

Heat Spells Trouble for France's Nuclear Reactors

by ANITA ELASH

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France gets 80 percent of its electricity from nuclear power. Once a nuclear plant is built and running, the power station doesn't emit greenhouse gases. But as summers in Europe get hotter, an unexpected hitch has emerged. Many French reactors have had trouble operating during hot spells.

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RENEE MONTAGNE, host:

France is one place where power needs can't be blamed for climate change. That's because 80 percent of France electricity comes from nuclear power. Once a nuclear plant is built and running, the power station doesn't emit greenhouse gases. But as summers in Europe get hotter, an unexpected hitch has emerged.

For our series Climate Connections with National Geographic, reporter Anita Elash investigates why many French reactors have had trouble operating during hot spells.

ANITA ELASH: The village of Golfech is one of those rare places in southwestern France that even the tourists pass by.

(Soundbite of machinery)

ELASH: With just 800 residents, one café, and no remaining remnants of its history as the commander's residence during the Crusades, the main attraction in Golfech is its nuclear power plant.

(Soundbite of running water)

ELASH: Golfech is on the right bank of the River Garonne and barely half a mile from the nuclear plant where there are two reactors built in the late 1980s.

Mayor ALEXIS CALAFAT (Golfech, France): (French spoken)

ELASH: As the mayor of Golfech, Alexis Calafat shows off the reactor. He's standing near a fish elevator designed to help migratory fish get past the reactor so they can spawn. The reactors are among the most modern in France. And like all nuclear reactors, they need abundant supplies of cool water to keep operating. But during the heat wave that swept France in 2003, they had trouble getting it and one of the reactors have to shut down. Calafat says the river water was too hot.

Mayor CALAFAT: (Through translator) During a hot spell, the water gets very hot because the river here is shallow.

ELASH: Regulations say the reactor can't pump water over 82 degrees back into the river. And Calafat says that since the river was already warmer than that, they no longer had the right to operate. Like the plant at Golfech, three quarters of French nuclear reactors are in rivers or lakes. And during the heat wave of 2003, the French electricity operator EDF was forced to shut down or cut back production at nearly one third of them.

Last summer, many reactors - including the one at Golfech - had to shut down again when there was another heat wave. The EDF says it's doing everything it can to avoid a repeat performance, but environmentalists say those shutdowns are a sign of things to come.

Bruno Rebelle is the former program director for Greenpeace International. He's not against nuclear energy, he says, but he thinks France has invested far too much in it. And any country that relies more than a little on nuclear power could end up paying a high price.

Mr. BRUNO REBELLE (Former Program Director, Greenpeace International): Well, if you'll look at the trends, one can think that heat waves - shortage of water due to climate change would be more frequent in the coming years. So if you -at the same time, you have electricity production system which is too highly depending on nuclear industry, you will have a kind of catch-22, because at a time when - for heat wave, you need more electricity, for example, to use air conditioners, you will not be able to run with your plants due to the fact that you can't cool them down.

ELASH: Other countries - including Germany, Spain, Sweden and the United States - have also had to shut down or cut back on nuclear energy output during heat waves in the last few years. But industry

representatives say they don't believe global warming will be much of a problem for them. Luis Echavarrri is the director-general of the Nuclear Energy Agency, which represents nuclear power regulators in 28 countries.

Mr. LUIS ECHAVARRRI (Director-General, Nuclear Energy Agency): We don't think that an increase of the global temperature in the world is going to affect significantly the nuclear power plants, even if this happens. Because what we are talking about is between 1.5 and five degrees equal 100 years. So we don't think, from that point of view, is a challenge.

ELASH: Echavarrri says problems caused by higher temperatures or shrinking rivers can easily be solved by adding cooling towers or improving technology.

(Soundbite of reactor sounds)

ELASH: At Golfech, the EDF is pursuing two solutions. The reactor already has a cooling tower and up-to-date technology, so when it gets hot, the electricity company brings in extra supplies of cold water using a fleet of huge trucks. And last year, it got special permission to further increase the temperature of the water it's pumping back into the river. Environmentalists are worried that the hotter water will impact the fish and other life in the river.

(Soundbite of reactor sounds)

ELASH: Back at the fish elevator, Mayor Calafat admits there are fewer fish in the river this year, but says he's not concerned about their reactor - or, for that matter, global warming.

Mayor CALAFAT: (Through translator) I think that in history there have always been hot periods and cold periods, and right now we're in a hot period. Is pollution really causing that?

ELASH: The EDF says it made contingency plans for this summer to keep all its nuclear reactors running. But the heat waves that hit southern Europe this year had so far not been felt in France.

For NPR News, I'm Anita Elash in Golfech, France.

MONTAGNE: And in this month's edition of National Geographic magazine, you can read more stories on global climate change.

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