

## A COSTLY MISTAKE

- ▶ The state-owned French nuclear industry has cost taxpayers billions, including huge export losses, construction and shutdown costs.
- ▶ The breeder reactor – on which the French nuclear hopes were based – was an expensive gamble. The Superphenix breeder averaged a 7% capacity factor over its 14 years of operation.

## FRENCH PUBLIC OPPOSITION

- ▶ 60,000 people rallied in five cities in March 2007 in opposition to a proposed new European Pressurized Reactor (EPR) in Northern France.
- ▶ Annual polls show at least 60% of French citizens would like to see nuclear power phased out and a shift made to renewable energy.
- ▶ In 2007, 50,000 French citizens signed a petition demanding a referendum on radioactive waste dumping in their communities.

## FRENCH CORPORATIONS IN THE U.S.

- ▶ Two majority French-government-owned corporations – Areva and Électricité de France – would reap huge U.S. taxpayer funds if nuclear power is expanded in the U.S.
- ▶ Areva would be the beneficiary of U.S. tax dollars should a proposed uranium enrichment facility – owned by Areva – go forward in Idaho.
- ▶ EDF, a partner with Constellation, is applying to build EPR reactors in Maryland and in upstate New York. At least five additional EPRs are also under consideration in the U.S.



“The atom or life? The choice is yours!” International anti-nuclear rally, Paris, July 12, 2008. Photo: G. Collin.

## AREVA IN NIGER

- ▶ In Niger – as in many countries – uranium mining has disproportionately affected indigenous peoples who have seen none of the economic benefits but have suffered from health and environmental impacts. Proposed new mines across northern Niger have sparked opposition from tribespeople who have been arbitrarily arrested, tortured and executed without trial.
- ▶ Areva has mined uranium for 40 years in Niger, West Africa, creating radioactively-contaminated air, soil and water. Discarded radioactive metals from the mining operation are sold in public marketplaces.
- ▶ Areva has signed a deal for a huge new uranium mine in Niger that, if opened, would be the second largest in the world. Uranium mining threatens to deplete the Sahara Desert area water supply.



April 2009

Protest against Areva speaker at DC non-proliferation conference

## Please Support BEYOND NUCLEAR

Beyond Nuclear works to educate and activate the public about the connections between nuclear power and nuclear weapons and the need to abandon both these deadly technologies to safeguard our future.



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# Nuclear Power in France

setting the record straight



The not so rosé truth  
about the French nuclear  
power program

[www.beyondnuclear.org](http://www.beyondnuclear.org)

## INTRODUCTION

France gets nearly 80% of its electricity from its 58 nuclear reactors. However, its heavy reliance on nuclear power creates safety and environmental risks, including an unresolved radioactive waste problem.

## REPROCESSING

▶ France reprocesses its own, and some foreign, irradiated reactor fuel. That is, the fuel is cut up and soaked in acid to extract plutonium and fissile uranium. This results in massive releases of radioactive gases, solids, and liquids into the environment.

▶ One hundred million gallons of radioactively contaminated liquids are discharged annually into the English Channel from the La Hague reprocessing center. Dumping these same wastes into the sea in containers would violate the 1970 London Dumping Convention.

▶ The claim that France “recycles” its irradiated nuclear fuel is a major exaggeration. Only about 1% of the reprocessed fuel is used as reactor fuel while 99% remains as radioactive waste.

▶ A plane crashing on a La Hague irradiated fuel storage pond could release radioactivity more than six times the equivalent released at Chernobyl.

▶ Radioactive discharges from La Hague have contaminated area beaches and waters as far as the Arctic and beyond. These discharges likely caused the elevated rates of leukemia near La Hague found by two independent medical studies.

▶ La Hague routinely releases radioactive gases including concentrations of krypton-85 found at levels 90,000 times higher than in nature.

▶ Aerial discharges of carbon-14, considered to be one of the most damaging radioactive isotopes to human health, have also been detected in the La Hague area. Radioactive carbon dioxide — the leading climate change culprit, is also released.



Photo: A. Paris

## RADIOACTIVE WASTE PROBLEMS

▶ France has no high-level radioactive waste repository and faces public opposition to the only one it is exploring, at Bure.

▶ Reprocessing has created large quantities of solid waste contaminated with plutonium that will need to be isolated permanently.

▶ Much of the waste remaining in France from the reprocessing of foreign fuel has never been returned to the country of origin, rendering France a de facto international dump site.

▶ The so-called low- and intermediate-level radioactive waste dump sites that do exist — including in the important Champagne region — are leaking radioactivity into the groundwater.

▶ Radioactive tailings from the 210 abandoned uranium mines in France have been used in public areas, including school playgrounds and public parking lots.

## PLUTONIUM PRODUCTION

▶ After plutonium and uranium are extracted during reprocessing, they can be combined into mixed-oxide (MOX) fuel. This is used in fewer than 20 MOX reactors which generate less than 10% of French nuclear electricity.

▶ MOX reactors, like all reactors, also generate plutonium. There is no significant net reduction of plutonium from using MOX fuel.

▶ Dangerous plutonium oxide powder is transported regularly from La Hague to the MOX fuel fabrication plants in Belgium and Southern France.

## NUCLEAR WEAPONS LINK

▶ The 80-plus metric tons of plutonium stockpiled at La Hague in hundreds of vulnerable containers are enough to make at least 10,000 bombs.

▶ France has exported civilian nuclear technology and training to, or assisted in the nuclear programs of, Pakistan, Israel, India and South Africa, all of which developed nuclear weapons.

▶ France exported nuclear technology to Iran, now the subject of international controversy about whether Iran is also developing nuclear weapons.

▶ France has sent shipments of plutonium fuel overseas, risking hijacking, accident or diversion.

▶ France delivered and helped build Iraq's Osirak reactor that was subsequently bombed by Israel in 1981.

▶ French president, Nicolas Sarkozy, has toured the globe promoting nuclear power as a “bridge to the Islamic world.” France is marketing nuclear technology to much of the Middle East and North Africa.

## FLAWED REACTOR TECHNOLOGY

▶ The French European Pressurized Reactors (EPR) under construction in France and Finland have encountered serious technical flaws including substandard parts. By July 2009, the Finnish reactor was already at least three years behind schedule and 60% over budget.

▶ The summer of 2008 saw a cascade of nuclear accidents in France. Drinking and bathing in the water was banned after radioactive spills at the Tricastin nuclear complex contaminated rivers.



*“neither nuclear nor the greenhouse effect”*