DOCKETED

Docket Number:	15-IEPR-12
Project Title:	Nuclear Power Plants
TN #:	204511
Document Title:	Ray Lutz Comments: Follow up Comments on April 27 CEC Meeting on â€œNuclear Power Plant Issuesâ€
Description:	N/A
Filer:	System
Organization:	Ray Lutz
Submitter Role:	Public
Submission Date:	5/6/2015 1:19:40 PM
Docketed Date:	5/6/2015

Comment Received From: Ray Lutz
Submitted On: 5/6/2015
Docket Number: 15-IEPR-12

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Additional submitted attachment is included below.

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CITIZENS' OVERSIGHT PROJECTS
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May 6, 2015

To: California Energy Commission
Commissioner Andrew McAllister, Lead Commissioner for 2015 IEPR
Chair Robert B. Weisenmiller, Lead Commissioner for Electricity and Natural Gas

Re: Follow up comments on April 27 CEC meeting on "Nuclear Power Plant Issues"

We are very happy that we were able to participate remotely and in-person on April 27, 2015 at the "Joint Lead Commissioner Workshop on Nuclear Power Plant Issues," including spent fuel storage. We did some study on the recording of the meeting and have a number of comments:

1. In the introduction to the meeting, Cmsnr Weisenmiller said that "...none of the reactors were sited with the expectation that they would be a high-level waste sites, which they are now."

   We submit that this statement implies that any notion that California will NOT have interim waste sites is simply incorrect. The problem is that despite all the talk of "consent-based" siting, there was no consent given for the currently proposed sites, and thus it is essential that the CEC conduct a thorough review and investigation into options for other more appropriate sites. This is not just because people don't want it at San Onofre, and it is not because the Marines (under the Department of the NAVY) do not want the fuel at this site.

   The reality is that San Onofre is probably one of the most dangerous locations in the entire state for the storage of nuclear waste. This is an earthquake fault and tsunami zone in the middle of two major metropolitan centers. Additionally it a vulnerable and inviting target for terrorist attack. San Onofre should be automatically eliminated as a possible interim storage site.

2. Also, in the introductory comments at the meeting, there was reference to a quote by Alvin Weinberg, former Director of Oak Ridge National Laboratory, regarding the Faustian Bargain, getting "greenhouse-gas-free power, and at the end, you are left with high-level waste." Although we agree with the general notion in this quote, that the idea that nuclear power is "green" or "greenhouse-gas-free" should not go unchallenged.

   Nuclear power is neither green nor greenhouse-gas-free, even though it is true that during the power production phase, it is not belching out great quantities of pollution into the air. But the uranium fuel cycle is very costly in terms of greenhouse gas production, and so is the end of the fuel cycle.

   From "Nuclear energy: assessing the emissions" from Nature.com[1], the total carbon footprint of nuclear was evaluated and compared with other forms of energy generation:

1 http://www.nature.com/climate/2008/0810/full/climate.2008.99.html (Underlining added)

> Evaluating the total carbon output of the nuclear industry involves calculating those emissions and dividing them by the electricity produced over the entire lifetime of the plant. Benjamin K. Sovacool, a research fellow at the National University of Singapore, recently analyzed more than one hundred lifecycle studies of nuclear plants around the world, his results published in August in Energy Policy. From the 19 most reliable assessments, Sovacool found that estimates of total lifecycle carbon emissions ranged from 1.4 grammes of carbon dioxide equivalent per kilowatt-hour (gCO2e/kWh) of electricity produced up to 288 gCO2e/kWh. Sovacool believes the mean of 66 gCO2e/kWh to be a reasonable approximation.
> ...
> According to Sovacool's analysis, nuclear power, at 66 gCO2e/kWh emissions is well below scrubbed coal-fired plants, which emit 960 gCO2e/kWh, and natural gas-fired plants, at 443 gCO2e/kWh. However, nuclear emits twice as much carbon as solar photovoltaic, at 32 gCO2e/kWh, and six times as much as onshore wind farms, at 10 gCO2e/kWh.
>
> "A number in the 60s puts it well below natural gas, oil, coal and even clean-coal technologies. On the other hand, things like energy efficiency, and some of the cheaper renewables are a factor of six better. So for every dollar you spend on nuclear, you could have saved five or six times as much carbon with efficiency, or wind farms," Sovacool says. Add to that the high costs and long lead times for building a nuclear plant about $3 billion for a 1,000 megawatt plant, with planning, licensing and construction times of about 10 years and nuclear power is even less appealing.

Thus, to hear the California Energy Commission stating that Nuclear energy is "greenhouse gas free" -- even if done through the quotation of a nuclear energy proponent, is very concerning.

The entire fuel cycle from production to waste storage is one of the most polluting and environmentally destructive forms of energy production. Its menace to public health and safety is far greater. Any suggestion that the debate should be restricted only to a consideration of carbon emissions completely misleading. Using this same strategy, coal producers could claim that coal fired plants are "green" because they do not release radioactivity into the environment and do not have to store waste for a million years.

Clearly, since nuclear is not "greenhouse-gas-free" and there are many better options, we believe the California Energy Commission should be a very strong opponent to nuclear energy, and should avoid making such quotations that serve to continue the myth the nuclear is a prudent choice. **It is not, and you should say so.**

3. Most importantly, one of the Commissioners (we are guessing Cmsnr Weissenmiller) said:

> I'm pretty skeptical about the ability to get any interim storage site California. I look at back at the Ward Valley experience where California could not permit a low-level waste facility which is infinitely easier -- I mean some exaggeration -- than a high level storage facility. But again, given the complexity, it is hard to imagine a California site.

First of all, we would like to point out the point made by Weissenmiller in comment (1) above. California ALREADY HAS interim storage sites. But these were not sited with any consent-based approach, and no comprehensive consideration of the proper place to but this nuclear waste has been performed. We believe that the CEC is the appropriate institution to conduct the technical review of this topic and develop a set of views regarding the best solution available.

The suggestion that all interim storage sites are doomed because of the failure of Ward Valley is a false analogy. The Ward Valley project was a reckless attempt to force nuclear waste on an Indian reservation in the Colorado River watershed. It was a foolish endeavor, doomed from the beginning. The lesson is to avoid such thoughtless and reckless projects, not to avoid seeking safer waste storage areas. The Ward Valley project was attempted before we clearly understood that nuclear waste takes a lot more planning and diligence.

Also, the "Ward Valley experience" is not at all equal to modern off-site Independent Spent Fuel Storage Installations (ISFSIs). The Ward Valley proposal was to directly bury low-level nuclear waste in 600ft deep trenches and cover it up and hope for the best. By design, it would allow ground water to intermingle with the nuclear waste and leach out radioactivity.

The ISFSIs, on the other hand, are designed to completely isolated the nuclear material from the environment, are much smaller in geographic scope and result in less environmental damage -- if everything goes as planned.

The failure of Ward Valley should not be viewed as proof that all nuclear waste projects are doomed, but rather as a learning experience that these are certainly much more difficult than digging a trench, dumping waste in, and covering it up.

We have no choice in the matter. If we do nothing, then nuclear waste will be stored in really bad locations.

An off-site ISFSI is safe, as long as everything goes as planned. But if we do have an accident of some kind with the off-site ISFSI, it probably will not happen once the fuel is safely stored, as long as it is actively monitored. As mentioned by David Lochbaum, the highest risk factors for dry cask spent fuel have to do with accidents involving canisters dropped on or into the spent fuel pool. The larger threat is a security threat, as each one of these becomes a logical terrorist target. Hitting one with a conventional weapon will create a nuclear dirty bomb.

An off-site facility can be better in all risk categories: seismic, tsunami, terrorist attacks, and salt air corrosion, than the current location, near the ocean, in a seismically active zone, a tsunami inundation area, and next to 8.4 million people within the evacuation area.

Interim storage in California for nuclear waste must not breathe new life into the nuclear industry in California. Prudent spent fuel storage must not become a green light for more nuclear reactors or even the extension of the license for the Diablo Canyon Plant. California's coast is riddled with earthquake faults, and a nuclear accident similar to that at Fukushima is not out of the question.

A California consent-based site for California stranded spent nuclear fuel must not to extend to nuclear fuel from any other state, becoming a magnet for fuel from other states or operating reactors. Any isolated location must be for over 100 years and obligated to obey California environmental laws.

Citizens Oversight and many of our supporters believe that an off-site storage solution in California may be the best solution for the nuclear waste at shutdown sites in California, since it is abundantly clear that the San Onofre site, in particular, is a very poor choice for nuclear waste storage.

We feel that there is a lot to say for the philosophy that ***each state should be responsible for their own waste.*** But to ignore options within the state and just leave it where it is without due diligence is an abrogation of the duties of our public institutions.

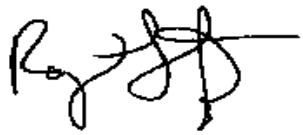
4. Military Bases: In the meeting there was some mention of siting on a military base and a comment that at Pendleton, they also want the fuel moved.

   Understandably, the military does not want the waste stored on Camp Pendleton which has a large civilian and military population, a costly infrastructure, and a large inventory of valuable equipment. It would be wiser to move the waste to a military base which has no military or civilian population, very little infrastructure, and no inventory of valuable equipment. It would be far better to store radioactive waste on a secure base in a no-fly zone with no public access and of no interest to terrorists. The lack of a population base, military equipment, and an infrastructure would be a plus, as would be a location out of tsunami zones in a low risk seismic area.

   There are many active military bases in California[2] and others that were closed due to the 1990 Defense Base Realignment And Closure (BRAC) Act[3], both in 1995 and then again in 2005 as a result. These and similar areas should be reviewed to see if any meet the selection criteria for a suitable off-site spent fuel storage site.

Again, we thank you for allow our group to participate and we look forward to more work on this topic in the near future. Please take the time to fully investigate the issues at hand and resist the temptation to come to a hasty decision based on past experiences that are largely unrelated.

Sincerely,



Ray Lutz
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(Reviewed by Roger Johnson and Marni Magda)

2 http://militarybases.com/california/
3 http://www.brac.gov/docs/BRAC05Legislation.pdf