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France struggles to cut down on nuclear power

By Rob Broomby BBC News, Paris



The Fukushima disaster led many countries to rethink their view on nuclear energy. Germany plans to abandon it altogether, but French President Francois Hollande also wants to cut nuclear output sharply - by a third in 20 years. It's a big ask in a country that now relies on nuclear for 75% of its electricity.

If fully implemented, the pledge would force the closure of up to 20 of the country's 58 reactors according to Professor Laurence Tubiana a former government adviser who the president asked to facilitate a national debate, paving the way for what they call le transition energetique.

This would be a huge step, but Tubiana describes it as a "logical evolution".

France realised that Japan had survived economically when all its atomic power stations were shut down because of its diverse energy mix. In Japan, before the disaster, nuclear power delivered about 30% of the country's electricity, but France is hugely dependent not only on nuclear, but on a single generation of nuclear power stations.

It is vulnerable to a "generic risk", according to Tubiana, where a problem with one reactor could force them all offline for the fault to be fixed. This would cause chaos.

She says the 20 reactors closed in the "transition" could be replaced by renewable energy, which she says would maintain French energy independence and be both "stable and secure".

So far, however, the government has only earmarked one power station for closure - the ageing plant at Fessenheim on the German border - which prompts some to question the government's

commitment to Hollande's promise.



The Fukushima disaster prompted Germany to plan the closure of its nuclear power plants by 2022

There is evidently reluctance in cabinet. Industry Minister Arnaud Montebourg is on record as saying that Fessenheim will be the only nuclear power station to close.

On a visit to China in December he reassured his audience that nuclear energy was a "sector of the future" and would continue to contribute "at least 50%" of France's electricity output.

Another member of Hollande's Socialist Party, the MP Christian Bataille, says the plan to curb nuclear was hatched as a way of securing the backing of his Green coalition partners in parliament.

He describes nuclear power as the country's "only national energy source".

French nuclear industry

- Supplies 75% of electricity
- Exports both electricity and nuclear technology
- Building its first Generation III reactor
- Country has 58 nuclear reactors operated by Electricite de France (EdF)
- [Source: World Nuclear Association](#)

"We no longer have coal, we never had much petrol and we don't have any gas. Nuclear energy contributes to our independence," Bataille says.

"People only reject it if they're subjected to scaremongering campaigns."

French nuclear power was the ultimate "grand project" forged in the 1970s and designed to make France as energy-independent as possible. Its reactors have been churning out low-carbon energy at some of the lowest prices in Europe for decades - helping, supporters say, to

make French industry competitive.

At a fashionable Parisian street market I spoke to a number of shoppers, with differing views on nuclear power.

"People need energy, and nuclear is necessary to live," one smartly dressed woman told me. But others had been unsettled by Fukushima and were concerned about both safety and nuclear waste. "It is very useful but it is very dangerous," said one elderly man. He would prefer renewable energy, he said, but recognised it would take time to switch.

Meanwhile, the economics of nuclear power are changing too.



Protest against Fessenheim - on the German border - which is now earmarked for closure. The safety upgrades forced by Fukushima will cost about 10bn euros (£8bn) and maintenance costs are expected to rise sharply as the nuclear plants age. By the end of 2022, more than one in three French reactors will have been in operation for 40 years or more.

The state-owned utility EDF plans to extend the lives of reactors from 40 to 60 years, but that will cost money too.

Germany's "Energiewende"



- The economy is being re-engineered to cope with the closing of all its nuclear power stations and the ramping up of wind and solar power
- The government provides generous incentives to companies or people who built wind-turbines or installed solar panels
- More than half of all the solar-panels in the world are in Germany
- [German 'energy bender' in trouble?](#)

It's one reason why the golden age of low-priced electricity in France is over, according to Prof Patrice Geoffron of Paris Dauphine University.

"All the drivers of the electricity price will go up in the future," he says. "If you hear what is said by the regulator of energy we will be obliged to increase the price by 30% by 2020."

Independent energy analyst Mycle Schneider says that in this environment, the most expensive renewable energy sources could become more competitive than nuclear in less than five years - which is "tomorrow morning in energy policy," he says.

Cecile Maisonneuve, a former board member of the state-owned reactor and fuel manufacturer Areva who now heads the energy division of IFRI, a think tank, describes the government's plan for the transition as "too fast and for the moment... not credible".

France would fall back on gas, or even coal, she says, with a consequent rise in CO2 emissions. She says Germany has seen a small increase in the use of coal during its transition - though German experts say that is because gas cannot compete with coal on price, and the European Union's Emissions Trading System is to blame.



Some industry experts say France needs to catch up on other technologies Professor Tubiana says by concentrating on nuclear power France has slipped behind on rival technologies like wind, solar and biomass and it must now take steps to catch up quickly.

"We were very good 20 years ago with solar concentration," she says. "We are now nowhere.

We concentrated all our efforts on one side."

If France does not create a market for renewable energy it will never be competitive in the sector, she says - while its nuclear industry could still be powerful even in 2050, even under the Hollande plan.

If 50% of electricity continues to be generated by nuclear, that is still an "enormous" figure, she says.

Even if President Hollande's plan for the transition stalls, it seems clear at least that there will be no further expansion of nuclear in France.

EDF is planning to build two new nuclear reactors at Hinkley in western England with Chinese help, but at Flamanville in Normandy a new reactor of the same EPR design is behind schedule and massively over budget. A second envisaged EPR reactor in France has been shelved indefinitely - and no other new nuclear power stations are planned.

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