

2 Financing Risks



Pressure on credit ratings of utilities

The size and complexity of new nuclear power plant projects, the long-term nature of the construction phase and the uncertainty associated with costs create a high degree of credit stress on utilities. Plant cancellations are not entirely uncommon, and in the US four half-completed plants financed by the Washington utility now known as Energy Northwest were forced into closure due to cost overruns caused by construction delays, rising interest rates, inaccurate demand estimates and public opposition. Litigation on two of the units led to the largest default in the history of the US municipal bond market.¹ During the 1970s and 1980s, 117 plants in total were cancelled in the US.

Aside from high cost closures, the uncertainty associated with cost recovery needs to be considered when determining whether a utility can earn an appropriate return from nuclear power. According to Moody's corporate finance, 'utilities that pursue new nuclear generation will be ascribed a higher relative business and operating risk profile, which may pressure credit ratings over the long to medium term'². No amount of due diligence can quantify the risk sufficiently to alleviate the pressure on credit ratings that arises from unforeseen costs and future liabilities.

Moody's 2008 credit rating report³ examines the effects of a new nuclear facility on the credit metrics of 'NukeCo', a hypothetical electric utility. Through this illustrative model, Moody's suggests that a utility building a new nuclear power plant may experience a deterioration of approximately 25% to 30% in cash-flow-related credit metrics. The important cash flow from operations to debt ratio deteriorates over time, resulting in downward pressure on the utilities' credit rating.

Industry commentators have also noted these financial risks. *Nuclear Engineering International* noted on 22 August 2008: 'Companies that build new nuclear plants will see marked increases in their business and operating risks because of the size and complexity of these projects, the extended time they take to build, and their uncertain final cost and cost recoveries. To the extent that a company develops a financing plan that overly relies on debt financing, which has an effect of reducing the consolidated key financial credit ratios, regardless of the regulatory support associated with current cost recovery mechanisms, there is a reasonably high likelihood that credit ratings will also decline.'⁴

Asset retirement obligations – a major credit risk

Standard and Poor's draw attention to asset-retirement obligations as 'a major ongoing credit issue for nuclear operators'⁵. Future cashflows may be significantly impacted from costs associated with the storage of radioactive waste, the decommissioning of power stations and the management of spent fuel.

The costs of temporarily or permanently storing nuclear waste are high and difficult to estimate. Sovacool has attempted to calculate a cost figure thus: 'Typically, a single nuclear plant will produce 30 tons of high-level waste each year, and this waste can be radioactive for as long as 250,000 years. Assuming just one-tenth of that time (25,000 years), and assuming the cost of storing the 30 tons of nuclear waste created per year was just \$ 35,000 (US dollars) per ton, the lowest end of existing estimates, each nuclear plant in the US assumes an additional cost of \$ 26.3 billion on top of its already enormous price tag'⁶.

It also appears that decommissioning costs are likely to increase over time. Recent announcements by the UK Public Accounts Committee support this view. The Committee announced in July 2008 that the cost of decommissioning nuclear power sites in the UK could rise 'significantly' above the £73 billion already estimated.⁷ The politicisation of the issue of nuclear decommissioning costs has also led for a call on the government to make sure that utilities meet future decommissioning costs even before permitting new nuclear power stations to be built. Standard and Poor's analysis draws attention to this reality: '... the scope of nuclear back-end liabilities is somewhat uncertain, with the potential for costs to ultimately escalate beyond those accounted for by the utilities.'⁸

Competitive market dynamics may adversely affect the nuclear power choice

The choice of a utility to build a nuclear power plant takes place in a dynamic energy market, in which less-costly alternatives could well emerge during the long construction time for nuclear. According to a report by the UK government's Performance and Innovation Unit, the reduction in costs over time of nuclear, due to learning effects, is not expected to occur as fast as it will for less mature technologies such as renewables⁹. If renewable energy or other alternative and more competitive energy sources emerge, building a new nuclear plant will expose a utility to 'material adverse change'¹⁰. A scenario can be envisaged where it could be considered politically unacceptable to pass the full costs of nuclear power to energy consumers in the light of cheaper alternatives¹¹. Regulatory intervention could ensue to protect consumers, with a knock-on effect on utility cashflows. In a competitive market, the rigidity of the cost structure of nuclear power makes for a less favourable outlook vis-à-vis renewables.

¹ Moody's Investor Service June 2007. 'Credit risks and benefits of Public Power Utility Participation in Nuclear Power Generation'

² Ibid.

³ Moody's Corporate Finance. May 2008 'New Nuclear Generating Capacity: Potential Credit Implications for U.S. Investor Owned Utilities',

⁴ Nuclear Engineering International, "Escalating Costs of New Build: What Does it Mean?", 22 August 2008

⁵ Standard & Poor's, March 2007, 'Nuclear in Europe'.

⁶ Sovacool B and Cooper C (2008), 'Nuclear Nonsense: Why Nuclear Power is No Answer to Climate Change and the World's Energy Challenges', William and Mary Environmental Law and Policy Review, Volume 33, Issue 1, p38, Fall 2008.

⁷ BBC (2008), http://news.bbc.co.uk/1/hi/uk_politics/7498774.stm, 10 July 2008.

⁸ Standard & Poor's, 14 March 2007, 'Nuclear Power Gains Political Momentum in Europe, but Credit Concerns Cloud the Horizon'. http://www.financemagazine.com/standard_poor_ratingsdirect.aspx?date=2007-03-16

⁹ Passey R.J., MacGill I.M. and Watt M.E. 'Assessing Nuclear Power Using a Risk-based Framework', 2006

¹⁰ Ibid.

¹¹ Ibid.

image Greenpeace activists blocked the entrance of the French Ministry of Economics, Finance and Industry where the International Atomic Energy Agency's 'Nuclear in the 21st Century' conference was being held. Greenpeace was highlighting the fact that nuclear power is expensive, dangerous and encourages nuclear weapons.



Mitigation of financing risks:

Loan guarantees potentially subject to political influence and challenged as uncompetitive in Europe

Government guarantees of full cost recovery for nuclear can significantly reduce the cost of capital. However, they add an element of political risk and potentially delay the construction process. In October 2008, the US Department of Energy (DOE) announced that it had received 19 applications from 17 electric power companies for federal loan guarantees to support the construction of 14 nuclear power plants (some of them planned to have more than one reactor). The industry is asking the Department to provide loan guarantees in the amount of some \$ 122 billion US dollars¹², which significantly exceeds the \$ 18.5 billion in loan guarantees available. The Congressional Budget Office concluded that the risk of loan default by the industry would be 'well above 50%'.¹³

Loan guarantees for nuclear new build are controversial. In the US this is neatly summed up in the statement from the Union of Concerned Scientists: 'Nuclear power already has eaten up billions of taxpayer dollars over the last four decades, and it's time for the industry to stand on its own. This provision would short-change truly innovative, clean technologies, such as solar and wind, that don't have the safety, security and financial risks associated with nuclear power.'¹⁴

In Europe, government loan guarantees could be challenged as an unfair subsidy or 'state aid' under European competition law. However, in 2007 the European Commission closed an investigation under EC Treaty state aid rules, concluding that a guarantee by the French government insuring a loan granted to the Finnish electricity producer TVO did not constitute state aid. This decision is currently still challenged in the European Court of First Instance. In any event such challenges serve to delay the process of nuclear new-build and strew uncertainties in the path of financiers.

There are other pending issues in the European market related to possible breach of competition legislation. These include lack of open tendering for new reactors (for example, with Flamanville 3, France), subsidies and budget support for state utility equity (for example, with Cernavoda, Romania and Belene, Bulgaria), or artificially-capped decommissioning payment schemes, in order to meet the request of nuclear power plant operators (for example, with the Mochovce 3 & 4 project in Slovakia).

¹² <http://www.energy.gov/news/6620.htm>

¹³ Congressional Budget Office, Cost estimate of S.14, Energy Policy Act of 2003 (Washington, Congressional Budget Office); <http://www.cbo.gov/doc.cfm?index=4206>

¹⁴ http://www.ucsusa.org/news/press_release/congress-should-cut-nuclear-0074.html

¹⁵ Investors' comments in response to DOE notice of proposed rulemaking. 2 July, 2007.

¹⁶ 'Nuclear Loan Guarantees: Another Taxpayer Bailout Ahead?' Union Of Concerned Scientists, March 2009.

Summary

The significant risks of financing nuclear power through private finance in a competitive energy market are well-known within the finance sector. A statement in 2007 signed by six of Wall Street's largest investment banks endorses this view: Citigroup, Credit Suisse, Goldman Sachs, Lehman Brothers, Merrill Lynch, and Morgan Stanley informed the US DOE that they were unwilling to extend loans for new nuclear power plants unless taxpayers shouldered 100% of the risks. In justifying this demand, the banks stated: 'We believe these risks, combined with the higher capital costs and longer construction schedules of nuclear plants as compared to other generation facilities, will make lenders unwilling at present to extend long-term credit. . . . Lenders and investors in the fixed income markets will be acutely concerned about a number of political, regulatory and litigation related risks that are unique to nuclear power, including the possibility of delays.'¹⁵

The demand for loan guarantees from national governments is extraordinarily difficult to justify in the current international financial crisis. The required expansion of guarantees to cover all pending applications for nuclear power plants in the US, including guarantees for designs that have not been proven, are clearly unrealistic. When the true cost of nuclear plant construction is taken into account, governments who entertain loan guarantees to the nuclear power sector - at the expense of similar support to other low-cost carbon technologies that are more competitive than nuclear power - would be flying in the face of the logic of efficient markets. Governments will leave themselves open to criticism by bailing out an industry that even Wall Street considers too risky to finance.¹⁶

"...we also recognise the relatively risky nature of investments in new nuclear build, which could expose utilities to increased financial pressures. Higher-than-expected construction costs, nuclear plants' lack of operational flexibility, and the substantial back-end liabilities associated with nuclear energy, cast it in a less favourable light than ongoing heady political discussions might suggest."

(Standard & Poors 2007)