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Fission and Combustion are Alternatives

Additional submitted attachment is included below.

Fission and Combustion are Alternatives

Submitted to the California Energy Commission in response to docket 15-IEPR-12

I write as a member of the general public who lives downwind of a nuclear electric generating station, and upwind of a large coal station, and is exceedingly grateful that the prevailing wind is not from the other direction. What does this have to do with Diablo Canyon, the one and only nuclear power plant left in a State which has officially committed itself to a reduction in the use of fossil fuels?

Shortly put, the experience of half a century is that *fission and combustion are alternatives*. Where fission is adopted as the energy source for electric generation, combustion goes by the wayside — and where it is rejected, combustion makes steady advances. We see this fact in Germany, where, in the midst of an “energy transition” supposed to replace fossil-fuel energy by other sources, new power stations are being built to burn lignite, well known as an uncommonly dirty fuel, and thousand-year-old villages are being demolished to make way for new stripmines to feed them. Closer to home, it must be remembered that a large coal burner was for a time the favoured alternative to the proposed Sundesert nuclear station. Specially relevant, in view of the ongoing Porter Ranch disaster, which — in addition to deleterious effects on the health, well-being, and economic prospects of the residents nearby — is well on its way to wiping out all the reductions made in energy-related emissions in California in recent years, the removal of San Onofre from the Southern California system has led to a large increase in the use of gas for electric generation there.

Because wind and sunlight do not come when they are wanted, but rather on a schedule determined by forces over which humanity has little influence, solar and wind electricity therefore cannot respond to changes in load, and wherever they constitute an appreciable fraction of the supply, *something else* has to take up the slack — and that usually means combustion plants, running intermittently and inefficiently. Storage schemes can help bridge the gap between supply and demand, but even pumped hydroelectric systems (which require far less energy to build and maintain, per unit of capacity, than any alternative) on a scale to handle, say, 5% of California peak power demand would be nothing short of colossal. Even then, they could only be counted on to “smooth out the bumps” over the course of a day or two. If, as has happened not too long ago on the Bonneville Power Authority system, wind generation were to quit altogether for several days during the winter, when sunlight is at its scarcest, what then?

Combustion.

In the abstract, the reduction in emissions over supplying all the State’s power needs from combustion appear attractive. Closer inspection, however, suggests that supporting solar and wind nameplate capacity several times the actual demand (since the availability of any given unit is unpredictable), storage, *and* combustion plants sufficient to pick up the whole load will prove an impossible burden on the ratepayer, leading to the movement of people and industry to areas where power is supplied from dirtier but cheaper sources. That might be aptly termed a self-defeating prophecy.

But what does this have to do with Diablo Canyon?

If your objective is to reduce emissions, you need to meet the ’round-the-clock demand without resorting to combustion sources, and wherever you already have something which delivers emissions-free power, constantly and in large quantities, you have a duty to keep it operating. If your

objective is to supply electricity at a price which allows people to live comfortably and industries to operate profitably, that duty is doubled. The two matters before the commission have no purpose but to induce you to violate that duty by, directly or indirectly, causing or sanctioning the end of operations at Diablo Canyon, which is just such a source. They have been advanced by agitators who are avowed enemies of the use of nuclear energy, in a quasi-religious way not subject to intellectual examination, flush with triumph at forcing the closure of San Onofre over minor, routine repairs needed to close a leak which could have been allowed to continue indefinitely, and eager to complete their victory by driving completely out of California what they regard as tantamount to the Devil Himself.

That there is any reason within the purview of the Commission to require the use of evaporative rather than direct cooling is insupportable. No serious scientific examination has shown any meaningful adverse effect, either of the discharge of warmed water, or of the very minor destruction of sea life by the cooling system. (As for the latter, a comparative evaluation with the slaughter of protected birds by wind and solar installations, on a basis of megawatt-hours generated, might be instructive.) To construct cooling towers, and use them to reject waste heat to the atmosphere instead of the ocean, is an unnecessary burden of cost which could lead the operation of the plant to become uneconomical, under the rules now in place governing the wholesale electricity market in California. And if the plant becomes uneconomical to operate, it is almost sure to close.

So far as earthquake risk is concerned, the events at Fukushima Dai-ichi in 2011 have important lessons to teach us. Firstly, the World Health Organization and the United Nations Scientific Committee on the Effects of Atomic Radiation agree that nobody received, or is likely to receive, a harmful dose of radiation from what happened there. Secondly, the releases of radioactivity which did occur were largely the result of orders from the Government in Tokyo, requiring the operators to deviate from the emergency procedures they had trained in. Thirdly, the same botched emergency management which led to those orders also resulted in the evacuation of an unreasonably large number of people, in a disorderly manner, across a devastated countryside, leading to a number of deaths. And fourthly, even with such extraordinary blunders, followed by lengthy and expensive efforts to remove radioactive contamination well below any level recognized as significant by scientific authorities, and the protracted closure of areas with radiation levels well below those found naturally in many parts of the world, the human and economic cost of the nuclear emergency is as nothing compared to the twenty thousand or more deaths and immense damage done by the earthquake and tsunami required to initiate it in the first place.

Having given proper consideration to all these matters, I therefore ask and encourage you to take all necessary and proper steps to ensure that Diablo Canyon continues to contribute its seventeen terawatt hours each year of cheap, clean, safe electricity, for the benefit of the people of California, and the world as a whole.

Christopher D Carson
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