

A French nuclear puzzle

Photo: David Roseburg/Corbis

Areva, the French nuclear company, is faced with a dilemma. It wants to remain true to its old partner, German engineering company Siemens, while powerful forces in France are pushing for a merger with Alstom to create a French nuclear “champion”. Perhaps only a true EU energy policy can save the Franco-German partnership.

| by Yves de Saint Jacob

Consider the following: you are a French company with a long history and a worldwide reputation for expertise in nuclear power. You are openly supported by your head of state, who travels the world insisting that ‘nuclear power is the energy of the future’ and should be sold to countries in the Arab world, including Iran. You operate in an atmosphere which fuels the distrust of a large portion of the world’s population, in Europe in particular, but you can argue that your plants emit low levels of carbon dioxide. Above all, you are a relatively small player at a time when the market shows signs of taking off and customers are beating a path to your door.

What do you do? Expand, obviously. But how? By joining forces with another French company and becoming the ‘European champion’ in the market? Or by going it alone? That is the dilemma facing Areva, the French nuclear power company and its chairman, Anne Lauvergeon, the 48-year-old former aide to socialist president François Mitterrand, whom the current president, right-winger Nicolas Sarkozy, considered for the job of minister of finance and economy.

‘Nuclear diplomacy’ |

These are questions for Sarkozy to consider, too, because Areva relies on the public purse for close to 85% of its stock. With the GDF-Suez merger, Sarkozy has shown he intends to add political muscle to the energy sector. He has engaged in “nuclear diplomacy” to an extent never seen before. Whether addressing the Chinese, or the Germans, he is quick to promote nuclear power as ‘the energy of the future’. He suggests selling it to the entire Arab world as a development tool and as a weapon against ‘terrorism and barbarism’. When

he met Colonel Moamer Khadafi in Paris, he offered to sell the Libyan leader a reactor for a sea water desalination plant. And he sent a clear message to Iran: ‘There is no point in developing military nuclear capability because we in the west are prepared to assist you in developing civil nuclear capacity’.

The French president has also noticed that oil and gas producing countries are interested in nuclear power. Rather than burn off hydrocarbons to satisfy their own

‘All of a sudden, customers are returning’

growing need for electricity, the Gulf states and other oil producing countries find it makes more sense to sell their oil. Their wealth allows them to buy power plants ready to be put into operation quickly. As a result, Areva, with the backing of Suez and Total, clinched a deal to sell two EPR plants to Abu Dhabi, while France has offered to cooperate with Saudi Arabia and has already signed an agreement with Algeria which could lead to the construction of a nuclear power station.

Areva and its EPR plants |

But these ‘new nuclear world’ perspectives are not the biggest prizes. Three-quarters of the market lies in countries already committed to nuclear, particularly in Asia and North America. There are now 440 nuclear reactors in operation around the world, another 33 are under construction in 12 countries, and an additional hundred or so are in the pipeline. Some predictions foresee as many as 650 in operation by 2030 and

850 (almost twice the current capacity) by 2040. The US, which has more than 100 operational reactors, has plans for 30 more by 2030. China will quadruple its capacity between now and 2020, increasing from 10 to 40 reactors. India (17 reactors, 8 under construction) has similar intentions. Great Britain has plans to double the share of nuclear power.

‘It is a remarkable reversal of fortunes’, says Bertrand Barré, Areva’s former scientific director and chairman of INSC,

the International Nuclear Societies Council. ‘All of a sudden, customers are returning. But how does one change course so swiftly? Last year, Areva recruited 8,000 people; that’s nearly 10% of its workforce. It isn’t easy to absorb such a large change in production just like that. In the field of technology, some things are written down but an awful lot is not.’

Areva approaches these markets with its EPR, the Evolutionary Pressurised Water Reactor. Costing around €3 billion with a capability of 1,600 MW, third generation EPRs have a reputation for being safer than their predecessors in case of accidents, earthquakes or a terrorist attack. One is under construction in Finland and one in France. Contracts have been signed with China and Abu Dhabi and there is also strong support for the EPR to supply the needs of the British market.

Options on the table |

Areva is looking for approximately €15 billion in investments so that it can

meet these demands as well as invest in exploration and production of uranium. Everyone involved with the company is in agreement on one point: it is essential to retain Areva's "vertical" structure.

'No one can imagine that wind power will be able to supply the whole of Europe'

Until the creation of Atomenergoprom, Areva was the only company represented in every link of the nuclear chain, from the extraction and enrichment of minerals, production and transmission of electricity, right up to the treatment of irradiated fuel and waste.

But beyond that? Areva has received an unambiguous offer from Alstom, the train and turbine constructors. Alstom-ceo Patrick Kron (see interview on page 70) thinks the merger would bring on board the weight that Areva lacks at present (Areva has a turnover of around €10 billion, compared to Alstom with €15, Toshiba with €50, Siemens with €100 and General Electric with €150 billion). Why not collaborate to make a French "champion", as Nicolas Sarkozy did with GDF and Suez?

But Areva-ceo Anne Lauvergeon is opposed to the idea and would prefer for Areva to remain an autonomous unit, with increased capital and ad hoc partnerships. With her media savvy, she took an almost perverse pleasure in demonstrating over the past few months that a diversity of partners can be the key to success.

Take, for example, the Abu Dhabi projects involving collaboration with oil company Total and the Belgian plant operator Electrabel (Suez). Because a power station is 30% reactor, 30% turbines and 40% concrete, Areva initiated contacts with the civil engineering company Vinci. It was a way of demonstrating that the choice is not limited to that other major French player in the construction industry, Bouygues, who is seriously interested in nuclear power and has taken a 30% stake in Alstom.

The European aspect |

But the most interesting aspect, and the

most complex on a political level, is that of Europe.

Areva has always put this aspect of its development at the forefront. Jean-Pol Poncelet, Belgian energy minister

from 1995 to 1999 and an advisor to Anne Lauvergeon since last spring, is particularly aware of this.

'EPR is basically a Franco-German reactor', he tells EER. 'It is the result of experience gained on both sides, with the French N4 made by Framatome and

integrating the company into the only European programme which appeared to work, the one run by Areva. Now Siemens finds itself with a 34% capital involvement in Areva NP (Nuclear Power, the division that constructs reactors) and contributes, beyond its financial commitment, through several of its research centres. Siemens, backed by Angela Merkel, is on record as saying it is prepared to put several billion on the table and has stated its willingness to remain an industrial partner, not just a simple investor.

However, the French government takes a very negative view of this claim of wanting to be involved in nuclear power, but only on foreign soil. After all, the German government has decided to phase out nuclear energy in Germany altogether.



Areva chief executive Anne Lauvergeon during a press conference in Beijing, 26 November 2007. Photo: Teh Eng Koon/AFP/Getty Images)

the German Konvoi manufactured by Siemens. It goes beyond industrial and technical cooperation because, from the start, it was designed to meet two sets of specifications, in France and in Germany'. Originally the 'E' in EPR was meant to stand for 'European'. It became 'Evolutionary' for commercial reasons.

In fact, Areva has strong ties to Siemens, Alstom's head-on rival. While the German nuclear industry was confronted with the political option to withdraw from nuclear power, the head of Siemens, Heinrich von Pierer, decided to at least retain his country's expertise and technology by

At Areva, they note that it is not just Germany which finds itself in this somewhat bizarre situation. Enel, the Italian company, also operates in a country which banned nuclear power by referendum after the Chernobyl disaster, but has gone on to take a 12.5% stake in the power plant that French electricity provider EDF will operate with its new EPR reactor in Flamanville in the French region of Normandy. Italian engineers will travel to the icy shores of the English Channel to work on the project. And Electrabel-Suez is supplying its know-how to a project in sunny Abu Dhabi at a time when the law

Selling to the “new nuclear world”

A warning from the French nuclear safety authority

The prospect of France selling nuclear power stations to Algeria, Libya, United Arab Emirates, and maybe later to Morocco and Egypt, has brought a kind of a warning for the government from the head of the country's nuclear safety authority, Andre-Claude Lacoste.

As far as he is concerned, the development of nuclear power plants in countries which are only just discovering the technology, presupposes that they will immediately be conversant with the relevant safety procedures and controls, have a proper working legal structure in place and have the trained teams of experts. On a wider scale, they will need to develop a safety “culture”, and that is sure to take time. Between 10 and 15 years, according to Andre-Claude Lacoste.

Lacoste told journalists that the nuclear safety authority, ASN, which he presides over – and which for just over a year has been independent of state control – was not involved in President Nicolas Sarkozy's recent forays into the Arab world. He considers that even if the countries involved are in charge of their own sovereignty, it is France's ‘national moral responsibility’ to make sure that the relevant ad hoc institutions are put in place. The ASN has in fact offered its services and has said it is ready to “export” French know-how in this sphere.

Lacoste dismissed as barely credible the option Sarkozy put forward in Libya, the notion that it would be possible to deactivate a nuclear power plant from a distance in case of an accident. Such an option would be rejected out of hand by the country involved.

While France has a long record of experience in the field, it only recently severed the umbilical cord between state and safety authority. Set up in November 2006, the ASN inherited those services previously operated under the auspices of government ministries, putting them under the control of a five-strong

commission, appointed by the president and the speakers of the houses of parliament for six years at a stretch.

Marie-Pierre Comets, one of the five commission members and a nuclear physicist by training, says the ASN has ambitions to become ‘an international benchmark’.

‘We are promoting the virtues of independence, the distinction between advocating nuclear power and its safety and openness’, she told EER. ‘We are one of the few countries where the findings of our site inspections are published on our website. And of course, there is the expertise. If there is a renewed interest in nuclear power, we are going to have to find the staff, train them and set up new networks. Training someone up can't be done in three days’.

The ASN is working on harmonizing standards and procedures, at an international level with the AIEA, and in a European context with Wenra (Western European Nuclear Regulators Association), which groups together nuclear safety bodies from various countries but is not an EU organization.

Such cooperation within the western world is not only for the purposes of protection. There are commercial implications in so far as the multiplicity of standards can be costly. ‘The certification process of the EPR in the United States required 18,000 pages of documentation by our teams and cost nearly \$200 million. That seems an awful lot, but once it has been done, it is an open-sesame to the big nuclear power market in the United States with its 100 stations operational’, says Jean-Pol Poncelet, former Belgian energy minister and advisor to Areva chairman Anne Lauvergeon.

But he adds: ‘In the EU, every country has its own rules. To sell a power station to this country or that, each time you have to analyze the rules and adapt yourself to them. European harmonization is essential, as the example of Airbus demonstrates. Disparate markets are less attractive’.

is progressively closing down all nuclear power stations in Belgium ‘except in case of force majeure’.

At this time, the EU does not have a common energy policy. Areva thinks there ought to be. Jean-Pol Poncelet pleads his case with passion. ‘There will be an enormous need for investment, industrial capacity and the training of engineers. Somewhere in the order of €1,000 billion will be invested in electricity in the next 25 years. It is a real challenge for Europe, quite apart from individual interests. Can Europe maintain its leadership in terms of equipment, expertise and investment?’

In the 70s and 80s, there was a capacity in the heavy machinery and electrical equipment industries that launched the nuclear industry in Europe. These industries are not so strong now. If a construction plan for several reactors a year was to be implemented, we would be in trouble. Who would organize this process? There is a shortage of engineers. At Areva, someone is being hired every hour. This is a fine example of something we should all be doing together in Europe, because obviously it doesn't matter whether engineers are German, Finnish, Belgian, French or Italian.’

President Sarkozy has made it clear that once the French presidency of the EU starts in July, he intends to study the question of Europe's non-existent energy policy – non-existent except where it touches on the environment and measures taken against climate change. But the debate is likely to be heated. ‘In Europe, we can't just sit and do nothing when faced with a situation where, within a century, there will be no more gas and within 30 to 40 years there will be no more oil. No-one can imagine that wind power will be able to supply the whole of Europe’, Sarkozy told the German Chancellor. ■