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Via e-mail: [docket@energy.state.ca.us](mailto:docket@energy.state.ca.us)  
California Energy Commission  
Docket office, MS-4  
1516 Ninth Street  
Sacramento, CA 95814-5512

<b>DOCKET</b>
<b>11-IEP-1J</b>
DATE <u>July 25 2011</u>
RECD. <u>July 25 2011</u>

Re: Comments of Scott L. Fielder  
Docket No. 11-1EP-1J  
California Nuclear Power Plant Issues

Dear Energy Commission:

I am an attorney at law whose office is located in Nevada City, California and I have been the attorney for intervenors and have been an intervenor myself before the California Public Utilities Commission (CPUC), The Atomic Licensing Safety Board and the California Energy Commission (CEC) regarding nuclear power plant issues since 1983.

As Commissioner James D. Boyd noted in March 2011, like the nuclear power plants at Fukushima, Japan, California's nuclear power plants are older coastal plants with significant inventories of spent nuclear fuel and are located near major earthquake faults. (Testimony of James D. Boyd to the U. S. Nuclear Regulatory Commission (NRC), March 21, 2011.) All of California's nuclear power plants were designed and built before the seismicity of the California Coastal zones had been fully characterized. As a result of the lack of seismic characterization, PG&E's Humboldt Bay Nuclear Power Plant was closed after only 13 years of operation after it was discovered that the plant had been built within 600 feet of a previously unknown earthquake fault. PG&E chose to close the plant 17 years earlier than originally planned, because it no longer made economic sense to continue to operate the plant once the new fault was discovered and the retrofits needed to continue safe operation of the plant were known.

After the discovery of the Shoreline Fault in November 2008 by the U. S. Geologic Survey (USGS), PG&E again finds itself at a crossroads where the decision to continue operation (as well as the question of re-licensing) needs to be reviewed afresh. For the reasons that follow, Diablo Canyon Nuclear Power Plant should be phased out early because the plant's electricity can now be economically replaced with new technology, making the plant unnecessary and unprofitable.

A.  
Those Who Do Not  
Learn From History  
Are Doomed to Repeat It

PG&E built The 65MW Humboldt Bay Nuclear Power Plant in 1963. In 1976, it went off line for routine refueling. While it was being refueled, a heretofore unknown fault was discovered. The newly discovered fault was located only a few hundred feet from the Humboldt Bay Plant. It was initially unclear what design basis earthquake standard Humboldt Bay would have to be modified to in order to continue operation. Despite the uncertainty, PG&E rushed forward and spent millions of dollars modifying their plant at Humboldt Bay before the new design basis earthquake standard had been determined by the USGS. Eventually, the USGS issued the new standard which was greater than the standard PG&E assumed in its modification of the plant. This error resulted in the plant never reopening. The California Public Utilities Commission subsequently imposed the (then) largest disallowance in PG&E's history based on the utility's error in rushing forward with plant modifications before the science was in. (See decision 18 CPUC 2<sup>d</sup> 592, 593.)

In November 2008, USGS Seismologists discovered the Shoreline Fault 600 yards from the Diablo Canyon Nuclear Power Plant. Because the Shoreline Fault appeared to be connected to the powerful Hosgri fault, located three miles offshore, the USGS and the CPUC all recommended that the Shoreline Fault be carefully studied before re-licensing of the Diablo Canyon Nuclear Power Plant was considered. In order to study the Shoreline Fault, 2D and 3D seismic studies were planned to be carried out by 2012, with the 3D high energy offshore research to begin in the fall of 2012.

Instead of waiting for the independent and peer-reviewed science to inform its decision making, in 2009 PG&E's chief nuclear officer announced that PG&E was proceeding with a 20 year license extension application to the NRC. Recently, the NRC ordered a 52 month delay in PG&E's application to renew the operating license at Diablo Canyon because of seismic study concerns. The time has now arrived to

give full consideration to the alternative of phasing out Diablo Canyon and replacing its power from non-nuclear energy sources.

B.  
Power Replacement Cost Parity Justifies  
Phasing Out of the  
Aging Diablo Canyon Facility  
In Favor of Non-Nuclear Power Generation

For 2011, the cost of power from Diablo Canyon was estimated at \$502 million. The cost for SONGS power was estimated at \$322 million. Based on preliminary estimates, annual replacement costs of energy for Diablo Canyon and SONGS would be approximately \$650 million each for the 2011-2012 period if the utilities were able to buy replacement power at the current average generation rate. In addition to replacement energy costs, utilities would also need to procure replacement capacity to maintain reliability. Preliminary estimates for annual replacement capacity costs are \$112 million for Diablo Canyon and \$425 million for SONGS. Thus, Diablo Canyon power and capacity could be replaced for an additional \$260 million per year while SONGS would cost \$753 million.

In light of the economic uncertainties raised by the discovery of the Shoreline Fault and the economic risks highlighted by the Fukushima disaster, replacing the Diablo Canyon power and capacity for \$260 million is highly attractive. This is especially true when other unaddressed costs are factored in. Currently, Diablo Canyon, like SONGS, uses once through cooling with sea water. It is expected that the State Water Resources Control Board will order the utilities to stop using once through cooling in the next five years as OTC does not meet Federal Law. The cost to replace once through cooling with on shore cooling is estimated to cost \$3-5 billion dollars. Replacement of Diablo Canyon and SONGS with, for example, solar thermal power would avoid this cost.

The National Academies in 2006 reported on the risks of fire from overheated spent fuel rods in the spent fuel ponds. The 2008 IEPR Update recommended that California nuclear power plants return their spent fuel pools to less dense arrangements. Diablo Canyon's original spent fuel pool capacity was 270 assemblies. The current inventory is 4.0 and 4.1 times the original storage capacity of Units #1 and #2 respectively. In its data responses, PG&E has confirmed that it has not performed any studies in consideration of returning the spent fuel pools to the storage levels conceived during the original plant licensing. At Fukushima, fires were reported in the spent fuel pool. Based on the experience at Fukushima, PG&E will have to incur substantial expense to study and then to modify or build new spent fuel pools at Diablo Canyon. Moreover, if the plant is re-licensed for an additional 20 years, it will likely be necessary to build additional new spent fuel pools to increase capacity as the current

capacity for its spent fuel pools is only 4.9 times the original design capacity, which capacity is quickly being approached. If replacement power replaces the output of Diablo Canyon, the additional costs and associated risks of spent fuel overcrowding could be mitigated or avoided.

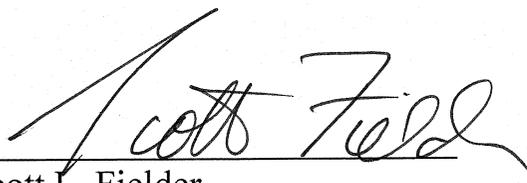
Diablo Canyon and SONGS have many other unique expense driving factors that only apply to nuclear power plants such as the lack of any low level radioactive waste repository, lack of a high level waste repository and ongoing age related corrosion problems. Taken together, these factors strongly tip the cost scale in favor of alternative, non-nuclear power generation and against the continued operation of aging nuclear power plants such as Diablo Canyon.

#### Conclusion

The cost of replacement power from non-nuclear power sources is now competitive with power generated by the Diablo Canyon Nuclear Power Plant. In light of the experience at Fukushima as well as current unresolved cost factors at California's existing nuclear power plants, replacement of power and capacity with alternative energy is an attractive alternative that makes sense.

Thank you for allowing me the opportunity to address the Commission on this important public policy topic.

Very truly yours,

A handwritten signature in black ink, appearing to read "Scott Fielder", written over a horizontal line.

Scott L. Fielder,  
Attorney at Law

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SLF:kag