

Tom Budlong  
3216 Mandeville Canyon Road  
Los Angeles, CA 90049-1016

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of: )  
 )  
 )  
Application For Certification )  
For The Genesis Solar Energy Project )  
\_\_\_\_\_ )

DOCKET NO. 09-AFC-8

Opening testimony of Intervenor Tom Budlong  
For the Committee's Evidentiary Hearing, July 12, 2010

June 18, 2010

This statement identifies issues with respect to information presented in the Genesis Solar Energy Project Revised Staff Assessment (RSA) released June 11, 2010 that I intend to present at the Evidentiary Hearing.

Declaration of Tom Budlong

RE: Testimony on Genesis Solar Energy Project (No. 09-AFC-8)

I, Tom Budlong, declare as follows:

I prepared the attached testimony. My relevant professional qualifications and experience are set forth in my attached resume. It is my professional opinion that the attached testimony is true and correct. I am personally familiar with the facts and conclusions set forth within the attached testimony. If called as a witness, I 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.

Dated: June 18, 2010

At: Los Angeles, California

/s/ Tom Budlong

Tom Budlong

## INTRODUCTION

Concern with the 250MW characterization of the project is described in the testimony. The actual output is approximately one quarter of the 250MW. Though probably unintentional, when seen by laymen and the general public the 250MW characterization is deceptive. Even when seen by most non-laymen involved in solar projects, the difference between capacity and actual is not understood or appreciated. One glaring example of damage is the biomass alternative, which incorrectly assumes equivalent outputs for the 250 MW proposed project and a 250 MW biomass project, despite the much higher biomass capacity factor. The geothermal alternative is almost certainly in the same category.

The alternatives section is inadequate. In numerous places is in violation of NEPA and CEQA. Reasons for elimination of many alternatives are often illogical and incomplete.

Despite proposing conversion of 2000 acres of pristine untouched desert to industrial, mostly highly reflective mirrors, the RSA concludes visual impact would be less than significant. It does this by assuming discretionary measures of questionable value that are specified in the Conditions of Certification would happen, and would be effective. The less than significant conclusion should be removed.

These problems with the RSA, and others described in more detail in this document, are sufficient that the RSA should be corrected and reissued as a second edition, with another full 90 day review period. I realize this would put the government guarantees and subsidies in jeopardy. These are not our responsibilities. Our responsibilities are to fairly present the project and alternatives, and to do the best to get the project done right.

Following is my testimony. Following the specific testimony is my exhibit list, my resume and a declaration.

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## 1) The project is in basic violation of NEPA

Reference Exhibit 701 - NEPA - The National Environmental Policy Act of 1969.

NEPA's Title I, Section 101, details basic and fundamental goals. Following are quotes from this section, and then the full text of the section.

In relating the quotes to the proposed project, it is important to keep in mind that the proposed project will completely use up undeveloped, essentially virgin land. The land will convert from near pristine and virtually untouched to a high-intensity industrial zone. It will destroy essentially all of the property's plant and animal life, environmental benefits, and prehistoric cultural evidence. It will be a complete change in the visual impact, inconsistent with most visually adjacent lands.

Quote	Comment
The Congress recognizing the profound impact ... industrial expansion ... resource exploitation... recognizing further the critical importance of ... maintaining environmental quality...	Congress understands the deep importance of maintaining environmental integrity.
... create and maintain conditions under which man and nature can exist in productive harmony ...	The phrase productive harmony is inapplicable for this project. Nature is effectively destroyed, and there can be no harmony with something that does not exist.
... fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.	We are trustees of the environment, responsible for the future. Destroying the environment violates this trust.
... assure... productive and aesthetically and culturally pleasing surroundings	The Imperial site as an industrial site is not aesthetically and culturally pleasing. The site may be productive, but is not both, as required.
... attain the widest range of beneficial uses of the environment without degradation...	The degradation mentioned would be complete.
Preserve... natural aspects, maintain..diversity ...	Both natural aspects and diversity would be entirely removed.
... each person has a responsibility to contribute to the preservation and enhancement of the environment.	The effect of the proposed project is exactly opposite of preserving and enhancing.

Here is the full text of NEPA's introduction, the source of the quotes:

### TITLE I

#### CONGRESSIONAL DECLARATION OF NATIONAL ENVIRONMENTAL POLICY

##### Sec. 101 [42 USC § 4331].

(a) The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.

(b) In order to carry out the policy set forth in this Act, it is the continuing responsibility of the Federal Government to use all practicable means, consist with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may --

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

- |  |
|--|
| <p>4. preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice;</p> <p>5. achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and</p> <p>6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.</p> <p>(c) The Congress recognizes that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.</p> |
|--|

## 2) Applicant Objectives

One of the applicant's primary objectives, profit at minimal risk, is omitted from the RSA and should be included. This objective is more fundamental than the applicant objectives stated in the RSA. To help understand that it is fundamental, consider that the applicant would not have conceived of and applied for project certification without a reasonable profit potential. It would not come to California for altruistic purposes.

That NextEra requires a profit is not a negative criticism. NextEra is an enterprise which must be profitable to be viable, and so can only engage in ventures with a reasonable risk and reasonable profit potential. That the profit motive 'goes without saying' does not argue for its omission, since it is indeed the primary motivation.

This objective should be first in the list of applicant project objectives, to bring focus and understanding to the underlying motivation of the applicant. The RSA should be understood in this context.

## 3) BLM Purpose and Need Statements are Incorrect.

RSA page B.2-10 lists authorities.

- 1) 'Executive order 13212 ... which mandates ...'

The full Executive Order is included as exhibit 702.

Use of the word 'mandate', and omission of mentions of environmental concerns in the executive order are misrepresentations of the flavor of the Executive Order, in violation of requirements for Environmental Impact Reports. They lead readers astray.

The sense of the text of the EO is a priority, not a mandate. In fact, the word mandate does not appear in the order. Also omitted is that the order is sensitive to the environment, with the clauses '*environmentally sound manner*' and '*while maintaining ...environmental protections*'. The full text of the paragraphs with these excerpts is:

### **Section 1. Policy.**

*The increased production and transmission of energy in a safe and environmentally sound manner is essential to the well-being of the American people. In general, it is the policy of this Administration that executive departments and agencies (agencies) shall take appropriate actions, to the extent consistent with applicable law, to expedite projects that will increase the production, transmission, or conservation of energy.*

### **Sec. 2. Actions to Expedite Energy-Related Projects.**

*For energy-related projects, agencies shall expedite their review of permits or take other actions as necessary to accelerate the completion of such projects, while maintaining safety, public health, and environmental protections. The agencies shall take such actions to the extent permitted by law and regulation, and where appropriate.*

- 2) 'Secretarial Order 3285 of March 11, 2009, which establishes the development of renewable energy as a priority for the Department of the Interior.' The order is included as Exhibit 704.

Please note that the order includes the clause '...while protecting and enhancing the Nation's water, wildlife and other natural resources.' Section 4, Policy, is:

### **Sec. 4 Policy.**

*Encouraging the production, development, and delivery of renewable energy is one of the Department's highest priorities. Agencies and bureaus within the Department will work collaboratively with each other, and with other Federal agencies, departments, states, local communities, and private landowners to encourage the timely and responsible development of renewable energy and associated transmission while protecting and enhancing the Nation's water, wildlife and natural resources.*

Contrary to the impression in the RSA, these show that Congress and the Interior Department are concerned with environmental and natural resources as well as energy sources, that they must co-exist, and that one does not trump the other. They do not ‘mandate’, and they do not ‘require’, and they are as specific about environmental protection as about encouraging renewable energy. One does not take priority over the other.

The proposed project, having unmitigable significant impacts to several aspects of the environment, is out of compliance with the orders. We must be more clever in designing renewable energy solutions.

#### 4) BLM Purpose and Need is Too Restrictive

The BLM purpose and need (RSA page A-6) states

*The BLM's purpose and need for the GSEP is to respond to the applicant's application under Title V of the FLPMA (43 USC 1761) for a Right-Of-Way (ROW) Grant to construct, operate and decommission a concentrated solar thermal electric generating facility, and associated infrastructure*

This purpose and need statement does not address the fundamental issue of renewable energy.

Note that NEPA Section 1502.14 states

*'agencies shall... rigorously explore and objectively evaluate all reasonable alternatives....'*

The purpose and need statement circumvents the NEPA requirement to evaluate reasonable alternatives, since it requires concentrated solar. Nothing in NEPA restricts alternatives to the technology proposed by the applicant, or precludes alternatives from using alternate technologies.

The purpose and need statement also appears to restrict the alternatives to the site the applicant has chosen. But NEPA demands reasonable off-site alternatives be considered. Reference Exhibit 706, which includes Question 2b from NEPA's 40 questions:

*2b. Must the EIS analyze alternatives outside the jurisdiction or capability of the agency or beyond what Congress has authorized?*

*A. An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable. A potential conflict with local or federal law does not necessarily render an alternative unreasonable, although such conflicts must be considered. Section 1506.2(d). Alternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies. Section 1500.1(a).*

#### 5) Project Objectives

Several of the project objectives are unreasonably narrow.

NEPA explicitly prohibits this limiting of alternatives. It is properly concerned with finding the best solution, and specifically requires the alternatives considered not be limited to what the applicant wants or is capable of doing.

The limitations contained in the project objectives are in direct violation of Question 2a of NEPA's 40 Questions (see Exhibit 706).

*2a. Alternatives Outside the Capability of Applicant or Jurisdiction of Agency. If an EIS is prepared in connection with an application for a permit or other federal approval, must the EIS rigorously analyze and discuss alternatives that are outside the capability of the applicant or can it be limited to reasonable alternatives that can be carried out by the applicant?*

*A. Section 1502.14 requires the EIS to examine all reasonable alternatives to the proposal. In determining the scope of alternatives to be considered, the emphasis is on what is "reasonable" rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.*

Likewise, CEQA requires a full range of alternatives. Section 15126.6(a):

*An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project*

*An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.*

The RSA has concluded there are no significant impacts. This may or may not be true. This testimony shows that visual impacts are not mitigated to less than significant, as claimed in the RSA. Other environmental impacts not discussed in this testimony may also be shown not to be less than significant.

If indeed, as claimed in the RSA, the proposed project has no significant effects, then CEQA would not require any alternatives be analyzed. Of course, this is an absurd conclusion, completely violating the spirit of CEQA whose thrust, like NEPA, is to determine the best reasonable and feasible solution. Accordingly, the RSA uses 100 pages to discuss alternatives.

The proposed project meets the three restrictions that NEPA prohibits, arousing suspicion that the restrictions are chosen to favor the proposed project, the very situation NEPA is designed to prohibit.

### **High Solarity Site**

In violation of NEPA Question 1a (Exhibit 706), project objectives stated in the RSA require the project be developed on a site with excellent solar resource. This restriction precludes Geothermal, Biomass and Wind alternatives, since they are independent of solarity, and technologies that could be considered unconventional but do not require high solarity. Although eliminated for other reasons, the high solarity requirement also precludes tide and wave technologies.

This requirement for a high solarity area occurs throughout the RSA:

- Applicant's Project Objectives (RSA B.2.4.1 p. B.2-9)  
*To develop a site with an excellent solar resource*
- CEQA PROJECT OBJECTIVES / Energy Commission objectives (RSA A.4, p. A-6)
  - *To locate the project in an area with high solar insolation (i.e., high intensity of solar energy);*
- GSEP specific objectives (RSA A.4, p. A-6)
  - *To locate the project in an area with high solar insolation (i.e., high intensity of solar energy);*
- Project Objectives Of The Energy Commission (CEQA) (RSA B.2.4.2, p. B.2-10)
  - *To locate the facility in areas of high solar insolation.*
- PROPOSED PROJECT OBJECTIVES: The specific objectives of the Genesis Solar Energy Project are: (RSA p. 5)
  - *To locate in an area with high solar insolation (high solar energy intensity);*
- PROJECT OBJECTIVES The Genesis Solar Energy Project objectives are as follows: (RSA p. B.1-30):
  - *To develop a site with an excellent solar resource*

### **Trough Technology**

Also in violation of NEPA Question 2a, project objectives in the RSA are narrowed to require parabolic trough technology:

Occurrences:

- Applicant's Project Objectives (RSA B.2.4.1 p. B.2-9)
  - *To develop a new utility-scale solar energy project using proven concentrated solar trough technology.*
- PROJECT OBJECTIVES The Genesis Solar Energy Project objectives are as follows: (RSA p. B.1-30)
  - *To develop a new utility-scale solar energy project using proven concentrated solar trough technology*
- CEQA PROJECT OBJECTIVES / Energy Commission objectives (RSA A.4, p. A-5)
  - *To develop a utility-scale solar energy project utilizing parabolic trough technology;*
- PROPOSED PROJECT OBJECTIVES: The specific objectives of the Genesis Solar Energy Project are: (RSA p. 5)
  - *To develop a utility-scale solar energy project utilizing parabolic trough technology;*

## ARRA Funding

Two project objective statements additionally restrict alternatives to projects that qualify for ARRA funding. The applicant has stated that it intends to apply for ARRA funding (RSA page B.2-11). Again, this artificial objective removes potentially viable alternatives, in violation of NEPA and CEQA.

- CEQA PROJECT OBJECTIVES / Energy Commission objectives (RSA A.4, p. A-6)
  - *To commence construction in 2010 to qualify for the American Recovery and Reinvestment Act (ARRA) of 2009's Renewable Energy Grant Program.*
- Project Objectives Of The Energy Commission (CEQA) (RSA B.2.4.2, p. B.2-10)
  - *To complete the review process in a timeframe that would allow the applicant to start construction or meet the economic performance guidelines by December 31, 2010 to potentially qualify for the 2009 ARRA cash grant in lieu of tax credits for certain renewable energy projects.*

## 6) Economic Analysis

The EIS must include economic analyses of the proposed project and alternatives.

Economic analysis to examine and understand economic feasibility of the project is fundamental, and a foundation for analysis of the project and for alternatives analysis. The project will present a huge environmental disturbance to the area. If it becomes economically unfeasible it will eventually be abandoned, leaving an impact that cannot be repaired or returned to undisturbed condition in a reasonable time frame, perhaps essentially forever. The probability of such an environmental impact cannot be ignored in an Environmental Impact Report. Alternatives must be analyzed to the same economic criteria for the same reason. They cannot be considered in a vacuum of comparison to the proposed alternative.

### Recognition of Economic Importance by the RSA

The concept that economic analysis is basic is recognized in many places the RSA:

- Project Objectives (RSA p. B.2-10)
  - To complete the review process in a timeframe that would allow the applicant to start construction or meet the economic performance guidelines by December 31, 2010 to potentially qualify for the 2009 ARRA cash grant in lieu of tax credits for certain renewable energy projects*
- Proposed Project Objectives (p.5): Among the CEQA project objectives is:
  - To construct and operate an environmentally friendly, economically sound, and operationally reliable solar power generation facility...*
- This is repeated almost verbatim on pages A-5 and A-6, in the CEQA Project Objectives:
  - To construct and operate an environmentally and economically sound, and operationally reliable solar power generation facility*
- Again, on pages B.1-30 and B.2-9, talking of applicant objectives:
  - To construct, operate and maintain an efficient, economic, reliable, safe and environmentally sound solar powered generating facility*
- The discussion of the Reduced Acreage alternative on page B.2-15 states:
  - A detailed cost-benefit analysis for a reduced-size project would be required in order to determine the economic feasibility of this alternative. As a result, feasibility is uncertain at this time.*
- Economics is of concern for the Reduced Acreage Alternative;
  - page B.2-85:
    - While the Reduced Acreage Alternative would meet most project objectives, it is uncertain whether the Reduced Acreage Alternative is economically feasible.*
  - page B.2-15:
    - A detailed cost-benefit analysis for a reduced-size project would be required in order to determine the economic feasibility of this alternative. As a result, feasibility is uncertain at this time.*
- Economics appears to be of concern in at least one instance in the RSA. The economic feasibility of dry cooling is examined starting on page B.2-19.

Other considerations mentioned in regulations and the RSA require consideration of economics.

a) NEPA's Council of Environmental Quality is specific. Question 2a of the CEQ's 40 Most Asked Questions (Exhibit 706) requires economic analysis<sup>1</sup>:

*2a. Alternatives Outside the Capability of Applicant or Jurisdiction of Agency. If an EIS is prepared in connection with an application for a permit or other federal approval, must the EIS rigorously analyze and discuss alternatives that are outside the capability of the applicant or can it be limited to reasonable alternatives that can be carried out by the applicant?*

*A. Section 1502.14 requires the EIS to examine all reasonable alternatives to the proposal. In determining the scope of alternatives to be considered, the emphasis is on what is "reasonable" rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the **technical and economic standpoint and using common sense**, rather than simply desirable from the standpoint of the applicant. [Emphasis added]*

NEPA is concerned with ensuring only reasonable alternatives need be considered. The definition of reasonable alternatives is practicality and feasibility from:

- the technical standpoint,
- the economic standpoint,
- and using common sense.

Section 1502.14 continues, requiring as the basis for choice, a presentation that includes the proposal and the alternatives defined as reasonable.

***Nepa Sec. 1502.14 Alternatives including the proposed action.***

*This section is the heart of the environmental impact statement. Based on the information and analysis presented in the sections on the Affected Environment (Sec. 1502.15) and the Environmental Consequences (Sec. 1502.16), it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and **providing a clear basis for choice** among options by the decision maker and the public. [Emphasis added]*

Elsewhere in NEPA, Section 1501.2(b) requires comparison of environmental effects and values with economic and technical analyses, and that these documents and analyses be made available.

*Each agency shall:*

*(b) Identify environmental effects and values in adequate detail so they can be compared to **economic** and technical analyses. Environmental documents and appropriate analyses shall be circulated and reviewed at the same time as other planning documents.*

Clearly, NEPA intends economics be part of the decision process, parallel with technology and impacts to the environment.

b) The CEC requires that the project sell competitively priced electricity:

- Page B.2-69, discussing CEQA and NEPA criteria for distributed solar alternatives:  
*... CEC project objectives to operate 250 MW of renewable power in California capable of selling competitively priced renewable energy.*

- Page B.2-81:

*However, gas-fired plants would fail to meet a major project objective: to construct and operate a renewable power generating facility in California capable of selling competitively priced renewable energy consistent with the needs of California utilities*

*(The needs of California utilities are not described.)*

Fulfillment of the project objective of competitive price cannot be verified or judged without an economic analysis.

c) The Alternatives Section, Summary of Conclusions, quite properly talks about costs of alternatives:

Page B.2-2 shows cost concern for rooftop solar:

*...increased deployment of distributed solar photovoltaics faces challenges in manufacturing capacity, cost, and policy implementation.*

It is impossible to consider alternatives and compare them to the proposed project without analyzing costs of each.

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<sup>1</sup> The CEQ 40 Most Asked Questions and the answers are at <http://ceq.hss.doe.gov/nepa/regs/40/40p3.htm>. The CEQ authorization memo (Exhibit 705) is at <http://ceq.hss.doe.gov/nepa/regs/40/40p2.htm>

d) USACE regulations require cost consideration:

Page B.2-8, when discussing USACE alternative requirements :

*(2) An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.*

Cost must be considered in determining the practicality of an alternative. An analysis is required.

e) Evaluation of alternative sites requires consideration of cost:

Page B.2-21. One of the site selection criteria is:

- *site should be located on property currently available at a reasonable cost.*

g) That the project be economically sound is one of the CEQA Project Objectives. In fact, it is list first among the several objectives, implying its importance. Several discussions emphasize this. See pages 5, A-5 and A-6:

*To construct and operate an environmentally and economically sound, and operationally reliable solar power generation facility that will contribute to the State of California's renewable energy goals;*

These examples demonstrate that economic and cost analysis is an integral, necessary component of the “basis for choice among options by the decision maker and the public” (The quote is from NEPA, as quoted above.)

That economic considerations are mentioned in numerous places in the documentation is understandable, since the project probably would not exist without economic justification and a cost-to-benefit analysis. An economic analysis is necessary to evaluate the project, and to compare it with alternatives. Without an economic analysis we are forced into the qualitative terms ‘cost more’, or ‘cost less’. Intelligent decisions cannot be made with acceptable confidence when based on unnecessary non-specific terms.

It is tempting to say that the project is necessary, no matter the cost, for the public good of reducing global warming, currently accepted as a necessary goal. But this is not an ‘at all cost’ project.

Additionally, since the project will likely be subsidized with public money and will likely use public land, transparency demands that the economics of the project be revealed to the public.

An economic analysis should include comprehensive details, including but of course not limited to:

- Cost of construction.
- Cost of financing the construction.
- Cost of land usage – purchase or lease.
- Operation costs when the facility is up and running.
- Cost of washing parabolic dish mirrors, compared to flat mirrors.
- Insurance costs.
- Revenues from electricity sales.
- Taxes
- Government subsidies
- Other costs and revenues.

## 7) Net Energy Analysis:

The RSA is missing analysis of the net energy produced. It is impossible to judge if the project balances the environmental cost without knowing how well the project satisfies its basic purpose. It is even possible that energy used for construction and operation will exceed the total output over the project life. This balance cannot be estimated without an analysis. Common sense dictates that plans for a project intended to produce energy include analysis of the net energy that will be produced. I have not found in the documentation justification for the stated 40 year life, nor analysis to support the stated production of 1,620,000 KWh/year.

This analysis should compare net usable energy produced against the no-action alternative, which would neither use nor produce energy. It should also compare against the alternatives. It should include (but of course not be limited to):

- Energy delivered to the customer, after it has gone through transmission lines.
- Energy required to upgrade or make new transmission lines.
- Energy expended during construction – machinery fuel etc.
- Personnel commuting energy (gas for commuting vehicles), during construction and production.

- Energy to transport the plant machinery to the site.
- Life cycle analysis: Energy to make the parabolic mirrors, exclusion fence, and all other facilities. This energy should be compared to the no-action alternative, which would use no materials, and so should include the energy required to mine the materials, through the manufacturing process to the finished product.
- Construction will advance construction machinery to its eventual end of life. The energy analysis should include the energy needed to either replace worn out machinery, or a percentage of life used. Again, this should include total cost of replacement, from mine to finished product. (Without this project, these costs would be avoided.)
- Parasitic energy during production.
- Energy required for decommissioning at the end of the useful life of the power plant.

## 8) The Synergy of Cost, Motivation and Net Energy

Given the very large government economic incentive, it's even possible that the project will satisfy the applicant's basic profit motivation while providing an insignificant net energy. Should this happen, the huge environmental cost would have been spent for naught.

It is imperative the Environmental Impact Statement objectively examine the components of the issue separately, and subsequently examine them together.

## 9) The 250MW rating is incorrect

The facility will generate approximately 68MW, not 250MW.

Page B.1-3 states that each 125MW plant will produce approximately 300,000 MWh/year, approximately 27% capacity factor. Of course, the combined output of both equally plants would be 600,000 MWh/year.

Indeed, dividing 600,000 MWh/year by the number of hours in a year (24x365) gives 68 MW, and 68/250 is 27%. This is in line with capacity factors for CSP solar generators in general.

The actual output (600,000 MWh/year, or 68 MW) appears in very few places in the RSA. Compare this statement with the 250MW rating used repetitively in the RSA.

This conflict in emphasis is a gross, misleading mischaracterization, and must be corrected. The number invites almost all readers to assume the plant will produce almost four times as much as it actually will produce. The misconception carries to media reports and to general public perception. It misleads the public, and authors of the RSA as well.

The difference between the oft-stated 250MW and actual production is not directly explained in the RSA. Perhaps attempting to justify the discrepancy, many places the RSA modify the 250MW with 'net', 'nominal' and 'capacity'.

- Use of the modifier 'nominal': The dictionary definition of nominal is "Existing in name only; not real or actual" (Houghton Mifflin), and "without reference to actual conditions" (Merriam's Webster's).
- Use of the modifier 'net' when referring to the 250 MW rating. Of course, a net amount is the actual amount received. A common example is packaged foods and other goods. Use of this word here is incorrect.
- Capacity is a illusory and deceptive tool, requiring skepticism or experience to question it is not what you get. It is not explained.

This is important.

- Readers who are not aware of the discrepancy are misled. An extremely small number of people would think to question the 250 MW number. An even smaller number would be able to locate the infrequently mentioned actual output in the RSA, understand the implication, and do the arithmetic to verify.
- Note that the CEC's main web page for the Genesis project says:
 

*The project consists of two independent solar electric generating facilities with a nominal net electrical output of 125 megawatts (MW) each, for a total net electrical output of 250 MW.*
- The authors of the biomass alternative in the RSA were misled. They treated as equivalent the 250 MW proposed project, whose capacity factor is around 25% and a 250 MW biomass facility, whose capacity factor would be around 80%. The same error was made in the geothermal alternative analysis.

- The RSA analysis of the geothermal alternative appears misled. It apparently makes the mistake of equating this ‘250 MW’ project with a 250 MW geothermal facility, despite the greatly different capacity factors, and hence actual output, of geothermal plants.
- People outside the project assume it generates 250 MW. This is evident in press reports. The result is feeding incorrect information to the public.

**Cooler Planet**, Nov 12, 2009 (<http://solar.coolerplanet.com/News/11120901-california-paves-way-for-genesis-solar-energy-project-in-riverside-county.aspx>)

*The project, under the auspices of Tucson, Arizona-based, privately held Genesis Solar LLC, will consist of two independent solar electric generating facilities with a combined total output of 250 megawatts, sited on 1,800 acres of BLM- (Bureau of Land Management -)*

**Genesis Solar Energy Project (CACR 48880)** (undated) This is the BLM’s announcement of the project. ( <http://www.blm.gov/ca/st/en/prog/energy/fasttrack/genesis.html>)

*The proposed project is a parabolic trough solar thermal power generating facility designed to produce 250 megawatts of power.*

**Solar Panels and Solar Energy.com** (undated) (<http://www.solarpanels-solarenergy.com/solar-panels/california%E2%80%99s-genesis-solar-energy-project-looking-up/>)

*The project will include of two independent photovoltaic electric generating facilities which will have a combined total output of 250 megawatts. Under the auspices of Tucson based private company, Genesis Solar LLC, the project will be situated on 1,800 acres Bureau of Land Management land. (<http://www.blm.gov/ca/st/en/prog/energy/fasttrack/genesis.html>)*

**October 26, 2009. NextEra Energy Resources to supply solar power to PG&E** (<http://www.nexteraenergy.com/news/contents/2009/102609.shtml>). This is NextEra’s own website. Its statement is unequivocal –NextEra claims it is selling 250 MW to PG&E.

*JUNO BEACH, Fla. – NextEra Energy Resources, LLC, already the country’s leading generator of wind and solar power, announced today that it has entered into a contract to sell 250-megawatts of solar thermal power from the proposed Genesis Solar Energy Project to Pacific Gas and Electric Company (PG&E).*

That this practice is common with most solar facility descriptions is not a reason or excuse to allow it to happen in this documentation. It is wrong and misleading to the point of being fraudulent. One responsibility of the documentation is to fairly describe the proposal, and 250 MW does not do that.

Because this is a common practice, the documents should explain the difference between maximum and average output, explain Capacity Factor, and explain that the output is commonly mis-stated. Because it is easy to miss a single explanation in such a large amount of documentation, or not understand its implication, or be seduced by repetition of the 250 MW number, all documentation connected with the project should be corrected. Perhaps both numbers should be used side-by-side, and when comparing Imperial Solar with other facilities the 250 MW number could be used, with explanation. The purpose is to avoid misleading readers who are innocent of this situation.

Here are example locations in the RSA that refer to 250 MW with no reference to actual output and no use of the conditional ‘net’, ‘capacity, or ‘nominal’ words.

<b>Page</b>	<b>Quote</b>
C.5-21	The reduced emissions would decrease the cancer risk and chronic and acute hazard indices predicted for the 250 MW project as proposed.
B.1-2	The overall site layout and generalized land uses are characterized as follows: 250-MW facility, including...
B.2-20	BLM’s “action alternative” would be to amend the CDCA Plan to include GSEP (250 MW), and ...
B.2-5, B.2-70	While it will very likely be possible to achieve 250 MW of distributed solar energy over the coming years...
B.2-5	Therefore, the development of 250 MW of new geothermal generation capacity within the timeframe...
B.2-13	Sufficient disturbed, private lands for a 250 MW solar power plant were not available near the GSEP,...
B2-50	The design of a 250 MW project at the Gabrych Alternative would be similar to that of GSEP at the proposed site.

To put it more bluntly, the RSA is fooling most everybody with the 250MW number. That’s unethical.

## 10) Visual Impact

The proposed project is a 2,000 acre industrial site on and surrounded by untouched, pristine desert. Staff’s conclusion that it will have less than significant visual impact is absurd. The proposed conditions of certification cannot promise and do not warrant the conclusion.

How is the conclusion possible? The answer is in certification condition language that is open to subjective interpretation and to evasion. Essentially, the requirements say to the constructors ‘Implement your definition of feasible and minimization of visual impact – no more is required.’ Many of the conditions are platitudes, with no concrete specifications. The conclusion of less than significant visual impact cannot be based on this level of discretion and imprecision. The reality is that no mitigation can make an industrial island in undisturbed visually intact surroundings visually less than significant.

With the level of latitude in implementation that is in the conditions, justification of project permission based on the prediction that visual impact will be less than significant could well be called insincere. After construction, when the visual impact turns out to be significant, it is inconceivable that any level of authority would stop the project, order it dismantled and the land returned to original condition.

### Imprecise requirements in the Conditions of Certification

Condition	Revised Staff Assessment Excerpt	Comment
VIS-1	...treat all non-mirror surfaces ... such that their colors minimize visual intrusion...	‘minimize’ is subjective. It implies the smallest possible, but possible must be viewed in terms of practicality – time and expense. Even given unlimited time and expense, it’s doubtful a surface color could mimic light reflection, shading, texture, highlighting and other requirements to realistically mimic the natural world. No evidence is presented that minimizing makes the visual impact less than significant.
	... their [non-mirror surfaces] colors and finishes do not create excessive glare...	‘Excessive’ is subjective. Certainly project personnel and those who appreciate deserts could have different interpretations of ‘excessive’.
	...coloring of security fencing...to blend to the greatest extent feasible with the background soil.	‘greatest extent feasible’ is completely subjective. The full quote mentions slats, vinyl, non-reflective, ... No evidence is presented that these would make the visual impact less than significant.
VIS-2	To the extent feasible...consistent with safety and security ...	The conditions are meaningless since: Safety and security can at any time justify violation of the goal. ‘to the extent feasible’ is subjective. The goal of less than significant visual impact could easily be deemed not feasible.
	a) lamps and reflectors are not visible from beyond the project site.	This could be deemed not feasible, or required for safety and security.
	b) lighting does not cause excessive reflective glare	‘excessive’ is subjective.
	c) direct lighting does not illuminate the nighttime sky...	‘does not illuminate’ is subjective.
	c)...except for required FAA aircraft safety lighting	I found nothing in the RSA to describe FAA requirements. Do they define ‘excessive’ lighting? If FAA requirements result in high night-time light pollution, they would obviate the conclusion of less than significant visual impact.

Condition	Revised Staff Assessment Excerpt	Comment
	d)...illumination of the project and its immediate vicinity is minimized.	Both 'immediate vicinity' and 'minimized' are subjective.
	E. All lighting shall be of minimum necessary brightness consistent with operational safety and security.	'minimum necessary' is subjective. Security personnel and safety personnel can, at any time, cite safety and security to demand lighting that results in significant visual impact.
	F. ...To the greatest feasible extent, project lighting shall be used on an 'as needed' basis...	'greatest feasible extent', and 'as needed' are subjective. Management at any time can install lighting that presents significant visual impact under the authority that the lighting is needed, and anything less is not feasible.
VIS-3	...set back the transmission line at least ½ mile from I-10, if possible.	The 'if possible' clause invites interpretation that it is not possible, or not possible on practical terms. No evidence is presented that a ½ mile setback would result in less than significant visual impact.
VIS-4	...chain link fencing ... opaque privacy slats of a minimum 8 feet in height...	The fence will be 8' high (RSA page C.6-5), or 10 feet high (RSA page C.10-13). Independent of this discrepancy, both are too low to hide the mirrors, which can be 25'-30' high (RSA pages B.2-59, C.2-96) (30' at B.2-60). VR Fig 5 shows structures approaching 50' high. Structures, especially mirrors, substantially higher than fencing will produce a significant visual impact.
VIS-6	To the extent possible... ...reduction of unnecessary disturbance. Retain as much ...as possible Minimize the number of structures... Use natural appearing forms... Reduce the amount of disturbed area...	The phrases are subjective. Each can justify design that increases visual impact well above less than significant. Ignored is the bald fact that an industrial site in the midst of de-facto wilderness will be visually intrusive. The most sensitive designer could not avoid this fact.

## Glare Impacts

Glare impacts are discussed, with some confusion, starting on page C.12-21. The confusion is from using the term 'focal plane' of the troughs. Focal plane is a common term with lenses. The focus of a parabolic trough would be a line, the line occupied by the heat collection tube. Another confusion is the excerpt "...the bright spots depicted are believed by staff to be spread reflections of the sun." Unexplained is the contradiction of spot and spread.

Independent of this confusion, the discussion explains what could be called fugitive light from the mirrors, using several descriptions. These excerpts appear on page C.12-21 of the RSA:

- during certain times of day the mirror units can produce substantial glare and that such glare can be experienced by the public from locations in the project vicinity as intrusive nuisances and may be a distraction
- ... bright spots ... may appear to be very bright.
- The bright spots also appear to 'follow' the viewer
- produce a linear reflected solar image which may be visible briefly to nearby observers.
- these reflections may, under the right conditions, be prominently visible from several miles away.
- The existing Chuckwalla Valley within the project viewshed is essentially dark at night. The pristine, unlit night sky is an important part of the camping experience for many visitors to remote areas such as the nearby Wilderness Areas.

It's obvious that the mirrors produce reflections visible well away from the project site, and that night-time light pollution is an issue of concern. The RSA recommends VIS-4 to prevent bright spot reflections, but that this conclusion is based on 'available data', indicating that staff is working with incomplete data. It continues with recommending VIS-2, repeating words that are open to subjective interpretation and/or make recommended measures optional, or even impossible: 'does not cause excessive reflected glare, 'except for required FAA safety

lighting’, ‘minimize to an as needed basis’, ‘wherever feasible’. These are the same potential exceptions to effective control that appear in the text of the Conditions of Certification.

**KOP Visual Summary**

In this summary of KOP visuals, taken from the RSA, note the preponderance of Moderate and High. This is an indication of the difficulty of bringing the visual impact to less than significant, acceptable levels.

	Visual Quality	Viewer Concern	Viewer Exposure	Overall Visual Sensitivity
KOP-1	Moderate	High	Moderate	Moderately high
KOP-2	Moderate	High	Moderate	Moderately high
KOP-3	Moderately high	High	Moderately low	Moderately high
KOP-4a, 4b	Moderately high	High	Various	Moderate
Palen-McCoy Lowlands	High	High	Moderately low	Moderate

**Further Discussion**

The photos modified to show the project from I-10 locations show no glare (Figs, 8B, 9B, 10B). Since the mirrors will be visible from some part of the freeway to varying degrees during the day, the glaring surfaces are always visible to some drivers.

Typical is the KOP-1 discussion. KOP-1 will have the most visual impact from I-10. The discussion on RSA page C.12-15 recognizes this:

<i>the project would occupy a vast horizontal area, extending across the entire width of the field of view</i>	This recognizes the potential for visual impact.
<i>the level of brightness of the mirror field could be much greater than depicted in the simulation [Figure 8B] substantially increasing the project’s level of contrast under certain conditions.</i>	The discussion does not define the ‘certain conditions’.
<i>Spatial and scale dominance of the vast mirror fields is potentially great, but again greatly moderated by the very narrow portion of the view affected. Dominance would be accentuated during conditions of bright mirror reflection, which would draw attention to the facility</i>	With no light coming from the mirror field, the narrow vertical field would indeed make the project hard to see. But during operation, the mirrors will reflect, most probably making them very noticeable.
<i>Overall visual change to viewers on I-10 is thus considered moderately low, or moderate during the brightest periods of diffuse glare as indicated in Visual Resources Figure 12</i>	
<i>Visual change could rise to a moderately high level if viewers were exposed to bright point spread reflections of the sun as depicted in Visual Resources Figure 13</i>	Figure 13 show Nevada Solar One with substantial glare.
The discussion (RSA page C.12-16, top) then attempts to minimize the impact by citing VIS-4, and the conditions of certification in general.	
<i>With staff-recommended Condition of Certification VIS-4, bright point reflections could be blocked, reducing glare to occasional episodes of moderate visual change from diffuse reflection from the mirror fields as a whole.</i>	The text is not confident that glare would be blocked, using the conditional ‘could’ instead of ‘would be blocked’, perhaps in recognition that the fence is much lower than the mirrors.
<i>With all recommended conditions of certification, overall visual change would thus remain moderate.</i>	Most of the conditions of certification are worded to be optional, implemented at the discretion of the project, which could decide the exceptions are not feasible, are

<p><i>In the context of the setting's moderately high visual sensitivity, this moderate level of visual change would, with recommended conditions of certification, be less-than significant.</i></p>	<p>incompatible with safety and security, are minimized to the project's satisfaction, are not compatible with FAA regulations, are needed full time, ...  Despite these flaws, the text manages to conclude the visual impact is 'less than significant'. But since there is no confidence the conditions would be implemented the conclusion of less than significant visual impact is not defensible.</p>
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## 11) Alternatives

### Introduction

NEPA's and CEQA's underlying principal is to understand and know before deciding, that inadequate information leads to unsound understanding, leading to unsound decisions when balancing environmental protection with our activities. Thus, the environmental policy contained in NEPA. CEQA necessarily follows NEPA, with the similar principals.

### NEPA/CEQA Requirements

NEPA and CEQA demand clear, adequate presentation and discussion of both impacts and alternatives. The text from NEPA (1502.14), for example, is explicit:

*... it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public.*

CEQA 15126.6(a):

*An EIR ... must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.*

The RSA alternative section does this, but only in a few places. Substantial parts are brief, qualitative where they should be quantitative, and do not present alternatives in comparative form. Too often, statements are made with no backup data or evidence, and have the flavor of arbitrary opinions. Reasons for elimination of an alternative often apply to GSEG as well as the alternatives. These shortcomings must be corrected before the RSA can be considered an adequate depiction of the situation, for adequate understanding, and for intelligent decision making.

### CEQA Project Objectives

Section A4, page A-6 of the Genesis RSA emphasizes the project must be located in an area with high solar insolation.

- *To locate the project in an area with high solar insolation (i.e., high intensity of solar energy);*

This objective is stated twice in the section.

It is repeated on page B.2-69:

*The solar technology would not necessarily meet the objective to locate the facility in areas of high solarity, because the distributed technology could be located throughout the State.*

This objective is illogical, and in violation of NEPA. It disfavors alternative solutions. It does not allow for alternatives, still using the same technology, that could provide the same energy with less impact despite not being in an area with high solar insolation.

It is illogical for the very same reason that NEPA prohibits artificial conditions. It unreasonably restricts alternatives, throwing favor toward the applicant's proposed solution. Indeed, the overriding objective of the national exercise toward renewable energy makes no pretense to favor location – it is interested in renewable energy (with other considerations, such as environmental), and makes no judgment as to insolation or other similar properties such as air temperature, altitude, terrain... With this artificial requirement, alternatives such as geothermal, biomass, even tidal wave, could conceivable be chosen, but only they are in an area with high insolation despite being completely independent of solar radiation.

By way of hypothetical example, presume that tomorrow one of the labs working on PV announces a very low cost technology that converts at 100% efficiency, so long as the radiation on the PV does not exceed 50% of maximum that occurs in high solar areas. To force this technology to a high solarity site would require artificially

shading the PVs, only to meet the artificial requirement. It would preclude the hypothetical PV from a location in a better area with lower radiation. Obviously, this would be ludicrous.

Indeed, the rooftop alternative is rejected because rooftops are not common in high solar areas. This judgment is independent of the viability of the alternative.

## NEPA Requirements

NEPA has been interpreted by the Council of Environmental Quality, which issued answers to '40 Most Asked Questions' (Exhibit X00-07). Question 2a addresses the question of the alternatives that must be included. It seems obvious the CEQ was concerned that wild impractical schemes not be required to be considered, and that reasonable alternatives not primarily desirable to the applicant must be considered.

*2a. Alternatives Outside the Capability of Applicant or Jurisdiction of Agency. If an EIS is prepared in connection with an application for a permit or other federal approval, must the EIS rigorously analyze and discuss alternatives that are outside the capability of the applicant or can it be limited to reasonable alternatives that can be carried out by the applicant?*

*A. Section 1502.14 requires the EIS to examine all reasonable alternatives to the proposal. In determining the scope of alternatives to be considered, the emphasis is on what is "reasonable" rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant. [Emphasis added]*

Implied in this answer is that artificial restrictions not be placed on alternatives considered.

## Summary of Impacts

The Summary of Impacts for the Gabrych alternative counts the number of impact categories that have impacts similar to, greater than, and less than the proposed project. Thought not stated explicitly, the implication is that comparing the number of greater impact categories to the number of lesser impact categories leads to a conclusion. Not considered by this method are the levels of impacts of the various categories.

I attempted to factor in level of impact for the Gabrych alternative by assigning impact levels derived from the impact discussions in the RSA. They are subjective, and others may wish to assign different levels. The result shows the Gabrych alternative is superior to the GSEG proposal.

## Proposed Site

Major objections to the project include the effectively complete and permanent destruction of the biological, cultural, visual and aesthetic character of the site. No matter how you look at it, or how many mitigation measures are applied or devised, the result is that the site is essentially destroyed – it becomes single purpose industrial – a complete transformation out of character with its surroundings. Yet Riverside and Imperial Counties have abundant disturbed land in high solar areas. It's difficult to believe that a solution cannot be devised to put the project on disturbed land already exhausted of the values mentioned above. In the end, it's not necessary to consume the proposed site to provide solar power.

## Combined Alternative Analysis

The alternative analyses are restricted to either:

- Putting alternate technologies at sites other than the proposed site (e.g., at the Gabrych alternative).
- Putting alternate technologies at the proposed site.

Only one alternative analysis – geothermal – considers an alternate technology at an alternative site. Examples of other possible off-site/alternative technologies are putting a power tower installation, or using linear Fresnel, on the Gabrych site.

Another way of expressing this analysis deficiency is that it appears there has been no consideration of possible solutions combining other locations and other technologies. It appears highly likely that such an unrestricted alternative philosophy would uncover reasonable alternatives culminating in a better solution.

## Rejections of Alternatives

Many alternative's Rationales for Elimination are obviously illogical, bringing to question the objectivity of the analyses. These illogical conclusions are in gross violation of NEPA and CEQA requirements. Typical are:

- Gabrych: With no discussion or analysis of ownership, the alternative is eliminated because there are too many landowners, other than stating, without evidence, the number of landowners. No evidence is presented to qualify the situation or to justify the conclusion.
- Geothermal: Rejected illogically because 'few new projects have been proposed'. The analysis did not establish a connection between the viability of the alternative and the existence new project proposals, probably because there is none. The conclusion is illogical on its surface.

A second reason for rejection is that geothermal is not in the list of Renewable Energy Portfolio projects that have requested ARRA funds. This implies that projects must use public money to be considered. Again no connection was made in the analysis, likely for the same reason – that there is no connection.

Note that neither of these rejection reasons are dependent on analysis of the technology, the site, or environmental impacts. Yet, the RSA provided analysis, however brief and inadequate, despite its irrelevance to the rejection reason. This indicates cloudy thinking in the RSA.

- Linear Fresnel is dismissed because it would not eliminate the significant impact of the proposed alternative. This criterion would also remove parabolic mirrors from consideration, since these do not eliminate significant impacts.
- Utility Scale Photovoltaic: Eliminated because California must have access to all types of renewable technologies. Not only does the analysis fail to discuss this reason, it defies imagination to understand the logic.

Another reason for elimination is that water usage would be the same as the proposed project. The RSA does not provide evidence that an alternative must be rejected if one of the impacts is the same as the proposed project, probably because it's not true.

- Biomass: Rejected because most biomass facilities are 3-10 MW. Again, no evidence was presented that rejection could be based on the size of 'most' biomass project.

These examples invite suspicion that parabolic mirrors are the prejudged as the only solution. The RSA, however is not the proponent's sales brochure, and the purpose of the RSA is not to promote the applicant's proposed solution or pretend it is better. The concept is in clear violation of the answer to Question 2b of NEPA's 40 questions (Exhibit 706), and to general provisions in CEQA. The applicant's proposed solution, in fact, must be better (or at least equal), to be preferred over other alternatives.

At the same time, at least one of the alternative analyses, Gabrych, appears to be well considered and as complete as could be expected as a 'first look' at potential alternatives.

To preserve credibility, the inadequate sections should be corrected.

## 12) Gabrych Alternative

The extensive analysis in the RSA for this alternative is appreciated.

The last paragraph of the Private Land Alternative on page B.2-57 states that Gabrych is a model for private land alternatives in general. If so, this should be stated here.

Analysis in the RSA shows that the Gabrych alternative, and by extension the Farmland Reserve, Sunland and other sites, are superior to the proposed site, and that they should be seriously considered as viable alternatives.

## Levels of Impacts

The Gabrych alternative 'Summary of Impacts' lists the impacts that are similar, greater or lesser, without consideration of relative importance of the impact categories or degree of impact difference. It implies the decision be based on the number of categories with greater impact compared to the number of categories with lesser impact. But it does not explicitly make this comparison.

The table below uses a numeric score to measure degree of impact.

- The Summary of Impacts for the Gabrych alternative (page B.2-52) rates impact categories as either similar, greater than, or less than the proposed. Degree of impact difference is not described.

- The table below is a more sensitive measure than comparing the simple sum of categories that have greater or lesser impact.
- For categories with dissimilar impacts, the table estimates the degree of impact from the descriptions in the RSA. Categories with similar impacts as stated in the Summary of Impacts paragraphs are ignored.
- The level of impact is judged on a 1-10 scale. Small difference is value 1. Huge difference is value 10. This variable is subjective.

**Note:** Page B.2-12 lists the impacts considered of greatest concern. They are:

- Cultural Resources
- Biological Resources
- Soil & Water
- Visual Resources, cumulative impact
- Cumulative impacts – visual, operational, land use (ag, recreational, wilderness, open space)

Impact Category	Comparison	Level (1-10)
<b>The proposed site is preferred for these impact categories.</b>		
Hazardous Materials	Potential impacts slightly greater at Gabrych, but Conditions of Certification result in no significant impacts.	1
Land Use	Gabrych: No BLM land, or CDCA amendment. Gabrych: Impact to ag land. LESA score 73 – adverse impact due to permanent conversion from agricultural. Not mentioned in the Comparison to Proposed Project are the various biological, cultural, visual and other losses from conversion of the proposed site to industrial. Also not mentioned is the cumulative impact recognized on C.6-2.	1
Noise, Vibration	Gabrych alternative ... slightly greater impact (proximity to residences)	1
Visual Resources	Gabrych has more viewers, so greater visual impact	2
Transmission Line Safety & Nuisance	Proximity at Gabrych of transmission lines to 15 residences.	1
<b>Total</b>		<b>6</b>

Impact Category	Comparison	Level (1-10)
<b>The Gabrych alternative is preferred for these categories.</b>		
Air Quality	The RSA describes GHG emissions at the Gabrych site, but not at the proposed site, so does not compare these. I presume they are the same. It's presumed the work force will live primarily in Blythe. The Gabrych site is closer to Blythe than the proposed site (12 vs. 20 miles). GHG due to commuting would be reduced at the Gabrych site. The summary of impacts section omitted commuting distance. I therefore changed this impact from similar to Gabrych preferred, by a small amount – level 1.	1
Recreation, Wilderness	RSA Gabrych alternative (B.2-44) states impacts to recreation would be slightly less at the Gabrych alternative. Not mentioned are impacts to Wilderness. Since the proposed project and the Palen-McCoy Wilderness share a common boundary, the visual, noise, solitude and other impacts to wilderness would be substantial. These considerations are omitted from the Comparison to Proposed Project section. The RSA incorrectly states the Chuckwalla Valley Dune Thicket ACEC is closed to recreation. The June 15, 2001 Federal Register Notice (Exhibit 700) closes the area to vehicles. It does not mention other forms of recreation. This ACEC also has a common boundary with the proposed project. Impacts to the ACEC were not considered. Because of the omission of the impact to Wilderness and the ACEC, the level assigned is much higher than if only the 'slightly less' characterization were used alone.	5

Impact Category	Comparison	Level (1-10)
<b>The Gabrych alternative is preferred for these categories.</b>		
Soil & Water	Terrain: both level. No difference. Water quality: With BMPs applied, no difference. Water conservation: Gabrych is preferred since dry cooling uses less water than current agriculture, returning water to the Colorado River system. This analysis assumes comparison with the staff recommended dry cooling at the proposed site. The Gabrych site would have no impact to Chuckwalla or Palen-McCoy Wind Transport Corridors.	3
Worker Safety, Fire Protection	Similar impacts, except emergency response time is shorter at the Gabrych site.	1
Biological Resources	From the alternative analysis, page B.2-32: ... <i>development of a solar project at the Gabrych Alternative site would impact fewer biological resources compared to the GSEP footprint because development of the alternative site would occur primarily on agricultural land, whereas development of the Proposed Project site would occur primarily on land supporting native vegetation communities.</i> ... <i>Colorado River supported riparian and undisturbed land, a small percentage of the area, should be avoided.</i> ... <i>If riparian and native habitats were avoided, development of a solar project on the Gabrych Alternative site would have fewer impacts to biological resources than development of a solar project on the Proposed Project site.</i>	4
Cultural Resources	From the alternatives analysis, page B.2-33) ... <b>Proposed project:</b> <i>Geoarchaeological studies of the Proposed Project indicate that the entire area is highly sensitive for buried cultural resources.</i> ... <b>Gabrych:</b> <i>1905 acres of the 2138 acre area have been extensively agriculturally disturbed, destroying any surface component cultural resources.</i> ... <i>undiscovered subsurface sites are comparable</i> ... <i>impacts to potential, undiscovered subsurface archaeological sites at both the Gabrych Alternative and Proposed Project is comparable</i> ... <i>Gabrych Alternative would likely impact fewer surface cultural resources</i>	5
<b>Total</b>		<b>19</b>

**The RSA considered impacts for these categories to be similar.**

Air Quality	The summary of impacts did not consider commuting distance. Air Quality was moved to the Gabrych preferred section.
Public Health & Safety	
Socioeconomics	
Traffic, Transportation	
Waste Management	
Facility Design	
Geology, Paleontology, Minerals	
Plant Efficiency	
Plant Reliability	
Transmission System Engineering	

This analysis shows the Gabrych site is preferred over the Plaster City site by a ratio of 19:6 = 3.1.

The advantages of the Gabrych alternative are sufficient that a more thorough analysis should be done involving, at a minimum:

- Cost analysis of site preparation and other factors compared to the proposed site.
- An estimate of the resource savings (time and money) by satisfying the environmental community, which has been urging solar facilities to locate on previous disturbed land, not open space. Choosing Gabrych would probably convert opponents to enthusiastic supporters.
- Savings by eliminating the requirement of a CDCA plan amendment.
- Possible financial return from the water rights that come with the property.

**Other Properties**

Acres, fallow or productive, is continually available in the farming areas. A moderate amount of property has been fallowed from excessive salinity. The attraction, of course, is that it is previously disturbed and already in a highly impacted area – similar to the attractiveness of the Gabrych. It’s highly probably that a contiguous tract of previously disturbed land of acceptable size could be put together. There is no evidence in the RSA that a search for such property was done.

**13) Private Land Alternative**

The three paragraphs describing this alternative are confusing, to say the least. They are a jumble of disconnected facts and non-sequiturs, only sometimes coming to direct or implied conclusions. Following is an attempt to paraphrase:

Farmland Reserve and Sunworld.	Rejected by NextEra, which prefers wet cooling. The water would come from the Colorado River Basin, and might be denied
	CEC staff, however, considers dry cooling feasible and did not reject these. The fully analyzed Gabrych alternative is considered a surrogate, and so they were not analyzed separately.
	They cannot be considered since they are potential alternatives to the Blythe project.
Land north of Desert Center	Cannot be considered since it is an alternative to the Palen project. The Palen project calls this the North of Desert Center alternative.
Gabrych alternative	Analysed. The analysis is a surrogate for Farmland, Sunworld, and presumably North of Desert Center.

I could not find references to the Farmland Reserve and Sunworld properties in the Blythe DEIS. Computer search on the Blythe DEIS pdf file for both Farmland Reserve and Sunworld was unsuccessful. If indeed these are not Blythe alternatives, they should be considered as reasonable alternatives along with Gabrych.

**14) Geothermal Energy**

Page B.2-72

The Geothermal alternative analysis leads to the conclusion that geothermal is potentially a viable alternative, since it would have fewer environmental impacts. Analysis in more detail is warranted.

The stated rationale for elimination is not supported by the analysis. The discussion has irrelevant statements and statements unsupported by evidence. The analysis apparently has a fundamental flaw that would make geothermal much more attractive, if true.

Geothermal should be seriously considered as a realistic alternative.

**Fundamental RSA Analysis Flaw**

There is potentially a fundamental flaw in the geothermal analysis. If the flaw exists, it would make geothermal even more attractive.

Geothermal plants have capacity factors far greater than concentrated solar since they can run 24/7. For equal energy output, an equivalent geothermal with a 90% capacity factor would need a capacity rating of a little more than one quarter of a CSP’s capacity rating, since CSPs have capacity factors close to 25%. I could find no recognition of this in the analysis of the geothermal alternative. The narrative strongly implies comparison to a geothermal plant with 250 MW capacity. All references to geothermal size use ‘250 MW’.

**Invalid Rationale for Elimination**

The following uses a paraphrase of the Rationale for Elimination on page B.2-75

Despite being commercially available, using less ground, having fewer impacts, and encouragement from the Renewable Portfolio Standard and ARRA funding, the alternative is rejected:

Rejection reason	Comment
Few new projects have been proposed	The reason is ludicrous. It implies that if not many new projects of a technology are proposed, the technology can’t be considered. It does not allow old projects to serve as precedent. I have not found in the RSA a requirement that a few new proposals for a technology must exist for the technology to be considered.

<b>Rejection reason</b>	<b>Comment</b>
No geothermal projects are on the Renewable Energy Action Team list of projects that request ARRA funds.	A reference to provide authority for this statement is needed. I searched both the RSA and google attempting to verify this requirement, with no success. I am skeptical that omission from a REAT list of projects requesting ARRA funds would eliminate consideration of the geothermal alternative to the proposed project. Such a requirement would preclude technologies that REAT has not happened to think of. It would indicate that projects not asking for public funding are not to be considered, that private funding is unacceptable.

### Logical Inconsistencies

- Page B.2-73, in Geothermal Alternative Scenario:  
*There is no single 250 MW geothermal project that would be viable as an alternative to the GSEP.*  
 The relevance of this statement is not explained. It implies that since there is no such project, a project of that size cannot be considered. In fact, the English is flawed – it combines the absolute (is no) with conditional (would). The sentence is nonsensical.
- Page B.2-73, in the Geothermal Alternative Scenario paragraph  
*Two hundred and fifty MW of geothermal energy could require the use of many thousands of acres of land.*  
 The ‘could require’ is not supported by evidence. No evidence is given. ‘Many thousands of acres’ applies equally to the proposed project. The statement comes to no conclusion. Simple replacement of ‘could’ with ‘might not’ would reverse the implication but not the validity. The statement is unsupported, meaningless and farcical.

### Re-analysis Required

Because of these flaws the above analysis should be discarded and replaced with a rational analysis.

## 15) Linear Fresnel Technology

See page B.2-62, RSA.

NEPA 1502.14(a) requires that the analysis “Rigorously explore and objectively evaluate all reasonable alternatives...”.

CEQA 15126.6 (d) states:

*Evaluation of alternatives. The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project.*

With a little less than a page of analysis, the RSA cannot be rigorous or include sufficient information to allow meaningful evaluation.

The analysis consists only of a general description of the technology. It then rejects the alternative since it would not eliminate significant impacts, despite requiring half the acreage (the analysis hints, but is not specific). The statement implies an alternative must eliminate, not merely reduce, significant impact to be considered. By this criteria, the proposed project would be rejected since it does not eliminate impacts, it only purports to reduce them to less than significant. Of course, the implication is absurd.

The brief description of linear Fresnel does not discuss impacts relative to the proposed project. It does not compare the alternative to the proposed project, in comparative or any other form as required by NEPA and CEQA. Conclusions concerning relative merits of this alternative are therefore not possible.

The only mention of comparative impact is in the Rationale for Elimination, which states that linear Fresnel would use less land. It then dismisses linear Fresnel using the impact elimination argument discussed above.

The option cannot be eliminated with such sparse data and analysis. Indeed, it may very well be a viable alternative. The analysis in the RSA should be discarded and replaced with a rational analysis.

## 16) Utility Scale Solar Photovoltaic

See pages B.2-63.

As with other alternative analyses, this violates the NEPA requirement to: “Rigorously explore and objectively evaluate all reasonable alternatives...”, and the CEQA requirement for enough information for meaningful evaluation, analysis and comparison. The analysis is not rigorous, and is not compared to the proposed alternative

in comparative or any other form. The advantages of PV are intriguing. Impacts mentioned are of such wide range and speculative nature that no conclusion can be drawn. The comparisons that do exist are scattered and incomplete.

The Summary of Impact paragraph mentions development impacts only, not production impacts. It does mention glare and water requirements, but qualitatively only, and does not mention other impacts.

Most puzzling is the Rationale for Elimination. It states it is a viable technology, but then eliminates with this:

*is not retained for analysis because, as stated above, in order for California to meet the renewable portfolio standards, it must have access to all types of renewable technologies.*

That California must have access to all types of renewable technologies is not a reason to eliminate this alternative. How would the proposed project be configured to satisfy this? Must the project use all types of technologies? All alternatives would be eliminated by this criteria, even the proposed project. The rationale is nonsense.

The last sentence in the Rationale for Elimination:

*While a utility solar PV alternative would reduce impact from water used during cooling, the Dry Cooling Alternative, retained for consideration for this project would also eliminate this impact. Therefore, this alternative technology was eliminated from further consideration in this RSA.*

The blatantly stated elimination reason here is that water impacts are the same (despite the text equating ‘reduced’ with ‘eliminate’). No other impacts are cited. This implies a general rule: If one impact is the same, eliminate the alternative. Nonsense.

The Rationale for Elimination also categorically states ‘...the extent of land required would be similar.’ The Executive Summary says the proposed project will disturb 1800 acres. The PV discussion (page B.2-64 says: ‘250 MW solar power plant would require between 750 and 2,500 acres.’ Somehow the 1800 acres of the proposed project is has become similar to a range of 750-2500 acres. Worse, this statement is followed by ‘Therefore solar PV would not eliminate the impacts of GSEP associated with ground disturbance’, implying that to be retained, an alternative’s impact must **eliminate** GSEP’s impact. Again, nonsense.

The analysis is lacking sufficient data or rigor to be considered valid. It is incomplete, not objective, and is in violation of, and not in the spirit of, NEPA and CEQA. It must be done right. It looks like the author was reaching for a reason – any combination of words – that could end by concluding to eliminate the alternative.

PV might indeed be a viable alternative. It deserves a quality analysis as required by NEPA and CEQA. The analysis in the RSA should be discarded and replaced with a rational analysis.

## 17) Distributed Solar Technology

See pages B.2-66

The Distributed Solar PV Systems section has a description of installations. The discussion does not give data that lead to comparison with GSEP in direct violation of NEPA and CEQA requirements. No conclusions are stated – the analysis comes to no point and has no value for comparison with the proposed project.

No ‘Rationale for Elimination’ section is included, although the last paragraph on page B.2-70 appears to serve this purpose:

*The conclusion of this section is that, while it will very likely be possible to achieve 250 MW of distributed solar energy over the coming years, the very limited numbers of existing facilities make it difficult to conclude with confidence that it will happen within the timeframe required for the GSEP project. As a result, this technology is eliminated from detailed analysis in this RSA.*

Analysis of this spectacularly illogical conclusion:

Rationale for Elimination	Comment
... very limited number of installations...	No information about installation numbers has been given. PV installations are now common. More than 1800 Home / Rooftop installers are listed in California <sup>2</sup> , and ads for home PV installation regularly run on the radio, in the LA Times and on freeway billboards. The implication that there is a small number of installations is both misleading and false.

<sup>2</sup> Database of Solar Installers, Contractors, and Retailers in California:  
<http://www.gosolarcalifornia.ca.gov/database/search-new.php>

<b>Rationale for Elimination</b>	<b>Comment</b>
... difficult to conclude with confidence that it will happen in the time frame...	This is a speculative statement. No information is given with respect to current and predicted rates of rooftop installation, installation response to financial incentives, cost projections. Certainly with the huge interest in solar, at least some data must exist. The statement is unsupported, and enters the category of speculation.

The analysis in the RSA should be discarded and replaced with a rational analysis in the spirit of the NEPA and CEQA requirements.

## 18) Wind Energy

The discussion in the alternative section on page B.2-70 is woefully inadequate.

Wind is a viable technology, used in a large number of places throughout the world, and so certainly is a possibility in this situation. Yet the RSA analysis covers less than two pages, most of which is general to wind, not specific to this project. About a quarter of the space is allocated to a list of negative impacts, unsupported by analysis. There is no corresponding list of positive impacts. There is no comparison to GSEP.

Wind resources at the GSEP site are stated to be not viable. No supporting data is provided. The statement is speculative. It would be interesting to know if the site has been analyzed with met towers.

The San Geronio Pass description is interesting. It comes to no conclusion, and only weakly implies there is no room for another player. Other than curiosity, the paragraph is of no help without data, analysis of the data, and conclusions.

The discussion concludes with Rationale for Elimination (page B.2-72):

*While wind electricity generation is a viable and important renewable technology in California, it would not reduce the large-scale ground disturbance and visual impacts associated with the GSEP. Therefore wind generation was eliminated from further consideration.*

The reasoning implies that independent of other impacts, reduction of ground disturbance and visual impact are a requirement for consideration of an alternative.

The analysis in the RSA should be discarded and replaced with a rational analysis.

## 19) Biomass

The biomass analysis has the same conceptual flaw as the geothermal analysis. Presuming biomass has a high capacity factor since it can run 24/7, the analysis ignores the capacity factor difference. The difference is probably on the order of 3:1 (75% for biomass to 25% for solar). Page B.2-76 states:

*Most biomass facilities produce only small amounts of electricity (in the range of 3 to 10 MW) and so could not meet the project objectives related to the California Renewable Portfolio Standard. In addition, between 25 and 80 facilities would be needed to achieve 250 MW of generation, creating substantial adverse impacts.*

The 250 MW capacity of the proposed project with 25% capacity factor would provide 67 MW actual output.

Twenty-three 3 MW biomass facilities at 75% capacity factor would be equivalent, not 80. Similarly, seven 10MW biomass facilities at 75% capacity factor would be equivalent, not 25. The number of biomass facilities needed is overstated by a factor of three. It appears this is an artifact of misrepresenting the project as generating 250 MW, as explained in the ‘The 250 MW Rating is Incorrect’ section.

The biomass analysis qualitatively lists positives and negatives. It does not quantify them, or compare them to the proposed alternative.

<b>Advantages</b>	<b>Disadvantages</b>
Locational flexibility increases siting options	Must be sited near a biomass source.
Small amounts of land are required.	Delivery truck noise.
	Grinding equipment and other noises.
	Emissions are unavoidable

### Rationale for Elimination

*Most biomass facilities produce only small amounts of electricity (in the range of 3 to 10 MW) and so could not meet project objectives.*

The reasoning does not support the rejection. The size of this biomass facility would be independent of the size of ‘most biomass facilities’. That most biomass facilities are in the 3-10 MW range cannot be used to dismiss biomass in this instance. This facility could be larger than most, or multiple facilities could be used.

The statement requires that the distribution of facility sizes is skewed. If most are 3-10, and average is 21 (page B.2-75), then quite large biomass generators must exist to get the average so much larger than 'most'. Note that three average size 21 MW plants would be close to generating as much as the GSEG 250 MW plant running at 25% capacity factor, or 67 MW. Perhaps a single large size plant would generate as much as the GSEG.

The remainder of the elimination reason concerns air emissions only. No data are given to quantify the emissions.

No analysis of the balance of the 20 impacts considered is given. There is no comparison of impacts with the GSEG in comparative form as required by NEPA, or in any other form. Data supporting elimination is absent.

The analysis in the RSA should be discarded and replaced with a rational analysis.

## 20) Significant Impacts – CEC Override

CEQA 15093 states:

*CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable."*

To paraphrase:

*If benefits outweigh unavoidable adverse environmental effects, the environmental effects are acceptable.*

The RSA identifies two significant environmental effects – cumulative visual and cumulative land use. In addition, this testimony identifies that the visual impact of the project, when considered alone, is significant because of the inadequacy of the conditions of certification. These conditions of certification purport to reduce significant visual impact to less than significant. Refer to the Visual Impact section of this testimony.

RSA page B.2-13

*Anticipated cumulative operational visual impacts of region-wide projects in the southern California desert are considered cumulatively considerable and potentially significant*

RSA page B.2-13, Under B.2.4.4, Impacts of the Proposed Project

*...The cumulative conversion of these lands would preclude numerous existing land uses including recreation, wilderness, rangeland, and open space, and therefore, result in a significant and unavoidable cumulative land use impact.*

Because of the grossly inadequate alternatives analysis, it is unknown if an alternative would avoid these and other significant environmental effects. Refer to the Alternatives section of this testimony. The CEC cannot, therefore, find that the project's adverse effects are unavoidable and cannot issue an override as allowed in CEQA 15093.

## 21) Exhibits

Exhibit 700, Dune Thicket Closure Fed Reg Notice.txt  
Exhibit 701, NEPA - The National Environmental Policy Act of 1969.doc  
Exhibit 702, Executive Order 13212.doc  
Exhibit 703, Energy Policy Act of 2005.pdf  
Exhibit 703-01, EPA Act 2005, Front page.xps  
Exhibit 703-02, EPA Act 2005, Sense of Congress page.xps  
Exhibit 704, Secretarial Order 3285.pdf  
Exhibit 705, CEQ Authorization Memo.doc  
Exhibit 706, CEQ 40 Questions, Questions 1-10.doc  
Exhibit 707, CEQA 15126.6, Alternatives.pdf  
Exhibit 708, 250MW Press Reports.pdf  
Exhibit 709, Revised Staff Assessment.doc

## 22) Tom Budlong

3216 Mandeville Canyon Road  
Los Angeles, CA 90049  
310-476-1731 (land line)  
310-963-1731 (cell phone)  
[TomBudlong@RoadRunner.com](mailto:TomBudlong@RoadRunner.com)

Graduated from MIT in 1959. BS in Mechanical Engineering. Specialty was internal combustion engines.  
Currently retired.

## Experience Summary

### **Marquardt Corporation:**

Development of pneumatic based guided missile control systems.

### **Whittaker Gyro Corporation**

Design and development of gyroscopes and gyro based stable platforms for guided missiles.  
Investigation of solar flare activity by analyses of ballistic missile mounted solar sensors.

### **Spacelabs Corporation**

Design and development of breathing oxygen systems for lunar excursion astronaut backpacks.  
Development of biological monitoring systems for astronauts.

### **Computer Design Corporation / Compucorp**

Specification, design and implementation of functions and user interface of early hand-held scientific and business calculators.  
Specification, design and implementation of word processing software for proprietary personal computers. Word processors installed world-wide and at the Library of Congress, the White House, military installations.

### **Three D Graphics Corporation**

Implementation of PC based technical and business graphing software.

END