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THINK NEW ATOMIC REACTORS CAN BE BUILT CHEAPLY AND ON-TIME?

THINK AGAIN!

The Bush Administration and nuclear power industry have asserted that new nuclear reactors—unlike the current generation--would be built at competitive prices and on schedule.

They have made repeated claims that new power reactors can be built for about \$1,500-\$2,000/kw.¹ This means a standard 1,000 MW reactor could be built for about \$1.5-\$2.0 billion; a large 1,500 MW reactor would be expected to cost about \$2.25-\$3 billion.

Current real-world experience shows that these claims are just pipedreams.

*The French firm Areva is currently building the western world's only new reactor, in Finland. In November 2006, the French media reported that that the construction schedule for this new EPR (European Pressurized Reactor) already has slipped by a full 24 months—construction began only 20 months earlier, in April 2005, meaning that the reactor was further from completion than when construction started!² The Finnish utility TVO has a fixed-price contract for this 1600 MW reactor of three billion Euros, or more than \$4 Billion dollars, already above the \$2,000/kw threshold. To reach even that price, the French government arranged for very favorable and below-market loan guarantees for Areva, which are now under investigation by the European Commission as a possible uncompetitive practice. These low interest rates (reportedly 3.2%) would not be available to private US utilities.

According to the French media, Areva took a \$300 million loss for its operations for the six months ending October 31, 2006 and a \$900 million loss for the full year. Current cost estimates (as of February 2008) are 4.5 Billion Euros, or more than \$6 Billion and independent economists such as Steve Thomas of the University of Greenwich in the UK predict final actual costs for the reactor will easily top 5 Billion Euros. Some US utilities plan to use the EPR design; Constellation Energy has submitted a partial application to use the design for a new reactor at its Calvert Cliffs, Maryland facility. But the U.S. Nuclear Regulatory Commission has not yet certified the EPR as a standardized design.

¹ For example, see Nuclear Energy Institute Wall Street Briefing, "A Solid Business Platform for Future Growth," February 2, 2006, http://www.nei.org/documents/Wall_Street_Briefing_2-2-06.pdf "To be conservative, the NEI financial analysis assumes a capital cost of approximately \$2,000 per kilowatt for the first few plants built, declining to approximately \$1,500 per kilowatt for the later plants."

² *La Tribune*, Paris France, November 10, 2006, "L'EPR Finlandais accumule les difficultés"

A second EPR, to be built in France also under a fixed-price contract, already is estimated to be 10% more expensive than the Finnish EPR, despite reactor manufacturer claims that prices will drop as construction experience is gained. In fact, the history of the atomic era shows that costs in real dollars increase as experience grows, rather than decline.

*In October 2007, Moody's Investor Service issued a report projecting new reactors would cost from \$5,000 to \$6,000 per kilowatt, or about \$5 Billion to \$9 Billion each. In January 2008 Florida Power and Light filed with the Florida Public Service Commission cost estimates for 2 new reactors at Turkey Point of \$12 to \$24 Billion, depending on the size and design of the reactors.

*In June 2006, Toshiba purchased the world's largest manufacturer of atomic reactors: Westinghouse. The company heralded the purchase by asserting that Westinghouse could expect 20 or more new reactor orders in the next several years. Industry analysts quoted by Reuters said each reactor order would be worth \$2.6 Billion to Toshiba, a price already above the nuclear industry's stated cost goal.³ Since Toshiba only supplies the reactors and doesn't perform the construction, nor much of the non-nuclear side of the plant, actual prices for a completed Toshiba reactor can be expected to reach at least the range of the EPR, and probably even higher. On the other hand, the cost of the EPR can be expected to increase as further construction delays are experienced.

In short, anyone thinking a new generation of atomic power reactors can be built at competitive prices should think again—and think hard.

One more quick news item: in July 2006, it was reported that uranium prices have risen some 600% over the past five years: from \$7.25/pound in January 2001 to \$45.50/pound in June 2006. Since that date, uranium prices have continued to skyrocket and have essentially doubled. Continued price rises would threaten nuclear power's traditional operating cost advantage over other fuel sources, making nuclear's economics outlook even riskier.

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³ "Toshiba sees US nuke plant orders for Westinghouse," Tuesday, June 27, 2006, Reuters