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The questions posed for this meeting (docket 11-IEP-1J "California Nuclear Power Plant Issues") include several concerning the probability of an earthquake occurring in California comparable to the M9 that occurred in Japan. These questions taken together seem to presume that, by combining current Earthquake science with the laws of probability, the committee can garner enough accurate information to balance the risks of nuclear power in California with the benefits. One might assume from these questions that, given accurate answers, the committee could potentially find that what happened in Japan can be shown to be improbable enough to conclude that the benefits outweigh the risks of using nuclear power in California.

Such a presumption would be incorrect. The state of the art for Earthquake science and probability is not sufficiently advanced to distinguish significantly between California and Japan in this manner. Though the utilities do not seem to dispute this, some follow up questions should clarify this point.

To put PG&E's answer to question B. 5 in perspective, as a follow up, the utility should be asked to clarify whether PG&E has information suggesting the discrepancy between the design earthquake (M7.9) and the Tohoku Earthquake (M9) resulted from Japan using only historical earthquakes and not geological data. PG&E states that:

"The difference between the magnitude of the design earthquake (M7.9) and the magnitude of the 2011 Tohoku Earthquake (M9) highlights the importance of evaluating seismic sources using geologic information rather than using only historical earthquakes."

Truthfully, such 'importance' would only be 'highlighted' if in fact Japan has only used historical earthquakes. Thus PG&E infers, without actually stating, that California may use more accurate information than Japan. Though this seems doubtful given Japan's technical expertise, this inference is continued in the next paragraph, in which it is stated:

"In California, the faults are characterized using geologic information including the fault dimension (length and width) and the slip-rate rather than using only historical earthquakes."

Thus again it is inferred, though not stated, that California may have superior studies because Japan only used historical data. However, in conclusion PG&E admits that information on California's faults is still significantly uncertain.

"Using geologic data leads to smaller uncertainties of large rare earthquakes than using historical earthquakes data, but models developed for the size and rate of rare events based on geologic data still has significant uncertainty because there are only a few samples of the rare events even in the geologic data."

In other words, given our best scientific evidence, the day before the accident in Japan, the probability of that accident happening the next day was not significantly different than the odds today of a comparable accident happening in California tomorrow.

PG&E also infers that current studies have estimated that the damage to bridges and roadways in Diablo Canyon evacuation zones, caused by an earthquake, will be less than predicted in past studies. It is inferred that this is because of work done to shore up infrastructure in the evacuation zone.

The current study quoted by PG&E, HAZUS, uses a M7.3 design earthquake. The 'past studies' referred too used a significantly larger M7.5 earthquake because that was the magnitude of earthquake the Diablo Canyon nuclear plants was designed to withstand. The Fukushima-Daiichi plant was designed to withstand a considerably higher M7.9 quake.

PG&E should be asked, as a follow up to question A. 11, why there is a discrepancy in the design earthquake used in their current HAZUS Analysis (M7.3) and 'past studies' (7.5), and if that discrepancy is the reason for concluding that damage estimates have declined from past studies.

Regarding question k. of those points to be focused on at the upcoming meeting: California Government Code Section 8610.5 became law as a result of the Three Mile Island nuclear accident. Originally the code section was proposed to establish a 35 mile primary planning zone around each of the state's nuclear plants. However, federal preemption law, established in the course of adopting the codes section, made it clear that the state could not adopt stricter safety related laws than the federal government. Therefore, the 35 mile zone was reduced to 10 miles - the same as required by the NRC-and the 35 mile zone became a public education zone.

The 35 mile primary planning zone originally proposed for California had a basis in preparing for Worst Case Nuclear Accidents. The 10 mile zone established by the NRC has its basis in what has been termed Worst Probable Accidents. It has been concluded that Worst Case Accidents are too improbable for which to warrant the expense of planning. It should be noted that the ongoing nuclear accidents in Japan are beyond the Worst Probable Accidents used by the NRC, but far less severe than Worst Case Accidents- especially if those initiated by terrorists are considered.

In litigation brought against the County of Sacramento in 1983 for taking an exemption to the California Environmental Quality Act in adopting the Rancho Seco Offsite Emergency Response Plan, the state's Third District Court of Appeal determined that the adoption of a response plan pursuant to Government Code Section 8610.5 was not exempt from CEQA. However, while Sacramento County was in the process of preparing an EIR, the Rancho Seco plant was closed by initiative, and the process was terminated.

As a follow up to question k. the committee should ask the utilities whether EIRs were completed in the course of adopting their respective county's response plans.

Although it is well settled law that states are allowed to regulate nuclear power plants for economic reasons, and not for safety related concerns, the extent to which states may regulate nuclear power plants based on the economics of safety related concerns is less well defined. Still, it seems reasonable to assume that, if a state concluded that the economic risks associated with nuclear accidents outweighed the benefits, nuclear plants could be regulated by states for that reason. If a state found, for example, that, in balancing safety related concerns with economics, nuclear power plants must have a 35 or 50 mile primary planning zone to prove economically feasible, there is reason to believe federal law may not preempt such a finding.

The adoption of an EIR for nuclear response plans should highlight the environmental effects of those nuclear accidents which could necessitate implementation of response plans, while exemplifying the differences between Worst Case and Worst Probable Accidents, and provide essential information needed to balance the state's economic and safety related concerns. This committee should recommend that a response plan EIR be required as a precondition to the continued operation of any nuclear power plant in California.