

## DOCKETED

<b>Docket Number:</b>	09-AFC-07C
<b>Project Title:</b>	Palen Solar Power Project - Compliance
<b>TN #:</b>	201713
<b>Document Title:</b>	Palen Solar Holdings, LLC's Alternatives Supplemental Testimony
<b>Description:</b>	N/A
<b>Filer:</b>	Marie Fleming
<b>Organization:</b>	Galati   Blek LLP
<b>Submitter Role:</b>	Applicant Representative
<b>Submission Date:</b>	2/10/2014 4:26:27 PM
<b>Docketed Date:</b>	2/10/2014

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALEN SOLAR ELECTRIC  
GENERATING SYSTEM**

**DOCKET NO. 09-AFC-07C**

**DECLARATION OF CHARLES  
TURLINSKI**

I, Charles Turlinski, declare as follows:

1. I am presently employed by BrightSource Energy, Inc. as Director of Project Development.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached supplemental testimony relating to Alternatives for the Petition for Amendment for the Palen Solar Electric Generating System (California Energy Commission Docket Number 09-AFC-07C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on Feb 10 2014.



Charles Turlinski

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Petition For Amendment for the  
**PALEN SOLAR ELECTRIC  
GENERATING SYSTEM**

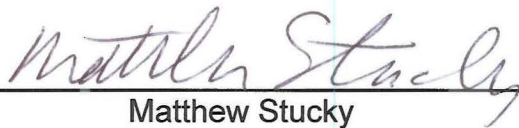
**DOCKET NO. 09-AFC-07C**

**DECLARATION OF MATTHEW  
STUCKY**

I, Matthew Stucky, declare as follows:

1. I am presently employed by Abengoa Solar LLC as Manager of Business Development.
2. A copy of my professional qualifications and experience was included with my Opening Testimony and is incorporated by reference in this Declaration.
3. I prepared the attached supplemental testimony relating to Alternatives for the Petition for Amendment for the Palen Solar Electric Generating System (California Energy Commission Docket Number 09-AFC-07C).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on 2/10 2014.

  
Matthew Stucky

## ALTERNATIVES SUPPLEMENTAL TESTIMONY

I. Name:

Charles Turlinski  
Matthew Stucky

II. Purpose:

Our supplemental testimony addresses the subject of Alternatives associated with the construction and operation of the Palen Solar Electric Generating System (PSEGS) (09-AFC-7C).

III. Qualifications:

**Charles Turlinski:** I am currently employed by BrightSource Energy Inc. and I am a developer of utility scale renewable energy projects with 10 years' experience. I have managed the development and interconnection processes for wind and solar projects throughout the country, including the negotiation and execution of Large Generator Interconnection Agreements (LGIAs) for over 1000 megawatts of capacity in the CAISO. I have a MBA from the Massachusetts Institute of Technology (MIT). I have reviewed the Presiding Member's Proposed Decision (PMPD).

**Matthew Stucky:** I am presently Manager of Business Development at Abengoa Solar LLC and have been for the past four (4) years. I have degrees in Civil Engineering and Environmental Studies and a graduate degree in Environmental Engineering. My experience includes managing permitting and compliance activities for the California Energy Commission-licensed Mojave Solar Project. I have reviewed the PMPD.

Detailed descriptions of our qualifications were presented in the resumes which was included in Attachment A to our Opening Testimony package.

To the best of our knowledge, all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. We have reviewed the Alternatives section contained in the Presiding Members Proposed Decision (PMPD) and in accordance with the direction provided at the PMPD Conference Hearing on January 7, 2014, we hereby provide supplemental testimony further demonstrating the infeasibility of both the No Project Alternative (PSPP original trough project) and the PV alternative.

Petitioner has been pursuing an amended license for a solar tower project at the CEC since December 2012. Petitioner has spent approximately \$65 million dollars to develop this project, including engineering costs, re-permitting costs, environmental surveys (avian, biological, cultural, etc.), interconnection fees, legal fees and general development costs.

**The No Project Alternative (Original PSPP Trough Project) is Infeasible**

There exist significant technical, regulatory, environmental and economic factors, presented below, which all together, or in some cases each individually, render the No Project Alternative infeasible.

***1. Power Purchase Agreements (PPAs) assigned to PSEGS are technology specific.***

The originally approved PSPP project failed primarily due to a lack of PPAs to support the financing and construction of the project. Subsequently, the bankrupt project entity was purchased by PSH as a means to assign existing, CPUC-approved PPAs to an approved, but otherwise abandoned, project. The PPAs now assigned to PSEGS were approved by the CPUC in 2010, prior to the acquisition of the bankrupt PSPP trough project.

Both PPAs specifically designate 'LPT Power Tower' solar thermal technology as the exclusive means of compliance with and execution of the terms of each PPA. We believe the CPUC approved these PPAs, in part, because this technology represented a means to diversify the renewable energy generation sources on the grid and advance an important alternative generation source. Thus, a change in technology is prohibited by the terms of the PPA barring first counterparty and then CPUC approval.

Therefore, we believe the No Project Alternative is infeasible because it would have the effect of rendering the project's PPAs incapable of being implemented upon.

***2. Large Generator Interconnection Agreement (LGIA) pertaining to PSEGS is technology specific.***

The CAISO interconnection tariff encodes specific standards, prohibitions and prescriptive actions governing a generator's flexibility to adjust the specifications of the generation source. In particular, the tariff requires that any change in generator operating performance characteristics must be assessed by CAISO staff to determine whether the change represents

a 'Material Modification.' A change deemed 'material' is not permissible and subsequently would cause the associated project to be removed from the interconnection queue. A change deemed "non-material" by CAISO is allowed the opportunity to amend the respective LGIA (after gaining the approval of the respective Transmission Owner).

The PSPP trough and PSEGS tower projects are both 'solar thermal' technologies, but each has very different fundamental operating characteristics, thus requiring different equipment to interconnect to the grid. For instance, PSPP had lower operating temperatures and lower quality steam conditions entering the steam turbines, whereas PSEGS has higher temperatures and conditions for use in the steam turbines, as well as a natural gas auxiliary boiler for supplemental operation.

The No Project Alternative effectively prescribes turbine and generator equipment that is different than has been deemed acceptable for the existing and executed LGIA, thus a Material Modification request would be required by the No Project Alternative.

The No Project Alternative is infeasible because it would require further time for the CAISO to deem an equipment change "non-material." The time, cost and risks associated with negotiating an amendment to the three-party LGIA is incompatible with the deadlines of the PPAs as well as the applicant's project objectives.

***3. Trough equipment prescribed in the No Project Alternative is not available to the applicant.***

The equipment utilized in the PSPP trough plant originally licensed by the CEC is subject to patents held by the original German project owner. Petitioner did not obtain or license those patents as part of the bankruptcy court purchase and has no direct or timely path to verify whether the technology is still manufacturable and could be purchased at reasonable market rates. As a result, Petitioner would need to use trough technology and components that differ from what was permitted for PSPP. Such new components would require updated designs for layout and grading as well as detailed engineering drawings, all of which the law stipulates would require a major amendment to the No Project Alternative. Thus, the No Project Alternative is infeasible because it cannot reasonably be executed upon, and if it could be, it would result in a project delay beyond the deadlines of the PPAs and would conflict with the project's objectives.

**4. South Coast Air Quality District (SCAQMD) Air Permit Application is technology specific.**

The No Project Alternative would render the Preliminary and Final Determination of Compliance (PDOC and FDOC) documents invalid. The SCAQMD would require an entirely new application; new air quality modeling; and a new health risk assessment to account for the revised footprint, different fossil fuel combustion equipment and the use of a heat transfer fluid system.

The No Project Alternative is infeasible because, as with the original CEC license, the equipment prescribed in the approved license is not available to the Petitioner for purposes of filing a timely, new SCAQMD air permit application. The No Project Alternative is also infeasible due to the time (and costs) associated with commencing a *new* SCAQMD application, which, at this late time, would be wholly incompatible with the PPA deadlines and the project objectives of the applicant.

The aforementioned facts and circumstances in 1. through 4., each individually and certainly in combination, render the No Project Alternative infeasible and in direct contradiction with several of the project objectives.

**The PV Alternative is Infeasible**

There exist significant technical, regulatory, environmental and economic factors, presented below, which all together, or in some cases each individually, render the PV Alternative infeasible.

**1. Power Purchase Agreements (PPAs) assigned to PSEGS are technology specific.**

Both PPAs specifically designate 'LPT Power Tower' solar thermal technology as the exclusive means of compliance with and execution of the terms of each PPA. We believe the CPUC approved these PPAs, in part, because this technology represented a means to diversify the renewable energy generation sources on the grid and advance an important alternative generation source. Thus, a change in technology is prohibited by the terms of the PPA barring first counterparty and then CPUC approval.

The PV Alternative is infeasible because it would have the effect of rendering the project's PPAs void and incapable of being executed upon.

2. ***Large Generator Interconnection Agreement (LGIA) is technology specific.***

The CAISO interconnection tariff encodes specific standards, prohibitions and prescriptive actions governing a generator's flexibility to adjust the specifications of the generation source. In particular, the tariff requires that any change in generator operating performance characteristics must be assessed by CAISO staff to determine whether the change represents a 'Material Modification.' The CAISO could determine that such a change is 'non-material' so long as generators later in the queue are not negatively impacted in terms of cost, schedule or interconnection rights. However, the change to PV would likely result in a mandated reduction in the project's megawatt capacity by CAISO - potentially a substantial reduction - due to the associated reduction in reactive power capabilities, among other power qualities of the PSEGS project, which are superior to PV, and better support the CAISO's ability to manage faults and efficiently balance generation with load. CAISO's interconnection study report for Southern California Edison's Eastern Bulk transmission system, which includes the PSEGS project, states that:

*"To maintain acceptable system performance, the maximum capacity of the 500 kV System supporting Colorado River and Red Bluff Substations was identified to range between 3800 to 4000 MW provided local area solar thermal generation is dispatched and local area solar PV is fully equipped with power factor correction. The system capacity will be lowered if solar thermal projects in the Eastern Bulk System are not dispatched. As part of the operational study, a scenario was evaluated which considered PV solar dispatch only and identified unacceptable transient stability performance if PV generation dispatch at Colorado River and Red Bluff substation exceeds 3100MW."<sup>1</sup>*

At the time this report was prepared, there was approximately 3,000 MW of proposed solar thermal generation in the interconnection queue. Today, including the PSEGS project, there is 750MW.

Even if a proposed change to PV was deemed 'non-material,' the PV Alternative is infeasible because it would require further time for the CAISO to deem an equipment change 'non-material.' In addition, a required reduction in the project's MW capacity by CAISO would be in conflict with the project's objectives and could cause the Petitioner to

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<sup>1</sup> CAISO QC3 and QC4 Phase II Interconnection Study Report for SCE Eastern Bulk System, Final Report, November 5, 2012.



violate the terms of the respective PPAs (were such a technology change was even permissible in the first place).

The PV Alternative is infeasible due to the time, cost and risks associated with negotiating an amendment to the three-party LGIA as well as the fact that project capacity reduction is incompatible with the terms and deadlines of the PPAs and the applicant's project objectives.

If a change to PV is deemed 'material,' it would not be permissible without causing the associated project to be removed from the interconnection queue. In this case, PSEGS would be forced to relinquish its priority rights to interconnection and full capacity deliverability status, and then reapply for a new queue position. Without timely access to grid interconnection, the project would be incapable of meeting its PPA deadlines.

The PV Alternative would be infeasible because its existing interconnection rights would be forfeited.

***3. Time, cost and risk of procuring PV equipment, re-engineering the project and re-permitting the project through CEQA and NEPA are prohibitive.***

Pursuing the PV Alternative would be costly and time intensive as well as present significant risks to the project objective of completion by year end 2016 to obtain financial incentives, such as the federal investment tax credit (ITC).

The time required to process the currently proposed amendment, from initial design, to amendment preparation and submittal to a PMPD, has been well over 18 months. As noted, the Petitioner has invested over \$65 million dollars during this period. The cost and time required to re-process a new amendment through the CEQA and NEPA process, as well as the Local jurisdiction permits required for a PV project, would render the Petitioner incapable of qualifying for the ITC and meeting several of the project objectives.

The aforementioned facts and circumstances in 1. through 3., each individually and certainly in combination, render the PV Alternative infeasible and in direct contradiction with Petitioner's project objectives.