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

DOCKET	
09-IEP-1E	
DATE	<u>9/2/2009</u>
RECD.	<u>9/2/2009</u>

Re: 2009 Integrated Energy Policy Report (IEPR) Docket Number #09-IEP-1E: Written Comments of Southern California Edison Company (SCE) On Present and Future Central Station Renewable Plant Costs

To Whom It May Concern:

SCE appreciates the opportunity to submit written comments on the California Energy Commission (Energy Commission) Staff’s preliminary levelized cost estimates for Present and Future Central Station Renewable Plant Costs presented at the August 25, 2009 Workshop. This report is a commonly cited and useful source of generation cost information. Therefore, it is important that it be as accurate as reasonably possible. Based on the draft staff report presented at the workshop, SCE is concerned that:

- Levelized cost analyses are inaccurate and produce incorrect results. In particular, the analyses show that solar resources have a lower levelized cost than conventional generation resources using natural gas fuel. Most comparative cost studies show that solar resources are more costly than natural gas resources. In particular, Figure 3 of the draft staff report shows that solar resources are among the most costly resources when ranked by instant costs in 2010. Yet, their levelized cost is below both conventional and simple cycle resources. This result is counterintuitive and misleading. As a result, SCE urges the Energy Commission to carefully scrutinize the assumptions and methodology used in these analyses and to be skeptical of relying on them to make policy choices or conduct subsequent analyses.
- The choice of plant used for the natural gas resources is inappropriate. The simple cycle gas turbine uses a GE LM6000 as compared to an F-Class turbine which is less costly. The combined cycle unit chosen is based on an F-Frame unit but the chosen (100 MW) size does not allow for the economies of scale a 500 MW unit would provide.

Parties raised these issues in the 2007 Integrated Energy Policy Report (IEPR), but no revisions were made. In the 2009 IEPR draft staff report, the overstated costs for the natural gas

fired units are even more apparent because Table 2 of the draft staff report demonstrates that the installed costs for the units have increased substantially since the 2007 IEPR.

Finally, SCE urges the Energy Commission to explicitly note that the resources whose levelized costs were compared are not interchangeable. Each type of resource offers a different mix of attributes to the electric grid that should be considered using a least-cost, best-fit methodology to determine the best resource portfolio for the State.

I. The Levelized Cost Analysis Described In The Draft Staff Report Yield Unreliable Results

There are three potential problems with the levelized cost analyses described by Energy Commission Staff:

- The input cost assumptions for the various technologies may be inaccurate;
- The methodology for the conversion to levelized cost may be inappropriate; and
- Levelized costs may not appropriately take into account the value of energy production at different times and under different circumstances.

SCE urges CEC staff to cross-validate the analysis assumptions against other recent studies to understand the nature of the differences (e.g. the increase in the capacity factor for wind). In addition, it should be noted that levelized costs do not take into account the different value of generation at different times of the day and does not appropriately account for differences in capacity factors of generation. With regard to the time value of generation, generation at all hours of the day is not equally valuable to the electric system. For example, power delivered on-peak in the middle of a very hot summer afternoon is more valuable than power delivered in the early morning hours of a winter evening. However, the levelized cost analysis does not take these differences into account. With regard to the differences in capacity factor, peaking power is typically low capital cost, but high energy cost power that is designed to operate only during peak periods, and, thus, has a very low capacity factor. The levelized cost analysis does not fully take into account the value of low capacity factor power designed to provide generation only when needed.

Information for the nuclear technologies in the draft staff report does not appear to be correct. Table 19 of the draft staff report identifies the book life for the AP1000 Pressurized Water Reactor (PWR) as 20 years and the equipment life as 40 years. Most others technologies show the same life for both. SCE cannot determine what was used in the model. SCE's experience for current nuclear technologies is that the book depreciation period is 40 years which is the licensed life of the plant. The equipment life may be 60 years and if the plant license is renewed, the depreciation period is typically extended to the 60 years.

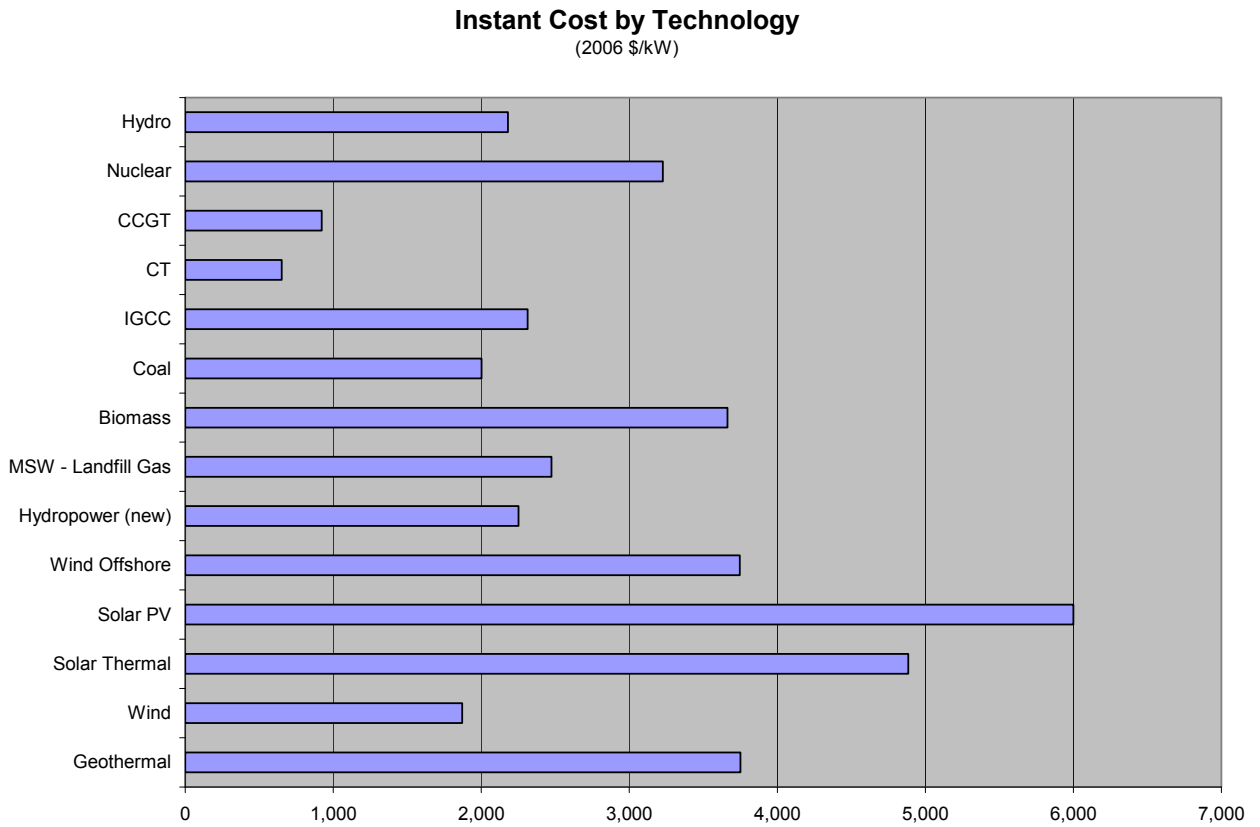
Figure 20 in the draft staff report shows that the levelized cost for AP 1000 PWR increased by approximately 100% since the issuance of the 2007 IEPR. SCE's understanding is that the instant costs increased, but only by about 30%. Upon discussion with the Energy Commission Staff, we understand that the version of technology utilized for this report is different from that used

in the 2007 IEPR. Therefore, this is not a valid comparison, and we recommend that the comparison between the two IEPRs be removed.

II. Other Reliable Sources Of Comparative Costs Of Generation Differ Dramatically From Those Described by Energy Commission Staff

Table 1 below shows comparative cost of generation from the 2009 Annual Energy Outlook (AEO) published by the Energy Information Administration.

Table 1 – 2009 AEO Comparison of Generation Instant Costs by Technology



III. The Energy Commission Should Explicitly Recognize That Resources Are Not Interchangeable

The Energy Commission presentation did not discuss the interchangeability of different resources, but simply lists their comparative levelized costs. A table that simply lists levelized costs of completely unrelated technologies is not valid. As noted with the discussion of nuclear costs above with respect to a different version of the same technologies, this could lead to invalid comparisons and to a misimpression that such resources are interchangeable when, in fact, they are not. For example a gas-fired peaker and a wind resource are not interchangeable resources, since they provide different attributes to the grid. A gas-fired peaker is dispatchable. So it is operated only at those times when the energy is most needed. In contrast, a wind resource is intermittent and

operates only when the wind blows and a solar unit operates only when the sun shines. Since peakers can be used to offset the variability of wind deliveries, peakers and wind resources should be regarded as complementary resources rather than substitutes. Resource planning for a utility or for the State as a whole needs to be based on a least-cost, best-fit model which considers what is the least-cost resources that provide the best-fit to meet system need.

In conclusion, SCE appreciates having the opportunity to submit these written comments and looks forward to working with Energy Commission staff in the future as it consider the comparative costs of generation. If you have any questions, or need additional information about these comment, please contact me at 916-441-2369.

Very truly yours,

/s/ Manuel Alvarez

Manuel Alvarez