



ELECTRICITY SUPPLIES: EUROPE SWITCHED ON

Joint fact-finding mission (MCI) on the security of French electricity supply and the means of ensuring this, chaired by M. Bruno Sido, senator for the Haute-Marne district

Report by Messrs. Michel Billout, senator for Seine-et-Marne, Marcel Deneux, senator for the Somme, and Jean-Marc Pastor, senator for the Tarn

Presentation

At 10.10 pm on 4 November 2006, more than fifteen millions European homes were suddenly plunged into darkness following an incident on the German grid. Thanks particularly to the professionalism and quick reactions of the staff of the RTE (*French National Grid*), thanks to the French power reserves, especially in the form of hydro-electricity, and thanks to the excellence of the RTE's organisation and emergency procedures, the black out was avoided. However, it was a close shave ...

This power failure revealed how far electricity supply in France had become dependant on the **operating rules of the electricity system** as well as the **energy policies of neighbouring countries**. That is why the MCI *Electricité*, set up by the French Senate at the end of 2006 and drawing on five of the six standing committees, has attempted to study **the problems of security of supply at the European level**.

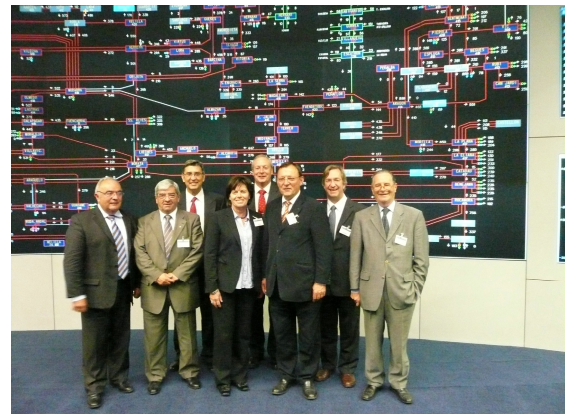
To this end, **thirty-two hearings took place** in the Palais du Luxembourg to collect the views of the various players in the French electricity sector: minister, regulator, producers, transmitters, distributors, suppliers, consumers and experts. The MCI also **travelled to Brussels** and to **six European countries** (Germany, Spain, Italy, Poland, United Kingdom and Switzerland) in order to better understand what were the **stakes at Community level**.

But the uniqueness of this mission lies elsewhere: in the **consensus** easily reached by its **chairman**, a member of the **UMP**, and his **three rapporteurs**, members of each of the other three large political groupings in the Senate (the **Socialists**, **UC-UDF** and **CRC**). Their analyses and recommendations, adopted by the whole of the MCI, reflect this.

What are the key elements of this agreement?

Firstly, a **reassuring observation** that in general the national electricity system works properly, and the security of the electricity supply is today guaranteed in France.

Next, **and more disturbing**, having regard to the particular characteristics of electricity, the opening-up of the market, as advocated by the European Commission, does not appear to be the ideal means of guaranteeing the security of supply.



Control centre of Red Eléctrica de España - 26 April 2007

Finally, the MCI set out **five principles**:

- the need for public control over the electricity supply
- a refusal to allow France to become the "nuclear lung" of Europe
- opposition to the idea that European electricity prices might converge while the electricity *mix* of the countries remains so different
- priority to solidarity between countries (the original aim behind the interconnections) over commercial considerations
- the need for control over the demand for electricity in order to safeguard the future. ■

To reinforce public control and regulation of the sector

“Given that electricity is not a commodity like any other, the MCI considers that the security of its supply necessitates **strong public control** of the electricity system and calls for **regulation**, including at the **Community level** within the framework of a **European Energy Centre**”. On the basis of the three pillars for securing the supply of electricity - **production**, **transmission** and **distribution**, and finally **control of consumption** - the report put forward **40 recommendations**.

1. To produce the electricity which France and Europe need

Security of supply implies that the **production capacities are adequate** to meet the **basic and peak requirements**. To avoid any risk of imbalance between supply and demand, **it is necessary to have forecasting and programming tools**. France is a good example since forecast balances between supply and demand are regularly drawn up, with the State guaranteeing a programme of investment every few years (PPI). But this approach is by no means followed throughout Europe, many Member States relying exclusively on the market to guide investment in new capacity, with the risks of problems if the price signals prove defective.



Cooling Pool at the CPEN in Gravelines, 10 May 2007

The existence of an interconnected European electricity system, within which the deficits of one country have consequences for its neighbours, makes necessary the wider creation of **such anticipatory tools** and their co-ordination at the **Community level** within the framework of a ‘European energy centre’. This also presupposes that each Member State is generally **self-sufficient** in electricity and does not rely permanently on imports for its consumption.

With regard to the **energy mix**, the MCI considers that the French **nuclear** option is a great asset for the security of supply. Although aware of the social and environmental implications of this approach, it feels it is desirable to keep this energy option open by preparing now for the replacement of the nuclear power stations. It also supports an alteration in **the French electricity mix**, which puts more stress on renewable energy sources. It

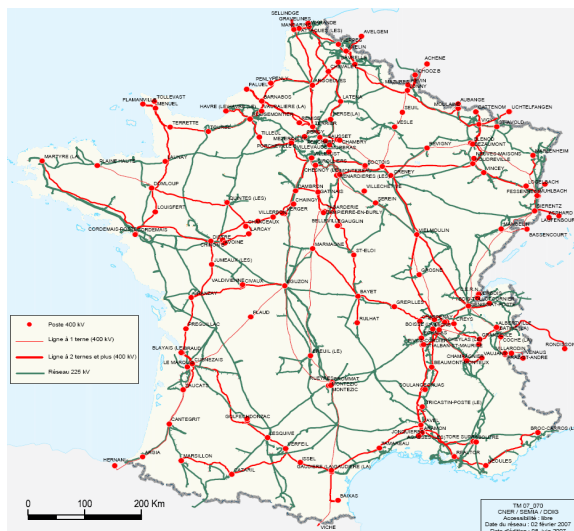
also recommends an alteration **of the mix in the other EU States**, which should not rely excessively on gas imports, nor too much count on contributions from renewable energy sources in the medium term, nor, finally, believe that France’s role is to be the “nuclear lung” of Europe.

Finally, the MCI is of the opinion that the way the electricity market currently operates does not allow customers to obtain **electricity at price levels which reflect the true costs**. It opposes the convergence of prices in Europe desired by the European Commission for as long as the energy mixes of the member countries remain so disparate. On the other hand, it is in favour of the **maintenance of the French pricing system**, guarantee of a controlled evolution of prices, and of **Exeltium-type arrangements** or **long-term contracts** for business users.

2. To bring electricity to the consumers in a reliable manner

Since **electricity cannot be stored**, it is up to the system managers to ensure at all times the **balance between supply and an uncertain demand**. While this balance is an essential condition for the overall security of an electricity zone, the **operation of the transmission systems** (high and very high voltages) and **distribution systems** (low and medium voltages) is the key to the security of direct supply to consumers.

In France, **management of the transmission system** is provided by RTE, a wholly-owned subsidiary of EDF, and that of the **distribution systems**, owned by the local authorities, is provided as follows: 95% by **EDF-Réseaux de distribution** and 5% by the **local distribution companies**. But because of the importance of the international interconnections, the security of the French systems is also dependant on the managers in the neighbouring countries, the power failure of 4 November 2006 showed that an incident can spread automatically across frontiers within a synchronous area.



Map of the French transmission system (400 & 225 kV) - RTE

In this context, the MCI considers it essential to **improve the co-ordination of the European transmission system managers (TSM)**. To this end, it deems it necessary to impose on them, at the European level, **restrictive operating and communication rules**, failure to observe which would result in heavy financial penalties. In addition, it recommends the creation of a **European centre for the co-ordination of electricity** which might detect upstream the risk of imbalance and co-ordinate the action of the various national centres. On the other hand, since the **asset separation** between producers of electricity and TSM (as recommended by the European Commission) would not appear to contribute anything in terms of security of supply in a regulated environment such as in France, it is opposed to this "single model".

Furthermore, although the whole of the French territory is correctly "connected" in terms of security of supply, **investment** is still needed in the **transmission system** (so as to remove the barriers between the "electricity peninsulas" such as Brittany and the south of France); in the **distribution networks**, especially for burying lines; and in certain **international interconnections**, in particular with Spain, so as to increase the security of France and its neighbours.

Finally, the **development of decentralised means of production of electricity** such as **wind farms** needs to be taken into account. In particular, **the construction and connection standards** for such units need to be more strict so that they do not disconnect too quickly in the event of disturbances in the system.

3. Control electricity consumption

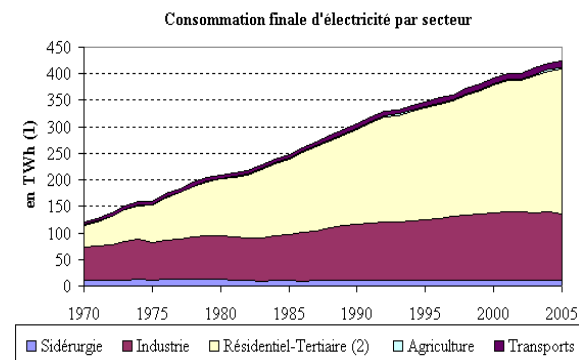
Control of the demand for electricity (CDE) offers three advantages: **relaxing the financial, technical and political constraints** which weigh on **production and transmission capacity**; introducing, as a result, long-term **economies for**

households and industry; reducing emissions of greenhouse gases, which protects the environment and human health. In this way the **best electricity is that which is not consumed...**

Although everyone agrees on the Community aim to reduce the consumption of energy by **20%** by 2020, the means of obtaining this are not yet decided. The MCI is convinced that market forces and price levels will not necessarily be enough to trigger the necessary investments in energy efficiency. It has come to the conclusion that MDE is right to call for the creation of a **public policy** with economic, institutional and regulatory components. According to the mission, the public authorities must intervene in three main areas:

- the **energy efficiency of buildings**: this consumption represents nearly half the energy used in France through heating, so the old dictum applies: **insulate**. This includes old and new buildings, individuals as well as businesses must be encouraged to act, and the public sector should lead by example to show that this is a good investment. A whole raft of **promotional, encouragement and regulatory** measures is therefore proposed by the MCI;

Final consumption of electricity by sector



Steel - Industry - Residential/tertiary - Agriculture - Transport
Energy watchdog

- the **use of "green" equipment**: the MCI has noted a marked increase in electricity consumption among households because of the increase in "white" and "brown" domestic goods and the poor energy efficiency of incandescent lighting, replacement of which by modern technology could mean one less nuclear plant... Concluding that the regulations are inadequate in this field, it recommends **restrictive measures**, both **national and European**;

- **consumer behaviour**: some very concrete measures could rapidly modify consumption habits. Since better consumption means spending less, the MCI is putting forward proposals to **improve the transparency of costs**, particularly those for peak-time electricity, and to encourage solutions such as **energy economy certificates**, still used too seldom in France. ■



The main recommendations of the MCI

1. Make it obligatory for each EU Member State to draw up a proposal document indicating how it will guarantee its electricity needs over the next ten years (based on the PPI electricity production model), the European Commission being charged by the Council to pull it all together at Community level.
2. Set up **minimum production standards** so that each EU State is in a position to produce roughly the amount of electricity which it consumes.
5. **Keep open the French nuclear option** and provide the right conditions for the replacement of the present installations by the most advanced nuclear technologies.
8. More generally, promote **greater diversification of the French energy mix** by developing renewable energy in order to restore the balance in the sources of electricity production in France.
9. Since the existence of regulated prices for the sale of electricity ensures the protection of consumers, make sure that the drafting of the "electricity" Directive explicitly allows the **maintenance of a pricing system which respects the principle of cost covering**.
12. Reassert **France's opposition to the present form of asset separation project** between electricity producers transmission system managers (TSM).
13. Propose a directive or other legally binding European document establishing **common security and information rules between TSMs in Europe**.
15. Create a **European centre for the coordination of electricity** able to detect upstream the risks of imbalances and to co-ordinate the action of the various national centres.
18. **Complete the linking of the French transmission system** (particularly in Brittany and the Côte-d'Azur) and research means of **accelerating the procedures preceding** the construction of new works
22. **Tighten up the standards for the construction and connection of the decentralised means of electricity production**, so that these installations do not instantly disconnect in the event of disturbances on the system.
25. Draw up a **national plan for the training of specialists** in the energy performance of buildings.
27. **Modify the tax regime and certain tax credit rates directed at energy saving**.
28. **Adjust the transfer fees applying to** buildings with a "high energy performance" (HEP) or "high environmental quality" (HEQ) rating.
29. Offer an **interest-free loan** for expenditure on existing buildings aimed at **reducing energy consumption**.
34. **Prohibit the sale of incandescent light bulbs throughout the country by 2010**.
35. Make the granting of **government subsidies to firms conditional to their green credentials**.
38. Demand the fitting of "**smart meters**" within a set period of time.
40. **Extend the period of daylight saving time? ■**

As a modest but symbolic contribution to the control of electricity demand, the MCI 'self-effacingly' decided not to publish volume II of its report in hard copy (accounts of interviews and foreign travel), although it will nevertheless be **available on the Internet** (<http://www.senat.fr/rap/r06-357-2/r06-357-21.pdf>). It thus wishes to testify that, in addition to the major strategic options and industrial energy savings, immediately noticeable because of their size, every institution, firm and citizen can always find a way, however limited, to reduce its consumption of electricity. And no such **gesture is worthless when it can be multiplied a hundred, thousand, million or more times**, because there lies one of the most promising avenues to ensure the long-term security of the electricity supply.



Joint Information Mission on Electricity

<http://www.senat.fr/commission/missions/Electricite/index.html>

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The report is available on the Internet : <http://www.senat.fr/rap/r06-357-1/r06-357-1.html>

The report may also be ordered from l'Espace Librairie du Sénat:

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