

Focus 04

The loss of competencies

“The whole point in anticipating the building of a ‘first-of-a-kind’ is to bring the industrial system back with the capacity and competence.”

Head of Nuclear Engineering Dept, EDF, about the EPR in Flamanville, in a public meeting of the national debate on the project, Paris, 29 November 2005

The national public debate that preceded the licensing of the French EPR project in Flamanville shed light on the main reason for building it at a period when, as opponents pointed out, no additional nuclear production was needed. EDF made it very clear through public meetings that, although the company forecast no problem in selling the new reactor’s electricity, production of energy was not the main rationale behind the project. On one occasion, a high representative of EDF’s engineering department even acknowledged that the EPR project might turn into a negative financial balance in the short and mid-term, but claimed it was still a decisive step in EDF’s industrial strategy for the longer term.

The main reason why EDF is building the EPR is the desperate need to maintain industrial, organisational and engineering competences that widely erode. The company intends to pursue its singular strategy and remain the only nuclear operator with the ability to build its own reactors. The international window provided by the building of an EPR in France is also said to be vital for Areva, which warned during the public debate that “in the absence of new orders, the French nuclear engineering community would lack the critical size, the necessary means and mobilisation to maintain its technological superiority”...

The competency issue is mostly one of human resources. The pyramid of ages of the French nuclear workforce is strongly influenced by the history of the nuclear programme, with large numbers hired in the fast growth phase and then a standby phase. This results in a generational gap between the skilled scientists, engineers and technicians that developed the French nuclear fleet into its current status, and the new workforce that will have to build and operate reactors to replace the existing ones. (And which will also, to make things more complicated, have to manage their inheritance in terms of waste disposal and decommissioning...) On the one hand, about 40 percent of EDF’s current staff in reactors will retire by 2015; on the other, there is a lack of graduates with the relevant qualifications following years of reduction in the number of students interested in nuclear studies.

Encouraging large numbers of new engineers and technicians to embrace a career in the nuclear industry would not solve the problem, as they would need to be trained and learn from operational experience. Already, operational problems arising from the shortage of competence renewal, which EDF’s Inspector General for Nuclear Safety pointed out in his annual report for 2007 as “the first management concern”, are apparent at all management levels and all sites in the whole nuclear sector (and not only in EDF).

Finally, the issue extends to organisational and industrial considerations, such as the capacity to cast the largest pieces of the reactor vessel of an EPR. The only plant, owned by Japan Steel Works, that could forge ingots of the needed size (450 tonnes) up to now will provide components for the Finnish and French EPRs. Only in July 2008 Areva announced that it would proceed with the investment needed to upgrade its Chalon forgery to produce components for future EPR orders.