

-The impact of power lines on wild mammals (weasels, rodents and ungulates).

-The impact of power lines on species of fish potentially sensitive to very weak electric fields.

-Carrying out floral inventories in other regions besides Ile-de-France.

### 9- Concerning agriculture

-With regard to **beekeeping, complement all protocols with beekeeping companies with an appropriate scientific monitoring effort.**

-With regard to **animal husbandry**, it remains important to accompany the agricultural profession, even given the low number of problematic cases. It is therefore **desirable to renew the GPSE.**

#### - Renew in-depth the GPSE:

- **A recommitment on the part of the French state in managing and funding the GPSE.** The GPSE must not be a commission in which RTE, in private discussion with farmers, solves individual, contentious situations.

- A **stricter formalization** of its make-up, missions and functioning, with **a president named by the Minister of Agriculture and Fishing** and assisted by **a general secretary**, a senior ministry official in charge of the body's administrative, financial and legal operations.

- **Extend its field of action to include all agricultural professions (beekeepers, cereal growers, animal rearers, etc.).**

- Take up the proposals of the Blatin-Benetière report, which proposed **separately establishing a national commission, in charge of research and information, and departmental com-**

**missions**, created as needed and on the initiative of the prefect to handle contentious issues.

- **Put an end to the secrecy surrounding the resolution of contentious issues.** Such discretion must be preserved only on the request of the farmer, who must be free to share his experience with others. **Reasonable publicity** for the GPSE's interventions would have numerous advantages:

. A better understanding of the GPSE's actions and methodology.

. An educational impact, demonstrating the difficulties encountered by the farmer, the GPSE's diagnosis, the results, the complex issues, and, possibly, those issues remaining to be resolved.

. Transparency with regard to RTE's financial intervention conditions (criteria, amounts, work/research covered, etc.).

- **The Educational mission must once again be given priority. It is imperative that a Web site be set up** to inform the public of the existence and possible interventions of the GPSE. The agricultural professionals' request for **control farms** near the Cotentin-Maine line must be evaluated.

This project could have as its goal – in cooperation with one or more farmers working in immediate proximity to the lines – the development of educational projects allowing for dialogue and the spreading of good practices.

- With regard to **research**, it is desirable to pursue studies for **a better understanding of the phenomena in the real, multifactorial conditions of the animal farms.**

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## High and Extra High Voltage Lines, Health and the Environment

By Mr Daniel RAOUL, Senator of Maine-et-Loire

*This report was prepared by the Economic Affairs Commission of the French Senate within the framework of the OPECST study.*

### Proposals

#### 1- Concerning our knowledge of the French population's exposure:

-While the exposure of the overall population and especially the exposure of individuals to extremely low frequency magnetic fields is certainly better known, **it remains in reality little understood.**

**Consequently, new studies must be carried out** in order to further our understanding of exposure, based on measurements rather than calculated reconstitutions:

-**At the overall population level**, by seeking to reliably determine the average exposure level and, for instance, according to housing type and location.

-**At the individual level**, to better determine the exposure of very young children and, more generally, of individual typologies.

#### 2- With regard to burying power lines:

-While burying can be chosen for aesthetic and/or political reasons, this solution **should normally remain a technical-economic decision based on the procedure's cost-effectiveness.** The costs and constraints are far from being negligible for both the line's manager and

concerned farmers. **In municipalities**, concerns about security/safety and aesthetics **disfavour the installation of overhead power lines.**

-**Particular attention must be paid to pre-existing, extra-high-voltage overhead power lines located in urban settings.**

Your *rapporteur* therefore proposes that **the following be included in the public service contract between the French state and RTE:**

-The carrying out of a **national inventory of zones in which homes are located beneath or immediately next to extra high voltage lines.**

-The implementation of **financial measures - cofunded by the municipalities and an appropriate user's fee** - to allow for the progressive elimination of these lines.

-This contract must be accompanied with an **objective laid out in precise figures**, in addition to the current goals.

**3- With regard to the acceptability of installations:**

- Restore meaning to power lines, as the expression of a public project.

- Reposition local elected officials in the centre of the system, by keeping them better informed, by maintaining a permanent dialogue with them, even in the absence of any immediate project, and by identifying with them their region's priorities with regard to its power network (for instance, via a 10-year energy assessment).

- Strengthen the RTE-AMF agreement by allowing mayors to request that not only magnetic field measurements be carried out, but also a simulation of these fields based on the hypothetical functioning of the line.

- Better inform associations on the lines' impact.

- Create a state-run Web site dedicated to providing information on high voltage lines.

- Encourage citizen involvement in the "life" of high voltage lines, notably via ornithological, hunting and beekeepers' associations, as well as associations of farmers and local residents.

**4- With regard to research and expertise:**

- Increase French state funding; RTE must not be the sole funder of expertise and research.

- RTE should no longer provide either direct funding or funding via a body directly dependent upon the research company.

- Concerning health, it could fall within the competence of AFSSET to

launch invitations to tender for research on the potential health impact of magnetic fields.

- With regard to wild flora and fauna, the CNA ("National Avifauna Committee") could be enlarged or a separate *ad hoc* body set up.

- With regard to animal husbandry, research should be financed by a restructured and enlarged GPSE in which the French state would have reassumed its full role.

These bodies would finance this research via funds provided by the French state, the research bodies themselves, economic players such as the chambers of agriculture, manufacturers of electric cables and, naturally, RTE, though in an indirect and diluted manner.

*Extra High Voltage Lines, Electro-magnetic Fields and Health***5- Concerning electromagnetic hypersensitivity (EHS)**

- Take the patients seriously and treat their suffering.

- Set up a national clinical research network, so as to provide them with coverage, define their symptoms, and offer them an appropriate treatment.

**6- Concerning certain neurodegenerative diseases**

- Do not ignore the risk, even if currently but a hypothesis.

- Support research in the direction recommended by the national, European and international community of experts.

- Launch an epidemiological study at SNCF and among its retired workers.

**7- Concerning juvenile leukaemias**

- Solve the current lack of certainty.

- Request that AFSSET carry out a new risk assessment in five years' time.

- Relaunch research:

- Epidemiological studies, by reinforcing the GEOCAP study and by planning for a replication of the Draper study in France, based on the national child cancer registry and by facilitating access to certain data.

- In vivo and in vitro studies, to identify a mechanism of action.

- Studies on the causes of juvenile leukaemias.

- Take a temporary, cautionary measure:

By 2015, awaiting these new results, recommend - in a prudent manner and taking into account the scientific uncertainties - that parents and authorities (in particular, elected officials) seek to avoid, whenever possible and at a reasonable cost, the exposure of children aged 0 to 6 years, as well as unborn children, to fields greater than 0.4  $\mu$ T on average.

Drawing inspiration from the Netherlands, the French government should recommend - in a nonbinding manner - that one avoid building new constructions in which very young children spend a considerable amount of time all year long (households, day nurseries, nursery schools, etc.) within a "caution

zone" in which exposure would be greater than this value. Conversely, lines or other significant sources of fields should not be installed in proximity to these "sensitive" sites frequented by very young children.

*Extra High Voltage Lines, Electro-magnetic Fields and the Environment***8- Concerning wild flora and fauna**

- RTE should further develop (the number and fields of) its scientific partnerships relative to the study of wild flora and fauna.

- These partnerships could be formalized either within a CNA extended to include all wild fauna and incorporating all interested partners or within an *ad hoc* body.

These scientific partnerships would notably allow us to answer two scientific questions:

- Do fields have a health impact on the populations?

- To what extent does a high or extra high voltage line disrupt its surrounding environment?

These questions are particularly important with regard to the demands of local residents.

Replicating, specifying or widening the observations already made, these studies could consider:

- The impact of fields on populations of birds nesting on or near pylons, at the national level.