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## Clarification of the recommendations regarding high-voltage power lines

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4 November 2008	DGM2008105664	Clarification of the recommendations regarding high-voltage power lines dated 3 October 2005

Over the past three years, the [Dutch Ministry for Housing, Environment and Town & Country Planning] VROM\* has received several concrete questions from municipalities, provinces and TenneT (the rural high-voltage network operator) regarding the application, in very specific situations, of the recommendations<sup>1</sup> dated 3<sup>rd</sup> October 2005 regarding the implementation of development<sup>2</sup> and zoning plans near high-voltage cables and with regard to high-voltage lines running near houses. The implementation of the policy in local situations has also been the subject of several judicial verdicts.

Judging by the questions and legal verdicts, I have concluded that there is a need to clarify some of the concepts referred to in the letter dated 2005 and the background to the recommendations.

In the Appendix to this letter I have given clarification of the following points:

- a. The definition of "long-term stay"
- b. The application of the term "sensitive setting"
- c. The term "existing situation"
- d. The precaution principle
- e. The application of current scientific information and the restrictions thereof
- f. The availability of information

The recommendations made in October 2005 remain unchanged.

I am aware that, even with this clarification, it will not always be easy to translate this at local level. It will remain necessary - and this is in line with the recommendations - to assess practical situations on a case-by-case basis. Such evaluations and related decisions can only be made at local level and it is imperative that they are clear and transparent. It concerns a balance, based on the principle of reasonableness, between different interests,

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<sup>1</sup>SAS/2005183118, 3 October 2005; <http://www.vrom.nl/pagina.html?Id=2706&sp=2&dn=w256>

<sup>2</sup>The new town and country planning act (WrO), which took effect on 1 July 2008, no longer mentions development plans but instead refers to provincial structural visions. The notion of "development plan" in the letter of 2005 should therefore be read as "provincial structural vision".

The VROM Ministry stands for space, housing, environment and government buildings. Make, implement and impose policies. The Netherlands are small. Think big.

\*Translator's notes: VROM = The Dutch Ministry for Housing, Environment and Town & Country Planning; IPO = Interprovinciaal Overleg; Dutch umbrella organisation incorporating the 12 provinces which is active in many fields including social policy, town & country planning, the environment et al; VNG = Vereniging van Nederlandse Gemeenten; umbrella organisation at municipal level in The Netherlands

whilst taking into account the uncertainties of any health risks. If a judge were to legally evaluate a decision, any arguments, for or against, which were used locally, could be decisive.

In order to further support the evaluation and decision-making process at local level, I am preparing the launch of a "support centre for high-voltage power lines". The aim of this organisation would be to offer help with concrete questions regarding the policy. You will receive further information about this at the start of 2009.

Until then, you may continue to field your questions to RIVM ([hoogspanningslijnen@rivm.nl](mailto:hoogspanningslijnen@rivm.nl)) or to the Kennisplatform elektromagnetische velden\* ([info@kennisplatform.nl](mailto:info@kennisplatform.nl)). Any policy questions can be directed to the VROM Ministry via their website ([www.vrom.nl](http://www.vrom.nl)).

Finally I would like to point out that further research is being undertaken internationally and nationally into the possible risks of exposure to electro-magnetic fields. The [Dutch] Government continues to follow these developments through the Health Council who, when asked or indeed voluntarily, submits regular recommendations regarding research into the biological and health effects of electro-magnetic fields. A review of the high-voltage power line policy will be considered if there is any cause to do so.

Yours sincerely

The minister for Housing,  
Environment and Town and Country Planning

*[signature]*

Dr Jacqueline Cramer

## APPENDIX

### Clarification of the recommendations regarding high-voltage power lines dated 3 October 2005.

#### a. The definition of "long-term stay"

A "long-term stay" is a stay of at least 14-18 hours per day for a minimum of one year

##### *Explanation*

The Health Council issued a recommendation<sup>3</sup> on this subject on 21 February 2008. To this effect, the Health Council analysed research projects into the connection between child leukaemia and living in the vicinity of overhead high-voltage power lines. The Health Council concluded that all of these research projects concerned children who had been living in an area subject to field strength for at least one year. The Health Council also found that research has shown that on a week day the amount of hours spent at home can vary from approximately 14 hours for children aged 9-14 to approximately 18 hours for children under the age of 9.

On the basis of this, the Health Council concluded that in this particular context, "long-term" is to be interpreted as "for at least approximately 14-18 hours per day during a minimum period of one year". This recommendation as made by the Health Council is the one we have adopted.

Point e. of this appendix further explains what data can be used for a scientifically justified evaluation of the risk and what type of stipulations are applied.

#### b. The application of the term "sensitive setting"

Sensitive settings are:

- Homes
- Schools, pre-schools, crèches

Any other locations where children may stay for (even) shorter periods of time are not termed "sensitive settings".

To determine which setting is located where, the zoning plan should be used as the starting point. The boundaries of a sensitive setting encompass both the buildings and any grounds that belong to it.

##### *Explanation*

##### *Definition of "sensitive setting"*

Homes come under the term "sensitive setting", partly because of the above-mentioned recommendation regarding the definition of "long-term stay" by the Health Council. Indeed, the link with an increased risk of child leukaemia was established in children who *live* near high-voltage power lines.

In the case of schools, pre-schools and crèches it has been considered that the time spent in those settings is usually less than "14-18 hours per day over a period of at least one year" as described in the Health Council's recommendation. However, for precautionary reasons, it is desirable that the policies which are applied to homes, should also be used for these institutions, where many children aged 15 or younger are present nearly every day for

<sup>3</sup>Health Council publication nr 2008/04, 21 February 2008  
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longer periods of time. Consequently, schools, pre-schools and crèches all fall under the term "sensitive settings".

The time children aged 15 or under spend at other locations (e.g. sports fields, children's play areas and recreational areas) is considerably shorter than described in the Health Council's recommendation. There are no precautionary reasons to extend the application of the said recommendations to such locations.

#### *Starting point: zoning plans*

Zoning plans provide the starting point for the evaluation of a situation. The zoning plan determines which setting is situated in a certain location.

For global zones, it is often marked in general terms which setting could be located on which lot, with further details to be determined later. In the case of global zoning plans, it is often possible to determine whether or not a certain area could be allocated some living spaces. Such global plans are legally binding with regard to any future building developments. Where a zoning plan gives precise details of the various purposes or where a situation is further described within the framework of a zoning plan, it is possible for the boundaries of a sensitive setting to be determined more closely in practice.

#### *Boundaries of sensitive settings*

The term "sensitive setting" does not merely refer to the "internal" part (the building) but also to any relating "external" parts. Indeed, in the case of homes, schools, pre-schools and crèches it is to be expected that the children will play outside. Moreover, it is important to note that to owners/users of any such premises any "outside" parts will, in practical terms, be of little use if they can only be used with limitations.

In most cases, it is clear which "external" parts belong to the sensitive setting: the front and back gardens of a terraced house, for example, are clearly a part of the home and therefore part of the sensitive setting.

Sometimes, however, the situation can be less clear. An example would be a farm and any large parcel of land which belongs to the farmer but which is used in part as garden area and in part for business activities. In order to define the borders of the sensitive setting, the term "estate" is used.

#### *Usefulness of the word "estate" for "sensitive setting"*

To refer to the "external" parts of the "sensitive setting" and to determine where its boundaries lie, the term "estate" is appropriate. It is a term taken from the Bblb Directive [*for Constructions Exempt from Planning Permission and Constructions Requiring only Limited Planning Permission*].

The Bblb Directive defines the term "estate" as follows:

*"a parcel of land, built-on or not, or any part of a parcel of land, which is situated directly adjacent to a building and which de facto has been developed to serve the building and, in so far as a zoning plan is in place, such developments are not proscribed by the zoning plan."*

This meaning of the word "estate" is also based on a verdict<sup>4</sup> passed by the Council of State department for administrative law.

<sup>4</sup>ABRS 15 September 1997, AB 1998, 8  
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#### *Some examples of the use of the term "estate"*

In the case of a town house (e.g. a terraced house) it is usually clear which estate belongs to the house: both the front and back gardens are *located directly adjacent to* the house and are developed *to serve* the building and therefore are part of the sensitive setting known as a "home".

In the case of a villa with a large garden, or a farm with lots of surrounding grounds, we examine the part of these gardens or grounds which is *situated directly near* the home and which is developed in such a way as *to serve* the home. Only that part of the grounds is designated to be the "estate" of the sensitive setting. Thus, a garden in which people play, sit and relax, do gardening etc does belong to the sensitive setting. However, this is not the case for a meadow which borders onto the home and in which, for instance, some horses or cattle graze, but which will not be used by the homeowners for rest or relaxation. Indeed, such a field is not functionally used to serve the home and as such does not constitute a part of the sensitive setting.

We stress that each situation will have to be judged on a case-by-case basis.

A similar reasoning is applied in the case of schools, pre-schools and crèches; any outdoor play areas which are adjacent to and are in function of the buildings (i.e. a school playground and a pre-school play area) are part of the sensitive setting. This is because the children will be playing in those outdoor areas during their stay at the school or pre-school.

#### *Land registry parcel*

The boundaries of a sensitive setting (building and estate) will often but not always coincide with the land registry borders of the plot of land. As a rule, this will be the case for terraced houses; the land registry description will include the home and surrounding gardens, the latter being marked as "outside the home".

However, there can be a discrepancy with the land register; it can occur that the building and the estate are situated on different parcels of land; or that an estate consists of several parcels (in land registry terms); or that an estate only covers part of a plot of land identified on the land register, for example a farm with surrounding grounds. The actual situation of each case in point is important to determine what does or does not belong to the estate, and therefore to the sensitive setting.

#### **c. The term "existing situation"**

The term "existing situation" as used in the recommendation should be read as the situation as it was at the end of 2005 when the recommendation was made.

As was outlined in the letter dated October 2005, "existing" refers to the then prevailing zoning plan and any amendments to this plan which had already been set in motion. By analogy, the "existing" situation regarding high-voltage power lines refers to those lines which were in use at that time and to any concrete modifications to these, which had been announced in the Quality and Capacity Plans 2003-2009 and/or 2006-2012 and the corresponding magnetic zone. The term existing situation also includes the idea of replacing any copper conductors with steel/aluminium conductors in accordance with current technology standards. Any other modifications to power lines which were announced at a later date would in this context be seen as "new" situations, even if such modifications had been physically achievable prior to the said date.

As already outlined in the letter dated October 2005, "any modifications to existing lines and zoning plans which would not lead to an increase in the number of sensitive settings in that particular zone, are therefore not objectionable".

#### **d. The precaution principle**

The 2005 recommendation came about partly because of the precaution principle<sup>5</sup>.

Measures aimed at protecting the environment or public health can usually be taken largely on the basis of sufficient scientific data which can be used to carry out a comprehensive risk assessment. However, there could be genuine reasons, based perhaps on some provisional impartial risk assessment, to fear potentially dangerous environmental or health risks, yet there may be insufficient data to support an extensive risk assessment. In such cases, the precaution principle can be adopted as risk management strategy.

In other words, the precaution principle is applied where a provisional impartial risk assessment indicates a potential risk to the environment or public health, but where the existence, extent and consequences of such a potential risk cannot be fully proven because of insufficient or inconclusive scientific data.

The precaution principle never justifies making a random decision. If measures are taken on the basis of the precaution principle, one has to take into account any uncertainties that were apparent, as well as the consequences of "not taking any action", and one has to weigh up the pros and cons of the various options. The principle of proportionality between the measures and the (potential) risk must also be respected.

The scientific information regarding the correlation between child leukaemia and the exposure to magnetic fields created by high-voltage power lines is inconclusive and does not suffice to carry out an extensive risk assessment or to set limiting values to the exposure of children. Provisional and impartial figures do however suggest that there may be a potential health risk. Having applied the precaution principle and having taken into account the principle of proportionality, [Dutch] government policy was amended in 2005 and a recommendation was formulated. It is important to note that the recommendations are restricted to new situations because the health effects are uncertain and because any measures taken in existing situations would often have major social implications. Generally speaking, it can be assumed that in existing situations the (social) costs of measures would be high whilst its benefits are uncertain. On the other hand, it can generally be assumed that new situations offer more options and that prevention could be considerably cheaper than cure.

The latter also means that when applying the precaution principle, there is generally speaking insufficient cause to apply the recommended 0.4 micro tesla value in any situations other than new ones. For existing situations, the 100 micro tesla reference value shall be applied, as recommended by the European Union. The last-mentioned value is aimed at avoiding scientifically established short-term effects (such as light flashes in the eyes and muscle contractions).

<sup>5</sup>See also Communication by the European Commission regarding the precaution principle (2000) 1 Directorate-General Environment 4 November 2008 DGM2008105664

To continue to be able to interpret the precaution principle appropriately, the [Dutch] government remains abreast of scientific developments.

**e. The application of current scientific information and its limitations**

In its recommendations dated February 2008, the Health Council put together a number of conclusions with regard to scientific information about the relationship between magnetic fields and child leukaemia. These conclusions could be relevant to municipalities when reaching local-level decisions. The conclusions are as follows:-

- The increased risk of child leukaemia is attributed to exposure to magnetic fields but it is uncertain whether exposure is indeed the cause; it should not be excluded that a factor other than exposure could offer an explanation for the correlation found.
- It is not known whether, and if so in what way, the risk of child leukaemia increases when exposed to magnetic fields in excess of 0.4 micro tesla.
- Measuring the intensity of the magnetic field can give an insight into the degree of exposure. However, it is not possible to offer a scientifically founded assessment of the risk based on such data because it is not known which parameters of exposure (such as duration and intensity) determine the extent of the risk.
- It is only possible to draw a scientifically grounded conclusion about the risk when one takes as the average time span for the intensity of the magnetic field a minimum period of a year and a minimum stay of 14-18 hours per day.
- To estimate the risk as a consequence of any other "patterns of exposure", such as shorter-term exposure to stronger fields, no scientific foundation is available.

**f. Availability of information**

Following the release of the 2005 recommendation, information was made available on the RIVM website ([www.rivm.nl](http://www.rivm.nl)) regarding high-voltage power lines and surrounding areas, for the purpose of evaluation and decision-making at local level. Agreements are currently being made with TenneT to deliver supplementary data to the RIVM before long so that the RIVM will soon be able to update its website.

In order to measure the area of the magnetic field, certain presumptions are made, for example with regard to the configuration of power lines. To guarantee that there is consistency when measuring magnetic fields, the RIVM issued guidance in 2005. This guidance is currently being brought up to date with the help of experts in the field. This review focuses amongst others on making any reports on the outcome of measurements clearer and more comprehensive. Reports must be unambiguous and give sufficient information to local decision makers. The updated version of the guidance will be published on the RIVM website at the end of 2008.