

Nuclear power “shortcomings”

Tongue in cheek – we now have to design for the 2,00-year hot day.

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A heatwave in Europe has exposed the limits of nuclear technology, France's favourite source of electricity which is touted by many as a solution to combating global warming. France, the world's second largest nuclear generator with a fleet of 58 near-zero emission nuclear reactors, relies on atomic plants for close to 80 per cent of its electricity.

The heatwave gripping northern Europe for the last two weeks has heightened concerns over security of energy supplies as cooling problems have hit output from reactors sited by rivers.

At the same time demand for power to drive air-conditioning has surged, a trend that may in future lead to power use in northern Europe peaking in the summer instead of winter.

"Because the heat impacts the water temperature, it has an impact on production," a spokeswoman for French power monopoly EDF said.

EDF said last week it had to import 2,000 megawatts of extra power – roughly equivalent to the capacity of a large nuclear station – to meet surging demand and compensate for lower production as its reactors laboured in the heat.

The French company called this month's heatwave "unprecedented" and said that it was ensuring that traditional summer maintenance of nuclear reactors located on the coast had been postponed.

"Sea water cools down faster than river water," the EDF spokeswoman said, adding that its river-based Rhone and Garonne were being closely watched.

EDF is attempting to avoid a repeat of the 2003 heatwave, when some of its seaside-based reactors had been stopped for maintenance.

Fourteen of EDF's 58 reactors are based by the sea and do not suffer from the rise in water temperature that its 44 riverside reactors experience. Lower output from some reactors because of cooling problems has coincided with surging demand on the back of increased use of air-conditioning.

"Air-conditioning use is increasing considerably especially in shops, and I have no doubt, households will want to have it more and more," Daniel Bois, an analyst at the French political life study centre, said.

Bois added that the increase in power demand during the summer did not fit with EDF's traditional nuclear maintenance schedule during the hot months.

"Habits are changing and I don't have the feeling that EDF is taking all of this into account," he said. French anti-nuclear association Sortir du Nucleaire said there was a danger that EDF's coastal reactors were being pushed too hard.

"There is a temptation for EDF to ignore technical problems in order to maintain production," it said in a report.

The French government has approved a request from EDF to allow its nuclear reactors to discharge cooling water at above normal temperatures into rivers.

"Global warming has started and weather experts predict unanimously that even if the necessary measures were taken immediately on a world level – which is unfortunately far from being the case – the phenomenon would worsen for a few decades before improving," the anti-nuclear association added.

Bois said he could not imagine a future without nuclear energy if France wanted to reach the Kyoto targets or exceed them whilst ensuring supply security. "The arrival of wind power in France will not change things much as I can't imagine the renewable power will in the future account for more than 5 or 10 percent of the energy mix," he added. "When nuclear started in France climate change was not an issue," Bois said.