

Cracks in the nuclear showcase

Finland's new nuclear power project is in a crisis. Delivery has been delayed by 3 years and costs have risen 50%. Still, the government has received applications for three more new nuclear plants. The Minister of Energy says Finland needs 'zero additional reactors, or at most just one.'

The Olkiluoto nuclear power plant in Eurajoki, Northwestern Finland. Photo by: EPA Photo Lehtikuva/Kimmo Mantylä/rmr



| by Reiner Gatermann

Petteri Tiippana is standing in front of the design for OL3, Europe's youngest nuclear power reactor, which has been under construction on the island of Olkiluoto on the Finnish Baltic coast since August 2005. The completed parts of the huge construction are highlighted in green on the drawings. The assistant director of Projects and Operative Safety with the state regulatory authority STUK (Radiation and Nuclear Safety Authority) points to the reactor building, the green highlight covers about two thirds of the building and Tiippana states matter of factly that: 'Actually OL3 was meant to have been connected to the grid in three months and as you can see, the reactor building is not only missing the consoles on top of which the Polar crane will be installed, there is also no roof.' After a pause he then goes on: 'And we don't even have the drawings for it yet.'

While the regulatory supervisor reports on the situation unemotionally and refers to his earlier stated opinion that 'the project planning was too optimistic and ambitious from the beginning,' one cannot help but notice the frustration in the headquarters of TVO, the company that ordered the plant from French supplier Areva, in Helsinki. Jarmo Tanhua, who has been with Teollisuuden Voima Oyi (TVO) for 20 years, and vice president for power plant engineering since 2004, replaced Pertti Simola as company general manager and chief executive in mid-2008. The 44-year old states firmly: 'TVO is extremely disappointed that, despite its responsibility as turnkey supplier and its promises, the consortium has not been able to complete the works on time or to mitigate its delays through effective acceleration measures.' The Finns are also upset about the statement released by main contractor Areva. In the 2008 annual report Areva accused the Finns of not being able to increase their work rate, to which Jarmo Tanhua replies: 'There is no way in which we are responsible for the delays. Areva is simply not able to meet its obligations.'

Of course building the first nuclear reactor in Europe in 20 years is not an easy task. On the construction site on the Baltic island of Olkiluoto, 20km north of Rauma, there were 2,000 people employed a year ago, now there are 4,000 and in a few months 4,500, from around 60 countries. Tanhua: 'We are satisfied with what has been delivered but it has come too late.' In Finland, Areva's lack of experience as a contractor and construction company is blamed. This is its first turnkey project. Until now it has mainly worked as a technical supplier for French power company EDF. It is hoped

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that swifter progress will be made once the construction work is completed and installation of the technical equipment is begun, which should happen at the end of this year.

Petteri Tiippana from STUK describes the progress of work in the last few months as 'normal'. STUK has not ordered any further production stops but the list of comments has risen from 2,000 to around 2,500. The number of inspectors at the site will rise from two to four. The chief inspector reiterates: 'We are not very happy with the design documentation.' There have been improvements, but 'we are still being provided with documents which do not meet our expectations.' Even though TVO complains about Areva's design process that 'a large number of the documents Areva is required to prepare have still not been submitted for first inspection although the plant should be almost complete by now,' in the end it is TVO who is responsible to the regulatory authority. According to Tanhua STUK is 'tough, but we know the

rules.' And Tiippana leaves no doubt that 'as the regulatory authority we have to be bureaucratic, but the French reproach that we have changed the rules or are just being too pedantic, is simply not true.'

The rules, he says, are 'strict and clear'. And he can't see an end to the string of problems. Some of the most important elements of a functioning nuclear power plant are the automatic systems. According to Tiippana these currently represent 'the biggest unresolved design issue' and should have 'been delivered to us some time ago'. Areva 'has not been able to provide us with a proper

automatisation design,' the examination of which will take a considerable amount of time.

The suspicion that the completion date might be postponed again, this time until 2012, was first uttered by TVO at the beginning of the year and confirmed later by the Areva-Siemens consortium. Following this, it declared June 2012 as the completion date. Although it has not been explicitly stated, in Finland one gets the impression that the Finns regret Siemens' departure from the consortium, even though it is not quite clear whether or not Siemens ever had any significant influence on the OL3 process anyway. However, costs have increased again with the delay, not just for the consortium, with whom there is an agreed fixed price of €3 billion, but also for TVO. TVO writes in a press release after what hopefully may be the last delay. 'TVO will bring a claim against the consortium to compensate for TVO's resulting costs and losses.' Areva has already begun to make provisions and, what particularly annoys the Finns, they have called an arbitration committee. During his talk

with EER Jarmo Tanhua initially claims not to know who this arbitrator is. Then after a while he remembers: 'It might be the International Chamber of Commerce.' Without being particularly eager about it, he says of course TVO would supply the arbitrator with the required documents. According to various calculations the costs for OL3, excluding TVO's compensation demands of unknown quantity, are currently running at around €4.7 billion.

Same boat

It is not surprising that the mood between TVO and Areva is not the best and it has continued to deteriorate after each delay. But they are all stuck in the same boat. The TVO chief executive felt obliged to make the following statement: 'As in the past, TVO will continue to work with the consortium to get the project completed as soon as possible without compromising safety and quality.' After all, OL3 is supposed to become the worldwide showcase for the nuclear power industry. The ongoing large numbers of visitors shows that, internationally, interest and curiosity have not abated.

'Who would have thought when the Nuclear Power Act was drawn up in 1987 that Finland might have more than two nuclear power plant operators?' asks Rihu Huttunen, deputy director general in the Helsinki energy department. And he answers himself: 'No one.' Nevertheless

on a bench next to his desk there are three applications in neat piles waiting for a decision in principle regarding the construction of new nuclear power plants. There are applications for the construction of another nuclear power plants from TVO, which wants to place OL4 beside OL3, and from Fortum, 50.8% owned by the Finnish state and 35.4% by foreign investors. Fortum already operates Finland's first

which involves the purchase of power on the energy exchange Nordpool.

The ministry has accepted all three companies as contenders. According to Huttunen, the ministry is relying 'extremely heavily on STUK' in the evaluation of the tenders. At STUK Janne Nevalainen is responsible for the examination of the applications. His

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two reactors delivered by the Soviet Union in 1977 and 1981, and has a share in the Swedish nuclear power plants in Forsmark and Oskarshamn. It also has a share in TVO. Now it wants to build a third reactor in Loviisa, 100km east of Helsinki.

The third, unexpected applicant is newcomer Fennovoima. The company, founded in 2007 exclusively for the construction of a new reactor, is backed by 48 local power generators and suppliers, 15 industry and trade companies, as well as Eon Nordic, a most welcome foreign partner. On the Finnish side, numerous communities and companies have joined forces because they are dissatisfied with the current electricity market mechanism

impression: 'The bar is set somewhat higher in Finland than it might be in some other countries. We expect somewhat more developed design plans than we received for OL3. Some reactor designs still require further development.' He hopes to be able to hand over STUK's primary safety assessment to the Ministry of Energy in September or October. The ministry will consult with authorities, communities, experts and NGOs before it forms its own opinion. The government will present its decision to parliament. The parliament can either accept, or reject, the proposal. The communities in which the power plants are to be located have a right of veto, but they must exercise it before parliament makes its decision.



Construction of the new Olkiluoto reactor. Photo by: Nick Cobbing/Hollandse Hoogte

All stakeholders are looking forward to the decision process with great interest. According to the law, the only valid criteria for the decision are safety and good of the nation. How will the government define this? Business thinks that Finland needs three more reactors if it wants to be independent from imports, meet its environmental obligations and offer competitive power prices. But Mauri Pekkarinen, the minister of economic affairs, told the daily newspaper Hufvudstadsbladet: 'I don't want to pre-empt the decisions to be made in autumn, but we don't need any new reactors or at most we need just one.' ■