

**DOCKET**

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California Energy Commission  
Dockets Office, MS-4  
Re: Docket No. 09-IEP-1E  
1516 Ninth Street  
Sacramento, CA 95814-5512

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**SUBJECT: Comments of Solutions For Utilities in Docket No.09-IEP-1E,  
Present and Future Central Station Renewable Plant Costs**

Energy Commission,

Thank you for the opportunity to comment on the August 25, 2009 Workshop held in this matter; and the Draft Staff Report entitled "Comparative Costs of California Central Station Electricity Generation Technologies," document number CEC-200-2009-017-SD (Staff Report); and the PIER Interim Project Report entitled "Renewable Energy Cost of Generation Update," document number CEC-500-2009-084, prepared by KEMA, Inc. (KEMA report).

The following comments are respectfully offered in regards to the renewable technology of solar PV, single-axis, and the category of "merchant plant" that is contained in the KEMA and Staff reports.

**1. Economies of Scale:**

The KEMA Report, at page 21, uses gross capacity of 25 MW for solar PV; and at page 96, Table 22, for 2009, uses a gross capacity of 100 MW. The Staff report at Table 1 on page 3, Table 4 at page 16, and Table B-4 at page B-5 used a 25-MW gross capacity sized solar PV project.

SFUI's comment would be that it is not accurate, nor relevant to compare a 25-MW or 100-MW solar PV project's Instant Cost, Installed Cost nor O&M expenses to the 1-MW to 3-MW solar PV project. The cost percentages for a 1- to 3-MW solar PV project would not be comparable to costs and expenses for a 25-MW or 100-MW solar PV project due to the economies of scale. For a single example, a 100-MW solar PV project will be able to purchase solar modules, racking and balance of system equipment at significantly lower prices per watt than the 1-MW solar developer.

It was stated in the Revised Notice of Committee Workshop, page 1, under "Purpose," quote,

**"The IEPR Committee is seeking to develop an accurate and relevant set of generation cost estimates that can be applied to electricity resource planning and technology evaluation studies."**

Also, on page 1, under "Background," quote:

**"The goal of this project is to have a single set of the most current levelized cost estimates that would be used for policy development at the Energy Commission and other state agencies."**

A critical State program that has had virtually no response, due to price, is the Feed-In-Tariff program, which has been available for approximately a year now. Feed-In Tariff pricing is being reviewed in CPUC Rulemaking R.08-08-009. The FIT program could be extremely successful in the 1- to 3-MW plant size if pricing is established correctly. The Instant Cost, Installed Cost and O&M Costs for a 1- to 3-MW solar PV plant should be included in the Staff and KEMA reports, separately from the large-sized projects.

It is requested that the KEMA and Staff Reports be expanded to include costs and expenses for the 1- to 3-MW solar PV, single-axis generating facility. It is not accurate nor relevant to compute the Installed Costs, Instant Costs and Fixed O&M Costs for a 1- to 3-MW Solar PV project based on a 25-MW or 100-MW project. The three sizes are not comparable and must be analyzed and reported separately.

**2. Operating and Maintenance (O&M) Costs:**

The Kema Report at page 96, Table 22, Annual CSP O&M, for 2009, solar PV, based on a 100-MW Gross Capacity, would equate to \$61,040 per MW/yr. The KEMA Report, at page 21, based on 25-MW Gross Capacity for Solar PV, Fixed O&M, would equate to \$68,000 per MW/yr; and RETI's calculation on that same page equates to \$35,000 per MW/yr. The Staff Report, at page 46, for solar PV, based on 25 MW gross capacity, indicates the Fixed O&M would equate to \$68,000 MW/yr.

SFUI would comment that O&M Costs based on \$61,040 x 100 MW, \$6,104,000; or \$68,000 x 25 MW, \$1,700,000; or even \$35,000 x 25 MW, \$875,000 are not realistic when evaluating a 1- to 3-MW solar PV generating facility.

For example, a 1-MW solar PV facility could not pay its O&M costs with \$35,000, nor \$61,040, nor \$68,000. Payroll for two security guards and perhaps some small portion of a maintenance person's payroll cost would be all that could be paid with \$68,000. In the case of the Feed-In-Tariff program, as opposed to the 500MW rooftop PV program or the CSI or SGIP programs, some of the sites

will be rural, and somewhat remote. Security guards might be needed for overnight as the local police or county sheriff might consist of very limited personnel compared to the area they cover; for example, a 50-mile radius for two sheriffs. A remote monitoring security device could warn of a problem onsite, but if it takes the sheriff 20 minutes to get to the project, onsite security could be warranted, which would have to be included in the yearly O&M Costs. On the other hand, if a certain amount of vandalism and theft is to be included in the total cost of the project, then the insurance premiums must be adjusted upward accordingly over time because the insurance premiums will be raised based on claims made.

**3. Instant Cost:**

The Staff Report appears to indicate that Instant Cost is used for the levelized cost calculations. If the "Installed Cost" also includes cost of construction and items not included in the "Instant Cost," would it not be appropriate to base the levelized cost calculations on the "installed cost"?

**4. Shipping Charges:**

Do the reports include shipping charges for all materials to be used during construction of the plant? Shipping charges need to be included in the cost analysis because, for the smaller-sized facility, they are potentially 1.5%-2% of the cost of materials delivered to the site.

**5. Two Taxes: Ad Valorem (personal/business unsecured) and Real Property (secured).**

The Staff Report at page 26, Table 6, and Table B-1 on page B-2 and Table B-4 on page B-5, for solar PV, show "0.00" for "Ad Valorem taxes". The yearly taxes to the County Assessor on the unsecured equipment, the 1.07%, shouldn't that be calculated here?

In the Staff Report, where are the calculations for the yearly property tax payments on the secured land?

The KEMA Report, at page 96, does not show real property taxes nor Ad Valorem taxes. Are these calculated elsewhere for these two yearly taxes?

## **6. Insurance:**

The Staff Report at page 52, "General Assumptions," "Insurance," is assumed at 0.6 percent. This might be accurate and relevant considering the huge cost of a 25-MW or 100-MW solar PV facility; but for the 1- to 3-MW sized facility, the insurance on the facility itself would most likely be a higher percentage than 0.6 percent.

In regards to Commercial General Liability and Umbrella/Excess Insurance, those costs will be a higher percentage yearly O&M cost to the 1- to 3-MW sized project than to the 25-100 MW project. Again, the insurance premium for the large facility is not accurate, nor relevant to the premium for a smaller-sized facility. If these two policies are based on sales, the percentage premium cost for the 25 or 100-MW facility will be a smaller percentage than for the 1- to 3-MW Solar PV facility. However, it would be more likely that commercial general liability premiums would be based on payroll cost

for the solar facility. In the case of premium based on payroll, the larger the payroll, the lower the percentage premium; the smaller the payroll, the higher the percentages for premiums to be paid in each construction classification.

**7. Labor:**

Labor during construction and after the project is online "and costs associated" therewith, assuming that means the employer's portion of payroll taxes and workers compensation, what rates have been used to determine worker's compensation calculations? Have those rates been adjusted upward over the 20 years? Because SCIF has raised rates significantly in the past couple of years for construction trades -- perhaps just shy of 30% in the last three years for small-sized contractors -- and there is no reason to believe that SCIF will lower premium rates in the future.

Also, premiums for workers compensation vary widely based on the total dollar amount of premium paid per year by the employer. A smaller-sized employer will have greater premium increases and higher classification rates than an employer with a \$250,000 or greater annual premium. How is this accounted for in the Model?

**8. Permit Costs:**

Permit costs should be analyzed separately for the smaller-sized projects because these expenses are proportionately more expensive for the 1- to 3-MW project than for the 25-MW or 100-MW solar PV project. Permit costs also include reports, such as

biological, archaeological, drainage, percolation and soils reports, along with their mitigating associated costs.

How does the Model take into account which projects will have mitigation expenses and which projects only have the permit fees and the report costs because there are no endangered animals, plants/trees, or archaeological issues?

In other words, comparing one 1.5-MW solar PV project to another 1.5-MW solar PV project, the first project might only have the permit fee (e.g. \$13,000) and the report costs (e.g. \$12,000), so approx. \$25,000; whereas, the second project could have the permit fees (\$13,000) and report costs (\$12,000), plus, for example, animal and plant life mitigation costs of \$50,000, a total of \$75,000. How is that taken into consideration in the calculations?

**9. Tax Benefit:**

The Staff Report at page 38, Table 8, "2009 IEPR Merchant Tax Benefits..." for Solar PV indicates a tax benefit of **\$334.28** per MWh. On page 26 of the Staff Report, at Table 6, "Average Levelized Cost Components for in-Service in 2009-Merchant Plants", Solar PV shows "Taxes" as **"-141.44"** per MWh. The comment SFUI would have is to please show how these numbers were calculated.

**10. Carbon Adders:**

The Staff report indicates that the Model has the ability to include the cost of carbon in its calculation, but staff has not used this function to calculate how carbon adders may affect the levelized cost estimates.

SFUI's comment would be that consideration should be given by the CPUC to direct staff and the consultant KEMA to use this function of the Model so that all parties may have this calculation in a timely manner and in this forum where the cost-, expense- and income-integral line items are being analyzed for accuracy and relevance for all the purposes these figures will be used for. In other State proceedings related to TREC values and ownership, and also the price to be paid renewable generators in R.08-08-009, the value of carbon adders is important. It would seem most accurate and relevant to have the Cost of Generation Model include this important line item.

**11. Levelized Cost:**

The Staff Report, on page 3, Table 1: "Summary of Average Levelized Costs - In Service in 2009," "Merchant," Solar PV, based on a 25-MW capacity facility is indicated as 26.22 cents per kWh. SFUI's comment would be that the cost for a 1 to 3-MW solar PV facility would be a higher levelized cost than the 26.22 cents per kWh, without mention of generator profit.

For all the reasons stated above, Solutions For Utilities, Inc. would urge the Commission to direct Staff and KEMA to include 1-MW and 3-MW sized facilities in their reports because the 25-MW and 100-MW calculations are not accurate nor relevant.

Thank you for the opportunity to comment.

Respectfully submitted,

/S/ Mary C. Hoffman

Mary C. Hoffman, President  
Solutions For Utilities, Inc.