

VIA EMAIL TO PaloVerde.EIS@nrc.gov and US Mail



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Chief; Rulemaking and Directives Branch
Division of Administrative Services
Mailstop TWB-5B01M
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: NEPA Scoping Comments regarding Relicensure of Palo Verde Units 1, 2 and 3

Impacts of Future, Expected Population Growth in the Vicinity of Palo Verde and Water Use/Subsidence/Fissuring

The Maricopa Association of Governments (MAG) is the regional planning organization of local government in Maricopa County. MAG's Transportation Policy Committee has "Interstates 8 and 10-Hidden Valley Transportation Framework Study" as one of its upcoming agenda items. This is an early attempt at planning for the transportation needs of a projected population of 2.5 million people in the western part of Maricopa County. That population is almost the size of the Phoenix metro area now.

The NRC needs to fully examine the planned population growth in that area near Palo Verde, and especially in the context of planned or needed groundwater pumping and the potential land subsidence and fissuring, again especially in the area near and including Palo Verde. Some areas of Arizona are especially prone to subsidence and fissuring.

Impacts of Future, Expected Population Growth in the Vicinity of Palo Verde and Terrorism

The number one concern of American citizens about nuclear power plants is the threat of a terrorist attack on a nuclear power plant, whether by foreign or domestic terrorists. All possible terrorist scenarios regarding Palo Verde need to be examined, along with potential impacts and mitigation, including scenarios where there is a significant population residing near Palo Verde (within ten miles), per NEPA requirements. There have been train derailments caused by someone unknown tampering with the rail lines, a form of domestic terrorism, in western Maricopa County, that still have never been solved. So there is already a history of suspicious actions and concerns about the ability of authorities to prevent these incidents, monitor for them, or prevent them. These

incidents indicate a continuing vulnerability to terrorist acts, and should be reviewed as part of the terrorism analysis performed under NEPA.

Impacts of Future, Expected Population Growth in the Vicinity of Palo Verde and Contingency Planning

The current contingency plan is to evacuate people within a ten mile radius and then wait for federal assistance. The strategy for moving hundreds of thousands of people away quickly and perhaps permanently needs to be examined and laid out, as well as any mitigation that could be implemented.

Terrorism Risks

Please consider and address the following questions:

What would the torque be for a full Boeing 747 hitting the generator building at different points of the building, such as the middle point of the generator building, at the point that is connected to the reactor containment building RCB, at the point 25% of the way from the RCB toward the end of the generator building, at the 75% point, all assuming a maximum speed for the aircraft and at a perpendicular strike directly against the generator building?

Is the generator building and the heat transfer area around the primary coolant loops and secondary generator loops strong enough to withstand this impact without a coolant breach?

We know that the RCB is not strong enough for the most powerful strike, as this has been admitted in NRC proceedings. What is the likelihood of a full impact strike causing a meltdown?

Please consider the attached Greenpeace study, *New Nukes and Old Radioactive Waste* in these deliberations and analysis. (P_@_SEJ_2006_Final_Draft)

The Economics of Energy Efficiency, Alternative, and Renewable Energy vs. Nuclear Plant Relicensing

A recent study by an economic analyst at the University of Vermont finds that building 100 new reactors would cost from \$1.9 to \$4.1 trillion more than getting our electricity from clean renewable energy sources. (See http://www.nirs.org/neconomics/cooperreport_neconomics062009.pdf)

All costs and impacts of energy efficiency programs, alternative and renewable energy sources should be examined against the costs and impacts of relicensing Palo Verde. This analysis should also include water usage, air pollution impacts (Palo Verde has been

fined significantly by the Maricopa County Air Quality Department for exceedances of its particulate matter (PM) emissions limits, specifically for excess PM emissions from its cooling towers.), wastes, radioactive emissions, mining impacts and groundwater impacts of uranium mining, sustainability, and the costs in terms of money and of carbon of developing less rich ores for reactor fuel, including the rising costs of the electricity used in the process of making fuel rods, which includes enrichment and fuel processing. The uranium enrichment plant at Paducah, Kentucky is the largest U.S. emitter of CFCs, which destroy the ozone layer.

The average energy efficiency cost for State programs across the U.S. is 3-4 cents per KWH. The average cost of just nuclear fuel, O&M (fixed and variable) is at least 3.7 cents and at most 4.9 cents per KWH, according to the Keystone report. (See page 42 of referenced Keystone report http://www.ne.doe.gov/pdfFiles/rpt_KeystoneReportNuclearPowerJointFactFinding_2007.pdf.) The Keystone report was hailed by Nuclear Engineering International and it was a multidisciplinary report. This averages higher than the average efficiency cost.

A fundamental element in finding that nuclear power is a false solution to climate change is that the economics of nuclear power are not sound – in open markets nuclear cannot compete. Since splitting atoms is not a cost-effective source of electric power, it is even less cost-effective in preventing greenhouse gas emissions. Life cycle costs for nuclear power generation (in the USA) have been estimated at 12 cents a kilowatt hour; whereas life cycle costs for wind power in the same analysis is estimated at 4 cents a kilowatt hour. Others find that expanding nuclear generating capacity is about twice as expensive as expanding generating capacity through investment in wind power. Since the same money will buy 2 – 3 times more electric power when used to purchase wind generated electric power, it is clear that prevention of greenhouse emissions will also be 2 – 3 times greater when buying wind generated electricity than nuclear generated electricity (as opposed to nuclear generating capacity). CO₂ production per dollar is not constant. According to the Sovacool study, the average study which passed the test for quality projects that nuclear power will produce 66 grams of CO₂/kilowatt- hour, and that wind's life cycle will produce 10 grams. CO₂ output is related to KWH, not cost per kilowatt-hour, partly because cost is a fluctuating value, but a KWH is a fixed scientific measurement. Therefore, nuclear power will produce 66 grams CO₂/KWH and wind 10 grams, which is 6.6 times the pollution output of CO₂. If we can assume that wind is half the price per KWH, then the output becomes 13.2 times the CO₂ output per nuclear power compared to wind. However, it is important to note that all the studies reviewed by Sovacool only assume the current ore grade of uranium to continue into the future. We know that ore grades will decline, as they have already halved over the last 30 years from 3000 ppm to 1500 ppm. The Sovacool report also does not assume any CO₂ for long-term waste management and remediation, including unintentional and intentional terrorist environmental breaches.

The average cost should include all costs, including transmission & distribution. DWAZ estimates that the cost of new nuke energy will be about 24 cents/KWH (18 cents for

generation plus 7 cents for T&D), wind with T&D is 15 cents on average, and energy efficiency is 3.5. The Cooper and other reports are in the same ballpark on nuclear power.

The cumulative impacts of each source of electricity and/or energy efficiency need to be analyzed, examined, and compared.

The life cycle of nuclear power is not only dependent upon fossil fuels for the production of uranium fuel, decommissioning, and the disposition of wastes generated: it is also dependent upon a grid that is powered by other sources of energy, typically coal. This is due to the simple fact that nuclear reactors cannot “black start”—in other words, they depend on electric power from the external power grid to be able to come on-line. Transition away from the combustion of fossil fuels cannot be accomplished solely by the expansion of nuclear power since it depends on the grid being powered up before reactors can come on-line.

Other studies on the economics of nuclear power generation that should be reviewed and considered in the NEPA analysis are at: <http://www.greenpeace.org/raw/content/usa/press-center/reports4/the-economics-of-nuclear-power.pdf>

http://www.earth-policy.org/Updates/2008/Update78_printable.htm

Amory Lovins:

<http://www.rmi.org/sitepages/pid467.php>

http://www.arizonapirg.org/uploads/ee/qD/eeqDk_cKZXyH5yuhZduZTA/The-High-Cost-of-Nuclear-Power.pdf

<http://www.stanford.edu/group/efmh/jacobson/EnergyEnvRev0908.pdf>

Also see the attached file, the copy of SEA Energy Costs.

In addition to radiological pollution, nuclear power also contributes massive thermal pollution to both our air and water. It has been estimated that every nuclear reactor daily releases thermal energy—heat—that is in excess of the heat released by the detonation of a 15 kiloton nuclear bomb blast. Nuclear power contributes significantly to the thermal energy inside Earth’s atmosphere, making it contraindicated at this time of rapid global warming.

Nuclear power is not at all free from carbon emissions. A number of recent studies have found that when mining, processing, and extensive transportation of uranium in order to make nuclear fuel is considered, the release of carbon dioxide (CO₂) as the result of making electricity from uranium is comparable to burning natural gas to make electric power. Additional energy required for decommissioning and disposition of the wastes generated increases this CO₂ output substantially. What if the national and worldwide economic downturn causes a downgrade of the economic viability of funds set aside for

decommissioning of Palo Verde? Putting decommissioning off even further increases uncertainty, in light of massive resource depletion and environmental deterioration aspects like global warming. All of these issues need to be analyzed and mitigated.

Relicensing an Aging, Troubled, Nuclear Power Plant vs. the Flexibility of Decentralized Power Production

Another aspect to renewable energy is that it lends itself to something that nuclear power cannot: decentralized power production. Therefore, the NRC needs to fully examine and analyze the economic impacts and reliability aspects of decentralized power vs. nuclear power when examining the relicensure of Palo Verde.

NRC Corruption and Intentional Violation of Federal Regulations and Statutes

The startling revelation that the NRC is proposing to allow an exemption to the regulation requiring the written and operations test for the SRO at Palo Verde by a FONSI brings forward the question of NRC honesty and integrity. There is a question now whether the NRC is acting in a criminal manner in these regards. This must be examined fully and openly. The NRC should examine fully in the EIS the probability and likelihood that the NRC has exhibited now that it has “unclean hands” and that it is evidently a corrupt agency and not capable of regulating Palo Verde. In the course of this investigation and analysis, the NRC should examine whether the decision to lift the scrutiny of Palo Verde in spring 2009 was merely a cynical move to assist with the relicensure process and if it was the agency yielding to political pressure, or if the NRC really did determine, after four to five years of extra scrutiny and concern, that suddenly the operators of Palo Verde had indeed changed their corporate culture and were worthy of less scrutiny. Included with this analysis is the likelihood or increased probability that the NRC’s actions will help cause a serious problem at Palo Verde leading to extra charges for ratepayers, at a minimum, or the worst, an incident releasing radiation in unpermitted amounts.

Thank you.

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