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Notice of Receipt and Availability of Application for Renewal of Facility Operating License

Comment On: NRC-2010-0206-0013

NextEra Energy Seabrook, LLC; Notice of Availability of Draft Supplement 46 to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants and Public Meetings for the License Renewal of Seabrook Station, Unit 1

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RULES AND PROCEDURES
DIVISION

General Comment

Comments attached

Attachments

NRC submission

SUNSI Review Complete

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Add = M. Wentzel (MJW2)

Nuclear Regulatory Commission:

I would like to draw your attention to a matter that is likely to have major impact on the assumptions used to evaluate the license renewal option at Seabrook and other nuclear power plants: declining fossil fuel availability and the prospect of a permanent end to economic growth during the period of Seabrook's current license.

As your studies of the life-cycle carbon impacts of various power generation options makes clear, at least implicitly, you understand that neither nuclear power nor any of the various "alternative" energies are stand-alone entities, with assured viability independently of the infrastructural context provided by easily available fossil fuels. However, the full import of this dependency is lost by failure to take any note of the actual prospects for declining fossil fuel availability or predictable consequences of such decline. How is fossil fuel decline and associated effects such as decreased ability to manufacture steel, concrete, and heavy machinery, or to transport goods and people on a global scale, likely to affect the ability to manage the complex systems such as nuclear power plants, the ability to obtain nuclear-grade parts, the ability to manage high- and low-level wastes, the ability to decommission plants at the end of their operating lives, or the ability to mitigate severe accidents such as the one ongoing in Fukushima? The

uncertainties involved do not obviate the need for such an analysis.

Domestic oil production peaked in the U.S. in 1970. The country compensated by importing ever greater quantities of oil. Since then a majority of oil producing countries have seen their own peaks in production, and they have responded in basically the same way. When world oil production peaks, the world will not be able to rely on this strategy of increasing imports from “elsewhere.”

World oil production has plateaued over the past five years, during a period when prices have been near record highs, and during which major investments in increase production *have* been made. Total liquid hydrocarbon production (which includes natural gas liquids and ethanol) has increased by about 2.5% over the most recent 5 years for which data are available (2005-2009), while the total energy content has declined by about 2.8% over the same period – and that decline no doubt obscures an additional decline in net energy available for supporting the rest of the economy, as increasing energy has to be used to obtain this slightly growing supply with slightly declining energy content. (Similarly, in recent years, small increases in US coal production have been accompanied by small absolute declines in energy derived from coal.)

Furthermore, when world oil production peaks, oil available for purchase on international markets is likely to decline at a faster rate than overall global rate of oil

decline, for the simple reason that exporting countries tend to satisfy internal demands first. Indeed this trend seems to be beginning already on a global scale. Global oil exports declined 7% over 2005-2009. (Above statistics from Roger Blanchard, "The President, the Media and Oil Supply," Energy Bulletin, June 27, 2011, based on EIA data)

We can expect substantially faster decline rates going forward. For example, Alaskan production is declining at about 10% per year despite many new projects coming on line. Exploration success in the millions of acres of National Petroleum Reserve-Alaska (NPR-A) and ANWAR which have been opened to exploration in recent years that the USGS has had to reduce its estimate of resources available in NPR-A by a factor of ten. Similarly, the deep water Gulf of Mexico, recently the one bright spot in U.S. production trends, may have peaked in 2010, with little prospect of new finds comparable in quantity or size to the ones already brought on line. Declines of 10% per year are typical of offshore production (e.g. the North Sea), with some Mexican fields, such as Cantarell - a decade ago responsible for half of Mexico's total production - experiencing declines of around 20% per year. Mexico has remained a source of imports for the U.S. (currently the third largest) only because of the rapid development of Ku-Malooop-Zaap, a field about half Cantarell's size, using the same nitrogen injection technique which led to Cantarell's rapid rise and fall. But this stop gap is not expected to last at current output levels more than two or three years more.

I have argued in detail elsewhere that Persian Gulf oil has effectively peaked as well. (See “Largely About Access,” attached.) I urge you to look at those details, instead of relying on official forecasts. Indeed U.S. officials such as former Commerce Secretary Don Evans (2006), President George W. Bush (2008) have basically acknowledged the same thing.

Arguably, an average annual decline in oil availability of 3-5 percent per year is likely over the period of Seabrook’s current license, assuming outright financial and industrial collapse can somehow be averted (no planning has yet been given for how to manage and finance an economy without growth, in which, on average, there is no prospect that debts will be repaid). This would mean a 50% reduction in oil availability, compared to current levels, in the 2025-2035 timeframe.

There are many issues that could be raised regarding the reports assumptions in the face of this unacknowledged but game changing condition, but I here draw your attention only to one: the assumption that “Decommissioning would occur whether Seabrook shuts down at the end of its current operating license or at the end of the period of extended operation.” The difference between 2030 and 2050 could be the difference between being able to conduct planned decommissioning only with great difficulty and being able to do so not at all. We must face the question of whether, for lack of foresight, the result in the end will be permanent

cessation of operations *without* decommissioning, and the environmental impacts that would entail.