DRAFT – Option B

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

ID #10712

ENERGY DIVISION **RESOLUTION E-4433**

November 10, 2011

REDACTED

R E S O L U T I O N

Resolution E-4433. Pacific Gas and Electric Company

PROPOSED OUTCOME: This Resolution approves cost recovery for the long-term renewable power purchase agreement between Pacific Gas and Electric Company and Mojave Solar, LLC, an affiliate of Abengoa Solar, Inc. The power purchase agreement is approved with modifications.

ESTIMATED COST: Costs of the power purchase agreement are confidential at this time.

By Advice Letter 3876-E filed on July 19, 2011 and Supplemental Advice Letter 3876-E-A filed on August 29, 2011

SUMMARY

Pacific Gas and Electric Company's renewable energy power purchase agreement with Mojave Solar, LLC is approved with modifications.

Pacific Gas and Electric Company (PG&E) filed Advice Letter 3876-E on July 19, 2011, requesting the California Public Utilities Commission (Commission) approval of a 25-year renewable energy power purchase agreement (PPA) between PG&E and Mojave Solar, LLC. Mojave Solar, LLC, an affiliate of Abengoa Solar, Inc., is developing a 250 megawatt concentrating solar power parabolic trough renewable energy generation facility in San Bernardino County, California. PG&E states that the project is expected to produce approximately 617 gigawatt-hours of generation annually beginning in July, 2014.

The Mojave Solar, LLC project (Mojave Solar) was selected through PG&E's 2007 Renewables Portfolio Standard (RPS) solicitation. PG&E initially submitted a

PPA with Mojave Solar, LLC on October 27, 2009 (in Advice Letter 3547-E). While the PPA was pending Commission approval, Mojave Solar, LLC learned that the transmission network upgrades necessary for the project to provide resource adequacy to PG&E would not be completed until several years after the project was scheduled to achieve commercial operation. Because the PPA required that the facility provide resource adequacy PG&E and Mojave Solar renegotiated the PPA. According to PG&E, its objective during the renegotiation was to accommodate the delay with transmission network upgrades, facilitate the project meeting the requirements for a Department of Energy Federal Loan Guarantee and to maintain the value of the original PPA.

Mojave Solar is the furthest developed new utility-scale solar thermal project that the Commission has encountered in our capacity of reviewing the utilities' RPS power purchase agreements. Mojave Solar has obtained critical project development components (e.g., permit to construct, transmission interconnection agreement and financing commitments), leaving only a Commission approved power purchase agreement as the final milestone in order initiate project construction. Also, solar thermal facilities offer better operational characteristics than other intermittent renewable facilities.

For all the strengths underlying the Mojave Solar project, it has one significant weakness – the cost. Information provided by PG&E shows that this contract is significantly more costly than other procurement opportunities available to PG&E, including projects from the 2009 and 2011 RPS solicitation. The Mojave Solar contract also exceeds the average price of RPS contract recently approved by this Commission. Lastly, the Mojave Solar contract ranks low on a net market value basis, a comparison of an RPS contract's total costs and benefits, relative to other contracts. The low net market value of the contract is further impacted by the significant transmission network upgrade costs required to make the project fully deliverable, which is necessary for the project to provide PG&E with resource adequacy credit pursuant to the PPA. It is important to note that these transmission network upgrades are not necessary for the project to interconnect and deliver its generation to PG&E.

In considering the strengths and weaknesses of PG&E's PPA with Mojave Solar, the Commission finds that the value of adding the Mojave Solar project to California's fleet of renewable energy generation capacity warrants approving the relatively high priced contract. The Mojave Solar project is highly viable and the solar thermal facility will enhance the resource diversity of PG&E's portfolio.

While PG&E has not established a definitive need for a project that is expected to achieve commercial operation in 2014, the RPS program establishes long-term goals. It is difficult to know how much generation will be delivered from projects under contract with PG&E today but not yet constructed. For these reasons, the Commission approves PG&E's RPS contract with Mojave Solar.

The PPA makes the project dependent on the approval and construction of a transmission line even though Mojave Solar will be able to interconnect and deliver its generation without the transmission upgrades. It is unknown at this time when the transmission line will be filed with the Commission for approval, whether the line will be approved, and the extent to which the line will be fully subscribed with generating capacity. Given this uncertainty, the Commission approves the PPA with modifications to remove unnecessary risks to the project and to maximize the value of the project to ratepayers. Our approval is requires that PG&E submit an amended PPA that removes the requirement for Mojave Solar to provide replacement resource adequacy beyond December 31, 2020. This PPA amendment will remove the dependency of the Mojave Solar project on a proposed transmission network upgrade that is not needed for the project to interconnect to the transmission grid and deliver its generation.

The following table provides a summary of the Mojave Solar, LLC power purchase agreement and facility:

Generating Facility	Mojave Solar
Technology	Solar thermal (wet cooled, trough, no storage)
Contract Length	25 years
Facility Capacity	250 megawatts
Annual Deliveries	617 gigawatt-hours
Online Date	July, 2014
Project Location	San Bernardino County, California

BACKGROUND

Overview of the Renewables Portfolio Standard (RPS) Program

The California RPS Program was established by Senate Bill (SB) 1078, and has been subsequently modified by SB 107, SB 1036 and SB 2 (1x).[1] The RPS program is codified in Public Utilities Code Sections 399.11-399.20.[2] Under SB 2 (1x),[3] the RPS program administered by the Commission requires each retail seller to increase its total procurement of eligible renewable energy resources so that 33 percent of retail sales are served by eligible renewable energy resources no later than December 31, 2020.[4]

Additional background information about the Commission's RPS Program, including links to relevant laws and Commission decisions, is available at http://www.cpuc.ca.gov/PUC/energy/Renewables/overview.htm and http://www.cpuc.ca.gov/PUC/energy/Renewables/decisions.htm.

NOTICE

Notice of AL 3876-E was made by publication in the Commission's Daily Calendar. PG&E states that a copy of the Advice Letter was mailed and distributed in accordance with Section 3.14 of General Order 96-B.

PROTESTS

Advice Letter AL 3876-E was timely protested on August 8, 2011 by The Division of Ratepayer Advocates (DRA). PG&E responded to DRA's protest on August 15, 2011.

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[1] SB 1078 (Sher, Chapter 516, Statutes of 2002); SB 107 (Simitian, Chapter 464, Statutes of 2006); SB 1036 (Perata, Chapter 685, Statutes of 2007); SB 2 (1x) (Simitian, Chapter 1, Statutes of 2011, First Extraordinary Session).

[2] All further references to sections refer to Public Utilities Code unless otherwise specified.

[3] SB 2 (1x) becomes effective on December 10, 2011; 90 days after the close of the Legislatures 2011 Extraordinary Session.

[4] *See* SB 2 (1x), § 399.15(b)(2)(B).

DISCUSSION

Pacific Gas & Electric Company requests approval of a renewable energy power purchase agreement with Mojave Solar, LLC.

On July 19, 2011, Pacific Gas and Electric Company (PG&E) filed Advice Letter (AL) 3876-E requesting California Public Utilities Commission (Commission) approval of a 25 year power purchase agreement (PPA) with Mojave Solar, LLC, an affiliate of Abengoa Solar, Inc.[5] The PPA concerns a new 250 megawatt (MW) concentrating solar power parabolic trough renewable energy generation facility in San Bernardino County, California. The project is scheduled to achieve commercial operation in July 2014 and PG&E expects to procure approximately 617 gigawatt-hours (GWh) of generation annually over the contract term.

PG&E shortlisted the Mojave Solar, LLC project (Mojave Solar) through PG&E's 2007 Renewables Portfolio Standard (RPS) solicitation as one of a collection of projects for which they would pursue contract negotiations. PG&E initially submitted a PPA with Mojave Solar on October 27, 2009 (AL 3547-E).[6] During the time that the original PPA was pending Commission approval, Mojave Solar learned the transmission network upgrades needed for the project to be deemed "fully deliverable" by the California Independent System Operator (CAISO) would be delayed until after the project's commercial online date. Because the PPA required the project to be fully deliverable so that Mojave Solar would provide resource adequacy (RA) credit to PG&E, the parties agreed that contract amendments were necessary to address the period of time when the project would be interconnected and delivering energy to PG&E, but before the transmission network upgrades for deliverability would be complete.[7]

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[5] PG&E filed substitute sheets to AL 3876-E on July 20, 2011 and September 9, 2011 to correct errors in the confidential appendices.

[6] PG&E withdrew AL 3547-E on July 19, 2011, the same day that AL 3876-E was filed.

[7] Specific term and concept definitions are provided here to benefit the reader. Resource Adequacy: The purpose of the Resource Adequacy program is to provide sufficient resources to the CAISO to ensure the safe and reliable operation of the transmission grid in real time. The program is also designed to provide appropriate incentives for the siting and construction of new resources needed for reliability in the future. Commission-jurisdictional load serving entities are required to have sufficient capacity under contract to meet expected system needs plus a 15 percent reserve

Footnote continued on next page

In AL 3876-E PG&E explains:

> Under the Original PPA, Mojave Solar was obligated to ensure that all of the required Southern California Edison Company ("SCE") transmission network upgrades ("Transmission Network Upgrades") were complete prior to commercial operation of the Project, which would have ensured that PG&E received full Resource Adequacy ("RA") credit from the Project. In 2010, Mojave Solar informed PG&E that the Delivery Network Upgrades, as defined in the Large Generator Interconnection Agreement ("LGIA") with SCE, would not be completed until February, 2018. As a result, PG&E entered into negotiations with Mojave Solar to address this issue.

The PPA filed with the AL 3876-E includes terms and conditions that effect payments between PG&E and Mojave Solar for deliveries that occur prior to the completion of the transmission network upgrades. PG&E states that the company's objective during the re-negotiations with Mojave Solar was to accommodate a delay in the transmission network upgrades, facilitate the project meeting the requirements for the Department of Energy Federal Loan Guarantee and to maintain the value of the original PPA.

PG&E's advice letter raises a unique issue: Mojave Solar can interconnect its facility and deliver energy to PG&E without significant transmission network upgrades.[8] However, because PG&E desires to receive RA from the facility, the Mojave Solar project is dependent on a transmission network upgrade that may result in costs that exceed the RA value.[9] This dependency also has the potential

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margin.
Deliverability: Deliverability is the ability of the output of a generating resource to be delivered to aggregate load. Deliverability studies model peak demand periods and assume that all generating resources are dispatched to meet demand. A generating resource must be deemed "fully deliverable" by the CAISO in order for that resource to contribute to a load serving entity's Resource Adequacy requirements.

[8] PG&E response to DRA protest regarding AL 3876-E.

[9] The costs for transmission network upgrades are ultimately paid by ratepayers through the transmission access charge, unlike the costs for interconnection facilities, which are the developer's responsibility.

to adversely impact the viability of the Mojave Solar project. At this time, it is unknown when the transmission line will be filed with the Commission for approval, whether the line will be approved, and the extent to which the line will be fully subscribed with generation. Therefore, the structure of the PPA poses both viability and value risks to the project and PG&E's ratepayers. This issue is addressed in detail in the least-cost, best-fit and transmission sections below.

Pursuant to the PPA, Mojave Solar is required to provide PG&E with RA, and therefore, Mojave Solar needs the transmission network upgrades (deliverability upgrades) constructed. However, in order to qualify for the Department of Energy Federal Loan Guarantee and to receive the Federal investment tax credit Mojave Solar must start construction prior to knowing whether the deliverability upgrades are approved by the Commission.[10] Therefore, while PG&E's objective may have been to maintain the value of the original PPA, the potential for a significant unintended consequence is apparent. In the event that the deliverability upgrades are not approved Mojave Solar is required to pay PG&E the cost of resource adequacy procured by PG&E that otherwise would have been provided by the facility if it were fully deliverable. It is reasonable to expect that this financial burden could jeopardize an otherwise viable project. It is not apparent that PG&E has factored this risk into its analysis.

PG&E requests that the Commission issue a resolution that:

1. Approves the PPA in its entirety, including payments to be made by PG&E pursuant to the PPA, subject to the Commission's review of PG&E's administration of the PPA.
2. Finds that any procurement pursuant to the PPA is procurement from an eligible renewable energy resource for purposes of determining PG&E's compliance with any obligation that it may have to procure eligible renewable energy resources pursuant to the California Renewables Portfolio Standard (Public Utilities Code Section 399.11 et seq.) ("RPS") Decision ("D.") 03-06-071 and D.06-10-050, or other applicable law.

[10] The timing for when SCE will file its Certificate of Public Convenience and Necessity is unclear.

3. Finds that all procurement and administrative costs, as provided by Public Utilities Code section 399.14(g), associated with the PPA shall be recovered in rates.
4. Adopts the following finding of fact and conclusion of law in support of CPUC Approval:
   a. The PPA is consistent with PG&E's 2007 and 2011 RPS procurement plans.
   b. The terms of the PPA, including the price of delivered energy, are reasonable.
5. Adopts the following finding of fact and conclusion of law in support of cost recovery for the PPA:
   a. The utility's costs under the PPA shall be recovered through PG&E's Energy Resource Recovery Account ("ERRA").
   b. Any stranded costs that may arise from the PPA are subject to the provisions of D.04-12-048 that authorize recovery of stranded renewables procurement costs over the life of the contract. The implementation of the D.04-12-048 stranded cost recovery mechanism is addressed in D.08-09-012.
6. Adopts the following findings with respect to resource compliance with the Emissions Performance Standard ("EPS") adopted in R.06-04-009:
   a. The PPA is not covered procurement subject to the EPS because the generating facility has a forecast capacity factor of less than 60 percent and, therefore, is not baseload generation under paragraphs 1(a)(ii) and 3(2)(a) of the Adopted Interim EPS Rules.

Energy Division Evaluated the Mojave Solar, LLC PPA on the following criteria:

- Consistency with PG&E's 2007 and 2011 RPS procurement plan
- Assessment of PG&E's RPS Need
- Consistency with PG&E's Least-Cost, Best-Fit requirements
- Impact of deliverability upgrades on project viability and contract value
- Consistency with RPS standard terms and conditions

- Independent Evaluator review
- Cost reasonableness
- Cost containment
- Project viability assessment and development status
- Compliance with the minimum quantity condition
- Compliance with the Interim Greenhouse Gas Emissions Performance Standard
- Procurement Review Group participation
- DRA's protest

Consistency with PG&E's 2007 and 2011 RPS procurement plan

Pursuant to statute, PG&E's RPS procurement plans include an assessment of supply and demand to determine the optimal mix of renewable generation resources, consideration of flexible compliance mechanisms established by the Commission, and a bid solicitation protocol setting forth the need for renewable generation of various operational characteristics.[11] California's RPS statute also requires that the Commission review the results of a renewable energy resource solicitation submitted for approval by a utility[12] to ensure the utility conducted its solicitation according to its Commission-approved procurement plan.[13]

Because so much time has lapsed from when the Mojave Solar project bid into PG&E's 2007 solicitation and when the contract was finally submitted for Commission approval, staff also evaluated the contract for consistency with PG&E's most recently adopted RPS procurement plan.

The Mojave Solar contract resulted from PG&E's 2007 RPS solicitation. The Commission finds that PG&E's decision to shortlist the Mojave Solar project was consistent with PG&E's approved 2007 RPS procurement plan. In PG&E's 2011 RPS procurement plan, PG&E stated its intent to execute renewable energy contracts with viable counterparties equivalent to 1 to 2 percent of retail sales

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[11] Pub. Util. Code, Section §399.14(a)(3).

[12] Pub. Util. Code, Section §399.14.

[13] PG&E's 2007 RPS Procurement Plan was approved by D.07-02-011.

annually.[14] This goal is intended to facilitate compliance with the existing 20 percent compliance requirement and build a portfolio of renewable resources to comply with the longer-term 33 percent goal. The Commission finds that PG&E's decision to execute the Mojave Solar contract is reasonably consistent with PG&E's objective to secure contracts with viable sellers.

The Mojave Solar PPA is reasonably consistent with PG&E's 2007 and 2011 RPS procurement plans.

Assessment of PG&E's need for the Mojave Solar project

Future RPS compliance obligations are generally[15] defined in SB 2 (1x) as follows: PG&E must procure RPS-eligible resources equivalent to an average of 20 percent of retail sales for 2011-2013; 25 percent of retail sales by the end of 2016; and 33 percent of retail sales by 2020 and for each year thereafter. With this clarity over the near and longer-term RPS targets, our ability to assess PG&E's RPS needs has improved.

PG&E asserts that approval of the Mojave Solar project is necessary for PG&E to meet its RPS need in the second and third compliance periods (i.e., 2014-2016 and 2017-2020). PG&E provided an assessment of its RPS need based on a scenario analysis of all the contracts in its portfolio including operational projects whose contracts will expire prior to 2020 and projects under contract that have not achieved commercial operation. To account for future uncertainty about project success-rate and the ability of PG&E to re-contract with existing facilities, PG&E discounted the amount of expected generation from these resources.

To assess PG&E's need for the Mojave Solar PPA, our analysis focused on the second compliance period since Mojave Solar is scheduled to achieve commercial operation in the first year of that compliance period (i.e., 2014) and because there will be sufficient procurement opportunities in the next few years for the PG&E to secure resources for the third compliance period. The information provided by PG&E in its advice letter shows that when applying a reasonably conservative

[14] PG&E's 2011 RPS Procurement Plan was approved by D.11-04-030.

[15] The Commission opened Rulemaking (R.) 11-05-005 to implement the 33% RPS law.

forecast of the future, PG&E is potentially on track to meet the second compliance period target without generation from Mojave Solar.

PG&E has not made a clear demonstration of need for the Mojave Solar PPA.

Consistency with PG&E's least-cost best-fit (LCBF) methodology

In D.04-07-029, the Commission directs the utilities to use certain criteria in their LCBF selection of renewable resources.[16] The decision offers guidance regarding the process by which the utility ranks bids in order to select or "shortlist" the bids with which it will commence negotiations. As described in recent RPS procurement plans, PG&E's approved process for identifying LCBF renewable resources focuses on four primary areas:

1. Determination of market value of bid,
2. Calculation of transmission adders and integration costs,
3. Evaluation of portfolio fit, and
4. Consideration of non-price factors.

The first two components noted above are used to determine a contract's net market value (NMV). Because PG&E's calculation of Mojave Solar's NMV is critical to our evaluation of the PPA, we include a detailed description of PG&E's methodology. The NMV calculation quantifies a project's benefits and costs. Specifically, it takes into account the contract price, indirect costs, such as costs for transmission network upgrades, and project attributes such as resource adequacy value. Because transmission network upgrade costs are ultimately paid by California ratepayers, the NMV calculation includes these costs, thus allowing the utility and the Commission to evaluate the total costs of a given contract relative to other offers.

Qualitative factors, such as a project's likelihood of success (i.e., viability) are also part of the RPS program's least-cost, best-fit procurement process, but they are not factored into the net market value calculation discussed above. The Commission considers a project's NMV along with the qualitative attributes when determining reasonableness.

[16] *See* §399.14(a)(2)(B)

The following are explanations for each variable (in $/MWh units) included in PG&E's net market value calculation:[17]

1. Levelized time-of-delivery (TOD) adjusted Energy Cost. The all-in levelized TOD-adjusted contract price, on a negative basis.
2. Levelized Energy Value. PG&E's estimate of the forward market price for the project's delivered energy.
3. Levelized Capacity Value. PG&E's estimate of the resource adequacy value for the project.
4. Transmission Adder. The indirect cost associated with necessary transmission network upgrades and potential transmission congestion.

The NMV calculation, with all units in $/MWh, can be represented as:

NMV = (contract price – energy value – capacity value + transmission network cost) * (-1)

In AL 3876-E, PG&E explains that it examined the reasonableness of the Mojave Solar PPA using the same LCBF methodology used to evaluate bids received in the 2009 RPS solicitation and with other bilateral contracts offered to PG&E during the same time period that the PPA was executed. Additionally, PG&E states that the LCBF evaluation included indirect costs such as transmission and integration costs. When discussing the LCBF evaluation of the PPA, PG&E concludes that the project is highly viable and that it provides diversity to PG&E's RPS portfolio.

The Commission finds that PG&E's conclusion is too cursory and misses the primary purpose of the NMV calculation. <u>From a net market value perspective, the Mojave Solar project is not competitive with projects shortlisted in PG&E's</u>

[17] PG&E measures net market value by treating the levelized time-of-delivery adjusted contract price as a negative value. A project with a higher net market value will be considered a better proposal, all else equal, than a project with a lower net market value (i.e., a project with a net market value of negative 10 will be considered better than a proposal with a net market value of negative 100).

2009 and 2011 RPS solicitation and when compared to bilateral contracts currently being offered to PG&E.[18] (Refer to Confidential Appendix A) The transmission adder used in PG&E's NMV of the contract is significantly higher than when the contract was originally executed and filed in 2009. Often with RPS contracts reviewed by the Commission, the transmission adder in the NMV calculation is an estimated value based on transmission ranking cost reports, which serve as a proxy for estimating what the transmission upgrade costs may be for a project that has not completed the interconnection process. This was the case with the Mojave Solar contract when it was first filed in 2009. Today, the transmission network upgrade costs associated with the contract are known because Mojave Solar has obtained its Large Generator Interconnection Agreement.[19]

While PG&E states its objective during the re-negotiations with Mojave Solar was to maintain the value of the original PPA, it is not evident from the net market value calculation in the advice letter that this has been achieved when compared to the information provided with the original PPA (AL 3547-E). The transmission project necessary for Mojave Solar to be deemed fully deliverable by the CAISO is referred to as the Coolwater-Lugo project. Because of the high transmission adder, the $/MWh costs of the Coolwater-Lugo transmission project (necessary for Mojave Solar to provide RA) exceed the commensurate RA value, under some scenarios. For example, the transmission costs exceed the RA value if the Coolwater-Lugo transmission project is approved and constructed, but only Mojave Solar interconnects to the new transmission line. When comparing the costs of the deliverability upgrades relative to the RA value, the resulting conclusion is that using the Coolwater-Lugo transmission project as the

[18] PG&E provided detailed information about offers received in response to an Energy Division staff data request.

[19] According to the FERC Order on SCE's petition for incentive rate treatment (pages 38-39), the cost of the transmission project necessary for Mojave Solar to be deemed fully deliverable is estimated to be $352 million dollars. http://www.ferc.gov/EventCalendar/Files/20110311122756-EL11-10-000.pdf

means to procure RA from 2018 through 2039 may not be the most cost effective means for PG&E to comply with its RA requirements.[20]

Assuming that the project must provide RA, the "best case" for PG&E's ratepayers from a net market value perspective assumes that the Coolwater-Lugo transmission project is approved and constructed, and that the line is fully subscribed (so that the transmission costs are allocated proportionately to capacity of all interconnected facilities). However, given uncertainty about the Coolwater-Lugo transmission project and the extent to which the transmission line will be fully subscribed, it is premature to assume that the "best case" will be realized.[21]
It is important to highlight that the ability for Mojave Solar to interconnect and deliver its generation to PG&E does not require the Coolwater-Lugo transmission project. Mojave Solar is responsible for significant interconnection facilities and network reliability upgrades so that the project can interconnect to the transmission grid and deliver its energy. These facilities and upgrades are scheduled for completion prior to Mojave Solar's commercial operation date.

<u>The unique viability characteristics of the project, which are not quantitatively accounted for in the NMV calculation, justify an otherwise low net market value. The Commission approves the PPA with modifications in order to remove unnecessary risks to the project and to maximize the value of the project to ratepayers. Commission approval of the PPA requires that PG&E submit an amended PPA that removes the requirement for Mojave Solar to provide replacement resource adequacy beyond December 31, 2020. Mojave Solar is still</u>

[20] In its December 2010 petition to FERC for incentive rate treatment for the South of Kramer project, SCE estimates the completion date for the Coolwater-Lugo project as 2018.

[21] SCE included information in its December 2010 petition to FERC for incentive rate treatment for the South of Kramer project (Docket EL11-10) about projects seeking interconnection in the South of Kramer area. It is unknown whether each of these projects seeking interconnection will ultimately secure PPAs and be built. Also, it is clear from SCE's filing that the projects are seeking interconnection to different segments of the proposed transmission project, each with different risk characteristics and none of which have been approved by the Commission.

required to provide replacement resource adequacy for all years through 2020 consistent with the terms and conditions in the PPA.

Impact of deliverability upgrades on project viability and contract value

Because PG&E did not address the risks associated with the permitting and construction of the deliverability upgrades that Mojave Solar needs to be fully deliverable according to its LGIA,[22] Commission staff sought out public information about the transmission project.

Additional information about the Coolwater-Lugo project and the risks it might face in the permitting process is provided in SCE's December 2010 petition to FERC for incentive rate treatment for the South of Kramer project (FERC docket EL11-10).[23,24] In justifying their request for incentive rate treatment, SCE describes the South of Kramer project as "not routine" and one that "will require complex environmental reviews under both state and federal law."[25] It is clear from reading SCE's petition that the transmission project will face challenges, which in turn may have a direct impact on the economic viability of the Mojave Solar project.

Also, there is a temporal disconnect between Mojave Solar's development timeline and the procedural and construction timeline (if approved) for the

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[22] Refer to FERC Docket ER11-2204.

[23] A copy of SCE's December 2010 petition to FERC for incentive rate treatment for the South of Kramer project, is available here: http://www3.sce.com/sscc/law/dis/dbattach3e.nsf/0/8825710D00783249882577F400830EFB/$FILE/101209+EL11-10+SCE+Petition+for+Declaratory+VOL+1.pdf

[24] In the petition, SCE describes the South of Kramer project as composed of two parts: the Jasper substation, and the Coolwater-Lugo line. The Coolwater-Lugo line, which is the part of the project needed by Mojave Solar to be fully deliverable, has two sections: 47 miles of new 220 kilo-volt (kV) between the Coolwater substation and the new Jasper substation, and 16 miles of new 500kV, initially energized at 220kv, between the new Jasper substation and the existing Lugo substation. The Coolwater-Jasper section of the line is primarily through a new right-of-way, while much of the Jasper-Lugo section follows the existing Pisgah-Lugo right-of-way.

[25] SCE's December 2010 petition to FERC for incentive rate treatment for the South of Kramer project, at 30.

Coolwater-Lugo project. Mojave Solar's commercial online date is June 2014 and completion of the Coolwater-Lugo project is estimated at 2018.[26] The Coolwater-Lugo project was approved by the CAISO in its 2010-2011 Transmission Plan.[27] The Coolwater-Lugo project was approved by the CAISO on the basis of an interconnection agreement(s), and was thus not subject to a cost effectiveness analysis. SCE has not filed a Certificate of Public Convenience and Necessity (CPCN) application with the Commission to request approval to construct the transmission line.[28] Therefore, timing of when the Commission will decide on the Coolwater-Lugo project is unknown, but will certainly occur after the Mojave Solar project is under development. If SCE submits a CPCN application for the Coolwater-Lugo transmission project, the Commission will have to weigh many factors, including cost effectiveness and the environmental review required under the CEQA, when determining whether to approve the line.

Nothing in this resolution is meant to imply that the Commission has made a determination with regards to the merits of the Coolwater-Lugo project or SCE's larger South of Kramer transmission project. Also, it is entirely reasonable for PG&E to require in the PPA whatever RA capacity Mojave Solar provides, should it become deliverable.

Consistency with RPS Standard Terms and Conditions

The Commission adopted a set of standard terms and conditions (STCs) required in RPS contracts, four of which are considered "non-modifiable." The STCs were compiled in D.08-04-009 and subsequently amended in D.08-08-028. More

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[26] According to SCE's December 2010 petition to FERC for incentive rate treatment for the South of Kramer project.

[27] The CAISO's 2010-2011 Transmission Plan is available here; refer to Table E1 and methodology description on pages 229-232).
http://www.caiso.com/Documents/Board-approvedISO2010-2011TransmissionPlan.pdf

[28] The Commission's review of transmission line applications (i.e., the CPCN) takes place under two concurrent and parallel processes: (1) environmental review pursuant to the California Environmental Quality Act (CEQA); and (2) review of project need and costs pursuant to Public Utilities Code sections 1001 et seq. and General Order (G.O.) 131-D.

recently in D.10-03-021, as modified by D.11-01-025, the Commission further refined these STCs.

The Mojave Solar PPA includes the Commission-adopted RPS "non-modifiable" standard terms and conditions, as set forth in D.08-04-009, D.08-08-028, and D.10-03-021, as modified by D.11-01-025.

Independent Evaluator Review

PG&E retained independent evaluator (IE) Wayne Oliver from Merrimack Energy Group, Inc., to oversee PG&E's negotiations with Mojave Solar for the original and amended PPA and to evaluate the overall merits for Commission approval of the PPA. AL 3876-E included a public and confidential independent evaluator's report. On August 29, 2011, PG&E submitted supplemental AL 3876-E to provide an updated version of the independent evaluator reports wherein the IE expanded his analysis to include a comparison to offers that PG&E received during the 2009 RPS solicitation. The IE also adjusted his overall assessment about the PPA.

The IE concludes that PG&E's decision to shortlist the project in the 2007 RPS solicitation was reasonable and consistent with the requirements and evaluation criteria set forth in PG&E's solicitation protocols, which were approved by the Commission.

The IE report describes the Mojave Solar as a high cost, highly viable project. The IE offers the following assessment of the Mojave Solar project. Positively, the IE remarks on the project sponsor's (Abengoa Solar) experience and the developments milestones achieved by the Mojave Solar project. Negatively, the IE states that the Mojave Solar project is one of the highest priced contracts relative to projects included on PG&E's shortlists from the 2007, 2008 and 2009 RPS solicitations. The IE also states that the net market value of the contract does not compare favorably to other projects on the shortlists, whether or not transmission cost adders are included. In conclusion, the IE expresses concerns regarding the value of the Mojave Solar contract based on the contract price and net market value.

Consistent with D.06-05-039, an independent evaluator oversaw PG&E's negotiations with Mojave Solar.

Cost Reasonableness

The Commission's reasonableness review for RPS PPA prices includes a comparison of the contract price and net market value to market data. Specifically, contracts are compared to shortlisted projects from the applicable solicitation, bilateral offers at the time the contract was executed, contracts recently approved, contracts pending Commission approval, recently executed contracts, recent bilateral offers and recent solicitation data.

PG&E asserts that the Mojave Solar PPA is reasonable when considering the project's high viability and the added diversity that Commission approval of the PPA will provide to PG&E's RPS portfolio. PG&E compared the project with offers received in the 2009 RPS solicitation and with bilateral offers currently available to PG&E.

Based on the information provided by PG&E in its advice letter, the price and net market value of the Mojave Solar PPA is not competitive with other projects. (Refer to Confidential Appendix A for a comparison of the Mojave Solar project's price, net market value and viability compared to other projects.) Mojave Solar also stands out from other projects for its high viability, a factor that the Commission considers in its cost reasonableness assessment.[29] It is also worth noting that the RPS program covers an array of different technologies that can have significantly different costs associated with their projects and different technologies provide different value to a utility's portfolio. For example, the operating characteristics of solar thermal may be superior to other intermittent resources due to the properties of steam generation.

<u>On balance, the Commission finds that the benefits of approving the Mojave Solar PPA justify the costs. Accordingly, the Commission approves the Mojave Solar PPA with the modification specified in this resolution. PG&E shall file an amended PPA by Tier 1 advice letter within 30 days of the effective date of this resolution. The PPA shall retain provision(s) that adjust the contract price depending on whether the project is fully deliverable. Also, the PPA shall retain</u>

[29] In 2009, the Commission instituted a standardized renewable project development evaluation tool to ensure that the utilities were sufficiently considering project viability when evaluating RPS contracts.

the requirement that Mojave Solar provide resource adequacy to PG&E if and/or when the project is deemed fully deliverable.

Payments made by PG&E under the Mojave Solar PPA are fully recoverable in rates over the life of the PPA, consistent with the modifications required in this resolution, subject to Commission review of PG&E's administration of the PPA.

Cost Containment

Pursuant to statute, the Commission calculates a market price referent (MPR) to assess whether a proposed PPA has above-market costs.[30] The MPR is used by the Commission to assess the above-market costs of RPS contracts. There is a statutory limit on above-MPR costs, which serves as a cost containment mechanism for the RPS program.[31] Contracts that meet certain criteria are eligible for above-MPR funds (AMFs).[32]
PG&E has exhausted its AMFs provided by statute;[33] thus, PG&E is not required to procure RPS-eligible generation at above-MPR costs but may voluntarily choose to do so. [34]

Based on a 2014 commercial online date for the Mojave Solar PPA, the 25-year PPA is above the 2009 MPR. Since PG&E has exhausted its AMFs, it is voluntarily entering into the PPA at a price that is above the applicable market price referent as permitted by Public Utilities Code § 399.15(d).

Project Viability Assessment and Development Status

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[30] *See* Pub. Util. Code § 399.15(c).

[31] *See* Pub. Util. Code §399.15.

[32] Under Resolution E-4199, a PPA between a utility and a developer must meet the following requirements for the utility to achieve AMFs eligibility: (1) the PPA must have Commission approval and be selected through a competitive solicitation, (2) it must cover a duration of at least 10 years; (3) it must develop a new or repowered facility commencing operations on or after January 1, 2005; (4) it must not be a purchase of renewable energy credits; and (5) it must not include any indirect expenses as set forth in the statute.

[33] On May 28, 2009, the Director of the Energy Division notified PG&E that it had exhausted its AMFs account.

[34] *See* Pub. Util. Code § 399.15(d).

PG&E asserts that the Mojave Solar project is viable and will be developed according to the terms and conditions in the PPA. PG&E evaluated the viability of the project using the Commission-approved project viability calculator, which uses standardized criteria to quantify a project's strengths and weaknesses in key areas of renewable project development. The confidential work papers for AL 3876-E include a comparison of projects' viability score relative to all bids PG&E received in its 2009 RPS Solicitation and all shortlisted projects. Refer to Confidential Appendix A. Based on this analysis, the viability of the Mojave Solar project is high compared to other comparable projects offered to PG&E.

The following information about the project's developer and development status was provided by PG&E in AL 3876-E.

Company/Development Team

Mojave Solar's affiliate, Abengoa Solar, is an experienced developer of renewable projects. PG&E asserts that Abengoa Solar has 343 MW of large-scale solar projects in operation and 780 MW of additional projects under construction.

Technology Type and Level of Maturity

Mojave Solar will utilize commercialized concentrating solar thermal trough technology with wet cooling.

Quality of Renewable Resource

The Mojave Solar facility is being developed in the Mojave Desert where the solar resource is excellent and well known. PG&E explains that several solar thermal facilities are operating in the region. The estimated water usage for the project is 2,160 acre-feet per year and ample rights are owned to satisfy the project's need.

Transmission

According to PG&E, the project will interconnect into the CAISO-controlled grid at the Water Valley (or Lockhart) substation. SCE is the Participating Transmission Owner and will construct network reliability upgrades consisting of a Special Protection System (SPS). The SPS and Interconnection facilities,

distribution upgrades, and network reliability upgrades are scheduled for completion by February 1, 2013. PG&E states that Network upgrades for deliverability (Coolwater-Lugo transmission project) are to be completed within seven years of receipt of Abandoned Plant Approval and Mojave Solar's authorization to proceed. The estimated completion date for these upgrades is February 1, 2018.

Site Control

Abengoa Solar has purchased the Mojave Solar site, which is comprised of approximately 1,765 acres.

Financing

The project will be funded through a combination of long-term debt, tax equity, and sponsor equity. The Mojave Solar project has received a $1.2 billion loan guarantee from the Department of Energy. Also, Mojave Solar seeks to utilize the US Treasury Grant in lieu of the 30% investment tax credit. The Treasury Grant requires that project construction begin prior to December 31, 2011 and the project must be placed in service by December 31, 2016.

Permitting Status

PG&E's advice letter[35] shows that the Mojave Solar facility has obtained key permits necessary to construct and operate the facility, including an approved Application for Certification from the California Energy Commission.[36]

Contribution to Minimum Quantity Requirement for Long-Term/New Facility Contracts

[35] Refer to AL 3876-E, pages 14-16.

[36] Information about Mojave Solar's Application for Certification is available here: http://www.energy.ca.gov/sitingcases/abengoa/index.html

D.07-05-028 established a "minimum quantity" condition on the ability of utilities to count a contract of less than 10 years duration with an existing facility for compliance with the RPS program.[37] In the calendar year that a short-term contract with an existing facility is executed, the utility must also enter into long-term contracts or contracts with new facilities equivalent to at least 0.25% of the utility's previous year's retail sales.

As a new facility, delivering pursuant a contract greater than 10 years in length, the Mojave Solar PPA will contribute to PG&E's minimum quantity requirement established in D.07-05-028.

Compliance with the Interim Greenhouse Gas Emissions Performance Standard

California Pub. Utils. Code §§ 8340 and 8341 require that the Commission consider emissions costs associated with new long-term (five years or greater) baseload power contracts procured on behalf of California ratepayers.[38]

D.07-01-039 adopted an interim Emissions Performance Standard (EPS) that establishes an emission rate for obligated facilities at levels no greater than the greenhouse gas (GHG) emissions of a combined-cycle gas turbine power plant. Generating facilities using certain renewable resources are deemed compliant with the EPS.[39]

The Mojave Solar PPA meets the conditions for EPS compliance established in D.07-01-039 because the Mojave Solar facility will utilize one of the pre-approved renewable energy technologies listed in D.07-01-039 that are deemed EPS compliant.

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[37] For purposes of D.07-05-028, contracts of less than 10 years duration are considered "short-term" contracts and facilities that commenced commercial operations prior to January 1, 2005 are considered "existing."

[38] "Baseload generation" is electricity generation at a power plant "designed and intended to provide electricity at an annualized plant capacity factor of at least 60%." Pub. Utils. Code § 8340 (a).

[39] D.07-01-039, Attachment 7, p. 4

Procurement Review Group Participation

The Procurement Review Group (PRG) was initially established in D.02-08-071 as an advisory group to review and assess the details of the IOUs' overall procurement strategy, solicitations, specific proposed procurement contracts and other procurement processes prior to submitting filings to the Commission.[40] PG&E asserts that its PRG has been briefed on the Mojave Solar project since the project was shortlisted in 2007 and most recently on May 17, 2011.

Pursuant to D.02-08-071, PG&E's Procurement Review Group participated in the review of the Mojave Solar PPA.

DRA's protest

In its protest, DRA notes that there are both positive and negative aspects of the Mojave Solar PPA. DRA appears to agree with PG&E and the independent evaluator that the project is highly viable and that approving the PPA for this in–state solar thermal facility will provide qualitative benefits to PG&E and its ratepayers. DRA raises concern about the project's ability to interconnect to the transmission grid but their protest does not identify any specific problem or harm to ratepayers that may occur. DRA is primarily concerned about the costs of the contract. DRA determines that the price does not appear reasonable when compared to the "consistently lower prices of renewable contracts brought forth by the utilities…" and for this reason DRA recommends that the Commission reject the advice letter.[41] DRA also requests that if the contract is approved but the price is higher than offers in PG&E's 2011 RPS solicitation that the Commission require PG&E file an application.

PG&E requests that the Commission reject DRA's protest and approve the PPA. In its response to DRA's protest, PG&E clarified that the interconnection and transmission projects necessary for Mojave Solar to interconnect and deliver its generation to PG&E will be available within the timeframe that the project

[40] PG&E's PRG includes representatives of the Union of Concerned Scientists, the Coalition of California Utility Employees, The Utility Reform Network, the California Public Utility Commission's Energy Division and Division of Ratepayer Advocates, and the California Department of Water Resources.

[41] DRA protest at 3.

expects to achieve commercial operation. PG&E reiterates the positive attributes of the project, namely its high viability, and does not dispute DRA's claim that the contract price is high relative to other offers. PG&E also requests that Commission reject DRA's suggestion that PG&E should be required to file an application to seek approval of the PPA on the grounds that DRA's request conflicts with the RPS program and Commission goals.

DRA accurately portrays the characteristics of PG&E's contract with Mojave Solar as a highly viable project with a high contract price. The Commission evaluated the cost and benefits of PG&E's contract with Mojave Solar and determined that it should be approved with modifications to improve the value of the project. Also, PG&E's use of the Tier 3 advice letter process is consistent with Commission rules for seeking approval of RPS contracts. Accordingly, the Commission rejects DRA's protest.

RPS Eligibility and CPUC Approval

Pursuant to Pub. Util. Code § 399.13, the CEC certifies eligible renewable energy resources. Generation from a resource that is not CEC-certified cannot be used to meet RPS requirements. To ensure that only CEC-certified energy is procured under a Commission-approved RPS contract, the Commission has required standard and non-modifiable "eligibility" language in all RPS contracts. That language requires a seller to warrant that the project qualifies and is certified by the CEC as an "Eligible Renewable Energy Resource," that the project's output delivered to the buyer qualifies under the requirements of the California RPS, and that the seller uses commercially reasonable efforts to maintain eligibility should there be a change in law affecting eligibility.[42]

The Commission requires a standard and non-modifiable clause in all RPS contracts that requires "CPUC Approval" of a PPA to include an explicit finding that "any procurement pursuant to this Agreement is procurement from an eligible renewable energy resource for purposes of determining Buyer's compliance with any obligation that it may have to procure eligible renewable energy resources pursuant to the California Renewables Portfolio Standard

[42] *See, e.g.* D. 08-04-009 at Appendix A, STC 6, Eligibility.

(*Public Utilities Code Section 399.11 et seq.*), Decision 03-06-071, or other applicable law."[43]

Notwithstanding this language, the Commission has no jurisdiction to determine whether a project is an eligible renewable energy resource, neither can the Commission determine prior to final CEC certification of a project, that "any procurement" pursuant to a specific contract will be "procurement from an eligible renewable energy resource."

Therefore, while we include the required finding here, this finding has never been intended, and shall not be read now, to allow the generation from a non-RPS-eligible resource to count towards an RPS compliance obligation. Nor shall such finding absolve the seller of its obligation to obtain CEC certification, or the utility of its obligation to pursue remedies for breach of contract. Such contract enforcement activities shall be reviewed pursuant to the Commission's authority to review the utilities' administration of contracts.

Confidential Information

The Commission, in implementing Pub. Util. Code § 454.5(g), has determined in D.06-06-066, as modified by D.07-05-032, that certain material submitted to the Commission as confidential should be kept confidential to ensure that market sensitive data does not influence the behavior of bidders in future RPS solicitations.D.06-06-066 adopted a time limit on the confidentiality of specific terms in RPS contracts. Such information, such as price, is confidential for three years from the date the contract states that energy deliveries begin, except contracts between IOUs and their affiliates, which are public.

<u>The confidential appendices, marked "[REDACTED]" in the public copy of this resolution, as well as the confidential portions of the advice letter, should remain confidential at this time.</u>

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

[43] *See, e.g.* D. 08-04-009 at Appendix A, STC 1, CPUC Approval.

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.

FINDINGS AND CONCLUSIONS

1. Pacific Gas and Electric Company's (PG&E) power purchase agreement (PPA) with Mojave Solar, LLC (Mojave Solar) is reasonably consistent with Pacific Gas and Electric Company's 2007 and 2011 Renewables Portfolio Standard Procurement Plan, approved by Decision (D.) 07-02-011 and D.11-04-030.
2. PG&E has not clearly demonstrated a need for the Mojave Solar PPA.
3. Consistent with D.06-05-039 an independent evaluator oversaw PG&E's negotiation of the contract between PG&E and Mojave Solar, LLC.
4. The net market value for the Mojave Solar project is not competitive with projects received and shortlisted in PG&E's 2009 and 2011 RPS solicitations and when compared to bilateral contracts currently being offered to PG&E.
5. Given uncertainty about the Coolwater-Lugo transmission project and the extent to which the transmission line will be fully subscribed, it is premature to assume that PG&E's "best case" net market value for the project will be realized.
6. The unique viability characteristics of the Mojave Solar project justify an otherwise low net market value.
7. Modifying the PPA can remove unnecessary risks to the project and can lower the risk of the worst-case scenario of net market value for ratepayers.
8. Construction of the Mojave Solar project will likely begin before a determination is made on the transmission network upgrades necessary for the Mojave Solar project to be deemed fully deliverable by the California Independent System Operator.
9. This resolution does not prejudge any future filing for a Certificate of Public

Convenience and Necessity for transmission that would make the Mojave Solar project fully deliverable.

10. The Mojave Solar PPA includes the Commission-adopted RPS "non-modifiable" standard terms and conditions, as set forth in D.08-04-009, D.08-08-028, and D.10-03-021, as modified by D.11-01-025.
11. Consistent with D.06-05-039, an independent evaluator oversaw PG&E's contract negotiations with Mojave Solar.
12. Based on the information provided by PG&E in its advice letter, the price and net market value of the Mojave Solar PPA is not competitive with other projects.
13. The benefits of project viability and portfolio diversity justify approving the Mojave Solar PPA despite its relatively high cost.
14. The Mojave Solar PPA should be approved with modifications.
15. The price in the Mojave Solar PPA exceeds the applicable 2009 market price referent.
16. Pursuant to Public Utilities Code § 399.15(d), PG&E voluntarily enters into the contract with Mojave Solar at a price that exceeds the applicable market price referent.
17. The Mojave Solar project is far along in the development process and has a high project viability ranking.
18. The Mojave Solar PPA will contribute to PG&E's minimum quantity requirement established in D.07-05-028.
19. The Commission determined that long-term contracts for generation from solar thermal facilities comply with the Emissions Performance Standard under D.07-01-039.
20. Pursuant to Decision 02-08-071, PG&E's Procurement Review Group participated in the review of the Mojave Solar PPA.
21. Procurement pursuant to the Mojave Solar PPA is procurement from an eligible renewable energy resource for purposes of determining PG&E's compliance with any obligation that it may have to procure eligible renewable energy resources pursuant to the California Renewables Portfolio Standard (Public Utilities Code Section 399.11 et seq.), Decision 03-06-071 and Decision 06-10-050, or other applicable law.
22. The immediately preceding finding shall not be read to allow generation from

a non-RPS eligible renewable energy resource to count towards an RPS compliance obligation. Nor shall that finding absolve PG&E of its obligation to enforce compliance with the contracts.

23. The confidential appendices, marked "[REDACTED]" in the public copy of this resolution, as well as the confidential portions of the advice letter, should remain confidential at this time.
24. Advice Letters 3876-E and Supplemental 3876-E-A should be approved with modifications.

THEREFORE IT IS ORDERED THAT:

1. PG&E's Advice Letter 3876-E and Supplemental 3876-E-A, requesting Commission approval of a power purchase agreement with Mojave Solar, LLC, is approved with modifications.
2. Within 30 days of the effective date of this resolution, PG&E shall submit by Tier 1 Advice Letter an amended power purchase agreement between PG&E and Mojave Solar. The PPA shall be amended to remove the requirement for Mojave Solar to provide replacement resource adequacy to PG&E beyond December 31, 2020.

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 November 10, 2011; the following Commissioners voting favorably thereon:

_____
PAUL CLANON
Executive Director

Confidential Appendix A

Contract Summary

[REDACTED]