

EXPERTS: THREE LATEST INDUSTRY SETBACKS FURTHER DIM NUCLEAR “RENAISSANCE,” TAXPAYER-BACKED LOAN GUARANTEES CAN’T FIX FUNDAMENTAL PROBLEMS WITH NEW REACTORS

Rejection by Private Financing, Skyrocketing Cost Projections, Falling Demand, and Faulty Reactor Designs Can’t Be Solved With U.S. Shifting to “Nuclear Socialism” to Bail Out Industry.

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WASHINGTON, DC.///December 16, 2009///The beleaguered nuclear power industry is now the “public option” of U.S. energy, unable to move forward without a bailout in the form of taxpayer-backed loan guarantees involving a high risk of default.

Citing three recent negative developments for the nuclear power industry, that warning was issued today by a group of leading experts: Mark Cooper, senior fellow for economic analysis at the Institute for Energy and the Environment at Vermont Law School, and author of “The Economics of Nuclear Reactors: Renaissance or Relapse?” (2009); Stephen Thomas, professor of energy studies, University of Greenwich, London, and member of the editorial boards of Energy Policy, Utility Policy, Energy and Environment, and International Journal of Regulation and Governance; and Dr. Arjun Makhijani, president, Institute for Energy and Environmental Research, and author of Carbon-Free and Nuclear-Free: A Roadmap for U.S. Energy Policy (2007).

Cooper, Thomas and Makhijani held a news conference today amidst speculation that the U.S. Department of Energy (DOE) could announce its first loan guarantee for a new reactor before the end of 2009.

The experts highlighted three recent setbacks for the industry: the recent \$4 billion price hike for two proposed new reactors in Texas; a major new report from the financial world that concludes that only nuclear socialism (in the form of massive government financing) will allow the industry to expand; and major safety concerns cited by U.S. and European regulators about the two most popular proposed reactor designs in the United States.

Though \$18.5 billion in loan guarantees are currently authorized and under discussion for new reactors, the American Clean Energy Leadership Act of 2009 (S.1462), which has been passed out of the Energy Committee, authorizes unlimited loan guarantees. The recently unveiled Kerry-Graham-Lieberman “framework” for climate legislation also includes nuclear loan guarantees. The Alexander-Webb bill calling for 100 new nuclear reactors features \$4 billion in new nuclear subsidies and an additional \$10 billion that could leverage between \$100 billion and \$1 trillion in loan guarantees, depending on the subsidy cost. The nuclear power industry is on record calling for a miniscule 1 percent subsidy cost, which would result in the \$1 trillion scenario.

Cooper, Thomas and Makhijani also stressed that the enthusiasm and optimism shared by some in Washington for nuclear power is not borne out by the facts on the ground.

Mark Cooper, senior fellow for economic analysis at the Institute for Energy and the Environment at Vermont Law School: **“2009 was the seventh year of the so-called ‘Nuclear Renaissance,’ but it looks a lot like the U.S. nuclear industry of the 1980s, a decade of no new orders, multiple delays and cancellations, hefty defaults, and emerging cheaper alternatives. Of 26 new nuclear reactor license applications submitted to the Nuclear Regulatory Commission since 2007, 19 have been cancelled or delayed and every private sector project has suffered a downgrade by credit rating agencies. The reality is that capital markets will not finance new reactors because demand growth has slowed, reactors cost much more than available alternatives and they face too many technology, marketplace, and policy risks; so nuclear advocates have demanded a massive increase in direct federal subsidies to bail the industry out. What we are looking at is the prospect of ‘nuclear socialism’ that could only go farther if it involved outright state ownership of the industry.”**

Stephen Thomas, professor of energy studies, University of Greenwich, London, said: **“Reactor design and construction problems have vexed the industry for years. In Finland, the Olkiluoto plant was expected to take four years to build but after four years of construction in May 2009, it was still nearly four years from completion and about 75 percent over budget. The vendor and the customer were countersuing each other for compensation for these delays. In France, the country often held up by nuclear advocates as the example others should follow, its Flamanville EPR was more than 20 percent over budget after only a year of construction ... It is now clear that unless electricity consumers are required, as they were in the 1970s and 1980s, to bear all the economic risk – if costs went up, consumer electricity bills went up – nuclear power plants will only be built if governments grant major taxpayer subsidies, such as a guarantee on the electricity price nuclear power plants will receive and loan guarantees so that if the project goes wrong, taxpayers will ensure banks do not lose their money. Paradoxically, the worse the economic case gets for nuclear power, the more determined governments seem to be to force nuclear programmes through and the higher the level of taxpayer support is promised.”**

Dr. Arjun Makhijani, president, Institute for Energy and Environmental Research, said: **“No one should be surprised to see the latest accounts of multi-billion-dollar projected cost increases for the South Texas Project. In fact, in March 2008, I estimated costs two to almost three times higher than those advertized by NRG, the project’s developer; and my estimates are the projected costs today, even if there are no delays and other problems. In the late 1970s and early 1980s when the industry consistently overstated likely demand and underestimated costs, which resulted in dozens of cancelled plants and huge debts. The difference today is that the government is willing to underwrite this risky nuclear adventure that is likely to come to no good and waste billions of taxpayer dollars.”**

RECENT COST OVERRUNS IN TEXAS

Plans for two new nuclear reactors are in jeopardy in Texas due to a projected \$4 billion cost overrun. As the Wall Street Journal reported: “Spooked by escalating costs, a city-owned utility in San Antonio is considering backing out of a venture with NRG Energy Inc. to build two next-generation nuclear reactors in Texas. CPS Energy is expected to make a final decision next month, after it gets an updated cost estimate from [Toshiba](#) Corp., which will oversee construction of the two reactors. The project is one of the furthest along in a new crop of nuclear proposals, but it is proving unpopular with city officials. The cost of the reactors, estimated at \$10 billion to \$12 billion before financing costs, is causing concern at a time when the utility is making big investments in renewable energy and pollution controls. Nuclear-reactor costs also look high right now against competing types of generation, such as gas-fired plants.”

The Journal continued: “The San Antonio city council was poised to approve a \$400 million bond issuance in late October, but held back when new numbers came to light that indicated the nuclear project could cost more than expected. Like most municipal utilities, CPS has an appointed board that reports to elected city officials, whose approval is needed for rate changes or bond issuances ... City officials say the cost estimate from Toshiba for the two-reactor project ballooned to \$12.1 billion last summer from a preliminary estimate of \$8.6 billion in 2007, catching them off guard. Utility documents show its board was working with a figure of \$10 billion. NRG says that it is confident it will be able to get the cost below \$10 billion, before about \$3 billion in financing costs are added. ... Even if the final cost is about \$10 billion, some city officials feel the project is too costly. ‘Based on the numbers I’ve seen, I don’t think it’s the right decision to proceed,’ said Councilman Reed Williams. He said it made economic sense for CPS to build gas-fired plants or buy electricity from others ... CPS’s skittishness about the cost of nuclear energy is understandable. The first two units at South Texas Project were supposed to cost less than \$1 billion but ended up costing more than \$5 billion. With that history seared into its memory, San Antonio officials have been sensitive to anything suggesting they could, again, get blindsided by escalating costs.” (See Wall Street Journal, December 5, 2009, <http://online.wsj.com/article/SB125997132402577475.html>.)

A similar cost overrun situation is now unfolding in Georgia, at the Vogtle nuclear plant project, which is a finalist for the current round of DOE loan subsidies. Georgia Public Broadcasting (GPB) reports: “The proposed construction of two new nuclear reactors at Plant Vogtle near Waynesboro could likely have cost

overruns and possibly face delays, according to testimony released by the Georgia Public Service Commission. The group monitoring the progress of the new reactors is also being denied access to crucial information about the process, and Georgia Power is not revising economic evaluations based on a variety of factors that include a reduced demand for electricity and cheaper alternatives to nuclear energy, the document says.”

The GBP account continues: “The testimony, dated December 2, comes from PSC staffers and an independent monitor assigned to review Vogtle in advance of a hearing scheduled for Wednesday, the second in a semi-annual review of the construction timeline and budget of the reactors. The PSC reviews are required by a state law written after construction of Plant Vogtle's first two reactors in the 1980s skyrocketed from a projected cost of \$660 million to \$8.87 billion. ‘This project should be subject to a higher level of scrutiny due to higher financial risk to the ratepayer,’ says William Jacobs, an engineering consultant who also serves as the independent monitor for the Vogtle project.” (See Georgia Public Broadcasting, December 14, 2009, <http://www.gpb.org/news/2009/12/14/psc-staffers-criticize-georgia-power>.)

Major setbacks for new nuclear reactors have been a recurring theme. Earlier this year, Exelon cited “economic woes” as a major factor in postponing for up to 20 years plans to build two nuclear reactors at its site in Victoria, Texas. (See Victoria Advocate, June 30, 2009, http://www.victoriaadvocate.com/news/2009/jun/30/gs_exelon_070109_56587/?business&local-news.)

FINANCIAL MARKET REPORTS: THUMBS DOWN FOR NUCLEAR POWER

A new November 9, 2009 report by Citi Investment Research & Analysis, a division of Citigroup Global Markets Inc. is titled “New Nuclear – The Economics Say No.” The report identifies “The Three Corporate Killers”: “Three of the risks faced by developers — Construction, Power Price, and Operational — are so large and variable that individually they could each bring even the largest utility company to its knees financially. This makes new nuclear a unique investment proposition for utility companies. Government policy remains that the private sector takes full exposure to the three main risks; Construction, Power Price and Operational. Nowhere in the world have nuclear power stations been built on this basis. We see little if any prospect that new nuclear stations will be built in the UK by the private sector unless developers can lay off substantial elements of the three major risks. Financing guarantees, minimum power prices, and / or government-backed power off-take agreements may all be needed if stations are to be built ...”

The Citi report continues: “Both Westinghouse and Areva claim to be able to construct a new third generation plant (AP-1000 and EPR, respectively) in 3 years from first pouring of concrete. However, evidence to date suggests this is not necessarily the case, as Olkiluoto and Flamanville projects have both suffered delays, while the first AP-1000 unit under construction, in SanMen China, is running significantly over its \$1,000/KW construction cost target and is expected to be over \$3,500/KW target on current estimates ... We believe that if governments want new nuclear to be part of their energy policy, they will need to provide some support as either these plants will not be built or once they are, won't be economically viable. (See the full 14-page Citi Investment report at <https://www.citigroupgeo.com/pdf/SEU27102.pdf>.)

The Citi report echoes other current financial analyses focusing more narrowly on the U.S. On June 23, 2009, Moody's Investor Services issued a report titled “New Nuclear Generation: Ratings Pressure Increasing.” The summary to the report included the following: “Moody's is considering “taking a more negative view for those issuers seeking to build new (U.S.) nuclear power plants ... Rationale is premised on a material increase in business and operating risk ... most utilities now seeking to build nuclear generation do not appear to be adjusting their financial policies, a credit negative. First federal approvals are at least two years away, and economic, political and policy equations could easily change before then ...” See the Moody's report summary at http://www.alacrastore.com/storecontent/moodys/PBC_117883.

“The Economics of Nuclear Reactors,” a report released on June 18, 2009 by Dr. Mark Cooper found that it would cost \$1.9 trillion to \$4.1 trillion more over the life of 100 new nuclear reactors than it would to generate the same electricity from a combination of more energy efficiency and renewables. The Cooper analysis of over three dozen cost estimates for proposed new nuclear reactors shows that the projected price tags for

the plants have quadrupled since the start of the industry's so-called "nuclear renaissance" at the beginning of this decade – a striking parallel to the eventually seven-fold increase in reactor costs estimates that doomed the "Great Bandwagon Market" of the 1960s and 1970s, when half of planned nuclear reactors had to be abandoned or cancelled due to massive cost overruns.

MAJOR CONCERNS ABOUT REACTOR DESIGN SAFETY

In November, European safety regulators raised major concerns about both of the designs for new U.S. reactors – the AP1000 and the EPR.

As New Civil Engineer (NCE) reports: "The (UK) Government's plans to increase the country's reliance on nuclear power have been thrown into doubt after experts raised a raft of safety concerns about two proposed reactors. Britain's main safety regulator, the Health and Safety Executive, said it could not endorse the use of French and American designed reactors because of wide-ranging concerns about their safety. ... in reports on the assessment of the French EPR and US AP1000 reactor designs, the Health and Safety Executive (HSE) said there was a much more 'detailed work' to do before they could be approved for use. The HSE said of both units: 'We have identified a significant number of issues with the safety features of ...that would first have to be progressed. 'If these are not progressed satisfactorily then we would not issue a design acceptance confirmation.'"

The NCE account continues: "Among the criticisms raised, experts said there were significant concerns about EPR's proposed architecture, and that improvements were required for 'hazard barriers'. Other issues relating to the reactor's structural integrity were also addressed, with the report saying it was 'too early to say whether they could be resolved solely with additional safety case changes or whether they may result in design modifications being necessary'. The safety case of the AP1000's internal hazards also showed "significant shortfalls." (See New Civil Engineer, November 27, 2009, <http://www.nce.co.uk/news/energy/experts-raise-safety-concerns-over-new-nuclear-reactors/5211443.article>.)

The European concerns were even broader than those voiced in October by the US. Nuclear Regulatory Commission (NRC), which objected to major problems in the AP1000 reactor design, proposed for use in 14 of 25 proposed new U.S. reactors. Two of the four new nuclear projects that the DOE is reported to be considering for taxpayer-backed loan guarantees are AP1000 designs proposed by the Southern Company at the Vogtle site in Georgia and the South Carolina Electric & Gas (SCE&G) V.C. Summer site.

The NRC has made it clear that there are grave doubts if the AP1000 nuclear reactor structure can withstand hurricanes, earthquakes, tornadoes and other external impacts, as required by the NRC's regulations. The NRC said that its "staff has informed Westinghouse that the company has not demonstrated that certain structural components of the revised AP1000 shield building can withstand design basis loads," and also stated that the unsuccessful efforts to secure information had gone on for a year. The NRC announced: "This is a situation where fundamental engineering standards will have to be met before we can begin determining whether the shield building meets the agency's requirements." (Nuclear Regulatory Commission, October 15, 2009 news release, <http://www.nrc.gov/reading-rm/doc-collections/news/2009/09-173.html>.)

CONTACT: Leslie Anderson, (703) 276-3256 or landerson@hastingsgroup.com.

EDITOR'S NOTE: A streaming audio replay of the news event will be available on the Web at www.nuclearbailout.org as of 5 p.m. on December 16, 2009.