

Focus 18

EPR costs: high and rising

“Olkiluoto is often presented as a showcase of an open process in a democratic country. The process might have been democratic, but the information that the democratic decisions were based on has turned out to be false and misleading.”

Greenpeace Finland, Olkiluoto-3 Factsheet, March 2008

With one order placed in Finland and one in France, the EPR, a 1,600 MWe reactor based on French and German design, is the first reactor being built in Western Europe for more than 17 years (28 years outside France), and the first of the so-called “third generation” to be built in the world.

Olkiluoto-3 was predicted by the Finnish power company Teollisuuden Voima Oyj (TVO), in the early stages of licensing, to cost €2.5 billion and take four years to build. With the choice of EPR, a reactor with a higher capacity than that initially sought for, the contracted price went up to €3.2 billion, with a fixed price, and the agreed construction time became four and a half years. As of mid-2008, delays in the construction work, plus increased prices of raw materials and possibly other factors, led to estimates of cost overruns up to €1.5 billion, putting overall investment cost at around €5 billion. After two and a half years of construction, it is estimated that construction might actually take seven years. It is likely that French economic players, not Finnish ones, will have to pay for the direct cost increase. However, this delay in delivery will also hamper the whole electricity sector in Finland, resulting in higher prices for Finnish electricity consumers for a total cost that heavy industry in Finland (as a large consumer of electricity) estimated to reach about €3 billion in 2008-12. Moreover, though the Finnish EPR is presented as a truly market-financed private investment, the French export credit agency, Coface (usually covering export projects in countries presenting a financial risk) and a bunch of public banks ensure a very low interest rate, specific guarantees and favourable financial terms for the project.

The French EPR project is set in a different context. Its operator, the French utility EDF, has decided to develop it mostly for industrial – i.e., not energy – reasons linked to its strategic goal to keep the capability to build its own reactors in the future. On one occasion, during the national public debate that preceded the formal decision to build the reactor (although the political decision had already been made by the government and the parliament), EDF admitted that given the status of the electric system, this strategic industrial choice might represent a financial loss.

EDF forecast the generation cost of its new reactor to reach 43 €2004/MWh. In the document filed to the national debate, the utility insisted that this cost included the whole R&D cost for developing the EPR technology. This cost, presented to the public in 2005, was 44 percent higher than that published less than two years before by the DIGEC in its advisory report to the government on “reference costs”, which underpinned the government decision to launch the project... EDF had to explain the difference between its cost estimate and the very low DIGEC estimate of 29.9 €2004/MWh (published as 28.4 €2001/MWh). The main difference came from the impact of a series (ten orders in DIGEC assumptions) compared to a single order, with EDF calculating that for ten EPR the cost would lower to 35 €2004/MWh. The remaining difference, still a 17 per cent increase, is explained by a series of favourable technical and financial hypotheses in the DIGEC report that EDF would not endorse, including: economic life of 60 years in DIGEC lowered to 40 years by EDF (although EDF aims for a technical lifetime of 60 years, never reached yet), assumptions more conservative and “in line with international accounting rules” by EDF than by DIGEC, etc.

Yet EDF’s calculation still uses some assumptions pointed out as unrealistic or very uncertain by critics of the 2003 DIGEC report, such as the burn-up increase, the load factor (based on an availability factor of 91 percent) or the time of construction, 57 months (four years and three terms) – a figure already doubtful after the suspension for one month of on-site work by the nuclear safety authority ASN, due to problems very similar to those earlier experienced by the Finnish project. It is

likely that reality won't justify the optimistic estimates, and the real cost of EPR will inevitably increase from the figures used in the licensing phase. In the press release announcing the formal launching of the EPR project in May 2006, EDF mentioned that the complete cost of the EPR might rise to 46 €2005/MWh, due to changes in context like the price of steel, setting the construction cost at \$3.3 billion, i.e. 10 percent more than the figure of "around €3 billion" presented by EDF in 2005 to the public debate. The latest figure published by the economic press, as of July 2008, sets the construction cost estimate at €3.4 billion.