco, CA 94105

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**PACIFIC GAS AND ELECTRIC COMPANY**  
**APPENDIX H**  
**PG&E SOLICITATION BID FORM**





REMINDER: Be sure that macros are enabled!

0% Complete

0 of 36 input requirements satisfied

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

| Product & Bid Information |   |
|---------------------------|---|
| Product:                  | Bundled RPS-eligible energy and associated RECs |
| Delivery Location:        | NP15, SP15, and/or ZP26                         |
| Payment Index:            | Trading Hub Price                               |

| Delivery Term: 2020               |  |
|-----------------------------------|--|
| Annual Delivery Quantity (MWh):   |  |
| Premium to Payment Index (\$/MWh) |  |

| Participant's Non-Disclosure Agreement (NDA)   |  |
|--|--|
| By submitting an offer, Participant agrees to adhere and be bound by the confidentiality provisions described in the December 2019 Bundled RPS Energy Sale Solicitation (Short-term REC Sales) Protocol and the Confidentiality Agreement included as Attachment C to the Solicitation Protocol. |  |
| Title:   |  |
| Electronic Signature:  |  |
| Select "Yes" to certify that the typed name acts as your electronic signature.   |  |

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

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

| Attestation   |  |
|---|--|
| By providing the electronic signature below Participant hereby attests that all information provided in this Bid Package and in response to this 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.  |  |

A File Name Must Be Generated

This offer form will not be accepted if the steps outlined below have not been followed!

A new File Name must be generated via the steps below for each offer form submitted. If submitting multiple offer forms, please repeat these steps for each offer form submitted.

These steps will create a unique, correctly formatted name that must be given to this offer form file before it is submitted. If you are submitting multiple offer forms and you employing "Save As" on a form you previously populated to create a new offer it is essential that a new/different file name be generated for each additional offer form you create.

When you are ready to submit this form...

1) Click this button ►

2) Copy this text ▼ via the button at right and use it AS IS as the name of the file you submit.

3) Once you have named this offer form via the steps above and submitted this form to PG&E keep it unchanged in a secure location where you can refer to it should PG&E have questions. If a PG&E representative contacts you regarding this offer form they will reference the file name.

These instructions must be exercised just prior to actual submission of the form. The file name composed above must be created after you have finalized the rest of the form.

**PACIFIC GAS AND ELECTRIC COMPANY**  
**APPENDIX I2**  
**PG&E'S RENEWABLE NET SHORT CALCULATION**

**(REDACTED)**

| Table 1: Renewable Net Short Calculation as of May 2019  |   |  |   |  |              |              |              |           |              |              |              |           |              |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
|--|---|--|---|--|--------------|--------------|--------------|-----------|--------------|--------------|--------------|-----------|--------------|-------------|---------------|---------------|-----------|---------------|---------------|---------------|---------------|-------------|---------------|---------------|---------------|-------------|---------------|---------------|---------------|-------------|---------------|---------------|---------------|-------------|---------------|---------------|---------------|------------|----------|----------|----------|
| Net Short Calculation Using PG&E Bundled Retail Sales Forecast In Near Term (2019 - 2023) and LTTP Methodology (2024 - 2036) |   |  |   |  |              |              |              |           |              |              |              |           |              |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| Variable   | Calculation in Energy Division RNS Calculation Template | Revised Calculation Correcting Apparent Errors in Energy Division Template | Item  | Deficit from RPS prior to Reporting Year | 2011 Actuals | 2012 Actuals | 2013 Actuals | 2011-2013 | 2014 Actuals | 2015 Actuals | 2016 Actuals | 2014-2016 | 2017 Actuals | 2018 Actual | 2019 Forecast | 2020 Forecast | 2017-2020 | 2021 Forecast | 2022 Forecast | 2023 Forecast | 2024 Forecast | 2021 - 2024 | 2025 Forecast | 2026 Forecast | 2027 Forecast | 2025 - 2027 | 2028 Forecast | 2029 Forecast | 2030 Forecast | 2028 - 2030 | 2031 Forecast | 2032 Forecast | 2033 Forecast | 2031 - 2033 | 2034 Forecast | 2035 Forecast | 2036 Forecast | 2034- 2036 |          |          |          |
|  |   |  | Forecast Year   |  | -            | -            | -            | CPI       | -            | -            | -            | CP2       | -            | -           | -             | -             | CP3       | -             | -             | -             | -             | CP4         | -             | -             | -             | CP5         | -             | -             | -             | CP6         | -             | -             | -             | CP7         | -             | -             | -             | CP8        |          |          |          |
| Annual RPS Requirement   |   |  |   |  |              |              |              |           |              |              |              |           |              |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| A  |   |  | Bundled Retail Sales Forecast (LTTP) <sup>1</sup>                     |  | 74,864       | 76,205       | 75,705       | 226,774   | 74,547       | 72,113       | 68,441       | 215,101   | 61,397       |             | 36,215        |               |           |               |               | 32,566        | 31,138        | 32,026      |               |               |               | 31,938      | 32,056        | 32,162        | 96,156        | 32,357      | 32,730        | 33,126        | 98,213        | 33,666      | 34,277        | 34,954        | 102,898       | 35,713     | 36,572   | 37,506   | 109,792  |
| B  |   |  | RPS Procurement Quantity Requirement (%)                              |  | 20.0%        | 20.0%        | 20.0%        | 20.0%     | 21.7%        | 23.3%        | 25.0%        | 23.3%     | 27.0%        | 29.0%       | 31.0%         | 33.0%         | 30.0%     | 35.8%         |               |               | 38.5%         | 41.3%       | 44.0%         | 39.9%         |               |             | 46.7%         | 50.0%         | 52.0%         | 49.6%       | 54.7%         | 57.3%         | 60.0%         | 57.3%       | 60.0%         | 60.0%         | 60.0%         | 60.0%      | 60.0%    | 60.0%    |          |
| C  | A*B   |  | Gross RPS Procurement Quantity Requirement (GWh)                      |  | 14,973       | 15,241       | 15,141       | 45,355    | 16,177       | 16,802       | 17,110       | 50,089    | 16,577       |             | 11,227        |               |           |               |               | 12,538        | 12,845        | 14,091      |               |               |               | 14,904      | 16,028        | 16,724        | 47,657        | 17,688      | 18,765        | 19,876        | 56,329        | 20,200      | 20,566        | 20,973        | 61,739        | 21,428     | 21,943   | 22,504   | 65,875   |
| D  |   |  | Voluntary Margin of Over-procurement <sup>2</sup>                     |  | -            | -            | -            | -         | -            | -            | -            | -         | -            | -           | -             | -             | -         | -             | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -          | -        |          |          |
| E  | C+D   |  | Net RPS Procurement Need (GWh)  |  | 14,973       | 15,241       | 15,141       | 45,355    | 16,177       | 16,802       | 17,110       | 50,089    | 16,577       |             | 11,227        |               |           |               |               | 12,538        | 12,845        | 14,091      |               |               |               | 14,904      | 16,028        | 16,724        | 47,657        | 17,688      | 18,765        | 19,876        | 56,329        | 20,200      | 20,566        | 20,973        | 61,739        | 21,428     | 21,943   | 22,504   | 65,875   |
| RPS-Eligible Procurement   |   |  |   |  |              |              |              |           |              |              |              |           |              |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| Fa   |   |  | Risk-Adjusted RECs from Online Generation <sup>3</sup>                |  | 14,699       | 14,513       | 17,212       | 46,424    | 20,207       | 21,285       | 22,551       | 64,042    | 22,345       | 20,453      | 20,455        | 20,367        | 83,621    | 20,108        | 17,650        | 16,809        | 16,570        | 71,097      | 16,365        | 15,834        | 15,550        | 47,748      | 15,505        | 14,924        | 14,852        | 45,281      | 14,154        | 13,613        | 12,386        | 40,154      | 11,104        | 10,104        | 9,688         | 30,896     |          |          |          |
| 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 <sup>4</sup>    |  | -            | -            | -            | -         | -            | -            | 0            | -         | -            | -           | 38            | 172           | 209       | 562           | 573           | 573           | 572           | 2,280       | 569           | 567           | 564           | 1,700       | 563           | 560           | 358           | 1,681       | 556           | 555           | 551           | 1,662       | 542           | 474           | 150           | 1,166      |          |          |          |
| 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   |  | -            | -            | -            | -         | -            | -            | -            | -         | -            | -           | 149           | 149           | 217       | 405           | 1,038         | 1,213         | 2,872         | 1,197       | 1,305         | 1,343         | 3,846         | 982         | 979           | 978           | 2,938         | 977         | 978           | 975           | 2,929         | 974         | 973           | 974           | 2,920         |            |          |          |          |
| Fd   |   |  | Executed REC Sales  |  | -            | -            | (142)        | (142)     | (50)         | -            | (60)         | (110)     | (2,069)      | (1,451)     | (10,000)      | (7,952)       | (21,472)  | (916)         | (617)         | (617)         | (618)         | (2,768)     | (408)         | (442)         | (794)         | (1,304)     | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -          | -        |          |          |
| F  | Fa + Fb +Fc - Fd  | Fa + Fb +Fc + Fd   | Total RPS Eligible Procurement (GWh) <sup>5</sup>                     |  | 14,699       | 14,513       | 17,069       | 46,281    | 20,157       | 21,285       | 22,491       | 63,932    | 20,276       | 19,002      | 10,493        | 12,736        | 62,507    | 19,971        | 18,011        | 17,803        | 17,697        | 73,481      | 17,663        | 17,263        | 17,063        | 51,889      | 17,050        | 16,463        | 16,387        | 49,900      | 15,687        | 15,146        | 13,912        | 44,745      | 12,619        | 11,551        | 10,812        | 34,982     |          |          |          |
| F0   |   |  | Category 0 RECs   |  | 14,651       | 13,049       | 14,163       | 41,863    | 16,899       | 17,408       | 17,914       | 52,222    | 14,804       | 13,461      | 9,406         | 12,350        | 50,021    | 13,290        | 11,227        | 10,932        | 10,704        | 46,153      | 10,579        | 10,070        | 9,813         | 30,462      | 9,778         | 9,245         | 9,198         | 28,221      | 8,588         | 8,490         | 7,854         | 24,902      | 7,219         | 6,768         | 6,756         | 20,743     |          |          |          |
| F1   |   |  | Category 1 RECs   |  | 48           | 1,464        | 2,906        | 4,418     | 3,257        | 3,876        | 4,577        | 11,710    | 5,471        | 5,542       | 4,564         | 5,027         | 20,604    | 7,512         | 7,566         | 7,257         | 7,378         | 29,713      | 7,466         | 7,574         | 7,628         | 22,669      | 7,649         | 7,593         | 7,562         | 22,805      | 7,470         | 7,036         | 6,425         | 20,921      | 5,400         | 4,783         | 4,056         | 14,239     |          |          |          |
| F2   |   |  | Category 2 RECs   |  | -            | -            | -            | -         | -            | -            | -            | -         | -            | -           | -             | -             | -         | -             | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -          |          |          |          |
| F3   |   |  | Category 3 RECs   |  | -            | -            | -            | -         | -            | -            | -            | -         | -            | -           | -             | -             | -         | -             | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -          |          |          |          |
| Gross RPS Position (Physical Net Short)  |   |  |   |  |              |              |              |           |              |              |              |           |              |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| Ga   | F-E   |  | Annual Gross RPS Position (GWh)                                       |  | (274)        | (728)        | 1,928        | 926       | 3,980        | 4,482        | 5,381        | 13,843    | 3,699        |             | (714)         |               |           |               |               | 5,471         | 4,958         | 3,605       |               |               |               | 5,471       | 4,958         | 3,399         | 4,333         | (638)       | (2,302)       | (1,488)       | (6,429)       | (4,513)     | (5,421)       | (7,968)       | (16,994)      | (8,809)    | (10,392) | (11,692) | (30,897) |
| Gb   | F/A   |  | Annual Gross RPS Position (%)   |  | 19.6%        | 19.0%        | 22.5%        | 20.4%     | 27.0%        | 29.5%        | 32.9%        | 29.7%     | 33.0%        |             | 29.0%         |               |           |               |               | 55.3%         | 57.2%         | 55.3%       |               |               |               | 55.3%       | 53.9%         | 53.1%         | 54.1%         | 52.7%       | 50.3%         | 49.5%         | 50.8%         | 46.6%       | 44.2%         | 39.8%         | 43.5%         | 35.3%      | 31.6%    | 28.8%    | 31.9%    |
| Application of Bank  |   |  |   |  |              |              |              |           |              |              |              |           |              |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| Ha   | H - Hc (from previous year)                             | J - Jc (from previous year)  | Existing Banked RECs above the PQR <sup>6</sup>                       |  | -            | (274)        | (1,033)      | -         | 861          | 4,835        | 9,274        | 861       | 14,630       | 18,200      |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| Hb   |   |  | RECs above the PQR added to Bank                                      |  | (274)        | (728)        | 1,928        | 926       | 3,980        | 4,482        | 5,381        | 13,843    | 3,699        |             | -             |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| Hc   |   |  | Non-bankable RECs above the PQR <sup>6</sup>                          |  | -            | 31           | 34           | 65        | 26           | 23           | 25           | 74        | 129          | 2           | -             | -             | 132       | -             | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -          |          |          |          |
| H  | Ha+Hb   |  | Gross Balance of RECs above the PQR                                   |  | (274)        | (1,002)      | 895          | 926       | 4,841        | 9,297        | 14,655       | 14,704    | 18,329       |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| Ia   |   |  | Planned Application of RECs above the PQR towards RPS Compliance      |  | -            | -            | -            | -         | -            | -            | -            | -         | -            |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| Ib   |   |  | Planned Sales of RECs above the PQR <sup>8</sup>                      |  | -            | -            | -            | -         | -            | -            | -            | -         | -            | -           | -             | -             | (5,903)   | (5,300)       | (4,800)       | (4,400)       | (16,593)      | (3,900)     | (2,400)       | (1,700)       | (8,200)       | (700)       | -             | -             | -             | (700)       | -             | -             | -             | -           | -             | -             | -             | -          |          |          |          |
| J  | H-Ia-Ib   | H-Ia+Ib  | Net Balance of RECs above the PQR <sup>6</sup>                        |  | (274)        | (1,002)      | 895          | 926       | 4,841        | 9,297        | 14,655       | 14,704    | 18,329       |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| J0   |   |  | Category 0 RECs   |  | -            | -            | -            | -         | 657          | 1,237        | 2,019        | 2,067     | 2,067        |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| J1   |   |  | Category 1 RECs   |  | -            | -            | 895          | 926       | 4,184        | 8,060        | 12,636       | 12,636    | 16,261       |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| J2   |   |  | Category 2 RECs   |  | -            | -            | -            | -         | -            | -            | -            | -         | -            |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| Expiring Contracts   |   |  |   |  |              |              |              |           |              |              |              |           |              |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| K  |   |  | RECs from Expiring RPS Contracts <sup>9</sup>                         |  | N/A          | N/A          | N/A          | N/A       | N/A          | N/A          | N/A          | N/A       | N/A          | N/A         | 432           | 746           | 1,178     | 1,046         | 3,460         | 4,360         | 4,437         | 13,104      | 4,500         | 4,981         | 5,192         | 14,674      | 5,245         | 5,722         | 5,747         | 16,714      | 6,066         | 6,609         | 7,868         | 20,543      | 9,647         | 10,760        | 11,745        | 32,152     |          |          |          |
| Net RPS Position (Optimized Net Short)   |   |  |   |  |              |              |              |           |              |              |              |           |              |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| La   | Ga + Ia - Ib - Hc                                       | Ga + Ia + Ib   | Annual Net RPS Position after Bank Optimization (GWh) <sup>10</sup>   |  | (274)        | (728)        | 1,928        | 926       | 3,980        | 4,482        | 5,381        | 13,843    | 3,699        |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |
| Lb   | (F + Ia - Ib - Hc)/A                                    | (C + Ia) / A   | Annual Net RPS Position after Bank Optimization (%) <sup>10, 11</sup> |  | 19.6%        | 19.0%        | 22.5%        | 20.4%     | 27.0%        | 29.5%        | 32.9%        | 29.7%     | 33.0%        |             |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |            |          |          |          |

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

(1) (Row A) Forecasts of retail sales through 2023 are reflective of PG&E's internal bundled retail sales forecast less interdepartmental (metered usage at PG&E-owned facilities) and GTSR sales.

Forecasts post-2023 use the 2017-2018 BRP Cycle forecast (successor to LTTP preceeding planning process).

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

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

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

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

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

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

(8) (Row Hd) Since PG&E elected to comply early in the 2017-2020 period with the banking rules established in D.17-06-026, PG&E has modeled the new banking rules for the current and future compliance periods.

(9) (Row Ib) The annual RPS sales volume forecast assumption is based on RPS sales executed in 2018 as well as the RPS sales framework proposed in PG&E's 2019 RPS Plan, and is included for RPS position planning purposes. Row Ib is reduced by executed REC sales volumes included on Row Fd.

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

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

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

**PACIFIC GAS AND ELECTRIC COMPANY**

**APPENDIX J2**

**PG&E'S ALTERNATIVE RENEWABLE NET SHORT CALCULATION**

**(REDACTED)**

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

| Variable                                       | Calculation in Energy Division RNS Calculation Template | Revised Calculation Correcting Apparent Errors in Energy Division Template | Item   | 2011 Actuals | 2012 Actuals | 2013 Actuals | 2011-2013 | 2014 Actuals | 2015 Actuals | 2016 Actuals | 2014-2016 | 2017 Actuals | 2018 Actuals | 2019 Forecast | 2020 Forecast | 2017-2020 | 2021 Forecast | 2022 Forecast | 2023 Forecast | 2024 Forecast | 2021 - 2024 | 2025 Forecast | 2026 Forecast | 2027 Forecast | 2025 - 2027 | 2028 Forecast | 2029 Forecast | 2030 Forecast | 2028 - 2030 | 2031 Forecast | 2032 Forecast | 2033 Forecast | 2031 - 2033 | 2034 Forecast | 2035 Forecast | 2036 Forecast | 2034 - 2036 |          |  |
|--|---|--|--|--------------|--------------|--------------|-----------|--------------|--------------|--------------|-----------|--------------|--------------|---------------|---------------|-----------|---------------|---------------|---------------|---------------|-------------|---------------|---------------|---------------|-------------|---------------|---------------|---------------|-------------|---------------|---------------|---------------|-------------|---------------|---------------|---------------|-------------|----------|--|
|  |   |  | Forecast Year  | -            | -            | -            | CPI       | -            | -            | -            | CP2       | -            | -            | -             | -             | CP3       | -             | -             | -             | -             | CP4         | -             | -             | -             | CP5         | -             | -             | -             | CP6         | -             | -             | -             | CP7         | -             | -             | -             | CP8         |          |  |
| Annual RPS Requirement                         |   |  |  |              |              |              |           |              |              |              |           |              |              |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |          |  |
| A  |   |  | Bundled Retail Sales Forecast (Alternate) <sup>1</sup>             | 74,864       | 76,205       | 75,705       | 226,774   | 74,547       | 72,113       | 68,441       | 215,101   | 61,397       | 48,832       |               | 33,902        |           |               |               |               | 31,138        | 29,785      | 127,234       | 29,319        | 29,192        | 29,344      | 87,855        | 29,715        | 30,184        | 30,796      | 90,696        | 31,455        | 32,231        | 33,234      | 96,921        | 34,164        | 35,233        | 36,371      | 105,768  |  |
| B  |   |  | RPS Procurement Quantity Requirement (%) <sup>2</sup>              | 20.0%        | 20.0%        | 20.0%        | 20.0%     | 21.7%        | 23.3%        | 25.0%        | 23.3%     | 27.0%        | 29.0%        | 31.0%         | 33.0%         | 30.0%     | 35.8%         | 38.5%         |               | 41.3%         | 44.0%       | 39.9%         | 46.7%         | 50.0%         | 52.0%       | 49.6%         | 54.7%         | 57.3%         | 60.0%       | 57.3%         | 60.0%         | 60.0%         | 60.0%       | 60.0%         | 60.0%         | 60.0%         | 60.0%       |          |  |
| C  | A*B   |  | Gross RPS Procurement Quantity Requirement (GWh)                   | 14,973       | 15,241       | 15,141       | 45,355    | 16,177       | 16,802       | 17,110       | 50,089    | 16,577       | 14,161       |               | 11,188        |           |               |               |               | 12,845        | 13,105      | 50,551        | 13,682        | 14,596        | 15,259      | 43,537        | 16,244        | 17,305        | 18,478      | 52,028        | 18,873        | 19,339        | 19,941      | 58,152        | 20,498        | 21,140        | 21,823      | 63,461   |  |
| D  |   |  | Voluntary Margin of Over-procurement <sup>3</sup>                  | -            | -            | -            | -         | -            | -            | -            | -         | -            | -            | -             | -             | -         | -             | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             |             |          |  |
| E  | C+D   |  | Net RPS Procurement Need (GWh)                                     | 14,973       | 15,241       | 15,141       | 45,355    | 16,177       | 16,802       | 17,110       | 50,089    | 16,577       | 14,161       |               | 11,188        |           |               |               |               | 12,845        | 13,105      | 50,551        | 13,682        | 14,596        | 15,259      | 43,537        | 16,244        | 17,305        | 18,478      | 52,028        | 18,873        | 19,339        | 19,941      | 58,152        | 20,498        | 21,140        | 21,823      | 63,461   |  |
| RPS-Eligible Procurement                       |   |  |  |              |              |              |           |              |              |              |           |              |              |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |          |  |
| Fa   |   |  | Risk-Adjusted RECs from Online Generation <sup>4</sup>             | 14,699       | 14,513       | 17,212       | 46,424    | 20,207       | 21,285       | 22,551       | 64,042    | 22,345       | 20,453       | 20,455        | 20,367        | 83,621    | 20,108        | 17,650        | 16,809        | 16,530        | 71,097      | 16,365        | 15,834        | 15,550        | 47,748      | 15,505        | 14,924        | 14,852        | 45,281      | 14,154        | 13,613        | 12,386        | 40,154      | 11,104        | 10,104        | 9,688         | 30,896      |          |  |
| 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%          |             |          |  |
| Fb   |   |  | Risk-Adjusted RECs from RPS Facilities in Development <sup>5</sup> | -            | -            | -            | -         | -            | -            | -            | -         | -            | -            | 38            | 172           | 209       | 562           | 573           | 573           | 572           | 2,280       | 569           | 567           | 564           | 1,700       | 563           | 560           | 558           | 1,681       | 556           | 555           | 551           | 1,662       | 542           | 474           | 150           | 1,166       |          |  |
| 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%          |             |          |  |
| Fc   |   |  | Pre-Approved Generic RECs  | -            | -            | -            | -         | -            | -            | -            | -         | -            | -            | -             | 149           | 149       | 217           | 405           | 1,038         | 1,213         | 2,872       | 1,197         | 1,305         | 1,343         | 3,846       | 982           | 979           | 978           | 2,938       | 977           | 978           | 975           | 2,929       | 974           | 973           | 974           | 2,920       |          |  |
| Fd   |   |  | Executed REC Sales   | -            | -            | (142)        | (142)     | (50)         | (60)         | (110)        | (2,069)   | (1,451)      | (10,000)     | (7,952)       | (916)         | (617)     | (617)         | (618)         | (2,768)       | (468)         | (442)       | (394)         | (1,304)       | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             |             |          |  |
| F  | Fa + Fb + Fc - Fd                                       |  | Total RPS Eligible Procurement (GWh) <sup>6</sup>                  | 14,699       | 14,513       | 17,069       | 46,281    | 20,157       | 21,285       | 22,491       | 63,932    | 20,276       | 19,002       | 17,236        | 62,507        | 19,971    | 18,011        | 17,803        | 17,697        | 73,481        | 17,663      | 17,263        | 17,063        | 51,989        | 17,050      | 16,463        | 16,387        | 49,900        | 15,687      | 15,146        | 13,912        | 44,745        | 12,619      | 11,551        | 10,812        | 34,982        |             |          |  |
| F0   |   |  | Category 0 RECs  | 14,651       | 13,049       | 14,163       | 41,863    | 16,899       | 17,408       | 17,914       | 52,222    | 14,804       | 13,461       | 9,406         | 12,350        | 50,021    | 13,290        | 11,227        | 10,932        | 10,704        | 46,153      | 10,579        | 10,070        | 9,813         | 30,462      | 9,778         | 9,245         | 9,198         | 28,221      | 8,588         | 8,490         | 7,854         | 24,932      | 7,219         | 6,768         | 6,756         | 20,743      |          |  |
| F1   |   |  | Category 1 RECs  | 48           | 1,464        | 2,906        | 4,418     | 3,257        | 3,876        | 4,577        | 11,710    | 5,471        | 5,542        | 4,564         | 5,027         | 20,604    | 7,512         | 7,566         | 7,257         | 7,378         | 29,713      | 7,466         | 7,574         | 7,628         | 22,669      | 7,649         | 7,593         | 7,562         | 22,805      | 7,470         | 7,026         | 6,425         | 20,921      | 5,400         | 4,783         | 4,056         | 14,239      |          |  |
| F2   |   |  | Category 2 RECs  | -            | -            | -            | -         | -            | -            | -            | -         | -            | -            | -             | -             | -         | -             | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             |             |          |  |
| F3   |   |  | Category 3 RECs  | -            | -            | -            | -         | -            | -            | -            | -         | -            | -            | -             | -             | -         | -             | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             |             |          |  |
| Step 1 Result: Physical Net Short <sup>7</sup> |   |  |  |              |              |              |           |              |              |              |           |              |              |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |          |  |
| Ga   | F-E   |  | Annual Gross RPS Position (GWh)                                    | (274)        | (728)        | 1,928        | 926       | 3,980        | 4,482        | 5,381        | 13,843    | 3,699        | 4,841        |               | 1,548         |           |               |               |               | 4,958         | 4,591       | 22,930        | 3,980         | 2,667         | 1,805       | 8,452         | 806           | (842)         | (2,090)     | (2,127)       | (3,186)       | (4,193)       | (6,028)     | (13,407)      | (7,879)       | (9,588)       | (11,011)    | (28,479) |  |
| Gb   | F/A   |  | Annual Gross RPS Position (%)                                      | 19.6%        | 19.0%        | 22.5%        | 20.4%     | 27.0%        | 29.5%        | 32.9%        | 57.2%     | 29.7%        | 33.0%        | 38.9%         | 37.6%         |           |               |               |               |               | 57.2%       | 59.4%         | 57.8%         | 59.1%         | 58.1%       | 59.2%         | 57.4%         | 54.5%         | 53.2%       | 55.0%         | 49.9%         | 47.0%         | 41.9%       | 46.2%         | 36.9%         | 32.8%         | 29.7%       | 33.1%    |  |

PG&E's Alternative RNS Table - Stochastic-Adjustment (2019-2033)<sup>8</sup>

| Variable | Calculation in Energy Division RNS Calculation Template | Revised Calculation Correcting Apparent Errors in Energy Division Template | Item  | 2011 Actuals | 2012 Actuals | 2013 Actuals | 2011-2013 Actuals | 2014 Actuals | 2015 Actuals | 2016 Actuals | 2014-2016 | 2017 Actuals | 2018 Actuals | 2019 Forecast | 2020 Forecast | 2017-2020 | 2021 Forecast | 2022 Forecast | 2023 Forecast | 2024 Forecast | 2021 - 2024 | 2025 Forecast | 2026 Forecast | 2027 Forecast | 2025 - 2027 | 2028 Forecast | 2029 Forecast | 2030 Forecast | 2028 - 2030 | 2031 Forecast | 2032 Forecast | 2033 Forecast | 2031 - 2033 |  |  |  |  |
|----------|---|--|---|--------------|--------------|--------------|-------------------|--------------|--------------|--------------|-----------|--------------|--------------|---------------|---------------|-----------|---------------|---------------|---------------|---------------|-------------|---------------|---------------|---------------|-------------|---------------|---------------|---------------|-------------|---------------|---------------|---------------|-------------|--|--|--|--|
|          |   |  | Step 2 Result: Stochastically-Adjusted Net Short (Physical Net Short + Stochastic Risk-Adjustment) <sup>1</sup>           |              |              |              |                   |              |              |              |           |              |              |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| Gd       |   |  | Stochastically-Adjusted Annual Gross RPS Position (GWh)   | (274)        | (728)        | 1,928        | 926               | 3,980        | 4,482        | 5,381        | 13,843    | 3,699        | 4,841        |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| Ge       |   |  | Stochastically-Adjusted Annual Gross RPS Position (%)   | 19.6%        | 19.0%        | 22.5%        | 20.4%             | 27.0%        | 29.5%        | 32.9%        | 29.7%     | 33.0%        | 38.9%        |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
|          |   |  | Application of Bank   |              |              |              |                   |              |              |              |           |              |              |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| Ha       | H1-Hc (from previous year)                              | J1-Hc (from previous year)   | Existing Banked RECs above the PQR (The Bank at Beg. Of Period) <sup>10,11</sup>  | -            | (274)        | (1,033)      | -                 | 861          | 4,815        | 9,274        | 861       | 14,630       | 18,200       |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| Hb       |   |  | RECs above the PQR added to Bank  | (274)        | (728)        | 1,928        | 926               | 3,980        | 4,482        | 5,381        | 13,843    | 3,699        | 4,841        |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| Hc       |   |  | Non-bankable RECs above the PQR   | -            | 31           | 34           | 65                | 26           | 23           | 25           | 74        | 129          | 2            | -             | -             | 132       | -             | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           | -             | -             | -             | -           |  |  |  |  |
| H        | Ha+Hb   |  | Gross Balance of RECs above the PQR   | (274)        | (1,002)      | 895          | 926               | 4,841        | 9,297        | 14,655       | 14,704    | 18,329       | 23,041       |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| Ia       |   |  | Planned Application of RECs above the PQR towards RPS Compliance  | -            | -            | -            | -                 | -            | -            | -            | -         | -            | -            |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| Ib       |   |  | Planned Sales of RECs above the PQR <sup>12</sup>   | -            | -            | -            | -                 | -            | -            | -            | -         | -            | -            | -             | -             | -         | (5,093)       | (5,300)       | (4,800)       | (4,400)       | (19,593)    | (3,900)       | (2,600)       | (1,700)       | (8,200)     | (700)         | -             | -             | (700)       | -             | -             | -             | -           |  |  |  |  |
| J        | H-Ia-Ib   | H-Ia+Ib  | Net Balance of RECs above the PQR (The Bank at End of Period) <sup>10</sup>   | (274)        | (1,002)      | 895          | 926               | 4,841        | 9,297        | 14,655       | 14,704    | 18,329       | 23,038       |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| J0       |   |  | Category 0 RECs   | -            | -            | -            | -                 | 657          | 1,237        | 2,019        | 2,067     | 2,067        |              |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| J1       |   |  | Category 1 RECs   | -            | -            | 895          | 926               | 4,184        | 8,060        | 12,636       | 16,261    | 20,971       |              |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| J2       |   |  | Category 2 RECs   | -            | -            | -            | -                 | -            | -            | -            | -         | -            | -            |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
|          |   |  | Expiring Contracts  |              |              |              |                   |              |              |              |           |              |              |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| K        |   |  | RECs from Expiring RPS Contracts <sup>13</sup>  | N/A          | N/A          | N/A          | N/A               | N/A          | N/A          | N/A          | N/A       | N/A          | N/A          | 432           | 746           | 1,178     | 1,046         | 3,460         | 4,160         | 4,437         | 13,104      | 4,500         | 4,981         | 8,192         | 14,674      | 5,245         | 5,722         | 5,747         | 16,714      | 6,066         | 6,609         | 7,868         | 20,543      |  |  |  |  |
|          |   |  | Step 3 Result: Stochastically-Optimized Net Short (Stochastically-Adjusted Net Short + Application of Bank) <sup>14</sup> |              |              |              |                   |              |              |              |           |              |              |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| Lb       | Ga + Ia - Ib - Hc                                       | Gd+Ia+Ib   | Annual Net RPS Position after Bank Optimization (GWh) <sup>14</sup>   | (274)        | (728)        | 1,928        | 926               | 3,980        | 4,482        | 5,381        | 13,843    | 3,699        | 4,841        |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |
| La       | (F + Ia - Ib - Hc)/A                                    | (C + Ia) / A   | Annual Net RPS Position after Bank Optimization (%) <sup>14</sup>   | 19.6%        | 19.0%        | 22.5%        | 20.4%             | 27.0%        | 29.5%        | 32.9%        | 29.7%     | 33.0%        | 38.9%        |               |               |           |               |               |               |               |             |               |               |               |             |               |               |               |             |               |               |               |             |  |  |  |  |

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

(1) (Row A) PG&E uses its April 2019 internal bundled retail sales forecast less interdepartmental (metered usage at PG&E-owned facilities) and GTSR sales for its procurement decisions.

(2) (Row B) RPS procurement quantity requirement percentages are based on the updated RPS requirements from SB 100.

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

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

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

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

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

(8) The stochastic model optimizes from 2019 to 2033

(9) **Step 2 Result: Stochastically-Adjusted Net Short (Physical Net Short+ Stochastic Risk-Adjustment)** PG&E added rows Gd and Ge to the Alternative RNS in order to show the stochastically-adjusted physical net short, which incorporates the risks and uncertainties addressed in the stochastic model. For more details on PG&E's stochastically modeled risks, see the 2017 RPS Plan.

This is prior to any application of the Bank.

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

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

(12) **(Row Ib)** The annual RPS sales volume forecast assumption is based on RPS sales executed in 2018 as well as the RPS sales framework proposed in PG&E's 2019 RPS Plan, and is included for RPS position planning purposes. Row Ib is reduced by executed REC sales volumes included on Row Fd.

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

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

(a) Rows La and Lb represent the optimized net short that results from taking Row Gd (Step 2 Result) and then applying Bank usage. Bank can be used for either (i) compliance purposes (row la) or (ii) sales (Row lb).

(b) Row La in the Alternative RNS does not match Row La in the RNS, because the RNS does not include Row Gd (Stochastically-Adjusted Net Short).

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

**PACIFIC GAS AND ELECTRIC COMPANY**  
**APPENDIX K**  
**PREFERRED PROJECT LIST**

### Appendix K: Preferred Project List

| Name of Facility                             | Resource              | Location                         | CEC RPS ID | Host Balancing Authority |
|--|-----------------------|----------------------------------|------------|--------------------------|
| Etiwanda - Metropolitan Water District (MWD) | Conduit Hydroelectric | Rancho Cucamonga, CA             | 60271A     | CAISO                    |
| Kansas South                                 | Solar PV              | Lemoore, CA                      | 61264A     | CAISO                    |
| Westlands Solar Farms                        | Solar PV              | Huron, CA                        | 61755A     | CAISO                    |
| Orion Solar                                  | Solar PV              | Unincorporated Kern County, CA   | 61570A     | CAISO                    |
| Kent South                                   | Solar PV              | Lemoore, CA                      | 61262A     | CAISO                    |
| Algonquin SKIC 20 Solar                      | Solar PV              | Taft, CA                         | 61558A     | CAISO                    |
| CED Corcoran Solar 3, LLC                    | Solar PV              | Corcoran, CA                     | 62783A     | CAISO                    |
| Westside Solar, LLC                          | Solar PV              | Unincorporated Fresno County, CA | 61185A     | CAISO                    |
| Aspiration Solar G LLC                       | Solar PV              | Tranquility, CA                  | 61486A     | CAISO                    |
| Bayshore Solar A                             | Solar PV              | Lancaster, CA                    | 63133A     | CAISO                    |
| Bayshore Solar B                             | Solar PV              | Lancaster, CA                    | 63134A     | CAISO                    |
| Bayshore Solar C                             | Solar PV              | Lancaster, CA                    | 63135A     | CAISO                    |
| Java Solar Project                           | Solar PV              | Lemoore, CA                      | 63137C     | CAISO                    |
| RE Gaskell West 3                            | Solar PV              | Rosamond, CA                     | 63619C     | CAISO                    |
| RE Gaskell West 4                            | Solar PV              | Rosamond, CA                     | 63617C     | CAISO                    |
| RE Gaskell West 5                            | Solar PV              | Rosamond, CA                     | 63618C     | CAISO                    |
| West Antelope                                | Solar PV              | Lancaster, CA                    | 61850A     | CAISO                    |
| Western Antelope Blue Sky Ranch A            | Solar PV              | Lancaster, CA                    | 61517A     | CAISO                    |
| Wind Resource I                              | Wind                  | Tehachapi, CA                    | 61467A     | CAISO                    |
| SPS White River West                         | Solar PV              | Alpaugh, CA                      | 62045A     | CAISO                    |
| Wind Resource II                             | Wind                  | Tehachapi, CA                    | 61468A     | CAISO                    |
| Columbia Solar Energy, LLC                   | Solar PV              | Pittsburg, CA                    | 62051A     | CAISO                    |
| Alamo Solar, LLC                             | Solar PV              | Oro Grande, CA                   | 61453A     | CAISO                    |

|   |               |                                  |        |       |
|---|---------------|----------------------------------|--------|-------|
| Corcoran Solar LLC                          | Solar PV      | Corcoran, CA                     | 62285A | CAISO |
| Old River One LLC                           | Solar PV      | Bakersfield, CA                  | 60853A | CAISO |
| Shafter Solar                               | Solar PV      | Shafter, CA                      | 62325A | CAISO |
| Morelos Del Sol                             | Solar PV      | Lost Hills, CA                   | 62272A | CAISO |
| Rising Tree Wind Farm II LLC                | Wind          | Mojave, CA                       | 62426A | CAISO |
| Kekawaka Creek Hydroelectric Facility       | Small Hydro   | Zenia, CA                        | 60186A | CAISO |
| Woodmere Solar Farm                         | Solar PV      | Bakersfield, CA                  | 62429A | CAISO |
| Portal Ridge Solar C Project                | Solar PV      | Lancaster, CA                    | 61684A | CAISO |
| SR Solis Oro Loma Teresina, LLC - Project A | Solar PV      | Unincorporated Fresno County, CA | 62841A | CAISO |
| SR Solis Oro Loma Teresina, LLC - Project B | Solar PV      | Unincorporated Fresno County, CA | 62841A | CAISO |
| Sunray - 20                                 | Solar PV      | Daggett, CA                      | 62694A | CAISO |
| SR Solis Rocket, LLC - Project A            | Solar PV      | Avenal, CA                       | 62840A | CAISO |
| SR Solis Rocket, LLC - Project B            | Solar PV      | Avenal, CA                       | 62840A | CAISO |
| San Joaquin 1A                              | Solar PV      | San Joaquin, CA                  | 61837A | CAISO |
| Montezuma Wind Energy Center                | Wind          | Birds Landing, CA                | 60543A | CAISO |
| CalRenew-1                                  | Solar PV      | Mendota, CA                      | 60475A | CAISO |
| Shiloh II Wind Project                      | Wind          | Rio Vista, CA                    | 60639A | CAISO |
| High Plains Ranch II                        | Solar PV      | California Valley, CA            | 60603A | CAISO |
| Topaz Solar Farm                            | Solar PV      | Santa Margarita, CA              | 61698A | CAISO |
| Hatchet Ridge                               | Wind          | Burney, CA                       | 60741A | CAISO |
| CM10 (fka Sempra El Dorado Solar)           | Solar PV      | Boulder City, NV                 | 60713A | CAISO |
| Ivanpah Unit 1                              | Solar Thermal | Nipton, CA                       | 62273A | CAISO |



|                                     |               |                       |        |       |
|-------------------------------------|---------------|-----------------------|--------|-------|
| Ivanpah Unit 3                      | Solar Thermal | Nipton, CA            | 62275A | CAISO |
| AV Solar Ranch One                  | Solar PV      | Lancaster, CA         | 60790A | CAISO |
| SFWP (RPS) - Kelly Ridge            | Small Hydro   | Oroville, CA          | 60266A | CAISO |
| SFWP (RPS) - Sly Creek              | Small Hydro   | Oroville, CA          | 60267A | CAISO |
| Alpine Solar Project                | Solar PV      | Lancaster, CA         | 60755A | CAISO |
| CM48 (fka Sempra Copper Mountain 1) | Solar PV      | Boulder City, NV      | 60786A | CAISO |
| Mt. Poso                            | Biomass       | Bakersfield, CA       | 60695A | CAISO |
| Agua Caliente Solar Project         | Solar PV      | Roll, AZ              | 60894A | CAISO |
| High Plains Ranch III               | Solar PV      | California Valley, CA | 60603A | CAISO |
| Mojave Solar Project                | Solar Thermal | Hinkley, CA           | 60848A | CAISO |
| Genesis Solar Energy Project        | Solar Thermal | Blythe, CA            | 60605A | CAISO |
| Calpine Geysers - Unit 5 & 6        | Geothermal    | Middletown, CA        | 60002A | CAISO |
| Calpine Geysers - Units 7 & 8       | Geothermal    | Middletown, CA        | 60003A | CAISO |
| Calpine Geysers - Unit 12           | Geothermal    | Middletown, CA        | 60004A | CAISO |
| Calpine Geysers - Unit 13           | Geothermal    | Middletown, CA        | 60005A | CAISO |
| Calpine Geysers - Unit 16           | Geothermal    | Middletown, CA        | 60006A | CAISO |
| Calpine Geysers - Unit 17           | Geothermal    | Middletown, CA        | 60007A | CAISO |
| Calpine Geysers - Unit 18           | Geothermal    | Middletown, CA        | 60008A | CAISO |
| Calpine Geysers - Unit 20           | Geothermal    | Middletown, CA        | 60009A | CAISO |
| Calpine Geysers - Sonoma            | Geothermal    | Middletown, CA        | 60010A | CAISO |
| Calpine Geysers - Unit 11           | Geothermal    | Middletown, CA        | 60025A | CAISO |

|   |             |                   |        |       |
|---|-------------|-------------------|--------|-------|
| Calpine Geysers - Unit 14                             | Geothermal  | Middletown, CA    | 60026A | CAISO |
| Calpine Geysers - Calistoga Power Plant               | Geothermal  | Middletown, CA    | 60117A | CAISO |
| Calpine Geysers - Aidlin Power Plant                  | Geothermal  | Middletown, CA    | 60115A | CAISO |
| DTE Stockton  | Biomass     | Stockton, CA      | 60964A | CAISO |
| Big Creek Waterworks                                  | Small Hydro | Hyampom, CA       | 60900A | CAISO |
| Norman Ross Burgess - Three Forks Water Power Project | Small Hydro | Zenia, CA         | 60502A | CAISO |
| Alpaugh 50  | Solar PV    | Alpaugh, CA       | 60945A | CAISO |
| Alpaugh North   | Solar PV    | Alpaugh, CA       | 60946A | CAISO |
| Atwell Island   | Solar PV    | Alpaugh, CA       | 60947A | CAISO |
| Corcoran  | Solar PV    | Corcoran, CA      | 60948A | CAISO |
| White River   | Solar PV    | Alpaugh, CA       | 60949A | CAISO |
| Avenal Park (Eurus)                                   | Solar PV    | Avenal, CA        | 60912A | CAISO |
| Sun City Project (Eurus)                              | Solar PV    | Avenal, CA        | 60913A | CAISO |
| Sand Drag (Eurus)                                     | Solar PV    | Avenal, CA        | 60914A | CAISO |
| Desert Center Solar Farm                              | Solar PV    | Desert Center, CA | 61068A | CAISO |
| El Dorado Irrigation District                         | Small Hydro | Pollock Pines, CA | 60601A | CAISO |
| Coram Brodie  | Wind        | Tehachapi, CA     | 60973A | CAISO |
| Mesquite Solar 1                                      | Solar PV    | Tonopah, AZ       | 60875A | CAISO |
| Shiloh III Wind Project                               | Wind        | Rio Vista, CA     | 61069A | CAISO |
| North Star Solar 1                                    | Solar PV    | Mendota, CA       | 61198A | CAISO |
| Vasco Wind Energy Center                              | Wind        | Livermore, CA     | 61344A | CAISO |
| Montezuma II Wind Energy Center                       | Wind        | Collinsville, CA  | 61345A | CAISO |
| North Sky River Energy Center                         | Wind        | Tehachapi, CA     | 61385A | CAISO |
| Copper Mountain Solar 2                               | Solar PV    | Boulder City, NV  | 60990A | CAISO |
| Shiloh IV   | Wind        | Rio Vista, CA     | 61617A | CAISO |

|                           |             |                 |        |       |
|---------------------------|-------------|-----------------|--------|-------|
| NID (RPS) - Bowman        | Small Hydro | Nevada City, CA | 60171A | CAISO |
| NID (RPS) - Dutch Flat    | Small Hydro | Nevada City, CA | 60264A | CAISO |
| NID (RPS) - Rollins       | Small Hydro | Nevada City, CA | 60265A | CAISO |
| SPI Burney                | Biomass     | Burney, CA      | 60087A | CAISO |
| SPI Lincoln               | Biomass     | Lincoln, CA     | 60088A | CAISO |
| SPI Quincy                | Biomass     | Quincy, CA      | 60089A | CAISO |
| SPI Sonora                | Biomass     | Sonora, CA      | 60576A | CAISO |
| SPI Anderson II           | Biomass     | Anderson, CA    | 61146A | CAISO |
| Kansas                    | Solar PV    | Stratford, CA   | 61263A | CAISO |
| Henrietta Solar           | Solar PV    | Lemoore, CA     | 61841A | CAISO |
| ABEC Bidart-Old River LLC | Biomethane  | Bakersfield, CA | 62369A | CAISO |
| ABEC Bidart-Stockdale LLC | Biomethane  | Bakersfield, CA | 60886A | CAISO |
| Diablo Winds (2)          | Wind        | Livermore, CA   | 60030A | CAISO |
| PGE Alta                  | Small Hydro | Placer, CA      | 60033A | CAISO |
| PGE Centerville           | Small Hydro | Butte, CA       | 60034A | CAISO |
| PGE Chili Bar             | Small Hydro | El Dorado, CA   | 60035A | CAISO |
| PGE Coleman               | Small Hydro | Shasta, CA      | 60037A | CAISO |
| PGE Cow Creek             | Small Hydro | Shasta, CA      | 60038A | CAISO |
| PGE Crane Valley          | Small Hydro | Madera, CA      | 60039A | CAISO |
| PGE Deer Creek            | Small Hydro | Nevada, CA      | 60040A | CAISO |
| PGE De Sabla              | Small Hydro | Butte, CA       | 60041A | CAISO |
| PGE Dutch Flat 1          | Small Hydro | Placer, CA      | 60042A | CAISO |
| PGE Halsey                | Small Hydro | Placer, CA      | 60043A | CAISO |
| PGE Hamilton Branch       | Small Hydro | Lassen, CA      | 60044A | CAISO |
| PGE Hat 1                 | Small Hydro | Shasta, CA      | 60045A | CAISO |
| PGE Hat 2                 | Small Hydro | Shasta, CA      | 60046A | CAISO |
| PGE Inskip                | Small Hydro | Tehama, CA      | 60047A | CAISO |
| PGE Kerckhoff 1           | Small Hydro | Fresno, CA      | 62360A | CAISO |
| PGE Kern Canyon           | Small Hydro | Kern, CA        | 60048A | CAISO |
| PGE Kilarc                | Small Hydro | Shasta, CA      | 60049A | CAISO |

|   |   |                      |        |       |
|---|---|----------------------|--------|-------|
| PGE Lime Saddle                         | Small Hydro                                       | Butte, CA            | 60050A | CAISO |
| PGE Narrows 1                           | Small Hydro                                       | Nevada, CA           | 60052A | CAISO |
| PGE Newcastle                           | Small Hydro                                       | Placer, CA           | 60053A | CAISO |
| PGE Oak Flat                            | Small Hydro                                       | Plumas, CA           | 60276A | CAISO |
| PGEoenix                                | Small Hydro                                       | Tuolumne, CA         | 60054A | CAISO |
| PGE Potter Valley                       | Small Hydro                                       | Lake, CA             | 60055A | CAISO |
| PGE Rock Creek RPS                      | Existing<br>Large<br>Incremental<br>Hydroelectric | Plumas, CA           | 62269A | CAISO |
| PGE San Joaquin 1A                      | Small Hydro                                       | Madera, CA           | 60056A | CAISO |
| PGE San Joaquin 2                       | Small Hydro                                       | Madera, CA           | 60057A | CAISO |
| PGE San Joaquin 3                       | Small Hydro                                       | Madera, CA           | 60058A | CAISO |
| PGE South                               | Small Hydro                                       | Tehama, CA           | 60059A | CAISO |
| PGE Spaulding 1                         | Small Hydro                                       | Placer, CA           | 60060A | CAISO |
| PGE Spaulding 2                         | Small Hydro                                       | Placer, CA           | 60061A | CAISO |
| PGE Spaulding 3                         | Small Hydro                                       | Placer, CA           | 60062A | CAISO |
| PGE Spring Gap                          | Small Hydro                                       | Tuolumne, CA         | 60063A | CAISO |
| PGE Toadtown                            | Small Hydro                                       | Butte, CA            | 60064A | CAISO |
| PGE Tule River                          | Small Hydro                                       | Tulare, CA           | 60065A | CAISO |
| PGE Volta 1                             | Small Hydro                                       | Tehama, CA           | 60066A | CAISO |
| PGE Volta 2                             | Small Hydro                                       | Tehama, CA           | 60067A | CAISO |
| PGE West Point                          | Small Hydro                                       | Amador, CA           | 60068A | CAISO |
| PGE Wise 1                              | Small Hydro                                       | Placer, CA           | 60069A | CAISO |
| PGE Wise 2                              | Small Hydro                                       | Placer, CA           | 60070A | CAISO |
| PGE A_G_Wishon                          | Small Hydro                                       | Madera, CA           | 60032A | CAISO |
| PG&E AT&T Park<br>Solar Arrays          | Solar PV  | San Francisco,<br>CA | 60634A | CAISO |
| PG&E SF Service<br>Center Solar Array 1 | Solar PV  | San Francisco,<br>CA | 60635A | CAISO |
| PG&E SF Service<br>Center Solar Array 2 | Solar PV  | San Francisco,<br>CA | 60636A | CAISO |
| PGE Five Points                         | Solar PV  | Five Points,<br>CA   | 61432A | CAISO |
| PGE Stroud                              | Solar PV  | Helm, CA             | 61434A | CAISO |

|                            |          |                     |        |       |
|----------------------------|----------|---------------------|--------|-------|
| PGE Westside               | Solar PV | Five Points,<br>CA  | 61433A | CAISO |
| PGE Cantua                 | Solar PV | Cantua Creek,<br>CA | 61823A | CAISO |
| PGE Giffen                 | Solar PV | Cantua Creek,<br>CA | 61822A | CAISO |
| PGE Huron                  | Solar PV | Huron, CA           | 61821A | CAISO |
| PGE Gates                  | Solar PV | Huron, CA           | 62353A | CAISO |
| PGE Guernsey               | Solar PV | Hanford, CA         | 62354A | CAISO |
| PGE West Gates             | Solar PV | Huron, CA           | 62352A | CAISO |
| Vaca-Dixon Solar<br>(PG&E) | Solar PV | Vacaville, CA       | 60966A | CAISO |

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

|  |  |   |
|--|--|---|
| AT&T                                     | Downey & Brand                         | Pioneer Community Energy                |
| Albion Power Company                     | East Bay Community Energy              | Redwood Coast Energy Authority          |
| Alcantar & Kahl LLP                      | Ellison Schneider & Harris LLP         | Regulatory & Cogeneration Service, Inc. |
|  | Energy Management Service              | SCD Energy Solutions                    |
| Alta Power Group, LLC                    | Engineers and Scientists of California |   |
| Anderson & Poole                         | Evaluation + Strategy for Social       |   |
|  | Innovation                             | SCE                                     |
| Atlas ReFuel                             | GenOn Energy, Inc.                     | SDG&E and SoCalGas                      |
| BART                                     | Goodin, MacBride, Squeri, Schlotz &    |   |
|  | Ritchie                                | SPURR                                   |
| Barkovich & Yap, Inc.                    | Green Power Institute                  | San Francisco Water Power and Sewer     |
| P.C. CalCom Solar                        | Hanna & Morton                         | Seattle City Light                      |
| California Cotton Ginners & Growers Assn | ICF                                    | Sempra Utilities                        |
| California Energy Commission             | IGS Energy                             | Southern California Edison Company      |
| California Public Utilities Commission   | International Power Technology         | Southern California Gas Company         |
| California State Association of Counties | Intestate Gas Services, Inc.           | Spark Energy                            |
| Calpine                                  | Kelly Group                            | Sun Light & Power                       |
|  | Ken Bohn Consulting                    | Sunshine Design                         |
| Cameron-Daniel, P.C.                     | Keyes & Fox LLP                        | Tecogen, Inc.                           |
| Casner, Steve                            | Leviton Manufacturing Co., Inc.        | TerraVerde Renewable Partners           |
| Cenergy Power                            |  | Tiger Natural Gas, Inc.                 |
| Center for Biological Diversity          |  |   |
|  | Los Angeles County Integrated          | TransCanada                             |
| Chevron Pipeline and Power               | Waste Management Task Force            | Troutman Sanders LLP                    |
| City of Palo Alto                        | MRW & Associates                       | Utility Cost Management                 |
|  | Manatt Phelps Phillips                 | Utility Power Solutions                 |
| City of San Jose                         | Marin Energy Authority                 | Utility Specialists                     |
| Clean Power Research                     | McKenzie & Associates                  | Water and Energy Consulting Wellhead    |
| Coast Economic Consulting                |  | Electric Company                        |
| Commercial Energy                        | Modesto Irrigation District            | Western Manufactured Housing            |
| Crossborder Energy                       | NLine Energy, Inc.                     | Communities Association (WMA)           |
| Crown Road Energy, LLC                   | NRG Solar                              | Yep Energy                              |
| Davis Wright Tremaine LLP                |  |   |
| Day Carter Murphy                        | Office of Ratepayer Advocates          |   |
|  | OnGrid Solar                           |   |
| Dept of General Services                 | Pacific Gas and Electric Company       |   |
| Don Pickett & Associates, Inc.           | Peninsula Clean Energy                 |   |
| Douglass & Liddell                       |  |   |