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Centre for Environmental Information and Education (CEIE)

For the Earth!

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Centrum pro dopravu a energetiku

Hnutí Duha

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Estonian Green Movement-FoE

Georgia:
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Nature Protection Club of Eotvos Lorand University (ETK)

National Society of Conservationists-FoE (NSC)

Latvia:
Latvian Green Movement (LaGM)

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Polish Green Network (PGN)

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Slovakia:
Friends of the Earth - Center for Environmental Public Advocacy (FoE-CEPA)

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Dear Sir,

CEE Bankwatch Network is closely following the developments regarding proposals for building of new nuclear power plant in Lithuania. We have acquainted with the Environmental Impact Assessment report and prepared comments on the report. Hereby we submit comments prepared on the basis of full version Environmental Impact Assessment Report New Nuclear Power Plant in Lithuania (published in the website www.vae.lt on August 27, 2008).

Our **key comments** can be summarized as follows:

- As the reactor model has not been chosen yet, the EIA report lacks of concreteness and fails to provide detailed assessment of expected environmental impacts (i.e. the impacts and also monitoring requirements may differ significantly);
- The EIA report lacks assessment of management of spent nuclear fuel and highly radioactive waste while creation of nuclear waste is part of the operation of and NPP and hence should be included when analysing possible environmental impacts;
- Often only the description of the current state of environment is included, but the report fails to look at the expected emissions during operation of NPP;
- It's unacceptable that the current EIA does not address cumulative impacts of the ongoing decommissioning phase; overlaps between the decommissioning and the construction/operation phase of the proposed new NPP should be identified with clear time lines.
- There is lack of assessment of possible alternatives to the proposed NPP – the provided descriptions are too general;
- Environmental and socio-economical impacts in transboundary context had not been assessed properly as the chapter doesn't refer to any data, studies of surveys, but operates with positive assumptions.

Our **key demands** in relation to EIA procedure:

- The EIA should be revised once the reactor model is chosen and new public hearings organized and public participation ensured;

- The analysis of the needs and expected environmental impacts of the management of spent nuclear fuel and nuclear waste management should be included in the EIA report and EIA needs to be revised accordingly;

The examined document can not be approved as standard EIA Report. It can be only approved as a Preliminary EIA Report. The final version of the Preliminary EIA and its approval should clearly define a concrete set of necessary Detailed EIAs, which would have to be completed and be subject to consultation, public participation, and regular EIA approval procedure. Those Detailed EIAs would relate to concrete segments of the detailed technical designs of the NPP (For example, Detailed EIAs for fuel transportation and storage, reactors, cooling system, waste management facilities for different types of waste, waste management facilities for different types of radioactive waste, etc.). There should also be an overarching **Final EIA** that would integrate the key findings from the previous documents, again subject to consultation, public participation, and regular EIA approval procedure.

Detailed comments on EIA report are bellow.

No information on reactor model prevents assessing impacts on environment
(page 34)

“The new nuclear power plant will consist of one to five units. In some parts of this assessment the impacts are assessed for one or two reactors of about the size of 1600-1700 MW. In these cases the impacts of three to five units with smaller reactor size are assumed to be the same as for the two units with greater reactor size”

The environmental impact assessment (EIA) provides an interesting account of the history of nuclear technology but gives no tangible information whatsoever on the reactor model intended to be built. This leads to lack of concreteness and detail throughout the report – e.g. production of high-level nuclear waste is reported as ranging from 47 to 370 tons per annum, a range of almost an order of magnitude for maybe the most serious environmental impact of the project! The same staggering lack of detail is evident in the assessment of nuclear safety. In effect, the company is asking for a carte blanche to build any installation they please, and in so doing making fun of the whole EIA process. There needs to be a design-by-design analysis of main environmental impacts and nuclear safety measures.

Assessing the impact and risks of a nuclear power plant with either one, two, or up to five units introduces a series of large uncertainties. Together with the fact that a reactor type has not been chosen for the project, these uncertainties indicate that the current EIA needs to be considered a preliminary documentation and a complete EIA needs to be developed once the reactor type and number of reactors are established.

The proposed construction time of NPP is unrealistic (page 35)

“Typical construction time of a new NPP unit is 5–7 years (Figure 1.4-1). Operation time is approximately 60 years or even more”

The typical construction time for a new NPP, considering the global experience in the field, is often longer than designed. Operation time is also often shorter than designed. These aspects need to be treated in a risk analysis and the outcomes of this analysis need to be reflected in the analysis of alternatives (meaning a proper analysis of alternatives to achieving the objective of the project i.e. bringing new

electricity capacity online).

The proposed construction timetable i.e. bringing new nuclear power plant online by 2015 is unrealistic and dangerous. The typical construction time for a new NPP, considering the global experience in the field, is often longer than designed. Operation time is also often shorter than designed. As is evident in the nuclear projects in Olkiluoto, Finland and Flamanville, France, this timetable will inevitably lead to use of incompetent suppliers, breaches of planning and testing procedures and violations of nuclear safety requirements. The construction timetable presented in the EIA report needs to be based on existing experiences, not optimistic plans. These aspects need to be treated in a risk analysis and the outcomes of this analysis need to be reflected in the analysis of alternatives (meaning a proper analysis of alternatives to achieving the objective of the project i.e. bringing new electricity capacity online).

Lack of assessment of non-implementation alternative (page 74)

“According to a so called non-implementation, or zero option, no new nuclear power plant unit will be constructed in Lithuania. In this case the supply of energy from diverse, secure, sustainable energy sources which do not emit greenhouse gases and other pollutants will not be secured and the country’s energy security will not be ensured.”

So called non-implementation alternative needs to have more variants assessed. Secondly, the Yes alternative should have had integrated impacts from the whole life-cycle. Thirdly, the Yes alternative should have had variants (which will hopefully be the case once the detailed designs start emerging, with ensuing Detailed EIAs).

In case this NPP project will not be implemented, other projects in the realm of energy efficiency and other generation capacity will be implemented. They indeed are already implemented today, to meet the upcoming generation gap caused by the closure of Ignalina 2. It is very likely that when the reactors of the Visaginas NPP will come on-line, no shortage of capacity will exist. On the other hand, if the Visaginas NPP project will go ahead and construction will run into delays, like the current projects of Areva in Finland and France, the projects of Atomstroyexport in India and Bulgaria and the Westinghouse project in China, Lithuania and the surrounding countries will be confronted with a not-planned-for lack of capacity between the originally planned date of operation and the real one. This causes insecurity for the investors.

It is also not true that the supply from energy sources that do not emit greenhouse gasses will not be secured. In contrary: because Lithuania wants to fill the grid with inflexible nuclear capacity in the form of the Visaginas NPP, development of renewable energy sources with consistently lower greenhouse gas emissions than the nuclear power station (including the full fuel chain) will be hampered. It is very well possible that the net result is that the Visaginas project will end up with more greenhouse gas emissions than the development without Visaginas NPP. This study does not deliver any data to make that comparison and is therefore insufficient.

Lack of assessment of other viable solutions for electricity generation (page 77)

“(...) Thus impacts of alternative forms of electricity production in Lithuania have not been assessed in this EIA process”

Ruling out renewable energy and energy efficiency measures is not justifiable and

the assumption that in the absence of new nuclear reactors, electricity would be produced almost solely with fossil fuels is not sensible. As is imminent from the EIA report itself, the potential impact of the project on Lithuanian electricity market is so large, that limiting the analysis to measures that can be implemented by the company is not justifiable. The assumption of increased reliance on fossil fuels is arbitrary and, as a bare minimum, a sensitivity analysis should be provided. Furthermore, emissions from electricity production in Lithuania are bound by the Emissions Trading System of the European Union and most likely also by a new commitment period of the Kyoto protocol under negotiation at the moment. Therefore the emission targets will need to be met regardless of whether new nuclear capacity is added thus ruling out the option of increased use of fossil fuels. The analysis must consider all possible capacity alternatives and compare all costs, risks, lifetime, availability etc. The EIA has to be revised as such.

Implementation of the safety requirements for a new NPP (chapter 5.3.4, page 110)

“As discussed above the designs of all Generation III+ design and some Generation II and III designs incorporate high safety goals. It is a requirement of the new nuclear power plant that the possibility of an accident leading to reactor core damage is less than once in 100 000 years and large environmental radioactive releases occur less often than once every 1 000 000 years. All candidate reactor plants being considered meet these requirements by a significant margin”

The risk of accidents must be reflected in the analysis of alternatives. Thus the EIA should be revised as such.

“Once the construction license has been obtained a final safety analysis report will be required in order to obtain an operating license. A condition for granting the operational license is that during construction, the safety analyses are updated to reflect any changes arising due to design changes. Such change proposals will be subject to power plant developer approval and where appropriate submitted to the appropriate authority before the change can be accepted.”

A complete safety analysis has to be part of the EIA and submitted to Espoo public consultation. The outcomes of the safety analysis need to be considered in the analysis of alternatives. Leaving the safety analysis for later stages only turns it into a mere bureaucratic endeavour, a step in licensing, rather than a requisite of the documentation representing the basis for consultation and decision-making. The EIA needs to be revised so that it includes a complete safety analysis (once the technology has been established), and the outcomes of this analysis must be considered in analysing the alternatives.

Amounts of conventional waste generated during construction and operation the new NPP are not clear (chapter 6, page 116)

“The exact amounts, nature and volumes are linked to variables that can only be clarified as the project proceeds, such as reactor type and number, final layout of the site etc”.

It is clear that the EIA team has not had the necessary volume of technical project information in order to properly assess the social and environmental impacts of the project. It is obvious that clear information is needed in order to do the assessment and that the outcomes need to reflect in the analysis of alternatives. An assessment based on generic data from nuclear reactor providers cannot represent the basis for an EIA. The EIA needs to be revised, at the time that clear technical details are provided to the EIA team.

(Page 122)

“The total amount of conventional waste generated every year is around 450–500 tonnes for one reactor unit, 850–900 tonnes if 2 units will be placed in operation”

The level of uncertainty reflects in the quality of the assessment. The amounts of waste in this case are estimated for one or two reactors, but previously the assessment considered up to five nuclear units. The EIA needs to be revised, at the time that clear technical details are provided to the EIA team.

Amounts of radioactive waste not known (chapter 6.2.2, page 122)

“Radioactive waste originating from nuclear power plants usually includes spent nuclear fuel, operating waste and the so-called decommissioning waste originating from the decommissioning of the plant”

These costs need to be properly addressed and they need to be considered in the analysis of alternatives. The EIA needs to be revised, at the time that clear technical details are provided to the EIA team.

Risks of nuclear waste are not described and assessed (page 128)

“After SNF is removed from the reactor core, it is stored in storage pools for a certain decay period before SNF could be transferred to off-site facilities for further processing or storage. All NPPs have such spent fuel pools associated with the reactor operations. Recent designs of reactors have incorporated pools that can accommodate SNF generated over periods of up to 30 years. Long-term storage and disposal of SNF will be a subject of an own EIA procedure in the future and this issue is not a subject of this EIA Report.”

The long-term health and environmental hazards caused by long-lived high-level nuclear waste are among the most severe and profound environmental impacts of a nuclear power plant. These impacts and their mitigation are fully omitted from the EIA report which can not be acceptable under any circumstances. The EIA is not valid if it only covers parts of a project life cycle. Decommissioning and waste management are not less important than the planning, construction and operation of the project.

Production of high-level waste is an integral part of the project and it cannot be separated into a separate EIA process, because the potential impacts of the waste need to inform the decision on whether or not building this nuclear power plant is justifiable. Furthermore, management and especially long-term deposition of nuclear waste can entail substantial costs that can affect the economic viability of the whole project. It would be irresponsible for the environmental authorities to grant an environmental permit to a facility that does not have a plan on, a commitment to, a credible estimate of the costs of or demonstrated financial means for management of its own waste. The omission of high-level waste management from the EIA report is another demonstration of utter disregard for the EIA process.

EIA Report states in several places that "the existing infrastructure of the old NPP will be used whenever feasible" - it should be clearly assessed which existing infrastructure would be used. It's unacceptable to state that the new facilities needed for the proposed project would be studied in other EIAs.

No assessment of environmental impacts related to decommissioning (chapter 6.3, page 131)

“During the design stage of the new NPP an initial decommissioning plan should be prepared before the operating licence is issued. The initial decommissioning plan should state in general terms that the plant can be taken out of service, and provide an outline of decommissioning methods and technologies. The initial decommissioning plan must specify the likely quantity of waste and provide an estimate of decommissioning costs”

The decommissioning plan needs to be an integral part of the EIA, as decommissioning is an integral part of an NPP project and it impacts project costs and the analysis of alternatives. The EIA needs to be revised in order to address these issues.

“Once the reactor has started operation, the core is irradiated, and the primary system components have become radioactive, the cost of decommissioning a nuclear reactor is basically fixed and is permanent”

In practice, the nuclear industry has acknowledged the uncertainties related to decommissioning costs and waste management costs, which is why the contributions to specific funds are re-assessed and revised on a regular basis. The EIA needs to be revised in order to address this risk.

Water evaporation impacts not assessed thoroughly (chapter 7.1.1.3, page 141)

“However, there are several factors affecting the reliability of this assessment. First, there can be uncertainties in the estimation of the parameters in water balance calculation due to the limited amount of the hydrological data. For instance, the evaporation measurements have been carried out only in one part of the lake and are therefore not necessarily representative for the whole lake”

The EIA needs to be revised in order to include proper data and assessment regarding the thermal impact of the project this must not take place at a later project stage.

Thermal impacts on Druksiai Lake ecosystem are underestimated (chapter 7.1.1.3, page 150)

“In conclusion, eutrophication, the increase of salts content and warming of the lake water interact to influence the habitats and ecosystems of the lake. Despite these changes in the lake ecosystem, the parameters examined still meet the requirements and range within the limit (imperative or guide) values set up by Directive 78/659/EEC and national legislation (Order No. D1-663, 2005) concerning the quality of fresh waters needing protection or improvement to support fish life. The water quality and state of the lake are described to be good and to conform to the quality requirements. All the values are of the same order of magnitude as the ones commonly encountered in surface water bodies”

Considering that the old nuclear power plant's operation has led to:

- eutrophication of the Druksiai lake (page 144 of EIA)
- evaporation rates have increased (page 144 of EIA)
- dissolved oxygen content has decreased (page 145 of EIA)
- increase of sulphates in the lake water and bottom sediments (page 149 of EIA)
- the amount of the prevailing plankton species decreased 2 to 3 fold in comparison with INPP preoperation (page 151 of EIA)
- phytoplankton dominants from the pre-starting period of the INPP and zooplankton species have disappeared (page 151 of EIA)
- The abundance of metazooplankton decreased more than 2.7-fold and protozooplankton halved during the first two years of INPP operation (page 152 of EIA)

- the crustaceous species which preferred a narrow range of low temperature and well oxygenated conditions (relicts of the glacial period) have been either completely eliminated or their quantity has significantly decreased (page 154 of EIA)
- the species diversity in Lake Druksiai decreased from 23–26 fish species (before INPP operation) to the current list of 14 species (page 157 of EIA)

It is clear that the thermal impact of the old nuclear power plant has been quite significant. Thus, the fact that water quality parameters meet the legislation requirements is rather irrelevant. The EIA needs to be revised in order to indicate how much further alteration of the Druksiai Lake will take place in the case of a new NPP construction, and these estimates need to reflect in the analysis of alternatives.

Lacking assessment of social impacts of new NPP (chapter 7.9, sub-chapter 7.9.2, page 364)

Social assessment virtually doesn't exist, the section of EIA dealing with socioeconomic issues only states very generally how the proposed project would have very positive impact on employment and the economy. Detailed analysis of potential both positive and negative social impacts is needed. Number of workforce is mentioned that actually has positive impacts, however, it quite often leads to a whole series of negative impacts (stress on local communities, increase in crime, etc.) Some of these issues are mentioned in the Report, but social impacts should be clearly defined in each stage of the project cycle: from planning, construction, operation and decommissioning.

Additional explanations needed on residents' survey needed (sub-chapter 7.9.2.4, page 368)

Reference is made to the Resident Survey 2008 on NPP, however survey itself is not added in the Appendix and it should be. The survey concludes that the population of Visaginas and surrounding areas view the proposed project positively. This conclusion seems to be misguided, giving the survey results which show that 52.9% “have little information” about the project, while 15.7% “have not heard anything about the project”. More information needs to be provided to the residents before they are able to provide meaningful answers to survey questions.

Health impacts related to operation of current Ignalina NPP should be assessed and included in the report (chapter 7.10, page 371)

“These indicators will only present the existing health status. Evaluation of the causes of differences in health indicators of the countries has not been carried out as it would require evaluation of relation of mortality rates with specific co-founders (e.g. radiation, smoking, social factors and similar). Such evaluation has not been included in the scope of the EIA. Health status of the residents in proximity of the existing INPP was not assessed for the above mentioned reasons. Collection of the health data of the representative sample for all three countries would require access to crude statistics and explicit epidemiological study that is not the scope of this EIA.”

As the EIA draws much of its data from the operation of the old Ignalina nuclear power plant, the EIA should look thoroughly into the actual health impact of the old plant. An epidemiological study on the impact of radioactive emissions from Ignalina NPP, at least on a range of 30 km should be conducted and the results should be part of the EIA.

Overestimation of positive socioeconomic impacts on Latvia (chapter 8.10, Page 449)

„A significant positive impact on the socio-economic environment in the foreign parts of the NNPP region is expected. A need for Latvian workforce will occur. A significant part of the total workforce, which is in the order of 3 000 – 3 500 workers, during the construction phase will come from other countries than Lithuania and Latvia, and will need accommodation for several years. (...)”

The description on socioeconomic impacts is very superficial and doesn't touch upon such issues that have been raised by inhabitants and local authorities of Daugavpils region during public hearings in Latvia. Inhabitants have expressed their concerns over the decrease of the value of their land as well as constraints and limitations for development of organic farming and eco-tourism in the region related to construction of new NPP. While during public hearings on EIA report in Latvia the authorities from Daugavpils region were had mentioned fear about possible negative social impacts in the case if foreign workers employed at NPP would move to Daugavpils as it could create additional pressure on the social environment in the Daugavpils city as well as put high pressure on the obsolete transport infrastructure.

The EIA report also suggests that Latvian workers could also benefit because of the large number of workforce needed (3.500) during the construction phase. At the same time, the EIA Report says that a major oil development is planned in Latvia which might mean that no workers would actually come to Lithuania. This needs to be clarified and detailed analysis provided.

Yours sincerely,

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