

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

ENERGY DIVISION

Agenda I.D. 13187  
RESOLUTION E-4662  
August 28, 2014

**REDACTED**  
**RESOLUTION**

Resolution E-4662. Pacific Gas and Electric Company requests approval of five Power Purchase Agreements with Badger Creek Limited, Bear Mountain Limited, Chalk Cliff Limited, Live Oak Limited, and McKittrick Limited, collectively known as the ArcLight Facilities.

PROPOSED OUTCOME:

- Approve without modification the Power Purchase Agreements (PPAs) between Pacific Gas and Electric Company and (1) Badger Creek Limited, (2) Bear Mountain Limited, (3) Chalk Cliff Limited, (4) Live Oak Limited, and (5) McKittrick Limited.
- Each of these five combined heat and power (CHP) facilities will be converted to a dispatchable Utility Prescheduled Facility under the QF/CHP Settlement.

SAFETY CONSIDERATIONS:

- This Resolution approves PPAs for existing CHP facilities. Because facility operations will either remain unchanged or scale back, there are no new safety risks associated with the approval of these contracts.

ESTIMATED COST:

- Cost components of the ArcLight PPAs are confidential at this time due to their selection through the CHP Request for Offers process, which is a competitive solicitation process.

By Advice Letter 4376-E Filed on March 14, 2014.

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## **SUMMARY**

This Resolution approves, without modification, the five PPAs that Pacific Gas and Electric Company (PG&E) executed with (1) Badger Creek Limited, (2) Bear Mountain Limited, (3) Chalk Cliff Limited, (4) Live Oak Limited, and (5) McKittrick Limited. These five Tolling PPAs were received through PG&E's second combined heat and power (CHP) request for offers.

These five CHP Facilities, collectively known as the ArcLight Facilities, are currently under contract with PG&E to deliver baseload power. Under the new PPAs, each facility will be converted to a dispatchable Utility Prescheduled Facility under the QF/CHP Settlement. As existing cogeneration facilities converting to Utility Prescheduled Facilities, the ArcLight facilities were eligible to participate in the request for offers.

This Resolution finds that the costs of the PPAs are reasonable, and PG&E is authorized to recover these costs. The PPAs will count for a total of 240.45 MW and 154,186 MT of emissions reductions towards PG&E's targets.

## **BACKGROUND**

### *Background on Relevant terms of the CHP/QF Settlement*

On December 16, 2010, the Commission adopted the Qualifying Facility and Combined Heat and Power Program Settlement Agreement (Settlement) with the issuance of D.10-12-035. The Settlement resolves a number of longstanding issues regarding the contractual obligations and procurement options for facilities operating under legacy and qualifying facility contracts.

The Settlement establishes MW procurement targets and greenhouse gas (GHG) Emissions Reduction Targets the investor-owned utilities (IOUs) are required to meet by entering into contracts with eligible combined heat and power (CHP) Facilities, as defined in the Settlement. Pursuant to D.10-12-035, the three large electric IOUs must procure a minimum of 3,000 MW of CHP and reduce GHG emissions consistent with the California Air Resources Board Scoping Plan,<sup>1</sup>

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<sup>1</sup> Initial AB 32 Climate Change Scoping Plan Document. 2009.

<http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>.

currently set at 4.8 million metric tonnes (MMT) by the end of 2020. For the initial program period, the Settlement allocates to PG&E 1,387 MW of the procurement target.

Per Section 4.2.1 of the Settlement, the Commission directs the IOUs to conduct Requests for Offers (RFOs) exclusively for CHP resources as a means of achieving the MW Targets and GHG Emissions Reduction Targets. The Settlement Term Sheet establishes terms and conditions regarding eligibility, contract length, pricing, evaluation and selection and other terms and conditions of the RFOs. The maximum contract term for new facilities selected in an RFO is twelve years, while the maximum term for existing facilities is seven years.<sup>2</sup>

In addition, the Commission defined several procurement options for the IOUs within the Settlement. One of these contracting options allows the IOUs to change the operations of an existing CHP to convert to a dispatchable generation facility, known as a "Utility Prescheduled Facility."<sup>3</sup> This conversion can provide significant operational flexibility to facilitate the integration of intermittent renewable resources and provides a means to enable a CHP resource to continue operating when a thermal host no longer exists. The Commission has already approved other Utility Prescheduled Facility conversions for CHP Facilities where the thermal host has discontinued operations.<sup>4</sup>

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<sup>2</sup> Settlement Term Sheet, Section 4.2.3

<sup>3</sup> D.10-12-035 at 45-46.

<sup>4</sup> For example, in D.11-06-029, the Commission approved a contract amendment for PG&E's Greenleaf 1 facility and found that the amendment provided better operational benefits than could have been achieved under the existing contract.

Background on the Power Purchase Agreements

On February 20, 2013, PG&E initiated its second CHP RFO for existing, new, repowered and expanded CHP facilities, Utility Prescheduled Facilities, and CHP capacity-only products. After receiving offers, PG&E compiled a shortlist of the most attractive offers. On July 2, 2013, PG&E informed the ArcLight Companies that their offers had been shortlisted. By December 2013, after a period of negotiation, PG&E and the ArcLight Companies executed the five PPAs. Each contract has an 84-month delivery term beginning on May 1, 2015.

The ArcLight Agreements are based on PG&E's form tolling power purchase agreement. PG&E notes that the CHP RFO Pro Forma included in the Settlement was designed for facilities providing baseload capacity, so the Tolling PPA is more appropriate for a facility providing dispatchable capacity.

Located in Kern County, California, the five ArcLight facilities have operated as Qualifying Facilities,<sup>5</sup> supplying electricity to PG&E and steam for enhanced recovery to oil fields since the 1990s. The existing PPAs between PG&E and the ArcLight Facilities terminate prior to July 1, 2015, which is the end of the Settlement Transition Period. The facilities are natural gas-fired, consisting of a single GE LM5000 STIG 120 gas turbine unit. Each unit is paired with a heat recovery steam generator that can be used to turn treated water into steam for use in enhanced oil recovery. If the thermal output is not needed, each gas turbine unit can operate in simple cycle mode. Under the new PPAs, two facilities will provide steam on an as-available basis, and the other three facilities will no longer export steam.

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<sup>5</sup> Per Section 17 of the Settlement, a Qualifying Facility is an electric energy generating facility that complies with the qualifying facility definition established by PURPA and any FERC rules as amended from time to time implementing PURPA and has filed with FERC (i) an application for FERC certification, pursuant to 18 CFR Part 292, Section 292.207(b)(1), which FERC has granted, or (ii) a notice of self-certification pursuant to 18 CFR Part 292, Section 292.207(a).

**Table 1: Summary of ArcLight Facilities' PPAs**

<b>Facility</b>	<b>Original Online Date</b>	<b>Location</b>	<b>Contract Capacity (MW)</b>	<b>Delivery Term (Months)</b>
Badger Creek	April 1, 1991	Bakersfield, CA	42	84
Bear Mountain	April 3, 1995	Bakersfield, CA	42	84
Chalk Cliff	March 20, 1990	Taft, CA	42	84
Live Oak	March 16, 1991	Bakersfield, CA	42	84
McKittrick	October 16, 1991	Bakersfield, CA	42	84

PG&E requests that the CPUC find that the executed agreements will count for approximately 240 MW of eligible CHP capacity and 154,000 metric tons (MT) of GHG reductions toward the Settlement targets.

**Table 2: PG&E Proposed Contribution to Settlement Targets**

<b>Facility</b>	<b>Capacity (MW)</b>	<b>GHG Emissions Reductions (MTCO<sub>2e</sub>)</b>
Badger Creek	48.09	21,329
Bear Mountain	48.09	31,501
Chalk Cliff	48.09	31,651
Live Oak	48.09	45,068
McKittrick	48.09	24,637
<b>Total</b>	<b>240.45</b>	<b>154,186</b>

**NOTICE**

Notice of AL 4376-E was made by publication in the Commission's Daily Calendar. Pacific Gas and Electric Company states that a copy of the Advice Letter was mailed and distributed in accordance with Section 4 of General Order 96-B.

**PROTESTS**

Advice Letter 4376-E was not protested.

**DISCUSSION**

On March 14, 2014, PG&E filed Advice Letter (AL) 4376-E which requests Commission approval of five power purchase agreements (PPAs) with Badger Creek Limited, Bear Mountain Limited, Chalk Cliff Limited, Live Oak Limited,

and McKittrick Limited, collectively known as the ArcLight Facilities. Each of these five CHP facilities will be converted to a dispatchable Utility Prescheduled Facility under the QF/CHP Settlement. These facilities currently deliver baseload energy under existing contracts with PG&E.

**PG&E requests a Commission resolution no later than August 14, 2014 that:**

- 1) Approves the ArcLight Agreements in their entirety, including payments to be made thereunder, subject only to Commission review of the reasonableness of PG&E's administration of the contracts;
- 2) Determines that the rates and other terms and conditions set forth in the ArcLight Agreements are reasonable;
- 3) Finds that the 240.45 MW of CHP capacity procured by the five ArcLight Agreements may be applied toward PG&E's target of 1,387 MW of CHP capacity in the Initial Program Period, as established by the QF/CHP Settlement;
- 4) Finds that annual GHG emissions reductions in the amounts of 21,329 MT for Badger Creek, 31,501 MT for Bear Mountain, 31,651 MT for Chalk Cliff, 45,068 MT for Live Oak and 24,637 MT for McKittrick resulting from the ArcLight Agreements apply toward PG&E's GHG Emissions Reduction Target as established by the QF/CHP Settlement;
- 5) Finds that PG&E shall recover the costs incurred pursuant to the ArcLight Agreements in rates;
- 6) Adopts the following findings of fact and conclusions of law in support of cost recovery for the ArcLight Agreements:
  - a) PG&E shall be entitled to allocate the net capacity costs and associated RA benefits of the ArcLight Agreements to bundled, DA, CCA, and departing load (to the extent not exempted) customers consistent with D.10-12-035, as modified by D.11-07-010, and PG&E's Advice 3922-E, approved December 19, 2011.
  - b) The costs of the ArcLight Agreements are recoverable through PG&E's ERRAs.
- 7) Finds that because the expected annualized capacity factor of ArcLight is below 60 percent, the ArcLight Agreements are compliant with the Emissions Performance Standard adopted in D.07-01-039.

**Energy Division evaluated the ArcLight PPAs based on the following criteria:**

- Consistency with D.10-12-035, which approved the QF/CHP Program Settlement including:
  - Consistency with Eligibility Requirements for CHP Requests for Offers
  - Consistency with MW Counting Rules
  - Consistency with GHG Accounting Methodology
  - Consistency with Cost Recovery Requirements
- Need for Procurement
- Cost Reasonableness
- Public Safety
- Project Viability
- Consistency with the Emissions Performance Standard
- Consistency with D.02-08-071 and D.07-12-052, which require Procurement Review Group participation

In considering these factors, Energy Division also considers the analysis and recommendations of an Independent Evaluator as is required for the CHP RFOs per Section 4.2.5.7 of the Settlement Term Sheet.

**Consistency with D.10-12-035, which approved the QF/CHP Program Settlement**

On December 16, 2010, the Commission adopted the QF/CHP Program Settlement with the issuance of D.10-12-035. The Settlement Term Sheet establishes criteria for contracts with Facilities including:

*Consistency with Eligibility Requirements for CHP Requests for Offers (CHP RFOs)*

Per Section 4.2.1 of the Settlement Term Sheet, the IOUs are directed to conduct Requests for Offers exclusively for CHP resources as a means of achieving their MW and GHG Emissions Reduction Targets. A CHP Facility that met the Public Utility Regulatory Policies Act of 1978 (PURPA) efficiency requirements as of September 20, 2007 and converts to a Utility Prescheduled Facility is eligible to participate in the CHP RFOs. As detailed in the confidential appendix, the ArcLight Facilities met PURPA efficiency requirements as of September 2007.

As existing cogeneration facilities converting to Utility Prescheduled Facilities, the ArcLight Facilities were eligible to participate in the RFO.

*Consistency with Settlement Megawatt Counting Rules*

Per Term Sheet Section 4.8.1.2, new PPAs that change generating facilities' operations to Utility Prescheduled Facilities, that are not Legacy PPA Amendments, count towards the MW Targets if the existing QF PPA expires before the end of the Transition Period, July 1, 2015. Bear Mountain is currently selling to PG&E under a Legacy QF agreement, and the other four are using Transition PPAs. All five of the existing ArcLight agreements expire before the end of the transition period. The five new PPAs change generating facilities' operations into Utility Prescheduled Facilities, and none are Legacy PPA Amendments.

Per Section 5.2.3.1 of the Settlement, "MWs counted for New PPAs executed with Existing CHP Facilities will be the published Contract Nameplate value..." The nameplate capacity for each facility listed in PG&E's July 2010 Semi-Annual Report is 48.09 MW.<sup>6</sup>

Per the Settlement, the ArcLight Facilities are eligible to count towards the MW target, and the total nameplate capacity of each facility shall count towards the target. These five PPAs will contribute 240.45 MW to the target.

*Consistency with Greenhouse Gas Accounting Methodology*

Per Term Sheet Section 7.3.1.3, a CHP Facility change in operations or conversion to a Utility Prescheduled Facility counts as a GHG credit for the IOUs' GHG Emissions Reduction Targets. Measurement is based on the baseline year emissions<sup>7</sup> minus the projected PPA emissions and emissions associated with replacing 100% of the decreased electric generation at a time differentiated heat rate.

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<sup>6</sup> Cogeneration and Small Power Production Semi-Annual Report. July 2010.  
<http://www.pge.com/includes/docs/pdfs/b2b/qualifyingfacilities/cogeneration/jul2010cogen.pdf>.

<sup>7</sup> The baseline year emissions are the average of the previous two years of operational data.



Additional information about the GHG emissions accounting is included in Confidential Appendix A. The facilities' operations under the PPAs as Utility Prescheduled Facilities will be significantly reduced compared to the current operations, yielding 154,186 MT of greenhouse gas emissions reductions that will be credited toward the QF/CHP Settlement GHG Emissions Reduction Target. Of this 154,186 MT, 21,329 MT is attributed to Badger Creek, 31,501 MT to Bear Mountain, 31,651 MT to Chalk Cliff, 45,068 MT to Live Oak, and 24,637 MT to McKittrick.

*Consistency with Cost Recovery Requirements*

In D.10-12-035, the Commission determined that the utilities should procure CHP resources on behalf of non-IOU load-serving entities and allocate the net capacity costs (NCCs) and associated benefits to those entities.<sup>8</sup> Section 13.1.2.2 of the Settlement Term Sheet defines NCCs as the total costs paid by the utility under the CHP Program less the value of energy and ancillary services provided to the IOU. In exchange for paying a share of the net costs of the CHP Program, the load-serving serving Direct Access and Community Choice Aggregator customers will receive a pro-rata share of the RA credits procured via the CHP Program.

Resource adequacy benefits are to be allocated according to the share of the net capacity costs paid by load-serving entities serving direct access and community choice aggregation customers.

On December 19, 2011 the Commission approved (effective November 23, 2011) AL 3922-E, which authorized PG&E to (1) establish the New System Generation Balancing Account to recover the NCCs of CHP contracts as directed by D.10-12-035 and (2) modify the Energy Resource Recovery Account preliminary statement to record the costs associated with the QF/CHP Program, less the NCCs.

PG&E's request to recover costs in accordance with Section 13.1.2.2 of the Settlement Term Sheet and AL 3922-E is consistent with the directives of the QF/CHP Settlement. The costs of the ArcLight Agreements are recoverable through the Energy Resource Recovery Account, less the net capacity costs, which are recovered through the New System Generation Balancing Account.

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<sup>8</sup> D. 10-12-035, page 56.

### Need for Procurement

PG&E's total MW procurement target for the CHP Program is 1,387 MW, and PG&E's estimated 2020 GHG Emissions Reduction Target is 2.17 MMT. As of July 1, 2014, PG&E has executed<sup>9</sup> 67 contracts proposed to contribute 1,364 MW and 1.34 MMT of GHG reductions toward these goals. Of these totals, the ArcLight PPAs will contribute 240 MW and 0.15 MMT of GHG reductions. After counting the ArcLight Facilities, PG&E must still procure additional CHP to meet its MW and GHG Emissions Reduction targets (Table 3). The ArcLight Facilities' contributions to PG&E's MW and GHG reductions targets justify their procurement.

Table 3: PG&E's Progress toward MW and GHG Targets, July 2014

	Target	Total Contribution from Executed Contracts	Remaining to Reach Target
MW	1,387	1,364	23
MMT GHG Emissions Reduction	2.17	1.34	0.83

### Cost Reasonableness

A detailed explanation of the contract cost is in Confidential Appendix A. The costs associated with the ArcLight PPAs are just and reasonable.

### Public Safety

California Public Utilities Code Section 451 requires that every public utility maintain adequate, efficient, just, and reasonable service, instrumentalities, equipment and facilities to ensure the safety, health, and comfort of the public.

Based on the information before the Commission, the ArcLight Facilities will decrease their on-site generation and will not add any new capacity. There are no known safety concerns associated with approval of these contracts.

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<sup>9</sup> Some of the executed contracts have not yet been approved by the Commission.

### **Project Viability**

The five ArcLight Facilities are currently operating under PPAs with PG&E. They have operated as Qualifying Facilities since the 1990s. Each facility is fully permitted, has site control, and has served several enhanced oil recovery steam hosts for a number of years. The ArcLight Facilities are existing CHP facilities and therefore viable projects.

### **Consistency with the Emissions Performance Standard**

California Public Utilities Code Sections 8340 and 8341 require that the Commission consider emissions costs associated with new long-term (five years or greater) power contracts procured on behalf of California ratepayers.

D.07-01-039 adopted an interim Emissions Performance Standard (EPS) that establishes an emissions rate for obligated facilities to levels no greater than the greenhouse gas emissions of a combined-cycle gas turbine power plant. Pursuant to Section 4.10.4.1 of the CHP Program Settlement Term Sheet, for PPAs greater than five years that are submitted to the Commission in a Tier 2 or Tier 3 advice letter, the Commission must make a specific finding that the PPA is compliant with the EPS.

The EPS applies to all energy contracts that are at least five years in duration for baseload generation, which is defined as a power plant that is designed and intended to provide electricity at an annualized plant capacity factor greater than 60 percent. The annualized plant capacity factors for the ArcLight Facilities are expected to be significantly below the 60 percent baseload threshold.<sup>10</sup> Therefore, the EPS does not apply to the ArcLight Facilities.

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<sup>10</sup> Table 6 in the confidential appendix provides current and expected capacity factors for each of the five facilities.

**Consistency with D.02-08-071 and D.07-12-052, which respectively require Procurement Review Group participation**

PG&E consulted with its Cost Allocation Mechanism (CAM) Group, which consists of its Procurement Review Group (PRG) participants,<sup>11</sup> plus one member representing community choice aggregator customers and one member representing direct access customers. PG&E presented its second CHP RFO to the CAM group at several meetings between January and October of 2013. During the meetings, PG&E discussed the shortlisted offers, including the ArcLight Agreements. PG&E has complied with the Commission's rules for involving the PRG.

**COMMENTS**

Public Utilities Code section 311(g)(1) provides that this resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the Commission. Section 311(g)(2) provides that this 30-day period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day comment period for the draft of this resolution was neither waived nor reduced. Accordingly, this draft resolution was mailed to parties for comments, and will be placed on the Commission's agenda no earlier than 30 days from today.

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<sup>11</sup> PG&E's PRG consists of representatives from: Energy Division, Office of Ratepayer Advocates, The Utility Reform Network, the Coalition of California Utility Employees, Department of Water Resources, the Union of Concerned Scientists, and Coast Economic Consulting.

## **FINDINGS**

1. Pursuant to the QF/CHP Settlement, PG&E is permitted to enter into Power Purchase Agreements with the five ArcLight Facilities through the CHP request for offers process, because the facilities meet the efficiency requirements under the Public Utility Regulatory Policies Act of 1978 (PURPA).
2. Pursuant to the QF/CHP Settlement, the total nameplate capacity of the five facilities (240.45 MW) counts towards PG&E's MW target.
3. Pursuant to the QF/CHP Settlement, 154,186 MT of greenhouse gas emissions reductions count towards PG&E's GHG Emissions Reduction Target.
4. Resource adequacy credits are to be allocated according to the share of the net capacity costs paid by load-serving entities serving direct access and community choice aggregation customers as prescribed in Section 13.1.2.2 of the QF/CHP Settlement Term Sheet.
5. PG&E's request to recover costs in accordance with Section 13.1.2.2 of the QF/CHP Settlement Term Sheet and AL-3922-E is consistent with the directives of the Settlement. The costs of the ArcLight Agreements are recoverable through the Energy Resource Recovery Account, less the net capacity costs, which are recovered through the New System Generation Balancing Account.
6. Commission Decision 10-12-035 directed PG&E to procure 1,387 MW of CHP capacity by November 2015 and 2.17 MMT of GHG reductions from CHP contracts by 2020. The PPAs with the ArcLight Facilities would help PG&E to meet both of these goals, justifying the need for the PPAs.
7. The costs of the PPAs are just and reasonable.
8. The change in operations to Utility Prescheduled Facilities will not result in any foreseeable new safety risks.
9. ArcLight Facilities are existing CHP facilities and therefore viable projects.
10. The PPAs are not subject to the EPS under D.07-01-039 as the facilities will be operating with an annualized plant capacity factor of less than 60 percent.
11. PG&E has complied with the Commission's rules for involving the Procurement Review Group.

**THEREFORE IT IS ORDERED THAT:**

1. The request of Pacific Gas & Electric Company in Advice Letter AL 4376-E for the Commission to approve without modification the Power Purchase Agreements (PPAs) with (1) Badger Creek Limited, (2) Bear Mountain Limited, (3) Chalk Cliff Limited, (4) Live Oak Limited, and (5) McKittrick Limited is approved.
2. PG&E is authorized to recover the costs associated with the PPAs through the cost recovery mechanisms set forth in D.10-12-035 (as modified by D.11-07-010), Section 13.1.2.2 of the QF/CHP Settlement Term Sheet, and PG&E's Advice Letter 3922-E.
3. The total nameplate capacities of each of the five ArcLight Facilities count towards the QF/CHP Settlement MW target.
4. All GHG reductions associated with the PPAs count towards the GHG Emissions Reduction target included in the QF/CHP Settlement.
5. Because the expected annualized plant capacity factors of each facility under the new PPAs is below 60 percent, the facilities are not subject to the GHG Emissions Performance Standard adopted in D.07-01-039.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on August 28, 2014; the following Commissioners voting favorably thereon:

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PAUL CLANON  
Executive Director

## **Confidential Appendix A**

REDACTED