4 Decommissioning Risks

After a cooling-off period that could be as long as 50 or more years, nuclear reactors and uranium enrichment facilities must be decommissioned. All waste must be reprocessed or stored, structures decontaminated, and the land, air and water around the site remediated. The period while the plant is being decommissioned may be twice as long as the reactor's operating life. Nuclear power plants typically have a design life of 40-60 years, whereas it might be more than 100 years after plant closure before decommissioning is completed.[1]

Decommissioning costs are difficult to forecast, mainly because the processes, which include waste disposal, have not been proven on a commercial scale.[2] Estimates for decommissioning costs range from an average of $ 300 million (US dollars) in the US to £1 billion in the UK per 1,000 MW reactor[3]. The French and Swedish nuclear industries expect decommissioning costs to be between 10 and 15 % of construction costs.[4]

In May 2008, a Moody's Global Project Finance report cited estimates of approximately $ 1,000 (US dollars) per kilowatt (approximately $ 200 per kilowatt for high-level waste and approximately $ 700 per kilowatt for decommissioning of the plant in 2007 'overnight' dollars) for expected costs of disposal of high-level nuclear waste, and decommissioning of the nuclear plant.[5] In his study *Business Risks and Costs of New Nuclear Power*', Craig A. Severance - a leading expert in nuclear power plant costs - notes that 'this equates to a total of $ 2.2 billion in 2007 'overnight' dollars for a proposed 2,234 MW 2-unit nuclear facility. The bulk of this - 70% - is for decommissioning of the reactor itself, considered to be the direct responsibility of the individual utility, and should be listed as an unfunded material liability on its Balance Sheet.'[6]

British Energy's latest annual report shows that the undiscounted expected decommissioning cost of its eight nuclear power plants was £ 9,357 million. Given that the combined installed nuclear capacity of British Energy is 8,808 MW, this represents $ 1,750 (US dollars) per kilowatt[7]. Recent estimates of costs to decommission three enrichment facilities in the US were estimated at between $ 27.3 billion and $ 67.2 billion (US dollars) by the National Research Council. The US GAO has warned that due to the length of time that this decommissioning process will take, the costs of decommissioning will have exceeded the plants' actual revenues by between $ 4 and $ 6.6 billion (US dollars) in 2007 dollars.[8]

Will the current financial crisis effect utilities decommissioning funds?

In most countries, it is the utilities who bear the responsibility for paying for decommissioning. They are responsible for all the cost of nuclear waste management and, in most countries, are obliged to set aside a certain amount of money each year for waste management.

Funding reserves for decommissioning costs are primarily held in 'low risk' long-term investments. In the past, these funds have proved to be inadequate. The prevailing reduction in investment fund values resulting from the global financial downturn has been reflected in the value of some investment funds earmarked for future decommissioning. For example, the Vermont Yankee plant's decommissioning fund is reported to have lost 10% of its value in a matter of weeks.[9] TVO, the company at the heart of the Finnish nuclear plant, reported in December 2008 that it had lost $ 3 billion (US dollars) investment income in 2008. It is unclear how much of this was earmarked for decommissioning costs. In Canada, Ontario Power Generation's decommissioning fund lost $ 448 million (Canadian dollars) in 2008[10]. In the UK, taxpayers have been left with a liability of more than £ 70 billion with NDA (Nuclear Decommissioning Authority) and £ 10 billion with British Energy, and with few funds to pay this from because of the failure of decommissioning funding schemes over a period of 30 years.

Unplanned decommissioning liabilities requiring material cash outlays could create downward pressure on a utility's credit rating or worse, its ability to meet its debt service requirement. At present, most waste processing costs borne by utilities are fixed and governments bear the risk of cost overages. As governments come under pressure to introduce austerity measures, this blanket coverage of cost could be relegated back to the utility.

"...fundamental questions about the national plan for nuclear waste disposal remain unresolved, and political decisions regarding this issue are needed before any progress can be made."

Oxera 2005 report on nuclear power in the UK

1 See Nuclear info.net http://nuclearinfo.net/Nuclearpower/WebHomeCostOfNuclearPower
2 Steve Thomas - The Economics of Nuclear Power (2005), p23. Heinrich Böll Stiftung. December 2005.
3 See Nuclear info.net http://nuclearinfo.net/Nuclearpower/WebHomeCostOfNuclearPower
4 Ibid.
5 'Decommissioning and Waste Costs for a New Generation of Nuclear Power Stations', Moody's Global Project Finance, May 2008
6 Craig A. Severance, Business Risks and Costs of New Nuclear Power, January 2009. http://www.nirs.org/neconomics/nuclearcosts2009.pdf
7 http://british-energy.com/documents/Annual_report_2007_2008.pdf
8 US GEN. ACCOUNTING OFFICE, supra note 260, at 4.266 Id.; see also Johnston & Williamson, supra note 105 (using USD 39,796 for 2004 and USD 45,707 for 2007).
9 Steve Thomas and David Hall. 'The Financial crisis and Nuclear Power'. PSIRU, Business School, University of Greenwich, February 2009.
10 Ibid.

image Derailment of train carrying nuclear waste from Germany to Sellafield, UK. Apach, France 1997

"In keeping with a pledge President Obama made during the campaign, the budget released last week cuts off almost all funding for creating a permanent burial site for a large portion of the nation's radioactive nuclear waste at the site in the Nevada desert."

Finon, Cired and Larsen - 2008