

## Joint Project Statement on the Scoping Document for New Reactor Units at the Dukovany Site (CR)

Patricia Lorenz, September 2016

### 1. Description of the new build project / Scoping procedure

The notification of the project refers to the construction of one to two reactors at the existing NPP site Dukovany in the Czech Republic. The Scoping Report is now available and the public is asked to define requirements and issues, which the next stage of the EIA, the EIS (Environmental Impact Statement), should provide answers for.

According to the Scoping Report one or two units shall be built; the first one to start operating in 2035, the second one not before the 4 operating units at Dukovany will be shut-down. The output of one or two units is 3500 MW. The facilities needed for integrating the new source into the grid are not part of this EIA; for those the grid operator (ČEPS) will conduct a separate EIA, including cumulative impacts. The Scoping Report states that the most likely needed interim storage for the new reactors will also be subject to another EIA. This however is violating Annex 4 of the Czech EIA law whereby all building needed for the new build have to be subject of one EIA.

The Scoping Report however clearly demands taking the cumulative impacts with the existing facilities (4 reactors, 2 interim storages and one low – and medium level nuclear waste repository) into account.

The Scoping Report does not say for which reactor type this EIA is conducted, but only lists all reactors under consideration, which widely vary in output:

AP1000 – Westinghouse Electric Company LLC (US) – 1200 MWe;  
EU-APWR – Mitsubishi Heavy Industries (Japan) – 1700 MWe;  
MIR1200 – Škoda JS/JSC Atomstroyexport/JSC OKB Hidropress (Czech Republic/Russia) – 1198 MWe;  
VVER-TOI – Atomenergoprojekt, ROSATOM Group (Russia) – 1341 MWe;  
VVER-1500 – JSC OKB Hidropress (Russia) – 1560 MWe;  
EPR – AREVA NP (France) – 1750 MWe;  
ATMEA1 – AREVA NP/Mitsubishi Heavy Industries (France/Japan) – 1200 MWe;  
EU-APR – Korea Hydro&Nuclear Power (South Korea) – 1455 MWe;  
APR1000+ – Korea Hydro&Nuclear Power (South Korea) – 1000 MWe;  
CAP1400 – State Nuclear Power Technology Corporation (China) – 1500 MWe;  
HL1000 – China General Nuclear Power Corporation and China National Nuclear Corporation (China) – 1150 MWe.

The difference in output of the new NPP can be between 1000 MW, when only one reactor would be built and this would be an AP 1000, or over 3500 MW, if two EPR should be selected.

Requirement: The EIS has to assess one specific reactor type. For all reactors under consideration complete technical data need to be provided to enable a qualified comparison of environmental impacts. This concerns the key issues, like the plane model which the NPP should be able to withstand during an intentional plane crash, cooling water need and seismic robustness of individual plant components.

*The EIS has to include all buildings needed in connection with the NPP Dukovany new build. Those facilities are at least the following:*

- *new interim storage*
- *upgrade of the 400 kV line and modernization of the substation Slavetice*
- *possible district heat extraction for Brno (not mentioned in the documents presented for scoping, however, it is been mentioned for years)*
- *more concrete details of the necessary facilities and their siting at the Jihlava River used for the water supply of the new NPP Dukovany*

## 2. Trans-boundary impacts and dangers which are posed also by new power plants

Chapter III of the Scoping Report/Notification discusses the cross-border impacts of the intent and informs about the distances to state borders:

- Austria 31 km
- Slovakia 77 km
- Poland 118 km
- Hungary 142 km
- Germany 170 km.

Concerning the risks, the Report underlines the improved safety of the Generation III+ reactors compared to the existing reactors of Generation II. The new ones presumably have a lower frequency of accident, can catch and cool the molten core and withstand external events, e.g. air plane crashes. The terror threat is specifically mentioned and the responsibilities are clearly stated: *“The primary responsibility for the protection against international attacks lies with the state (intelligence agencies, monitoring of terroristic activities, protection of the air space, prevention under the conditions of air traffic etc.”* However, the Report states that the attack scenarios taken under consideration of the intentional crash of a large commercial air liner are classified. Thus the public has no information nor can it participate. The description of the reactor models therefore is even more important; it seems that different plane models were used for the reactor designs (load on the plant caused by the crash).

An improved safety level for the reactors of Generation III+ currently on the market is simply assumed, even though none of the designs under consideration is anywhere in operation yet; instead they became known for enormous also safety-relevant problems occurring already during construction. One of the reasons for this is the fact that very few NPP have been built in the past years and industry has a declining know-how [expertise] and insufficient supply chain. This applies for the EPR in Flamanville, where the already installed reactor pressure vessel (RPV) turned out as being flawed to such an extent, that it might never usable. Also the Russian reactor producer Rosatom had to face serious troubles in summer 2016, when the reactor pressure vessel crashed down during manipulation at the NPP in Belarus, which is currently under construction.

**Demand:** Cross-border impacts need to be assessed taking into account all relevant factors, it is not sufficient to repeat the information provided by the reactor producers. The misleading argument, that the new reactor models practically do not pose any dangers, has to be deleted. The EIS has to contain a description of possible damages and the amount available as compensation payment. The EIS should also inform about the dose and contamination (in particular the reference nuclides Cesium and Iodine), both for design basis and beyond design basis accident for neighbouring countries like Slovakia and Poland, but also for countries like Hungary, Bulgaria and Romania. The source term need to be published in the EIS.

## Earthquakes and seismic risk

**Demand:** The assessment of seismic risk in the EIS also needs to take into account newest research results from abroad.

### *Disposing of radioactive waste*

Still there is no solution to radioactive waste. The theoretical concept (National Disposal Strategy) has not yet been subject to the SEA. Currently the Czech Republic is actively searching for a final repository site. This approach is certainly a better approach than the one used by the majority of countries, which simply ignore and postpone this issue. At the same time the protest of the candidate site shows that the legal and last but not least technical problems that the solution for high level nuclear waste could be even more difficult, more expensive and not possible as planned (Deep Geological Repository).

**Demand:** To produce additional tons of high level waste with one or two new reactors is utterly unacceptable, as long as the waste disposal consists in claiming that in future some solution will be found. Part of the waste solution also needs to be a guaranteed and sufficient financing of this disposal of spent fuel. The EIS need to describe this solution.

## 3. Reasons which led to the project and comparison of alternatives, environmental impacts

The reasoning applied in the Scoping Report is based on two documents of the Czech Republic - State Energy Concept and National Action Plan – which plan the construction of new NPPs. However, if an electricity supply deficit is assumed, also non-nuclear alternatives should be considered and compared.

The Scoping Report states, that no alternatives to the construction of a new NPP were presented. Also the zero project alternative is lacking, which would consist of a step-by-step shut-down of the existing four units.

**Demand:** The EIS should present alternatives in accordance with Annex II of the ESPOO Convention, based on an energy mix (wind power, biogas and solar energy, co-generation). Also the zero alternative should be presented.

Two more issues are of key importance: CO<sub>2</sub>- balance and water demand.

### **Environmental impacts: CO<sub>2</sub>- balance**

The Scoping Report for the new nuclear power plant stated: *“In this context, the new nuclear power source represents one of the parts of the multi-source energy mix in which it will represent an efficient, stable, above-standard reliable and environmentally-friendly (virtually carbon-free) power generating plant.”*

Taking into account the complete life cycle from uranium mining to the decommissioning of the NPP, this statement is untrue; the EIS need to present the facts to explain this statement. The energy mix, which the Czech Republic is officially planning for 2040 consists of: Nuclear power 46 to 58 %, renewables and secondary energy sources 18 to 25 %, gas 5 to 15 %, black and brown coal 11 to 21 %.

**Demand:** The project has to be presented with several alternatives for covering the electricity demand (energy mix), including the respective CO<sub>2</sub> balances. The claim that nuclear power is virtually CO<sub>2</sub> emission-free is incorrect and therefore needs to be deleted.

### **Environmental impacts – water demand**

The water supply of the NPP is at times under stress with the current operation of 4 units with 500 MWe each, both the take-in and the discharge of contaminated water (tritium, phosphor etc.).

Demand: The future water supply of the site with 2000 MW (existing 4 units) + possible 1700 MW (or 3500 MW) has to be described.