

Statement for the Transboundary Environmental Impact Assessment NPP Paks II/Hungary

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GLOBAL 2000/FoE Austria

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Introduction

In the district of Tolna, close to the city of Paks, approximately 100 km south of Budapest, the only Hungarian Nuclear Power Plant (Paks NPP) is located on the right bank on the Danube. On the site of Paks NPP, two additional reactor units are to be built, which would generate 1,200 MWe each; planned lifetime is 60 years. The commercial operation of the new units is scheduled for 2025 and 2030, respectively.

The environmental impact assessment (EIA) procedure for this project is currently being conducted. In April 2015, Hungary submitted the EIA Report for the transboundary EIA procedure. This EIA Report was prepared by the project company MVM Paks II Ltd. The competent Hungarian authority is the Authority for the Protection of the Environment, Nature and Water Management of South Danubia.

Procedure and public participation

The official documents for the EIA have been submitted by Hungary to Austria in March 2015. In September 2015, **additional official documents** appeared to have been published at the website of MVM¹. According to Hungarian NGOs, these documents are of high relevance for the EIA procedure. The Austrian population did not get a chance to survey this information. Therefore a final statement cannot be made. This is a serious breach of the ESPOO Convention.

A few months after the official documents for the EIA procedure have been published, Benedek Jávör, Member of the European Parliament obtained **secret documents**. On the website of Nuclear Transparency Watch he declared that the MVM documents contain fundamental mistakes that the modelling is based on outdated data. The grid integration was not modelled as would have been necessary. The construction was not budgeted and planned, as would be needed at this stage of implementation. The analysis completely ignored external factors like the application of the EU competition law. The thermal pollution of the Danube caused by the cooling water was miscalculated. The authenticity of the documents has been confirmed by both MVM and the Hungarian Academy of sciences. Therefore, the information contained in those documents need to be made available for the EIA.

¹

<http://www.mvmpaks2.hu/hu/Kozerdeku/KozerdekuDokumentumok/KornyezetvedelmiEngedelyezes/KornyezetHatastanulmany/Lapok/default.aspx>

On 7 May 2015, a **public hearing** was held in Hungary, Paks. According to Jan Haverkamp's report (Greenpeace)², this hearing did not fulfill EIA and Aarhus specification, some of the reasons being the restrictions for participation of citizens and NGOs and the fact that only short questions were allowed during the hearings.

Questions, requests and recommendations

- Have other countries who take part in a transboundary EIA received these **additional documents**? The whole EIA procedure has to be prolonged so that the interested public in all countries taking part in the EIA has the possibility to get to know their content and to include this information in their statements.
- The **secret documents** which became known in June 2015 contain information of relevance for the environment, e.g. thermal pollution of the Danube water. Therefore the information contained in those documents need to be made available for the EIA. A new assessment of those issues has to be prepared and the public and independent experts need to have the possibility and sufficient time to evaluate this. A prolongation of the EIA procedure is necessary.
- **Hearings** (domestic as well as transboundary) need to be conducted based on an approach according to the Aarhus and EIA regime enabling all interested citizens and NGOs to participate.

Alternatives

According to the EIA Directive of the EC and the ESPOO Convention, alternatives have to be presented in an EIA Report. But the EIA Report for MVM Paks II neither includes technological alternatives nor energy production alternatives.

Out of five reactor types considered in the first phase of the EIA procedure (the Scoping phase), only the VVER-1200 technology has been selected for environmental assessment. Moreover, the Hungarian Government already had signed an agreement with the Government of the Russian Federation for the delivery of two VVER-1200 units – without any tender procedure. This is in breach of the EIA regime – if no alternatives are discussed during an EIA procedure, the process does not make sense any more.

The EIA report did not put forward arguments which had led to the choice of this reactor type. For such a decision, expected environmental effects have to be considered, and the mode of the decision has to be presented in the EIA documentation.

Alternatives for energy production, especially scenarios based on renewable energies and energy efficiency, are also missing in the EIA Report.

Questions, requests and recommendations

- An explanation how and why the decision for the chosen reactor technology was taken has to be presented. Which environmental effects have been considered, and how have they been considered as basis for the decision?
- At least one alternative scenario based on renewable energies and energy efficiency measures has to be presented and discussed.

² Jan Haverkamp: Comments on the environmental impact assessment implementation of new nuclear power plant units at the Paks site made by MVM Paks II Zrt. 11. June 2015.

Nuclear safety

In the expert statement of the Austrian Government³ the following safety relevant topics were commented:

The project developer (MVM) claims that the selected technology corresponds to the requirements of a Generation 3+ state-of-the-art NPP design. However, one of the specific safety features of the selected units, the emergency heat removal spray pools, does not appear to be included in the EIA Report.

The content of the EIA Report was found only partially in line with the EIA Directive general requirements and specific recommendations of the International Atomic Energy Agency IAEA for the content of EIA reports for new NPP. A detailed presentation of how the nuclear safety requirements are going to be implemented during the design, construction and operation of Paks II are missing. Also missing are necessary preventive and mitigation measures.

Questions, requests and recommendations:

- The missing information should be made available during the EIA procedure.

Severe accidents and (transboundary) impacts

According to evaluations of the chosen reactor type VVER-1200/V491 it has to be concluded that severe accidents, so-called beyond design base accidents, with large releases cannot be excluded⁴. But in the EIA Report, such major accidents are completely ignored. Only impacts of design base accidents have been assessed.

Not only is a realistic analysis of severe beyond design base accidents with transboundary impacts missing in the EIA Report, also the impacts of cumulative severe accidents involving several units and stored spent fuel at the Paks nuclear site have not been assessed.

To prove that no major transboundary impacts can occur, inhalation doses for children and adults have been calculated for several regions that are in a distance of more than 30 km to the NPP, e. g. the cities of Vienna, Bratislava and Belgrade. No effective inhalation doses higher than 9,3 µsv have been found according to the EIA Report. But the source term used for these calculations seems to be unrealistically low. For Cs-137, 10¹² Bq have been assumed – this is several orders of magnitudes lower than source terms from Fukushima or Chernobyl.

Moreover, an assessment of severe accident cannot be made only by calculations of effective inhalation doses. Especially for short-term doses, the thyroid dose has to be considered separately. Also groundshine, cloudshine and ingestion doses are of relevance for assessing short- and long-term health consequences.

³ See Umweltbundesamt REP 0533:

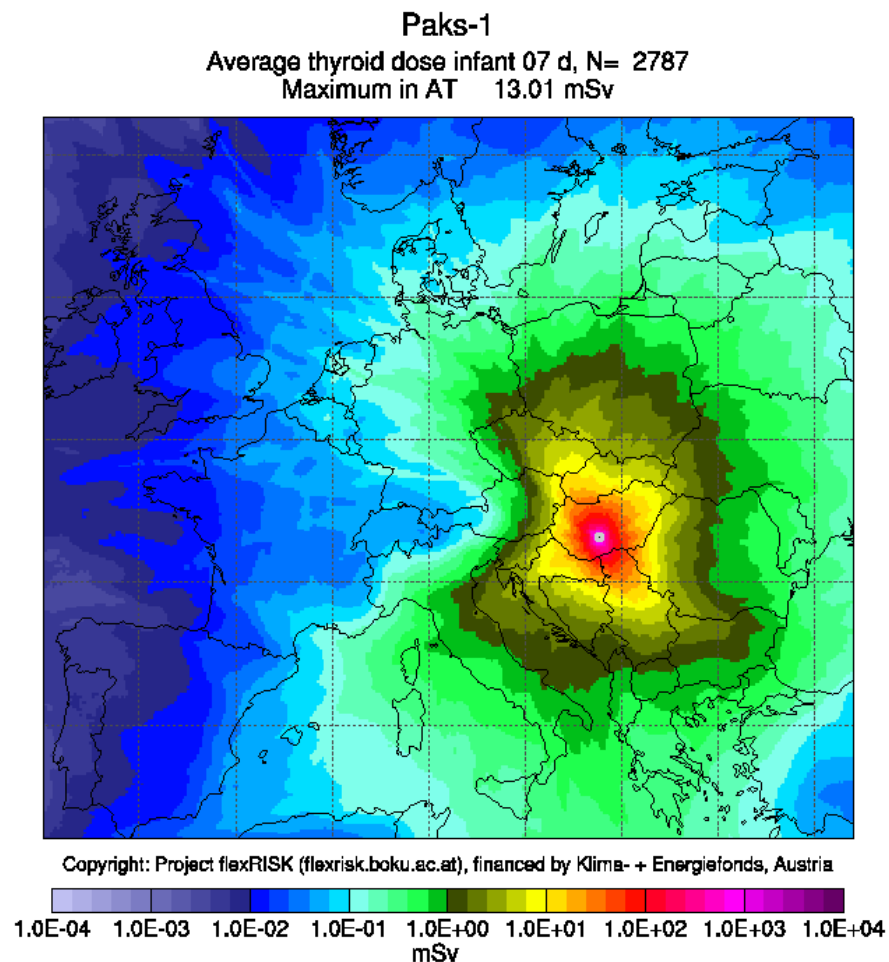
http://www.umweltbundesamt.at/umweltsituation/uvpsup/espooverfahren/espoo_ungarn/uvpkkwpakii/

⁴ cervus nuclear consulting (2014): Safety of New Nuclear Power Plants Example: VVER-1200/V491 H. Hirsch A. Y. Indradiningrat, Workshop on the Paks II NPP Project Budapest, Energiaklub, 08.10.2014

For the four Paks reactors in operation, the research project flexRISK calculated possible radiological consequences of a severe accident⁵.

The first figure shows the average thyroid dose for infants for seven days. The red color represents about 100 mSv ($1E+02$ mSv); the graph shows, that this dose could be reached in a big part of Hungary and also in regions near Hungary's borders.

If a seven day thyroid inhalation dose for children of 10 mSv ($1E+01$) is reached in Austria, iodine prophylaxis has to start. This could occur in most European countries.

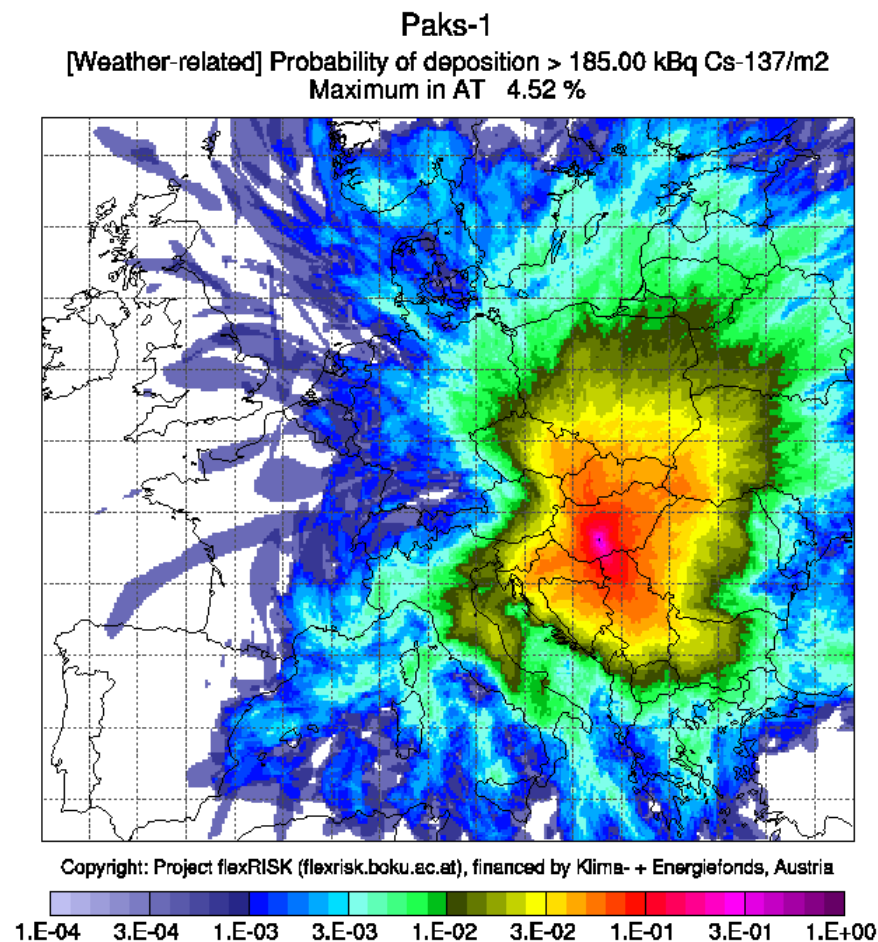


The second figure shows the probability for a contamination of Europe with more than 185 kilobecquerel caesium-137 per m². The contamination level over 185 kBq Cs-137/m² will most likely result in the exceedance of the allowed EU dose limit of 1 mSv/year.

The scale starts on the left with light blue colors at $1E-04$, this relates to a probability of 0.01% that the light blue regions could be contaminated with more than 185 kBq Cs-137/m². The other end of the scale, the dark violet color, marks regions with a probability of up to 100% ($1E+00$) for such a contamination. These regions are situated in the near vicinity of the Paks site and in the main wind

⁵ For assessment of risk from a severe accident at the Paks site (with a release of 82.13 Petabecquerel Cäsium-137), about 2,800 weather situations were aggregated. This probability is based on the weather-related risk, but does not include accident frequencies.

directions. All neighboring countries of Hungary have a probability of at least 1% of reaching this contamination.



Questions, requests and recommendations

- To prove that the new reactors in Paks cannot lead to such consequences as the operating units, calculations with realistic assumptions for the source term and accident mode, and a dispersion model comparable to flexRISK have to be made, preferably in cooperation with independent scientist.
- Severe accidents involving two or more of the units currently operating at the Paks site and spent fuel stored there also need to be included in the analysis.

Non-radiological environmental impacts

The most important impact on the environment could be the thermal pollution of the Danube caused by the discharge of the hot cooling water. The operating reactors also discharge cooling water therefore the total heat load has to be examined. One of the secret documents (see above) Benedek Jávör obtained is specifically about cooling water and highlights the faulty design of the cold-water channel of Paks I. The documents stated that the new NPP will cause serious nature protection problems and that excess heat will call for (partial) capacity reduction which will in itself hinder the 95% planned use of the new NPP – thus the financial goals will not be achieved. Furthermore, it is likely that nature protection standards are likely to rise in the coming 60 years. Moreover new

situations might arise, like the one at the Rhône where now already drought threatens the cooling of nuclear plants. On the basis of the 2008 feasibility study⁶, a number of academics concluded that the Danube was incapable of handling the additional heat discharged by Paks II, projecting that it would raise the river's temperature to 30 degrees with catastrophic consequences for its wildlife. The feasibility study states that already Paks I encounters problems during summer seasons not to exceed the 30°C limit, and in order not to jeopardize nuclear safety, cooling will have to be ensured by cooling towers. However, the recent EIA Report concludes that building cooling towers would be too costly, therefore they choose to reduce operational capacity when cooling from the Danube is insufficient.

Questions, requests and recommendations

- The new information on the heat load for the Danube in the secret documents obtained in June 2015 has to be made publicly available in the EIA procedure. The public need to have an adequate possibility to file statements on those documents; closing date of the EIA procedure has to be postponed.

Costs and financing

According to the contract Hungary signed with Russian Federation, the two reactors of the new plant will cost 12.5 billion EUR. 80% of the foreseeable capital cost is financed by an intergovernmental loan from Russia. This **loan** has to be paid back during 21 years, the starting date is 2026 regardless of the start of operation of the new units. But the construction of new nuclear power plants is usually delayed, so the loan burden will even become more severe. In March 2015, the Hungarian Parliament decided to keep these contracts secret for 30 years.

In addition to the Russian loan, a **fuel supply** contract with Russia for 20 years has been signed, without a tender procedure. The EU Commission considered this exclusive 20-year contract as a threat to energy security and in violation of the ESA – Euratom Supply Agency rules and signed the agreement only after the duration had been cut down to 10 years.

The state aid question: The Hungarian NGO Energiaklub recently published an analysis⁷ on the issue of state aid: Unless the wholesale power prices show a permanent real price growth, the project will not pay off. Considering international power price forecast it is very likely that Hungarian taxpayers will have to help out on a large scale. NPP Paks II will be in permanent need of additional capital, which will make state aid a fact. Energiaklub wants the Hungarian state to acknowledge this fact and initiate an authorization procedure at the EU. Therefore, Energiaklub submitted a complaint to the European Commission to start a non-notified state aid procedure in 2014. The Hungarian government claims that financing Paks II is not a state aid, as they claim the return of investment is more than favourable. The EC is currently awaiting further explanation from the Hungarian government and after receiving all the relevant data, the EC have two months to come up with its position.

⁶ http://energiakontrollprogram.hu/sites/energiakontrollprogram.hu/files/9_megvalosithatosagi_tanulmany_-_1_resz.pdf

⁷ Balázs Felsmann: Can the Paks-2 NPP operate without state aid? The power plant company: a business economics approach. Energiaklub. 23.6.2015

Questions, requests and recommendations

- All contracts have to be made public to enable their compatibility with European law.
- Explanations on the lack of tender both for the reactor and the fuel supplier should be provided.

Spent fuel and radioactive waste

According to Directive 2011/70/Euratom, every member state has to establish a management program for spent fuel and radioactive waste until August 2015. Hungary has not published such a program until September 2015, therefore the evaluation of information in the EIA Report can only be preliminary.

Not defined is the main responsibility for spent fuel and radioactive waste – according to Directive 2011/70/Euratom, the waste generator is responsible for the safe management.

In the EIA Report the issue of spent fuel and radioactive waste management is only vaguely discussed, stating that the problem is solved by deep geological disposal. However, details on disposal are not included at all, which is unacceptable.

Questions, requests and recommendations

- The spent fuel and radioactive waste that is generated during operation and decommissioning of Paks II has to be discussed in the light of the (future) national management program for spent fuel and radioactive waste.

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In cooperation with the Joint Project NGOs (<http://www.joint-project.org/aboutus.htm>)

Please give your name and a your adress and send your statement to your federal government:

Vienna: <https://www.wien.gv.at/kontakte/ma22/bekanntmachungen/pdf/paks.pdf>

Lower Austria:

http://www.noel.gv.at/bilder/d88/U_192_Kundmachung_oeffentliche_Ereorterung.pdf

Upper Austria: <https://www.land->

[oberoesterreich.gv.at/Mediendateien/Formulare/DokumenteAbt_UR/AUWR_2006_4558_502.pdf](https://www.land-oberoesterreich.gv.at/Mediendateien/Formulare/DokumenteAbt_UR/AUWR_2006_4558_502.pdf)

Burgenland:

http://www.burgenland.at/fileadmin/user_upload/Downloads/Buerger_und_Service/Kundmachungen/UVp-10066-26__Kundmachung_sig.pdf

Contact data of the other federal states you can find in the internet.