

Nuclear energy supporters doubtful about wind power

In France, those who are the most suspicious about the development of wind power are the supporters of nuclear energy. Their argument is that wind energy will replace "clean" nuclear energy with "dirty" thermal energy.

| by Yves de Saint Jacob

Remy Prud'homme, a professor of economics and a pioneer in environmental issues at the OECD (Organisation for Economic Co-operation and Development), makes this rough estimate: only 20% of proposed wind power will be used for reducing thermal electricity. The rest, 80% of the new energy, will come to replace some of the nuclear electricity, which emits no CO₂. Jean-Louis Ball, head of renewable energy at ADEME (the French Agency for Environment and Energy Management), disagrees. He believes the opposite is true, that 'the bulk of the wind power generated will replace thermal energy'. He bases his argument on the latest survey by RTE, which operates the network that transmits electricity in France. RTE, while remaining fairly neutral in the debate, offers this opinion, but without providing a lot of figures: 'the installation of windmills reduces the need for thermal equipment needed to ensure the desired level of security for the supply.'

The French Commission for the Regulation of Energy (CRE) is anticipating a savings of 1.65 million tons of CO₂ emissions in 2008 from wind power. Looking ahead to the year 2016, the scenarios suggest savings of more than 8 million tons. The figure is not really being disputed among supporters of nuclear power, who estimate savings of about 7 million tons on emissions. But they believe this result

is very modest when compared to the 500 million tons of CO₂ France emits in total. Why commit so much to reducing so little in a sector that is already highly efficient with its emissions?

The discussion arises of course because 80% of France's electricity is produced by nuclear power. Prud'homme provides a two-step explanation to EER. First of all, for about 6,800 hours per year, or a little over three quarters of the 8,760 hours of the year, the demand for energy is less than 63GW, which is the power capacity of France's nuclear energy industry. The occasional peak hours of over-consumption can be handled with hydropower. Therefore, there is enough nuclear-produced electricity available at low or negligible marginal cost, since the power stations are there.

The wind power generated and discharged on the network during the 6,800 hours is useless and more expensive. And since it is sporadic in nature, it subjects the network to unpredictable variations that cannot be managed solely with hydraulic power or inflexible nuclear capacity. Therefore the gas power stations would have to be started up.

Secondly, Prud'homme says, during the remaining 2,000 hours, or about a quarter of the year, when the established nuclear energy is not enough, what should be done? Building additional nuclear power stations would not be a good idea because when a nuclear power plant operates at



The French Minister of Environment Nathalie Kosciusko-Morizet. Photo: AFP

a low level, the electricity it produces is more costly. That is why we use coal or gas today in addition to hydroelectricity. Wind energy would actually have a positive impact during this 2,000 hour-period. But it would be low. Nothing can assure that the wind will blow during the highest peak hours, when all of the resources (both nuclear and thermal) must be called upon. With the exception of risking power outages, the development of wind capacity would not replace thermal capacity. Even with the planned development of wind power, the supply of wind-generated electricity will be about 14TWh, compared with actual thermal power production currently at 54TWh. ■