

EUROPEAN EXPERT: U.S. POLICYMAKERS ARE “AS WRONG AS THEY CAN BE” ABOUT THE FRENCH EXPERIENCE WITH NUCLEAR POWER

Marignac Says “Far From Being a Model, France Should be a Powerful Cautionary Tale for the U.S. about the Folly of a Headlong Rush into More Nuclear Power”.

WASHINGTON, D.C.///September 15, 2009///U.S. policy makers are in the grips of “dangerous and costly illusions” if they think that France is a model showing how nuclear power could be implemented aggressively in the United States, according to Yves Marignac, a leading international consultant on nuclear energy issues and the executive director of the energy information agency WISE-Paris.

In visits this week with state and federal officials, Marignac is debunking the myth of the so-called “French nuclear model” that is being touted as a blueprint for the revival of the embattled nuclear power industry in the U.S. His visit comes at a particular key time, as the U.S. Senate considers additional subsidies to the nuclear industry in its version of pending climate legislation and the U.S. Department of Energy (DOE) seeks public comment on weakening the rules for loan-guarantee bailouts of proposed new reactors.

Yves Marignac said: **“I am at a loss to understand how the United States could be so far off the mark in its understanding of the French experience with nuclear power. The so-called ‘success story’ of the French nuclear program, which is being promoted so assiduously by the U.S. nuclear industry, is a complete disconnect with the stark reality of the 50-year history of rising costs, steadily worsening delays, technological dead-ends, failed industrial challenges and planning mistakes. The United States could make few worse mistakes than embracing France’s sorry nuclear legacy. If American policymakers are going to weigh the example of France, they need to get the facts instead of settling for the fantasy being sold to them by the US nuclear industry.”**

In his remarks today, Marignac noted the following key problems:

- **French nuclear technology is deeply flawed.** The French EPR Reactor is a new reactor design developed by the company Areva in cooperation with the German firm Siemens. Serious doubts have been raised about the safety and cost of the EPR. Experience in the construction at the two sites where EPRs are being built, in Finland (Olkiluoto 3) and France (Flamanville 3), has revealed serious

and fundamental weaknesses in design, problems during construction phases and soaring costs.

British and Finnish nuclear regulators have also raised significant safety questions, in particular about the computerized command and control system proposed for these reactors.

- **French nuclear reactor construction delays are getting steadily worse, not better.** Alongside increasing costs, construction times have proven to be problematic. The last four reactors that were built in France, two units in Chooz and two in Civaux, were only connected on average 10.5 years after construction work began, and subsequent safety problems caused further delays. Their official industrial service only started in 2000 and 2002 respectively, some 15.5 and 12.5 years after construction started.

- **French nuclear reactor costs are just as out of control as they are in the U.S.** The EPR has been promoted as a technology that makes nuclear energy cheaper and more competitive. When the decision was made to build an EPR in Finland in 2002, the government promised that it would cost Euro 2.5 billion and take only four years to build. The final contract, three years later, put the price at Euro 3 billion and construction time was set at 4.5 years. Since construction began in summer 2005, a variety of technical problems have led to a three and a half-year delay, extending the construction period to at least 7 years. The currently estimated additional cost is Euro 2.3 billion, raising the current price tag to Euro 5.3 billion, almost 75 percent over the initial estimate. More problems, delays and cost overruns are likely to occur before the project is completed. In September 2008, Nucleonics Week quoted an Areva official, saying that Euro 4.5 billion will be a minimum price for any new EPR – almost twice the initial estimate. The other EPR being built in Flamanville, France, was approved in 2005 on the basis of a 2.8 c€/kWh cost estimate, which was increased by EDF in December 2008 to 5.4 c€/kWh, although EDF itself estimated that it should be below 4.6 c€/kWh to guarantee profitability.

- **Nuclear power in France has not promoted energy independence.** Nuclear power in France is a major presence, providing 76 percent of electricity produced in 2008. However, electricity accounted for only 20.7 percent of the final energy consumption in France that year. Excluding electricity

exports, the overall contribution of nuclear power to France's final energy consumption is only in the range of 14 percent. If the real aim of the nuclear programme was to reduce oil dependence, then it has clearly failed in its objectives. Over 70 percent of France's final energy is provided by fossil fuels (oil, gas, coal), with oil accounting for 49 percent of the energy consumption in 2007. Nuclear power cannot provide energy security, as it only has a marginal effect upon oil consumption, which is dominated by the transport sector. France consumes more oil per capita than the European average, and despite its long-term objective to reduce greenhouse gas emissions by three-quarters, it seems incapable of bucking an upward trend. This is due largely to the weak policies on energy efficiency and new energy sources, influenced by the lock-in of nuclear power.

• **French nuclear power is not “safer” ... and the nation does not have a long term solution to waste storage.** The operators of the 200 nuclear facilities in France declare a very large number of events – considered relevant for safety – every year. EDF alone declares between 10,000 and 12,000, of which 700 to 800 are deemed “incidents” or “significant events”. Large amounts of radioactive waste arise from the French nuclear programme. In total, close to 890,000 cubic meters (m³) of radioactive waste had been produced by the end of 2004. Almost 40 percent of this amount is linked to reprocessing. This total does not account for some 12,000 m³ of waste from the reprocessing plant in Marcoule that was dumped into the sea in 1967 and 1969. While reprocessing is presented as a means to reduce the volume of highly-radioactive long-lived wastes in final disposal, it actually increases the complexity of waste management, and thereby the danger for the population and environment. Reprocessing comes with numerous extra nuclear facilities and transports, each creating extra safety risks. But also ‘normal’ radiation exposure arising from routine operations increases, for example by the radioactive discharges of La Hague reprocessing plants, with authorized discharge levels up to 1000 times higher than those applying to the nearby Flamanville nuclear power station. And even France, supposedly the country of nuclear expertise, has no long-term solution for its nuclear wastes.

• **Nuclear power in France is not popular.** The pursuit of the nuclear program in France is a

permanently undemocratic choice. Contrary to the image presented in the United States, the French population is no more in favor of nuclear power than the European average – indeed a majority is opposed to the building of new plants. Surveys repeatedly show that the public lacks confidence in the institutional promoters of nuclear power.

- **The “nationalized” nuclear model in France is completely incompatible with the market-driven**

U.S. In 2001, Compagnie Générale des Matières Nucléaires (Cogema – General Company for Nuclear Materials), a private company established in 1976, merged with Framatome, the nuclear reactor builder, to create the Areva group. Currently, 96 percent of the share capital of the Areva group is held by the French state and large French industries. Electricité de France (EDF), the French electric utility, was established in 1946 through nationalization of a number of state and private companies. First and foremost responsible for overseeing development of the electricity supply across France, today EDF operates all 59 nuclear reactors in service in France. EDF was partly privatized in 2005-2006, but the French government still retains control 84.9 percent of its shares.

- **State ownership of French nuclear power means that the true costs are hidden.** Though largely in an indirect fashion, French taxpayers bear a large part of the nuclear costs. The French government, as both the regulator of electricity prices and the owner of the utility EDF, has been able to overcome the main obstacle to nuclear power by planning, at liberty, the return of capital costs from nuclear investments. French public funding is widely provided to the nuclear industry, from financing extensive R&D programs to guaranteeing low-rate loans. Official cost estimates for nuclear power tend to neglect or downplay hidden costs from the fuel cycle, waste management, decommissioning of nuclear facilities, security, infrastructural changes and state guarantees for liabilities. All in all, nuclear power is highly subsidized by the French taxpayer.

ABOUT YVES MARIGNAC

Yves Marignac is executive director of the energy information agency WISE-Paris, which he joined in 1997, after four years shared between academic research at Paris-XI University and applied studies in the French nuclear institute CEA and the nuclear company STMI. His consultant work covers a wide

range of nuclear issues for various institutional bodies and NGOs at the national and international level. In 1999-2000, Marignac participated in the economic evaluation of the nuclear option commissioned by French Prime Minister (known as Charpin-Dessus-Pellat report), and in 2001 he was a co-author of a report to the European Parliament's Scientific and Technological Option Assessment (STOA) Panel on reprocessing of spent nuclear fuel. In 2005, he acted as consultant to the Commission that organized the institutional public debate on the project of the new French reactor, EPR (Flamanville-3).

Marignac is the author or co-author of a number of books and other publications, including Nuclear Power, the Great Illusion - Promises, Setbacks and Threats (October 2008) and Spent Nuclear Fuel Reprocessing in France (April 2008).