



A look at the white book

Following a public debate on energy, the French government has published its proposals for future strategies in a 'white book'. By Michel Lung

The French deputy minister for industry Nicole Fontaine, former president of the European Parliament, organised a public debate on energy from January to May 2003, to respond to claims of the 'green' faction of the public that energy matters in France were not transparent, especially those related to nuclear energy. The seven sessions were held in Paris (2), Strasbourg, Nice, Bordeaux, and Rennes (2) in the presence of Fontaine, and involved many contributions from a variety of events such as round-table discussions, lectures, exhibitions, and projections, all open to the public. Unfortunately the media did not report much of these debates. The Greens themselves declined to participate claiming that the debate was biased in favour of nuclear energy.

The debates were monitored by a small group of independent energy experts and a member of parliament, helped by the Direction Générale de l'Énergie et des Matières Premières (DGEMP) – a top-level group of young specialists, many of them graduates of the elite Ecole Polytechnique. Its role in the Ministry of Industry is to follow the trends of energy and raw materials and to make predictions and recommendations to the government in a country largely devoid of energy resources.

A 'white book' was issued on 7 November by Fontaine for the government and for the public at large. It contains proposals for an 'orientation law' on energy strategies for France for the next 30 years, which is to be discussed by parliament next year.

WHITE BOOK

The white book is a rather remarkable 120 page document. Every statement is duly supported by facts and figures and a broad range of statistics for France, and sometimes by comparisons within Europe and the world in order to set them in context. This reflects the professionalism of DGEMP and their broad database. The text can be obtained on the Internet site: www.debat-energie.gouv.fr

The contents of the book are presented in four sections:

- The energy situation in France – the challenges and the place of energy in the economic and social context, and demand and supply is analysed by sector.
- Proposed objectives leading to a sustainable energy policy.
- Government proposals.
- Supporting documents. This part is itself divided into two sets of documents: principal existing and proposed rules and decrees, intended to promote the rational use of energy, efficiency, energy independence, and so on; and statistics, including energy trends for France based on a reasonable reference scenario, as well as regional and world trends.

SITUATION AND CHALLENGES

Demand is analysed by sector in the usual way: residential, tertiary, transport, and industry. The energy demand for the residential sector grows by about 0.8% per year in spite of some efforts towards efficiency; this is due to the trend towards increased comfort and increased use of electricity, mainly in heating and air conditioning. The demand of the tertiary sector has grown 43% since 1986, at an average annual rate of about 2.3%, mainly for electricity. But the total consumption in the sector is still only about half of that for the residential sector.

Transport has grown steadily since the sixties in spite of the oil shocks, exactly following the gross national product; the sector is up 400% since 1970, with 97% provided by oil. Air transport today accounts for 4% of the carbon dioxide (CO₂) emissions. The upward trend in energy demand for transportation is the main concern today.

Industry is the star performer – since 1973 industrial energy demand is down 20%, mainly due to a decrease of 50% in average energy intensity. Overall, the energy demand in France increases every year by 29Mtoe (million tonnes of oil equivalent); oil for transportation is up by 2.3% per year and electricity is up by 2%.

Supply has followed demand so far in France, largely thanks to nuclear energy, which supplies more than 80% of its electricity.

Greenhouse gases and pollution

Between 1990 and 2001, CO₂ emissions have decreased 2.7% overall. Although the CO₂ produced by the transport sector is up 22% and the residential and tertiary sectors are each up 14%, industry is down by 18%, agriculture down 4%, energy production (mainly electricity) is down 28% and waste treatment is down 14%.

Depletion of fossil reserves

At the present rate of consumption, fossil reserves are estimated at 50 years for oil, 65 years for gas, and 260 years for coal. While the world demand will steadily increase, the known reserves and the discovery of new reserves of fossil fuel will diminish. The uranium reserves are limited too, but much remains to be discovered, and techniques are under development to extend the efficiency of nuclear energy towards a much better utilisation of raw material.

The uncertainties about the future costs of oil and gas have to be included in this strategy.

Renewable sources

Wood burning meets about 4.5% of the need for thermal energy. The European Commission has asked France to produce 21% of its electrical energy by renewables by 2010. Today, about 15% is provided by hydropower and only 1% by other renewable sources. The overall renewable production in the EU is 17%. However, some large numbers given by Germany and Spain due to their



massive installation of wind power should be reconsidered because only 2200 hours a year are available for wind production, compared to 8000 hours for biomass, for example. France expects to meet the European requests by some energy savings, some biomass burning, some geothermal installations, some solar heating and 2000-6000MW of wind energy, inland and seashore. However, there is growing opposition to installing wind turbines on sites of interest to tourism and agriculture.

Nuclear energy

Nuclear energy provided 80% of France's electricity in 2002 (437TWh), with increased energy independence and at competitive prices which include the treatment of nuclear waste and provision for dismantling. Nuclear waste is well managed and does not pose health problems.

Nuclear energy will remain a major component of energy production. Despite the probable extension of the life of France's 58 nuclear units from 30 to 40 years (their average age is now 19 years), it would be prudent to initiate a smooth replacement of the existing units and not wait until Generation IV is industrially operable. Hence it is proposed that a demonstration EPR is built and put into operation by 2010, followed by other units from 2020.

SUSTAINABLE ENERGY POLICY

Four priorities must determine the policies:

- To guarantee access to energy at a reasonable price to all citizens everywhere in the country.
- To contribute to the economic competitiveness of the country.
- To protect and conserve the environment.
- To assure safe energy supplies.

The energy policy for the next decades will have to face two major challenges: to mitigate the effect of greenhouse gases on climate change; and to mitigate the effect of possible limitations on availability of oil and expected price increases.

Thus a genuine policy of energy savings must be launched, especially in the transportation sector. Energy sources should be diversified, insisting upon renewable energies, namely that electricity reach the EC goal of 21% renewables by 2010; and for thermal energies a 50% increase in the use of renewables by 2015, mainly with biomass, solar thermal and geothermal, all of which offer largely untapped opportunities.

Concrete measures must be taken to enforce these policies: education, training and information of the public; regulations; tax incentives; planning regulations; certificates of CO₂ limitations and emission permits; examples to be set by public organisations; more research effort on ways to reduce CO₂ emissions and to increase efficiency, including cleaner and more energy efficient vehicles, to reduce the cost of renewables, to develop the hydrogen economy, CO₂ sequestration, nuclear waste reduction, and so on.

GOVERNMENT PROPOSALS

The government will propose an orientation law on energy following these guidelines:

The preamble will recall the necessity of mitigating the greenhouse effect. Title 1 relates to the control of energy demand, by diverse means. Title 2 relates to the need for social and territorial solidarity – energy at acceptable prices and with reasonable access everywhere in the

country. Title 3 relates to reliability of energy resources including electrical energy exchange with neighbouring countries; this deals with nuclear energy and the distribution network, but also with supplies of gas and oil, and price stability. Title 4 deals with the need to develop renewable energies, one of the principal conclusions of the national debate.

There follows three Titles referring to special cases and territories (such as Corsica).

The third part concludes with a draft of the orientation law along these guidelines.

EXPLANATORY DOCUMENTS

This section includes: comparisons with other member states; amendments proposed to some existing laws and directives to make them conform to the new orientation law; and comments on the role of some government agencies, such as the agency for regulation of the electricity grid.

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The projections of energy consumption in France for 2010 and 2020, according to a trends scenario created by DGEMP, are of note. This scenario is an extrapolation of an international project, prepared in 1999 for the International Energy Agency, extrapolating the trends of 2000 assuming that no new policies are introduced which might interfere with the extrapolations, such as a serious attempt to cut back CO₂ emissions. Reality will be different, of course, and it will depend somewhat on the options chosen; but it will not be greatly different, because energy trends have a very long lead time and because it takes years to modify the trends. For example, the trends scenario shows 33% increase in energy consumption (mainly for transport) for 2020 and 20% increase in primary energy over the present situation. If nothing were done, CO₂ emissions would be 40% greater in 2020, after remaining stable in the years 1990-1997; this is due especially to the explosion of the transport sector in recent years.

A BASIS FOR ENERGY POLICY

The white book provides a good basis for future energy policy. The proposed installation by 2010 of a relatively large number of wind turbines is offered to the environmentalists as a trade-off for the nuclear option. Wind turbines are not needed in France and their contribution will be minimal, but the cost will be borne by the taxpayer. Some environmentalists are beginning to see that these ‘toys’ may be a nuisance and of very little benefit to society, at least in this developed country. On the other hand, pollution due to the transportation sector should be addressed more energetically; hybrid vehicles, electric vehicles for town use, and the transport of trucks aboard freight trains are already feasible, and they must be developed quickly. Let us hope that political considerations of the report can be met with common sense at the parliamentary discussions. ■

Michel Lung is a former director of SGN Engineering and a member of Environmentalists For Nuclear Energy