Greenpeace in Zentral- und Osteuropa
Fernkorngasse 10
1100 Wien, Österreich

t: +43 (1) 5454580 0
i: www.greenpeace.at

Correspondence address:
Jan Haverkamp
ul. Warynskiego 37A/10
PL – 80-433 Gdansk
Poland

t: +48 534 236 502
e: jan.haverkamp@greenpeace.org

COMMENTS
on the

NEW NUCLEAR POWER PLANT AT THE JASLOVSKÉ BOHUNICE SITE ENVIRONMENTAL IMPACT ASSESSMENT REPORT ON THE PROPOSED ACTIVITY JADROVÁ ENERGETICKÁ SPOLOČNOSŤ SLOVENSKA, a. s. August 2015

by

Ir. Jan Haverkamp
expert consultant on nuclear energy and energy policy
for Greenpeace in Central and Eastern Europe
22 October 2015

My name is Jan Haverkamp. I have an academic engineering degree (Ir. - equivalent with a Masters degree) in Environmental Hygiene from the Agricultural University in Wageningen as well as a candidate (equivalent with Bachelors) degree in Biochemistry from the State University in Leiden, both in the Netherlands. I studied also nuclear physics and energy policy at the State University in Leiden.

I work as an independent expert in energy issues with specialisation in nuclear energy for among others the global environmental organisation Greenpeace and work since 1987 in Central Europe. Previously to this Environmental Impact Assessment (further: EIA), I have participated in the EIA procedures for the first two blocks of the Temelín nuclear power plant (NPP) in the Czech Republic, the Belene NPP in Bulgaria, the Cernavoda 3,4 NPP in Romania, the Visaginas NPP in Lithuania, the Mochovce 3,4 NPP in Slovakia and the blocks 3, 4 of the Temelín NPP in the Czech Republic, the Paks II project in Hungary as well as in the Strategic Environmental Assessment of the Polish Nuclear Energy Programme. I have advised different stakeholders in the EIA procedures for Borssele 2 in the Netherlands, Hinkley Point C in the United Kingdom, Hanhikivi in Finland and EIA procedures relating to nuclear plant lifetime extension in Hungary, Ukraine, Belgium, Sweden, Spain, the Czech Republic and the Netherlands. I have participated as expert for the complainant or adviser in court procedures concerning public participation in Bulgaria, Slovakia, Lithuania, Belgium and Poland and in procedures for the Aarhus Convention Compliance Committee in complaints against Slovakia, the Czech Republic, the United Kingdom, Germany, the Netherlands and Hungary.

I have been asked by Greenpeace in Austria and Slovakia to write a submission in the EIA procedure of the Jaslovské Bohunice new nuclear power plant project (short: NJZ). I wrote these comments on personal title and my opinion – though partly based on my experience within Greenpeace and benefiting from input from other Greenpeace colleagues and experts – does not necessarily coincide with the opinion of Greenpeace as organisation.

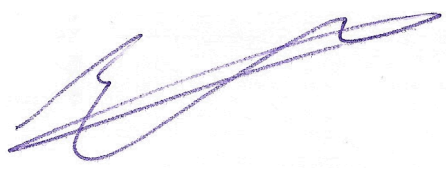
Greenpeace Central and Eastern Europe as organisation does, however, endorse my recommendation that the current EIA procedure should be dismissed as frivolous and the report should be dismissed as insufficient and inadequate. JESS should be ordered to wait until there is more clarity about the project and then re-do the entire environmental impact assessment including public participation and transboundary consultation.

The available time for submissions in this EIA procedure fell partly in the holiday time as well as coincided with the hearing procedures for the Paks II EIA in Hungary. This has impacted the way I could analyse the documentation. I am giving here now a first go-through, but maintain the right to come with additional submissions at a later date.

The analysis in this submission concentrates on

- procedural issues
- issues on the basis of the report

I have used the English versions, and the pages refer to the .pdf page counting of each document.



Gdansk, 22 October 2015

Introduction

1. This Environmental Impact Assessment for a new nuclear power station at the site of Jaslovske Bohunice is made on the basis of Slovak law, implementing the Convention on Environmental Impact Assessment in a Transboundary Context, done at Espoo (Finland), on 25 February 1991 (further: **Espoo Convention**) and the Directive 2011/92/EU Of The European Parliament And Of The Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 (further: **EU EIA Directive**).

2. The procedure also has to be in line with the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, done at Aarhus, Denmark, on 25 June 1998 (further: **Aarhus Convention**).

Remarks concerning the procedures

3. This Environmental Impact Process takes place in **a phase of the project during which there is no clarity** whatsoever **about** the to be **used technology**, **the way the project will be managed** (the position of the project promoter and operator), the way the project could be **financed** and how the **electricity market** of Slovakia within the wider EU electricity market is going to develop.
   The Aarhus Convention prescribes in art. 6(4) that public participation has to happen in an early stage when all options are open, but these options should at least be known and realistic. In this case the project is so premature that too little information can be given about what is going to be realised and hence a realistic description of potential environmental impacts was obviously impossible – the given descriptions are only based on general assumptions and legal prescriptions. This EIA report therefore does not fulfil the criteria of Aarhus Convention art. 6(6) and the criteria under Espoo Convention Annex 2 (d – h).
   Because of the fact that all analyses are made on the basis of vague assumptions, that no indication is given of uncertainty-levels of data, the conclusions as stated on page 446 cannot be upheld. There is simply not enough information available in this stage of the project to draw any conclusions at all.

4. By starting a public participation procedure far too early in the planning process, lacking any realistic information, the EIA started by JESS has to be characterised as **frivolous** – it is wasting the time and resources of the responsible public authorities and of the public. For that reason, **the Ministry of Environment of Slovakia should dismiss this procedure and order a new EIA when the project has matured to the stage in which there is a better sight on a realistic time-line of implementation, potential technologies to be used, realistic financial models for implementation of the project and a more detailed overview of reasonable alternatives.**

Remarks about the report

5. **Inadequate EIA Report**: Either the published report is the non-technical summary for the public, or it claims to be the full EIA. Given the fact that part C.X (page 425 and further) is indicated as “non-technical comprehensive final summary”, we have to draw the conclusion that this report is supposed to be the entire EIA report. In that case, what misses is a full overview of all relevant assessments and proper sourcing of information so that the public can trace down where the

information comes from. Only a reference list at the end is insufficient, especially because the mentioned studies are for a large part not available to the public. All studies in the reference list should be made available to the public under art. 5 of the Aarhus Convention.
Also the quality of this report is completely insufficient. There is a lack of sourcing in the text, there is a lack of indication of uncertainty levels, there is often bias in the choice of certain options without sincere consideration of alternatives.

6. **Unknown technology**: The use of "plant parameters envelope", as argued by the consultant responsible for the EIA is unacceptable because available nuclear technologies are so different that they deliver completely different sets of potential impacts on the environment, especially concerning severe accident situations, risk profiles, impacts of financing on risks, and production of radioactive waste. Apart from that, technologies develop over time on the basis of experiences elsewhere, including that coming from severe accidents (for example after the European nuclear stress tests after the Fukushima catastrophe in 2011). Especially for a project with an uncertain time-line, it is impossible to oversee the impacts of such technical changes in any meaningful way. The list of potential technologies includes several that have not been under construction elsewhere yet, and none that is operational anywhere. This adds to the uncertainty about the assumptions on operational emissions, risk potential, production of radioactive wastes.
The descriptions of each potential technology are in such general terms that no conclusions can be drawn about their real potential impacts on the environment. It is furthermore impossible to make any comparison about difference in impacts on the environment between the different potential technologies, information that is necessary to improve the quality of the decision of the final choice of technology.

7. **Lack of realistic time-line**: The project indicates a time-line in which the new nuclear capacity in Jaslovske Bohunice (short: NJZ) is to become operational in 2029 to replace the capacity of the nuclear power station Jaslovske Bohunice V2 (JE V2) by 2030. Given that there is currently still no clarity about when the new capacity in Mochovce is coming on-line, nor about how the last phase of the Mochovce 3,4 project is to be financed; given the fact that for that reason all predictions about needed generation capacity for Slovakia made by the government for the coming decade-and-a-half are already outdated; given that the construction time of Mochovce 3,4 from the moment of restart of the project in 2007 – a power station from which a large part was already ready – will exceed 10 years; given that no technology has been chosen for NJZ; given that the strategic partner CEZ has several times indicated not to be interested in the project of NJZ and has for a long time been looking at the option to sell its stake in JESS; given the fact that no model has been chosen to finance this project; given all those factors, it has to be concluded that the given dates of potential operation are speculative and most likely far too ambitious.

8. **Lack of a realistic financial model for the project**: The project promoter JESS has a 51% stake from the Slovak state radioactive waste and decommissioning company JAVYS, a company without direct experience in the operation of nuclear power plants – experience which was transferred to the 67% ENEL owned company SE. The other 49% is owned by the Czech utility CEZ, which indicated that it wants to sell this stake. There is no clarity how the necessary finances for the project will be secured. Currently every single new nuclear construction plan in Europe is facing problems with financing. Problems with financing have led to severe delays or even cancellations. Options investigated by the UK government face a lengthy appeal procedure before the European Court. Lack of financial resources may impact safety levels, as well as construction times. Both have effects on potential environmental impacts.
Paragraph A.II.10. on page 119 makes everything clear: the expectation to be able to get 1700 MW capacity for 6 Bln Euro – without any indication whether this is overnight construction cost, whether this includes financing costs, whether this includes waste and decommissioning costs

and so on, is simply not serious. Apart from the fact that none of the current projects under construction in Europe, including the outdated second generation nuclear reactors of Mochovce 3,4, are built under 5000€/kWh overnight costs, which would mean for 1700 MW a minimum cost of 8.5 Bln€.

9. **Lack of a realistic energy policy**: Whoever is currently responsible for this EIA, the project is based on the national energy policy of Slovakia. The current situation of development of the energy sector of Slovakia is already out of line with earlier formulated strategies, not in the least because of the continuous delays in the implementation of the construction of Mochovce 3,4. Illustrative is that the latest delays in the Mochovce 3,4 project were not taken up in the report, even though they were known at the time of publication. Next to that, the Slovak energy strategy is highly unrealistic in its underestimation of the potential of energy efficiency and renewable energy sources. Given the high generation capacity of the proposed project, it will need a stable and realistic energy policy to be developed in, otherwise it will face further adaptations, delays and cost increases, and with that more pressure on safe construction and operation and thus potential impacts on the environment.
   The fact that the proposed technologies range in capacity from 1100 to 1700 MW (a difference from 50%!) shows that there is no clear idea about the development of the electricity sector in Slovakia.

10. **Forecasts inadequate**: The forecast of balance of energy consumption and production in the report shows no initiatives to de-link economic growth from growth of energy use (use of energy efficiency), it shows virtually no growth of renewable energy sources in spite of a huge potential, it does not show any reduction of the use of fossil fuels in the electricity sector in spite of clear EU policies into that direction – it even shows a growth of use of fossil fuels against every trend in Europe, and it includes unjustified certainty about life-time extension of Mochovce 1 and 2. Short: the forecast is a very weak basis for any planning work.

11. No alternatives to the project

- 11.1. No alternative siting has been assessed. Citing legal decisions in itself is not a sufficient ground not to consider alternative siting options to assess whether alternative siting could lead to lower impacts on the environment. With this, the report does not fulfil the prescription in Appendix II(b) of the Espoo Convention.
- 11.2. There is no sufficient justification given for the choice of the site within the Jaslovské Bohunice site. See 11.1.
- 11.3. No alternatives of the installed NJZ capacity have been assessed. The fact that earlier decisions have been taken about the choice for nuclear does not mean that reasonable alternatives (including the zero alternatives and policies to implement those) should not be investigated (Espoo art. 5(a), Aarhus art. 6(6e)). This has not happened in this study.
- 11.4. No policy alternatives (other ways of electric power generation and/or electric power saving) have been assessed. Again, whether or not the promoter is set up to to implement a nuclear project is completely irrelevant. Relevant is that a comparison with reasonable alternatives should be submitted to public participation, so that either the expected impacts on the environment can be justified or alternatives to the project can be chosen by the relevant authorities. The fact that the Slovak energy reality is currently so much out of line with earlier plans and the fact that the current valid energy strategy has not been submitted to (transboundary) public participation shifts the duty of this comparison to the project level.

That the promoter has not included any alternatives to the project on the shallow grounds mentioned on pages 117 – 119 is a further indication that this EIA report is premature.

The paragraphs about mitigation fail to mention the possibility to mitigate all risks associated with this project with one of the zero-options: non-implementation of the project. Because no alternatives have been studied, it is impossible to judge what would be the most sensible solution.

12. **No sufficient description of management of radioactive waste**: The description of management of radioactive waste also lacks seriousness. There is no assessment of different alternatives (different technological alternatives, including the mentioned deep geological disposal, but also alternatives in case this technology does not work for Slovakia – including consideration of the zero alternative for the project NJZ). Current problems in implementation of deep geological disposal of high-level radioactive waste in Finland, Sweden, France and Switzerland should be sufficient reason also to explore alternatives within this EIA.

13. The use of one cooling tower. The use of one cooling tower is simply the most ugly solution to a problem that can also be solved in ways that are less 20st century.

14. **The risk of severe accidents with substantial emissions of radioactive substances**. The largest potential impact of any nuclear installation is that of substantive radioactive emissions during and after a severe accident. This has been amply illustrated by the catastrophes in Mayak, Windscale, Three Miles Island, Chernobyl and Fukushima Daiichi – all “unthinkable” accidents. The authors hide their insufficient analysis of this risk to the end of the report. And in this analysis, they only assesses accident scenarios with relatively small emissions of radioactive substances. Because of this, no proper assessment can be made of potential impacts of the project, especially on larger distances. Source terms of between several percent and at least half of the radioactive gaseous inventory should be calculated through.

15. **The risks of malevolent attack** (sabotage, terrorist attack, acts of war) is insufficiently analysed. Reference to the State's defensive measures is not sufficient to eradicate this risk and no analysis has been made of potential emissions caused by a successful attack on the power station.

16. **Risk of multi-unit (including common cause) incidents and accidents** resulting in substantial emissions of radioactive substances has not been assessed.

17. The description of **Emergency Preparedness and Response** is insufficient. There is no detail description of measures proposed, no analysis of sufficiency of infrastructure in case of a severe accident, no analysis of weaknesses to be addressed.

18. The legal **liability coverage** of 300 Million EUR will be highly insufficient in case of a severe accident with substantial emissions of radioactive substances. For that reason, the assessment in the report is insufficient. It should assess what levels of coverage would be needed, what kind of mechanisms could be implemented for that and how that can be financed.