Focus 03 From planning to structural mishap

Some key decisions about the evolution of the French nuclear programme were based on dramatically faulty forecasting. The main example is the development of a large fleet of light water reactors (LWRs) decided in 1973-4. Based on unrealistic previsions of electricity demand, these decisions have had the strongest and most long-lasting impact on the national nuclear and energy policies.

The PEON reports series documents the projection of electricity consumption, showing how the forecast for any given year evolved from one report to the next (Table 10). In fact, France's official experts, like those in most western countries at the same time, based any planning on a forecast of very high increase, roughly based on a doubling of the electricity consumption every ten years. In 1964, they forecast 103 TWh in 1965, thus 205 in 1975 and 410 in 1985. What happened instead was a significant slowing in the rate of electricity demand compared to economic growth. The projection for 1985 was not less than 33 percent higher than the eventual real consumption, at 303 TWh. The decisive report for the launching of the "Messmer programmes" (from the name of the then prime minister), published in 1973, forecast 750 TWh of electric demand in 2000, an overestimate by 75 percent of the real demand, set around 430 TWh.

The divergence between this "rule" and the real evolution of demand was plain as early as the end of the 1970s. Yet the last reports of the PEON series still projected the building of a huge nuclear capacity, to reach 158 GWe by 2000 (of which around 40 GWe of FBR reactors of the Superphénix type…). And a corresponding rhythm of construction was maintained all through the first half of the 1980s, only coming almost to a halt by 1985, when 54 reactors of the 58 LWRs now in operation (totalling 63.8 GWe) had already been built or at least ordered.

In fact, while some countries gave up parts of their programmes and cancelled some projected reactors,[50] EDF did not abandon a single order. As a result, France is marked by a structural overcapacity of nuclear power that is still in effect, impacting on nuclear economics and preventing demand-side management and development of renewables in the electricity sector.

Table 10 Electricity consumption forecasted in PEON reports, 1964-79

Year of prevision	Electric consumption in France – forecast (TWh)							
	1960	**1965**	**1970**	**1975**	**1980**	**1985**	**1990**	**2000**
1964	72	103	150	205	290	410		
1968				210	300	400		
1970				200	285	400		
1973				195	280	400		750
1974						355-420		
1976						365		
1978							350-450	
1979							400-450	530-700
Real	**72**	**102**	**140**	**181**	**249**	**303**	**349**	**430**

Source: CDP, 2000

[50] For instance, no less than 138 reactor units were cancelled in various stages of planning and construction in the US, compared with 103 reactors in operation.