Beyond Nuclear Fact Sheet

Nuclear Power's Toxic Assets: A Wall Street View

"We aren't going to build a nuclear plant anytime soon. Standard & Poor's and Moody's would have a heart attack. And my chief financial officer would, too."

Thomas Capps, CEO, Dominion Nuclear, May 2, 2005

"Every one of these companies is going through a massive gut check."

John Gilbertson, financial analyst, Goldman Sachs, November 20, 2008

Federal loan guarantees: Congress to rush in where bankers fear to tread?

Investments in new nuclear power plants have long been recognized as bad apples that can spoil the credit rating for any electric power company that ventures into new reactor construction projects. Congress now wants to make federal taxpayers the primary lender of billions of dollars in nuclear assets with a very high risk of default on the loans. Wall Street has authored several corporate financial analyses that represent clearly worded and freshly painted warning signs of the still unaddressed economic pitfalls that await new construction projects whether they are backed by private investors or federal taxpayers.

Nuclear power's historic failure soured Wall Street on new investments

Wall Street and Congress remain cautiously "bullish" on new nuclear power and at the same time acutely aware of the large "bear" that stalks the prospects for an atomic expansion. Wall Street's deep skepticism of a so-called "nuclear renaissance" is well founded given the history of unpredictable construction costs, undependable licensing schedules and uncertain project completion times. Completion costs on average were 200% more than projected – triple the original projected estimates. Of 253 reactor units initially ordered by U.S. electric utilities, 71 units cancelled before construction and 50 units were abandoned during construction with tens of billions of dollars in sunk costs. Only 132 units were licensed and operated in the US with 28 units now permanently closed before their 40-year license expired. Today, 104 units are operating. Cost overruns and construction delays for new construction underway in Finland and France signal that nothing has changed that would significantly alter industry history here in the US.

New construction is an increasingly risky and expensive business

In January 2006, Standard & Poor's did a comparative analysis of nuclear power development in the United States, Canada and Europe and found *"nuclear generation generally to have the highest overall business risk compared with other types of generation."* Moody's Investor Services (October 2007) concurred, "*From a credit perspective, business and operating risk profiles will increase for companies that pursue new nuclear generation."* Those risks are now amplified as one Wall Street analyst said in November 2008, "*The global downturn means that many utility companies will be 'pressing the pause button' on new nuclear plans, says John Gilbertson, who tracks financing for nuclear projects as managing director for New York-based brokerage firm Goldman Sachs*."

Final costs of nuclear construction cannot now be known

In large part the financial risk is driven by the inability to determine final cost of a new reactor. *"Moody's has not been able to make a finite determination of the range for the all-in cost associated with new nuclear. As a result, we believe the ultimate costs associated with building new nuclear generation do not exist today—and that the current cost estimates represent best estimates, which are subject to change."* Projected construction cost estimates have ranged from Moody's own estimates of $5,000-$6,000 per kilowatt in October 2007 to $7,000 in May 2008. By October 2008, Standard & Poor's had revised their estimate to as much as $8,000 per kilowatt. In fact, there are no reliable "all-in" cost estimates for the steadily rising cost of completion, now or historically.

Federal "socialization of up-front costs" will not eliminate industry credit risks

Congressional passage of loan guarantees, more financial protections and a limited liability cost cap for a future accident to jump start new construction have attracted much Wall Street interest. In Moody's view however, *"While understandable why the Federal loan guarantees are of particular interest to the merchant*

companies given the high level of risks associated with nuclear construction, it is debatable whether the Federal government should be involved in enhancing the profitability of the merchant market by socializing the up-front costs. However, the merchant operator would be responsible for paying the cost for the loan guarantee – the formula for which has not yet been determined." To exacerbate the risk, in 2003, the Congressional Budget Office (CBO) estimated a completion cost figure of $2.5 billion (2003 dollars) for an 1100 megawatt nuclear project utilizing a design certified by the U.S. Nuclear Regulatory Commission. Where that construction would be financed under Federal loan guarantees, the CBO stated: *"The question of defaulting on Federal loan guarantees is of concern. CBO considers the risk of default on such a loan guarantee to be very high—well above 50 percent."* Current estimates for cost of completion now range between $8 billion to $12 billion or more per unit.

"Untested technology" comes with financial and future safety risks

Standard & Poor's succinctly identified that *"Our analysis addresses the risk to credit quality arising from a limited or more typically, a complete absence of a track record, commercially untested technology, or a technology that faces more regulatory hurdles. These risks can result in credit deterioration due to schedule delays or cost increases."* S&P described *"However, passive systems have never been proven in a commercial application. No real-life occurrences with commercial-scale reactors operating at full power have occurred that would validate computer models of passive systems." S&P goes on to say "When NRC analyzed the AP 600 design (the 600 MW predecessor of the AP1000), it assumed that these uncertainties could raise the chance of a meltdown probability by a factor of 100. If that were also true for the AP1000, it would negate the 100-fold improvement in meltdown probability likely as a result of passive systems, leaving the AP1000 as vulnerable to meltdown as reactors in today's fleet."*

Manufacturing and quality control bottlenecks risk schedules, cost and safety

The financial and safety risks brought on by untested nuclear technology are compounded by the presence of "significant bottlenecks to construction that have not yet been resolved." In 2007, Moody's outlined many of the problem areas that added to construction risks, among them: 1) Ultra Heavy and Ultra Large Forgings - some reactor designs will require 6 to 12 ultra heavy forgings per unit with extremely limited forging capacity globally; 2) Large manufactured components such as steam turbines and reactor pressure vessels and; 3) Engineering resources are part of the skilled labor shortage. Standard & Poor's more recently confirmed that a "*Tight supply chain and long lead times for certain major components will complicate procurement efforts for new nuclear plants."*

Shrinking investment funds to cover radioactive cleanup costs are an increasing concern

The nuclear industry collects its decommissioning money from its ratepayers and investing on the stock market. An extended financial crisis as witnessed with Wall Street's free fall beginning in 2008 has caused a dramatic shortfall in nuclear power plant decommissioning trust funds. Vermont Yankee nuclear power station and Entergy Nuclear reported a 10% loss in its decommissioning trust fund equaling $40 million in a single month. In fact, decommissioning trust funds of some of the largest nuclear power companies in the U.S. have been publicly documented with losses projected in excess of 29% of the available funds in the first few months of the financial market's bumpy but steady ride down.

Conclusion

According to Wall Street's analyses, many factors still make nuclear power an increasingly risky financial venture including the exposure to a company's credit quality to the uncertain but increasing cost of labor and materially intensive construction, the industry's scant construction record for unproven reactor designs, a tight supply chain for key nuclear grade components and a lack of assurance that adequate cleanup funds will be available after the reactors are shuttered. Replacing the private investor with the federal taxpayer does very little but shifts the risks from power companies to the public and a failing economy.

See the Beyond Nuclear Web site for the longer, fully-referenced version of this fact sheet.

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