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## The Nuclear Fuel Industry: Ready To Face New Challenges

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This paper deals with the new challenges faced by the nuclear industry in a rapidly changing international context, and the ways in which the industry can take advantage of these in the coming years to continue to develop nuclear power.

Four major challenges can be identified in the rapidly changing context for nuclear power:

- First, with the deregulation of electricity markets, we have entered a period in which the short term is the focus of greater attention. We are witnessing a redefinition of the rules of the game, making a sweeping realignment of the players in this sector inevitable.
- Second, with steadily extending nuclear power plant lifetimes and high capacity factors in Europe and North America, the nuclear industry is headed for a period of market stability; however, adjustments in the nuclear sector are also inevitable.
- Third, the increasing political challenge to nuclear energy in Europe and the uncertain response from the authorities. In spite of the nuclear industry's numerous efforts, this challenge shows no sign of slackening. If the situation fails to change, the long term future of nuclear power will remain in doubt.
- Finally, the preparation of agreements on climate change. To avoid the alarming repercussions of climate change, it is everyone's responsibility to ensure that future energy needs will not be satisfied on the basis of present energy structures. Nuclear power has a role to play in complying with the Kyoto protocol, and must assert its role positively. The COP6 meeting at The Hague in November 2000 must therefore have the industry's full attention.

To address these challenges, the nuclear industry must demonstrate its industrial and commercial dynamism. Nuclear power must adjust to the opening of electricity markets to competition and the necessity to further cut its costs. The industry must develop an effective strategy to enhance its competitiveness, while maintaining know-how and expertise at a high level and ensuring the rejuvenation of the workforce. This will provide the conditions for a successful renewal of nuclear power capability in the decades to come.

Competition from other energy sources in the European electricity market must be a mobilising factor for the nuclear industry. We have to improve our capacity for innovation, and pursue our quest for greater flexibility and lower costs. Nuclear power undeniably has economic and technical advantages to exploit against the competition from conventional energies such as gas, oil and coal.

This response will enable the nuclear industry to adapt better and faster to the evolution of its markets and the expectations of its customers. The industry will be forearmed to meet the challenges it will face in the coming years, and thus will be able to continue to satisfy the demands associated with its activities, primarily those pertaining to safety.

In addition to industrial and commercial responses, the industry has to be ready to meet the challenges of public acceptance and environmental protection. The first challenge, that of public acceptance, entails a greater effort to achieve transparency and engage in public debate. Decisions about nuclear power have often not been taken in a spirit of transparency. There was perhaps a time when that was acceptable. But today people are asking questions to which they rightfully demand answers.

By withholding information or by silence, the nuclear industry has sown the seeds of doubt. The abstract, invisible and intangible nature of radioactivity strengthens the apprehensions it arouses. That is why we must not only make a genuine effort to explain, but also to listen, in order to understand the perception of its dangers. Without giving lessons, we could perhaps conduct the debate on calmer ground. By allowing universal access to information, we assume our duty as responsible companies.

Nuclear power has a future. Yet this future could be jeopardised if we lose the trust of public opinion. This requires the industry to be irreproachable in matters of safety, in radiological protection of workers, and in the clean operation of installations. But moreover, through an attitude of openness and permanent dialogue, the industry also has to address calmly and clearly all the questions asked by the public about the impact of its industrial operations.

On all these issues, we are learning to reply, not only technically and scientifically, but by paying heed to the specific anxieties of individuals, their expectations and their opinions. This has been demonstrated at Cogema by an innovative communication campaign symbolised by the installation of webcams in the La Hague plant.

Beyond transparency, we must also contribute, proactively and positively, to the public debate on energy. Nuclear power is a still youthful technology, poorly known by the public. Few adults today have learned at school that radioactivity surrounds them like the air they breathe. It is urgent to speed up the this process of informing our fellow citizens. Since ignorance begets fear, the public is easily swayed by any alarmist and irrational argument. In fact, exclusively technical and scientific answers are not enough. We must seek to enhance the social acceptability of nuclear power.

Our final main challenge is the recognition of nuclear energy as one factor in sustainable development. Let me recall that this concept, which first appeared in the 1987 Brundtland report, *Our Common Future*, not only includes protection of the environment and the living conditions of present and future generations, but also involves meeting the needs of modern societies in terms of competitiveness, employment and social well-being.

Sustainable energy development can be defined as the art of reconciling three requirements:

- satisfaction of the energy needs associated with economic development;

- security of supply;
- respect for the environment.

This concept has since been developed and has become an inherent feature of most international and national policies. Where does nuclear power stand in this new setting?

In the current discussions on the greenhouse effect and reductions in CO<sub>2</sub> emissions, we are increasingly witnessing a debate between those who support reliance on nuclear energy and those who refuse to include nuclear power among the clean and durable energy sources. On the one hand, it is pointed out that the absence of emissions connected with this energy source prevents the annual release of 1.8 billion tonnes of CO<sub>2</sub>. On the other hand, issues associated with radioactive waste or nuclear proliferation are emphasised.

In actual fact, this debate should be put in a broader perspective than climate change, that of sustainable development. Since the start of civil nuclear programmes, the nuclear industry has done its utmost to control its potential environmental impact. It has striven to apply ever more efficient technologies to continually reduce the volume of its wastes, and to isolate them from the environment and from future generations over timescales that are inconceivable in other sectors. It has accordingly spent more than any other energy industry to incorporate its environmental externalities.

Beyond these environmental criteria, the availability of uranium, as well as its potential in fast breeder reactors, gives nuclear power security of fuel supply for the very long term. Moreover, the geographic distribution of resources, which are mainly located in politically stable zones, frees the uranium market from the potential political tensions observed in other sectors.

Finally, a comparison of the economic viability of the different energy alternatives, including external costs, tips the scale in favour of nuclear power, which has incorporated these costs into its operations from the outset. Two recent reports support this analysis.

The first is a report by Charpin, Pellat and Dessus, *Prospective Economic Study of the Nuclear Power System*, which was submitted in mid 2000 to French Prime Minister Lionel Jospin. It dismisses concerns about the costs of the nuclear power programme, concluding that the nuclear industry has had a positive impact in economic terms. As the nuclear programme has matured and nuclear installations have depreciated, we have entered a phase in which nuclear power enjoys greater competitiveness, which means lower overall costs per kWh. It is clear that the industry must take maximum advantage of this situation.

This report also concludes in favour of continuation of the reprocessing-recycling policy in France. This is mainly for ecological and social reasons, since in economic terms it only makes a slight difference.

The second document was produced by 40 Swiss scientists who took a position on a bill on nuclear energy before the Swiss Federal Council. The scientists categorically rejected the ban on reprocessing proposed by the bill. They recalled that, thanks to plutonium, reprocessing conforms to the principle

of sustainable development. They argued that a ban on reprocessing could only be justified by concrete facts.

Coming back to the issue of climate change, it is everyone's responsibility to help modify the present structure of energy supply in order to avoid the alarming repercussions. This is the challenge that political and industrial players must face to guarantee the well-being of future generations.

Let us recall the calculation by Georges Charpak, the Nobel Laureate in physics. If China continues its industrial growth at the present rate up to 2050, and continues exploiting its coal deposits as it does today, it will discharge eight times more carbon dioxide into the atmosphere than is currently produced by the entire industrialised world. As energy prices and demand continue to rise, and scientific data continue to confirm the warming of the planet, it is clear that nuclear power will eventually be seen in a different light. But the industry cannot simply wait for this to happen.

One major question in the coming years will be the choice between nuclear power and the greenhouse effect. In this regard, recent examples in Europe are demonstrating the limits of national decisions. Plans to phase out nuclear energy in some countries are invariably proving difficult to carry out, partly because they have repercussions that clash with their supposed objectives. The real challenge today, in Germany, Sweden, Italy, Austria and other countries trying to do without a nuclear component in their energy mix, is: what is the viable alternative?

The chief aim of the nuclear industry in the coming years must be to demonstrate through public debate that nuclear power generation is one factor in ensuring sustainable development, in securing energy supplies, and in fighting climate change. It is apparent today that the nuclear industry is ready and poised to meet this challenge. It is synonymous with high technology, with progress, and with respect for future generations.