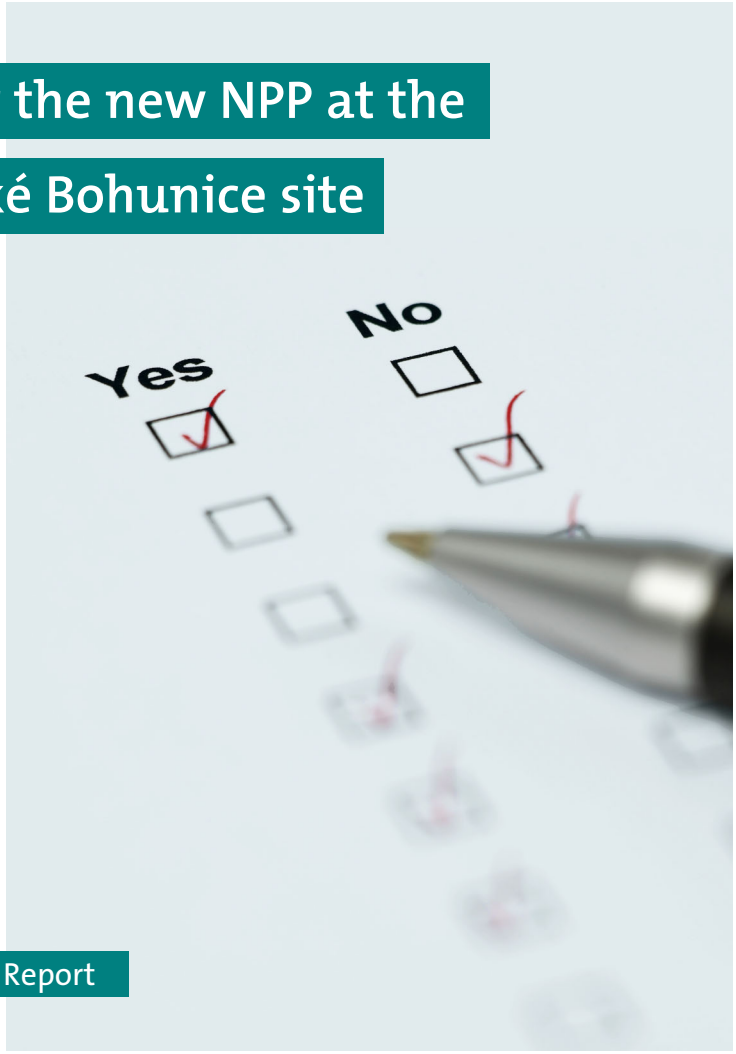
ENVIRONMENT AGENCY AUSTRIA umweltbundesamt

EIAR for the new NPP at the Jaslovské Bohunice site



MINISTERIUM FÜR EIN LEBENSWERTES ÖSTERREICH

enco

Consultation Report

ENVIRONMENT AGENCY AUSTRIA umweltbundesamt

NEW NUCLEAR POWER PLANT AT THE JASLOVSKÉ BOHUNICE SITE

Environmental Impact Assessment Report on the proposed activity Consultation Report

ENCO

By Order of the
Federal Ministry of Agriculture, Forestry,
Environment and Water Management,
Project Management Department I/6
"Nuclear Coordination"
GZ BMLFUW.1.1.2/0010-I/6/2015

MINISTERIUM
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Project management
Franz Meister, Umweltbundesamt

Authors
ENCONET Consulting Austria

Prepared/Revised by
O.Velicu

Reviewed by
B.Tomic

Approved by
B.Tomic

Layout and typesetting
Elisabeth Riss, Umweltbundesamt

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EXECUTIVE SUMMARY

There are two nuclear power plants in the Slovak Republic, Bohunice NPP and Mochovce NPP, consisting of four VVER 440/V-213 pressurized water reactors owned and operated by Slovenské Elektrárne. These four units produce around half of the electricity generated in the country. In order to maintain this share in the future, the Energy Policy of the Slovak Republic envisages the construction of a new reactor unit at Bohunice site.

In conformity with Article 3 of the Espoo Convention, Article 7 of the Directive 2011/92/EU and the Agreement between the Slovak Republic and the Republic of Austria on the Implementation of the Espoo Convention, the Ministry of Environment of the Slovak Republic submitted to Austria in March 2014 documents regarding the project "New nuclear power plant at Jaslovské Bohunice".

The Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) replied that the Republic of Austria will take part in the transboundary Environmental Impact Assessment (EIA) procedure, since the proposed project could have significant transboundary impacts.

Within the EIA, a Scoping Report was prepared in order to identify, which data the project applicant (Jadrová Energetická Spoločnosť Slovenska, a. s., JESS) needs to present in the next step of the EIA procedure, the Environmental Impact Assessment Report (EIAR). The Scoping Report was made publicly available in Austria. The comments received from the public were sent to Slovakia for further consideration. Also, an Expert Statement to assess the EIA Scoping Report was commissioned by BMLFUW, in order to evaluate whether the content suggested by the EIA Scoping Report for the EIA is sufficient to determine the safety of the project and the potential risk for Austria. The topics required for the EIAR were submitted to the Slovak side, in order to be considered for the development of the EIAR.

In accordance with Articles 2 and 4 of the Espoo Convention, the Ministry of Environment of the Slovak Republic transmitted to Austria in September 2015 the EIAR prepared by JESS for the project "New nuclear power plant at the site Jaslovské Bohunice".

The Environment Agency Austria was commissioned by the Austrian Federal Ministry of Agriculture and Forestry, Environment and Water Management to coordinate the preparation of an expert statement on the EIAR. The Environment Agency Austria commissioned ENCO to prepare that expert statement. The Expert statement aim was to investigate whether the information presented in the EIAR is sufficient to determine the safety of the proposed project and the potential risks for Austria, as well as to review whether the Austrian "Expert Statement assessing the EIA Scoping Report" has been addressed.

Following the evaluation of the EIAR, ENCO's Expert Statement identified a series of topics, where further information or clarifications were needed from the Slovak side. To enable the articulation of well-founded recommendations to minimize potential adverse transboundary impacts, those were sent to Slovakia and established the basis for the Consultation process.

To enable the dialogue on relevant issues, a bilateral consultation meeting was organized in Vienna, on 19th of November, 2015. All aspects identified in the Expert Statement were thoroughly discussed during the meeting. With this,

questions raised by the Austrian side were addressed. The discussion and the answers/clarifications received from the delegation of the Slovak Republic are documented in section 1 of this report. Section 2 of this report presents the conclusions drawn following the discussions, and the recommendations.

All questions identified in the Expert statement were satisfactorily answered, with the following 2 exceptions:

a) No data were presented on the cumulative impact of all nuclear installations on the Bohunice site (the proposed new unit plus the currently operating units) in accident conditions.
   The issue was recognized by the Slovak counterpart as an important one, and also a solution was given; therefore, it is recommended to follow up this aspect, under the framework of the bilateral agreement between the Government of the Slovak Republic and the Government of Austria on issues of common interest in the field of nuclear safety and radiation protection (hereafter referred to as “Bilateral Agreement”).

b) No details on the emergency preparedness on Bohunice site (where several nuclear installations are operated by different companies) were presented.
   It was agreed to present these during the “Bilateral Agreement” meeting(s) to be organized under the framework of the “Bilateral Agreement”.

Regarding the transboundary impact on Austrian territory, the data presented in the EIAR and corroborated during the Expert consultations (where some additional documents were also handed over) indicate that in case of the most severe accident, the ground deposition of I-131 on the Austrian territory is projected to exceed the level, where in accordance with the Austrian emergency response plan, a precautionary harvesting is recommended. Therefore, it is recommended to request the Slovak Republic to select such a reactor type that would limit the release of I-131 into the environment (in case of the most severe accident) to such amounts, so as to result in ground deposition not exceeding 700 Bq/m^2 anywhere on the territory of Austria.

ZUSAMMENFASSUNG

In der Slowakischen Republik gibt es zwei Kernkraftwerke, KKW Bohunice und KKW Mochovce, bestehend aus insgesamt vier WWER 440/V-213 Druckwasserreaktoren, im Besitz und betrieben von Slovenské Elektrárne. Diese vier Einheiten produzieren rund die Hälfte des im Land erzeugten Stroms. Um diesen Anteil in Zukunft zu sichern, sieht die Energiepolitik der Slowakischen Republik den Bau eines neuen Reaktorblocks am Standort Bohunice vor.

Im Einklang mit Artikel 3 der Espoo-Konvention, Artikel 7 der Richtlinie 2011/92/EU und dem Abkommen zwischen der Slowakischen Republik und der Republik Österreich über die Durchführung der Espoo-Konvention, hat das Umweltministerium der Slowakischen Republik Österreich im März 2014 Unterlagen zu dem Projekt „Neue Kernkraftanlage am Standort Bohunice Jaslovské“ vorgelegt.

Das Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (BMLFUW) antwortete, dass die Republik Österreich an der grenzüberschreitenden Umweltverträglichkeitsprüfung (UVP) teilnehmen wird, da das vorgeschlagene Projekt erhebliche grenzüberschreitende Auswirkungen haben könnte.

Innerhalb der UVP wurde eine Scoping-Bericht erstellt, um festzulegen, welche Daten der Projektwerber (Jadrová Energetická Spoločnosť Slovenska, as, JESS), im nächsten Schritt des UVP-Verfahrens, der Umweltverträglichkeitserklärung (UVE), vorlegen muss. Der Scoping-Bericht wurde in Österreich der Öffentlichkeit zugänglich gemacht. Die eingegangenen Stellungnahmen wurden an die Slowakei zur weiteren Prüfung übermittelt. Zusätzlich wurde vom BMLFUW eine Fachstellungnahme zur Überprüfung des UVP Scoping-Berichts in Auftrag gegeben, um zu beurteilen, ob der vom UVP-Scoping-Bericht vorgeschlagene Inhalt für die UVP ausreichend ist, um die Sicherheit des Projekts und das potenzielle Risiko für Österreich zu bestimmen. Die für die UVE erforderlichen Themen wurden der slowakischen Seite übermittelt, damit diese bei der Erstellung der UVE berücksichtigt werden.

Gemäß den Artikeln 2 und 4 der Espoo-Konvention hat das Umweltministerium der Slowakischen Republik im September 2015 den von JESS erstellten Umweltverträglichkeitsbericht (UVE) für das Projekt „Neue Kernkraftanlage am Standort Jaslovské Bohunice“ an Österreich übermittelt.

Das Umweltbundesamt wurde vom österreichischen Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft beauftragt, die Erstellungung einer Fachstellungnahme zur UVE zu koordinieren. Das Umweltbundesamt beauftragte ENCO mit der Erstellung dieser Fachstellungnahme. Ziel der Fachstellungnahme war, zu untersuchen, ob die in der UVE vorhandenen Informationen ausreichend sind, um die Sicherheit des vorgeschlagenen Projekts und die möglichen Risiken für Österreich zu bestimmen, sowie zu prüfen, ob die österreichische „Fachstellungnahme zum UVP-Scoping-Dokument“ berücksichtigt wurde.

Im Anschluss an die Überprüfung der UVE identifizierte ENCOs Fachstellungnahme eine Reihe von Themen, für die weitere Informationen oder Klarstellungen von der slowakischen Seite benötigt wurden. Um die Formulierung fundier-

ter Empfehlungen zur Minimierung möglicher nachteiliger grenzüberschreitender Auswirkungen zu ermöglichen, wurden diese Themen an die Slowakei übermittelt und damit auch die Basis für den Konsultationsprozess begründet.

Um den Dialog zu relevanten Themen zu ermöglichen, wurde am 19. November 2015 ein bilaterales Konsultationstreffen in Wien organisiert. Alle in der Fachstellungnahme identifizierten Aspekte wurden während der Sitzung gründlich diskutiert. Damit waren die von der österreichischen Seite erhoben Fragen behandelt. Die Diskussion und die von der Delegation der Slowakischen Republik erhaltenen Antworten/Klarstellungen sind in Kapitel 1 dieses Berichts dokumentiert. Kapitel 2 enthält die aus den Diskussionen gezogenen Schlussfolgerungen und die Empfehlungen.

Alle in der Fachstellungnahme identifizierten Fragen wurden zufriedenstellend beantwortet, mit den folgenden 2 Ausnahmen:

a) Es wurden keine Daten über die kumulativen Auswirkungen aller kerntechnischen Anlagen auf dem Standort Bohunice (der vorgeschlagenen neuen Einheit sowie der aktuell operativen Einheiten) unter Unfallbedingungen vorgestellt.
   Das Problem wurde von der slowakischen Gegenseite als wichtig erkannt und es wurde auch eine Lösung präsentiert. Daher ist es empfehlenswert, diesen Aspekt im Rahmen des bilateralen Abkommens zwischen der Regierung der Slowakischen Republik und der Regierung der Republik Österreich zu Fragen von gemeinsamem Interesse im Bereich der nuklearen Sicherheit und des Strahlenschutzes (im Folgenden „Bilaterales Abkommen“) weiter zu verfolgen.

b) Es wurden keine Angaben über die Notfallvorsorge am Standort Bohunice (wo mehrere kerntechnischen Anlagen von verschiedenen Unternehmen betrieben werden) vorgestellt.
   Es wurde vereinbart, diese während der Treffen im Rahmen des „Bilateralen Abkommens“ zu präsentieren.

In Bezug auf die grenzüberschreitenden Auswirkungen auf das österreichische Staatsgebiet zeigen die in der UVE präsentierten und während der Expertenkonsultationen (wo einige weitere Dokumente übergeben wurden) bestätigten Daten, dass im Falle des schwersten Unfalls zu erwarten ist, dass die I-131 Bodendeposition auf österreichischem Gebiet den Wert, bei dem gemäß des österreichischen Notfallplans eine unverzügliche Ernte empfohlen wird, überschritten wird. Daher wird empfohlen, die Slowakische Republik aufzufordern, einen solchen Reaktortyp auszuwählen, der die Freisetzung von I-131 in der Umgebung (im Fall des schwersten Unfalls) auf solche Mengen begrenzen würde, bei denen die Bodendeposition von I-131 auf dem gesamten Staatsgebiet Österreichs den Wert von 700 Bq/m^2 nicht überschreitet.

ZHRNUTI

Na Slovensku sú dve jadrové elektrárne, Bohunice NPP a Mochovce NPP, ktoré pozostávajú zo štyroch VVER 440/V-213 tlakovodných reaktorov, ktoré sú vo vlastníctve a správe Slovenských Elektrární. Tieto štyri jednotky vyrábajú okolo polovinu elektriny vygenerovanej na Slovensku. Aby sa tento podieľ uchoval aj v budúcnosti, predstavuje energetická politika Slovenskej republiky výstavbu nového reaktoru v Bohuniciach.

V súlade s článkom 3 dohovoru z Espoo, článkom 7 smernice 2011/92/EU a dohodou medzi Slovenskou republikou a Rakúskou republikou o implementácií Dohovoru z Espoo, dodalo Ministerstvo životného prostredia Slovenskej republiky (MŽP) Rakúsku v marci 2014 dokumenty ohľadne projektu „Nová jadrová elektráreň v Jaslovských Bohuniciach“.

Ministerstvo poľnohospodárstva, lesníctva, životného prostredia a vodohospodárstva (BMLFUW) odpovedalo že Rakúsko sa zúčastní vyhodnotenia vplyvov na životné prostredie presahujúce štátne hranice (Environmental Impact Assessment - EIA), pretože navrhnutý projekt by mohol mať následky, ktoré by významne presahovali štátne hranice.

V rámci EIA bola pripravená správa, ktorá mala za účel identifikovať ktoré údaje musí žiadateľ projektu (Jadrová Energetická Spoločnosť Slovenska, a.s., JESS) prezentovať v ďalšom kroku EIA procedúry – správe o vyhodnotení dopadu na životné prostredie (EIAR). Správa bola v Rakúsku verejne sprístupnená. Verejné pripomienky boli poslané na Slovensko pre ďalšie posúdenie.

BMLFUW tiež zadalo vyhodnotenie EIA Správy o rozsahu, aby sa mohlo určiť, či obsah doporučený EIA Správou o rozsahu je dostatočný pre EIA, pre určenie bezpečnosti projektu a potencionálneho rizika pre Rakúsko. Požadované námety pre EIAR boli odovzdané Slovenskej strane, aby boli zvážené pre rozvoj EIAR.

V súlade s článkami 2 a 4 dohovoru z Espoo, previedlo Ministerstvo životného prostredia Slovenskej Republiky v septembri 2015 Rakúsku EIAR vyhotovený JESS pre projekt „Nová jadrová elektráreň v Jaslovských Bohunicicach“.

Rakúska federálna agentúra pre životné prostredie (Umweltbundesamt) dostala zadanie od BMLFUW aby koordinovala prípravu odborného zhrnutia o EIAR. Rakúska federálna agentúra pre životné prostredie zadala ENCO vyhotovenie tohoto zhrnutia. Cieľom tohoto zhrnutia bolo vyšetriť či informácie prezentované v EIAR sú dostatočné pre určenie bezpečnosti navrhovaného projektu a potencionálnych rizík pre Rakúsko, a vyhodnotiť, či „rakúske odborné zhrnutie vyhodnocujúce EIA Správu o rozsahu“ bolo adresované.

Po vyhodnotení EIAR identifikovalo odborné zhrnutie vytvorené ENCO radu tém, kde bolo potreba ďalšie informácie alebo ujasnenia zo Slovenskej strany. Aby sa umožnila artikulácia opodstatnených doporučení, ktoré by mali minimalizovať potenciálne nepriaznivé dôsledky presahujúce hranice, boli tieto poslané na Slovensko a vytvorili základ pre konzultácie.

Aby sa umožnil dialóg o príslušných témach, bola 19. novembra 2015 zorganizovaná bilaterálna porada vo Viedni. Všetky aspekty identifikované v odbornom zhrnutí boli behom porady dôkladne prediskutované. V rámci porady boli oslovené aj otázky z Rakúskej strany. Diskusie a odpovede, resp. ujasnenia

obdržané od delegácie Slovenskej republiky sú zdokumentované v časti 1 tohoto zhrnutia. Časť 2 tohoto zhrnutia predstavuje závery a doporučenia vyplývajúcich z týchto diskusií.

Všetky otázky identifikované v tomto odbornom zhrnutí boli úspešne odpovedané, až na dve výnimky:

a) Neboli predstavené žiadne data o súhrnnom vplyve vštkých jadrových zariadení v areáli v Bohuniciach (navrhovanej jednotky, aj jednotiek ktoré sú už v prevádzke) v prípade nehody.
   Tento problém bol identifikovaný slovenskou stranou ako dôležitý, a riešenie bolo predstavené; preto je doporučené, aby sa tento aspekt sledoval, v rámci bilaterálnej dohody medzi vládou Slovenskej republiky a vládou Rakúska o otázkach spoločného záujmu ohľadne jadrovej bezpečnosti a ochrany žiarenia (ďalej ako „bilaterálna dohoda“).

b) Neboli prezentované žiadne detaily o privpravenosti konať v núdzových stavoch v areáli Bohunice (v ktorom je v prevádzke niekoľko jadrových zariadení prevádzkovaných rôznymi spoločnosťami).
   Bolo odsúhlasené, že tieto budú prezentované behom bilaterálnej konzultácie, ktorá by mala byť zorganizovaná v rámci „bilaterálnej dohody“.

S ohľadom k vplyvom presahujúce štátne hranice na Rakúsko, data prezentované v EIAR a potvrdené behom odborných konzultácií (v ktorých boli predané aj doplňujúce dokumenty) naznačujú, že v prípade najzávažnejšiej nehody pozemné depozície I-131 na Rakúskom území predpokladane prevýšia úroveň, behem ktorej je v súlade s Rakúskym pohotovostným plánom doporučený preventívny zber úrody.

Z tohoto dôvodu je doporučené vyžadovať od Slovenskej republiky výber takého reaktoru, ktorý by minimalizoval uvoľnenie I-131 do prostredia (v prípade najzávažnejšej nehody) do takých hodnôt, aby nepresahoval pozemnú depozíciu 700 Bq/m^2 kdekoľvek na území Rakúska.

1 ANSWERS PROVIDED TO AUSTRIAN EXPERT OPINION ON ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR BOHUNICE 3 NPP

Under the framework of the Espoo Convention on transboundary environmental impact assessment (UNECE 1991), an assessment based on the EIA Directive (DIRECTIVE 2011/92/EU) of the EIAR prepared by the proponent of the "New nuclear power plant at the Jaslovské Bohunice site" project was performed. The purpose of the assessment was to evaluate the appropriateness and completeness of the information presented in the EIAR, in particular from the point of view of the potential negative impacts on Austrian territory. In addition to the assessment of the estimated transboundary radiological impact on Austria, in both normal and accident conditions, the selected NPP designs were evaluated in order to verify if they correspond to the state-of-the-art nuclear technology, the proposed solutions for radioactive waste and spent fuel management were checked for conformity with the good practices and EU requirements (COUNCIL DIRECTIVE 2011/70/EURATOM), and also the energy economics aspects were investigated. The content of the EIAR was verified against the requirements of the EIA Directive (DIRECTIVE 2011/92/EU), as well as the IAEA specific guidelines (IAEA Nuclear Energy Series No. NG-T-3.11 (IAEA 2014)). The consideration of the Austrian comments to the EIA Scoping Document, documented in UMWELTBUNDESAMT 2014, was also assessed.

The findings of the assessment of the EIAR for EBO3 NPP were included in an Expert Statement (UMWELTBUNDESAMT 2015) that also identified a number of aspects needing further clarification. As such, the Expert Statement was submitted to the Slovak Espoo contact and a bilateral consultation was organized on 19th of November, 2015, in Vienna, Austria. During this meeting, all Austrian questions were addressed and detailed answers as well as additional information were provided by the Slovak delegation. The responses offered by the Slovak counterpart during the meeting are presented in the table below.

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
6.1 Environmental Impact Assessment Report			
a) Would it be possible to clarify how the selection of the proposed NPP was done and in particular if the environmental impact aspects were considered?	The alternatives to EBO3 project are only in general terms presented in EIAR, and only in relation with the Energy Policy of SR (2014) (MINISTRY OF ECONOMY OF THE SLOVAK REPUBLIC 2014) and the related strategy documents and government resolutions. Apart from the energy aspects, there is no other indication on the reasons for this selection, as requested by the EIA Directive (Directive 2011/92/EU art.5 paragraph 3(d)).	A NPP was chosen due to the Slovak Energy policy, which is the official document establishing the strategic goals for Slovak energy sector (the Strategy document is being referenced). In 2009, the Slovak government concluded that a NPP needs to be built. Within this Strategic document, potential alternative scenarios were considered and the environmental impact of those evaluated. Energy policy has the following objectives: safety, reliability, ecological aspects, concurrence, and independence. The findings were that in Slovak republic about 70% of hydro potential is already used and the rest will be exploited over the next decades. The maximum level of utilisation of other renewable sources is determined to be: Wind energy: 600 GWh/year; Solar energy: 1.540 GWh/year; Biomass: 40.000 GWh/year. The strategy therefore concluded that the present contribution of 30% of nuclear power needs to be maintained to fulfil the Policy's objective. This in return requires a new NPP to be constructed in time before existing units are retired. Within the EIA the environmental and energy impact of alternatives was not considered, no new analysis was performed, only the scenarios and results from the Slovak energy policy report were taken into account.	Y
b) Was any detailed analysis on the alternatives enumerated in section A.II.6.5.4 of EIAR performed?			
c) If yes, would it be possible to present the selection criteria and the rationale for the decision?			
6.2 Consideration of Austrian comments to EIA Scoping Document			
a) Would it be possible to provide information about the achieved level of development: plants under construction/in operation, licensing, etc., for the 6 reactor models envisaged for the new NPP?	The findings of the evaluation of the EIAR show that the nuclear safety questions were mostly answered, while the questions on the energy economics were considered only in a very low proportion. From the questions not considered, or inadequately/incompletely answered, the following ones should be followed up during the bilateral consultations.	Six currently available reactor models (all of which are either in construction or were approved for construction, i.e. construction licence issued) of large NPPs were selected for possible consideration for Bohunice 3 site. All of the alternatives utilise PWR. Possible accidents/malfunctions were considered for each reactor type. The criteria to be used for selection of a reactor to be	Y

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
		constructed at Bohunice site are presented in the EIAR. Any reactor selected has to completely comply with the EU requirements but also with Slovak regulatory requirements, which incorporate the requirements of the EU NSD (Directive 2009/71/EURATOM, (COUNCIL DIRECTIVE 2009).	
b) Would it be possible to provide the results of the examination of technically and economically feasible alternatives to the present project, including renewables, modern cogeneration and biomass power plants?		(Already answered under 6.1)	Y
c) Would it be possible to provide a detailed presentation stating the probable development of the Slovak power plant capacities (decommissioning and new build) to 2030, clarifying how EBO3 would fit in the whole Slovak power generation system (both in terms of installed capacity as well as the annual production)?		The earliest date the NPP could go into operation is 2029. What energy sources will be used until 2035 depends on the Energy policy, where also the alternatives are considered. The basis for some of the aspects are not known at present. One scenario: in 2028 Bohunice V2 is permanently shut down. Other scenario: extended operation of V2 until 2035. Until 2035 deficit of energy production in Slovak Republic might occur, as several fossil sources will be taken out of operation due to climate change requirements. None of the scenarios considers a decline in energy consumption. The energy consumption is supposed to increase for 1% per year.	Y
d) Would it be possible to indicate how the project developer will guarantee the achievement of a high level of safety with rising investment needs and permanently low electricity market prices?		There are 4 possible financing strategies considered. Before taking a decision, all of those need to be discussed with shareholders and then compared and evaluated. The strategies will also be taken into account in the feasibility study, where also costs of capital will be considered.	Y

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
		The contractor is obliged to consider the financing strategy in every stage of the project. All investment decisions are considering and giving priority to nuclear safety, as confirmed by the statement of the JESS' representative. The financing strategy models are presented in a way to ensure the highest safety level and to consider economic aspects.	
6.3 Nuclear safety aspects nuclear			
Nuclear technology			
a) Since the description of the reactor designs/nuclear technologies considered for the construction of the new NPP do not mention any post-Fukushima measure introduced by the vendors, would it be possible to know how the developer plans to access and evaluate the implementation of stress-tests/post-Fukushima measures in the design of the considered reactors?	In conclusion, it can be stated that: ● All proposed designs are Generation III/III+ reactors; ● All proposed designs are evolutionary PWR reactors; ● All proposed designs are characterized by low CDF and low LRF, thus complying with EUR target values; ● All proposed designs use different combinations of passive and active safety features. However, none of the proposed design plants has operational experience, and the construction experience for some of the designs shows significant delays. b) See JESS EIAR p92&93 (JESS 2015)	All of the reactors considered have a well-developed concept for minimisation of the likelihood of severe accidents and minimisation of any releases during SA. Slovak side confirmed that various measures including post-Fukushima requirements are already implemented at the existing units at the site. For external hazards, the estimates of magnitude of hazards (it is mainly seismic) obtained in thorough evaluation will be increased by 50%, i.e., adding the safety margin. DBA earthquake: probability 10E-04, earthquake of 0.67 PGA. The Design basis PGA will be increased by 50%. Probabilistic analyses for earthquakes are still in progress. They refer to the earthquake catalogue, which includes 9.000 data, 2.650 earthquakes (the first historical earthquake in it is the one from 350), also the past local and national seismic data. With these data, probabilistic analysis, geophysical analysis and paleoseismic analysis are performed, as well as other analyses, according to the IAEA standards. The results of the Probabilistic Safety Hazard Assessment should be discussed during the next "Bilateral Agreement" meeting(s). The design basis for all other hazards: probability 10E-04. All historical events with 1.0E-04 are considered.	Y Nevertheless, the results of the PSHA, once completed could be discussed in the "Bilateral Agreement" meeting

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
		There is still a discussion as to which safety margin to take for other hazards (probably use of factor 2 increase). Manmade hazards are not covered by the EU requirements and also not by IAEA, as it is not possible to estimate the return period for those. In WENRA guidelines, there is an approach for deterministic analysis of the impact of the aircraft crash. In Slovakia the regulatory requirement is to use the USNRC RG 1.217 (U.S. NUCLEAR REGULATORY COMMISSION 2011) for the assessment of the impact of an aircraft. Resistance against external hazards will be ensured by system design. In the EIA another approach was used: what is acceptable from the point of releases? Such approach lead to the requirement that none of the reactors considered could cause the releases higher than proposed.	
b) The EIAR considers a fuel burn-up up to 60 GWd/tU, but some of the new designs considered for construction of the new NPP foresee burn-ups up to 70 GWd/tU; would it be possible to explain how the developer plans to address this issue, as the fission products pattern for 60 and 70 GWd/tU will substantially differ and this will be reflected in the RW activity level?		60 MWd/kgU is the average burnup value; in fact, the burnup will be between 55 and 77 MWd/kgU. When the average burnup exceeds 55 MWd/kgU, the fuel will be extracted from the core. While strictly speaking, this question has not been answered (the resulting pattern of fission products with higher burnup), however it is clear that this question will be addressed once the reactor type is selected. Nevertheless, the enveloping process used through the EIAR might be expected to assure that no negative consequences are present due to a higher burnup than the one envisaged.	Y It might be followed during the next "Bilateral Agree-Agreement" meeting(s) once the unit type is selected

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
Transboundary impacts			
c) Would it be possible to provide data about the cumulative impact of EBO3 and the existing nuclear installations on Bohunice site, in accident conditions too? This should include an estimation of the impact of one nuclear installation affected by accident conditions on the others, as well as the impact of all nuclear installations on the site affected in the same time by accident conditions.	One important mention here is that the possible accidents affecting the other nuclear facilities on the site leading to radioactive releases into the environment are recognized as a “specific source of threat”, but these sources will also be assessed in further stages of permission process. However, as along as the EIA Directive and IAEA guidelines require the assessment of cumulative impact, the assessment of the radiological consequences for accident conditions should have been done also for the parallel operation of all nuclear facilities on the site, exactly like it was done for normal operation, especially because an accident due to an external event affecting more than one installation can lead to more serious consequences than in case of only one installation.	Water source for the current units at site is shared. However, the new unit will have a totally separated and independent water intake (own piping and pumping station, which will be 200 m away from the existing one), as well as its own discharge. Loss of water source would be the most critical common cause affecting all units on the site. With independent water intake for Bohunice V 2 and for planned Bohunice 3, losses of water could occur only if e.g. the river Vah flow is lost (e.g. due to a catastrophic seismic event). Nevertheless, both plants are said to have adequate on site storage of water, to enable cooling in a case the river water, as an ultimate heat, sink is lost. Nevertheless, a systematic analysis of common cause evets affecting all units at site during BDBA has not been done, as it is considered a part of “other” risks. A severe earthquake is one of the potentials that can cause a common cause failure of all units at the site. One of the issues where an accident on one unit could affect other units on the site is the radioactive release, making all units “ inhabitable)” (or inaccessible). Such an impact has not been addressed in the EIA report, but upon Austrian question, Slovak experts clarified that the MCRs at units are/will be protected from such an impact. When safety upgrades are implemented at the operating units, the consequences of SA will be comparable to the requirements for new units. Since habitability of MCR is to be ensured during SA (for 72 hours), is not expected that any DBA in one unit would have an impact on another unit at the site. However, the MCR habitability of existing units is being upgraded to the comparable standard of the new unit.	Partially The maximum release from all unit at the site is to be followed-up in the "Bilateral Agreement" meeting(s)

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
		In terms of the releases during severe accidents, the EIA report uses, for the Cs 137, the 30 TBq as the enveloping value. This value is the limit set in the EUR document. During the Consultation meeting, it was clarified that for all of the reactor types that are considered within the EIA, the maximal releases of Cs 137 are significantly lower that the limit set. Because of that and considering the maximum release that could occur at existing units on the site, it is said that the 30 TBq could be considered as the limit value enveloping severe accident releases for all the units at the site. The estimated releases associated with each reactor type for the Bohunice 3 were reported, but those for the existing units were not. Therefore, the topic of maximum releases in a case of a severe accident affecting all the units on the Bohunice site is suggested to be addressed in adequate details during future meetings under the "Bilateral Agreement".	
d) What sources (publicly available or provided by the possible suppliers) were used by the developer in order to determine the "envelope" source term for normal operation (which for some radionuclides shows lower values than the source term of one of the reactor models envisaged for EBO3 – MIR1200)?	Airborne effluents will be discharged from the new NPP through the ventilation stacks of the units and auxiliary plants. The source term of airborne effluents was calculated in the EIAR as the envelope (maximum) annual activities of the emissions of each main group of radionuclides discharged into the air during the normal operation of the reference types of reactors, based on the publicly accessible data of the possible suppliers. As such, the maximum radioactivity expected to be discharged into the atmosphere by EBO3 in normal operation is: ● Noble gases: up to 6.2E+13 Bq/year; ● Tritium: up to 6.7E+12 Bq/year; ● C-14: up to 1.0E+12 Bq/year; ● Iodine: up to 2.5E+09 Bq/year; ● Aerosols: up to 1.9E+09 Bq/year;	The inputs for the source terms were provided by suppliers. In some cases, the info packages did not include radionuclides separately, but rather their groups (iodine, aerosols, noble gasses, others). That is why source terms from publicly available data were used in some cases. If there were several information sources available, the most appropriate ones were chosen. EPR: PSAR 2012, from Great Britain. APWR: Chapter 11 of design document, Rev. 3. AP1000: environmental report for UK AP1000 analysis, revision 4 (2011). As different reactor types have different levels of releases, the most significant in any category for any reactor type was used in the EIAR.	Y

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
	• Ar-41: up to 1.3E+12 Bq/year. These values are further divided (in Table B.II.8) per specific radionuclides. Comparing these values with the source term of a MIR-1200 reactor given in the EIAR for Paks II NPP, it was noticed that the activity of H-3 is slightly lower (6.7 E+12 for EBO3 compared with 7.8E+12 for MIR-1200), and also the activities of Xe-135 and Xe-138 are lower by 3 orders of magnitude, respectively by one order of magnitude. Therefore, it should be clarified how the source term for airborne discharges in normal operation of EBO3 was calculated.	So for e.g. noble gasses, the obtained values were compared to the values provided by suppliers. The highest value that was found, was used for the EIA report. For example, for APWR, the total activity of noble gasses was the highest, while for other reactor types the activity of some noble gasses was higher than for APRW. The values for noble gases for MIR reactor in Bohunice EIAR were compared with those for the same reactor at Paks EIAR and found to be different (why those are different could not be explained during the meeting, but also not in the communication following the meeting). Nevertheless, this has no material impact, because the values for APWR were the highest and therefore taken into the consideration (enveloping the MIR values also for Paks).	
e) Why a calculation of the accident source terms was performed, as long as in some parts of EIAR it is mentioned that the safety documentation was made available by the possible providers to the developer?	It is not clear why it was necessary the determination of the accident source terms, as long as the safety analysis documentation was available. Moreover, EIAR recognizes that the accident source terms were calculated using conservative assumptions, overly conservative in our opinion, “while actually available projects provide significantly more optimistic and even several times lower source terms”. Indeed, the accident source terms for MIR-1200 (as given in Paks II NPP EIS) are 2-3 orders of magnitude lower. Therefore, it can be al-ready assumed that the real radiological consequences would be significantly smaller than those presented in the EIAR.	Bounding values were used instead of design values. According to IAEA, it is more practical to use the bounding approach, as any future calculation with specific plant design values can provide different results. Therefore the top of the range of the releases deemed “acceptable” by the EUR document were used. As the result, for e.g. DBA the design specific values would be 100-10.000 smaller than the bounding values. For severe accident the difference is not that big (as it depends on the containment), but is still 2 to 7 times lower. The bounding approach is much more practical, because it can be easily reflected in the design requirements. In EIA, the limiting enveloping values, that are more critical than for any of 6 alternatives, were taken into account. Data was collected on each reactor type from safety reports and was compared to the max value (bounding conditions), to see if the values are within the limits for all NPP designs.	Y

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
f) Would it be possible to get more information about the validation of the RDEBO computer code?	The assessment of the radiological impact of normal operation of EBO3 was performed with both source terms: for the case of single operation of the new NPP, as well as for the case of simultaneous operation of all nuclear facilities on the site. The calculation of doses was performed using a computer code (RDEBO) which, according to the developer, is accepted by the Nuclear Regulatory Authority of SR (UJD SR), as well as by the State Nuclear Safety Authority of the Czech Republic (SÚJB). However, no information about the validation of this code is given in the EIAR.	Validation of the computer code is in progress. The program is developed by VUJE and is meant to be used for Czech and Slovak NPPs. For each NPP, site-specific codes were developed (containing site-specific conditions): RDEBO (for Bohunice site), RDEMO (for Mochovce site), etc. RDEMO code was validated by IAEA under EMRAS II project. Every 2-3 years the codes are checked and standardised to ensure nuclear safety. The changes in the codes are taken into account. Up to now, there was no case, where the RDEBO would give too small values.	Y
g) Why 2 different codes were used for estimation of radiological consequences of design basis accident and severe accident, and in particular why PC COSYMA (which is a validated code, accepted by EC) was used only for severe accidents?	The estimation of the radiological consequences of the design basis accidents was performed using the computer codes RTARC and RDEBO. The RTARC software is accepted by UJD SR and it is a validated computer code; details about its verification and validation are included in EIAR. The program models the local geographical conditions, terrain roughness and different meteorological situations, and it also includes a module for evaluation of radiological consequences on long distances (higher than 40 km). Since RTARC does not calculate the contribution of ingestion of contaminated food to the individual effective doses, the RDEBO code was used. The evaluation of radiological consequences of severe accident was performed with the probabilistic computer code COSYMA, which is accepted by ÚJD SR for the evaluation of radiation effects of severe accidents, as well as by EC. The results of this software are given in terms of statistical	In case of DBA, conservative values were considered, where RTARC version 6 was used for evaluation. The code considers atmospheric dispersion and also further parameters (wind speed, washing coefficient, etc.), where conservatism is ensured (there are always constant conservative values taken into account). The (worst) category F was taken into account, then category D with rainfall intensity 5 mm, then category D with rainfall intensity 5 mm for distance 40 km. For severe accident, the best-estimate values were considered (according to international standards). That is why in this case the COSYMA software was used. COSYMA is a probabilistic calculation tool, which considers meteorological data as well as other parameters (e.g., one of the inputs can also be the approximate number of hours per day a person is assumed to be indoors). Shielding factor is also considered. If identical source terms and constant meteorological data are taken into account, then RTARC gives results 2 orders of magnitude higher than COSYMA. That is due to the fact that RTARC uses the American dispersion parameters and gives the conservative results.	Y

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
	characteristics of the calculated doses on all exposure pathways (including ingestion of contaminated food): average values and standard deviations. There is no explanation given in EIAR on why for modelling the radiological consequences of severe accidents another computer code was used than in case of design-basis accidents, or why PC COSYMA (which is a validated code accepted by EC) was not used also for modelling the design basis accidents consequences.	Both codes are approved by the Slovak nuclear regulator. RTARC for DBA and COSYMA for BDBA.	
h) Would it be possible to provide the maximum values (or at least values corresponding to the 99% quantile) provided by PC COSYMA for the doses calculated in case of severe accidents?	The EIAR presents the average values and the values corresponding to 95% of the quantile of the projected individual effective doses (to be incurred in 2 days, 7 days, 1 year and lifelong), lifelong equivalent doses and avertable doses to thyroid, as well as lifelong individual effective doses (including ingestion of contaminated food). It is not clear why average values and values corresponding to 95% quantile were selected for presentation; maximum values or at least values corresponding to 99% quantile would have been more appropriate.	The maximum values differ from the 95% quantiles for a factor of 5-7.	Y
i) Would it be possible to provide data on the contribution of Cs-137 and I-131 to the time-integrated concentration in air and ground deposition in case of design basis accidents and severe accident?	All calculated doses that are applicable to Austrian territory are below the intervention levels (BMLFUW, 2007). However, the time integrated concentrations in the air and maximum levels of surface contamination presented in table C.III.64 show rather high values, up to 9.33E+08 Bq.s/m3 and respectively, 200,000 Bq/m2 at 60 km from the plant, decreasing at higher distances. Using the contribution to ingestion doses of the radionuclides specified in EIAR (Cs-137 20%), which is not necessarily correct, it results a value of 4,000 Bq/m2 of Cs-137	The following data were calculated for the deposition of radioactive isotopes following the enveloping severe accident (and its release categories): Cs-137 (95% quantile): 550 Bq/m^2 at 40 km, gradually decreasing down to 245 Bq/m^2 at 80 km. I-131 (95% quantile): 30.000 Bq/m^2 at 40 km, decreasing to 10.000 Bq/m^2 at 80 km. The 200. 000 Bq/m^2 (total deposition) as found in the EIA report is the statistical MAXIMUM value of deposition of all radionuclides in the whole ring sector.	Y The I-131 values exceed the Austrian level for initiation of preventive agricultural countermeasures

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
	for the ground deposition. This value is 6 times higher than the threshold value for se-lection of the sampling strategy in case of emergencies in Austria (650 Bq/m2 according to (SKKM 2010)). Therefore, it is necessary to clarify what is the exact contribution of each radionuclide (I-131 and Cs-137 in particular) to the time-integrated concentration in air and ground deposition in case of severe accident, as well as for the considered design basis accidents, in order to allow a direct comparison with the Austrian threshold values above mentioned.	Upon direct question what would be maximum projected values of the deposition, Slovak side answered that in order to obtain the maximal value for Cs-137, the 95% quantile value needs to be multiplied by a factor of up to 10. The I-131 deposition is higher, as the (enveloping) source term value is higher (1000 TBq for I-131). The results presented in the EIA report for the deposition show that for the most exposed part of Austrian territory even the 95% for I-131 would be above the first level for agricultural countermeasures as defined in JESS 2015 *(It has to be noted that for the maximum projected values for deposition -or 99% , the intervention level value defined in JESS 2015 for both the I 131 and Cs 137 will be exceeded by a very large margin. Nevertheless, it is understood that those maximum values could occur only in specific topographical/meteorological conditions)*. That means that it is not only that the monitoring process shall be initiated, it is also that the immediate harvesting would likely be requested. While it is understood that the deposition values for I-131 and for Cs-137 were obtained using an enveloping source term (and might be revised lower once the exact reactor type is selected), the fact that the most critical release in a case of an accident would result in a need to activate the Intervention Plan on Austrian territory requires that the selection of the reactor model will be such as to assure that the Austrian intervention levels are not breached. This issue is to be further discussed in the meeting(s) under the Bilateral agreement. COSYMA code was used, where statistic average yearly meteorological data was used (for the year 2014). The release scenario is developed hour by hour. In every hour a different wind direction is assumed. 144 values per year can be considered due to program limitations.	

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
j) Would it be possible to provide the effective doses projected for 2 days and 7 days, as well as the avertable committed doses to thyroid calculated for design basis accidents?	In addition, it would be necessary to see the effective doses projected for 2 days and 7 days, as well as the avertable committed doses to thyroid for design basis accident too, in order to allow a direct comparison with the intervention levels.	The table has been received and was checked. As the result it was confirmed that the values are below the intervention criteria.	Y
Emergency preparedness			
k) Regarding the emergency preparedness, would it be possible to clarify the following aspects: If the future operator of EBO3 will develop a stand-alone response plan (in which case it is necessary to describe how this plan will be correlated with the other installations' plans) or the necessary response arrangements for EBO3 will be integrated into an on-site response plan (if such a plan exists); In case an on-site response plan exists: ● who is in charge with its development; ● who is in charge with its approval; and ● how its correlation with the off-site response plan is verified.		Each entity on the Bohunice site (there are 4: the operating V 2 plant, V1 and A1 plants in decommissioning, including waste and spent fuel stores, and the new unit) will have its own emergency preparedness plan. Those are not required to be coordinated. While this might be considered as an internal issue for the Bohunice site, the question is whether such a situation might affect the operability of the off-site plan. On this the Slovak delegation indicated that the regulator body will, in its oversight of licensees, verify whether the plans are coordinated.	Partially. The question should be discussed during the next "Bilateral Agree-Agreement" meeting(s)
6.4 Radioactive waste and spent fuel			
a) Would it be possible to clarify why the RW and SF to be generated by the new NPP were not taken into consideration in the National Program, and in particular if the planned extension of the storage capacities for both RW and SF at Bohunice site as well as of the LILW disposal capacity at Mochovce Repository will be sufficient to accommodate these additional amounts of RW and SF?	Following the detailed evaluation of the proposed solutions for RW and SF management at the new NPP it was found that the foreseen activities are in line with the international standards and good practices. In the same time, a detailed analysis of the SR policies and strategies governing the RW management, it was found that the EU Waste Directive (COUNCIL DIRECTIVE 2011) is transposed into the Slovak legislation. However, one aspect needs to be clarified	Incomplete plans are due to the fact that the preparation of the National Program, which was issued in July 2015, started already in 2009. At that time the Bohunice 3 unit was not yet in planning. The National Program is updated at least every 6 years. In the next revision, RW and SF from EBO3 will be taken into account. Until the EBO3 is put into operation, the National Program will already be updated twice.	Y
b) Also, in section C.IV of EIAR, it is mentioned, as		For the temporary storage: the SF from the EBO3 is not	

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
"other measures" for the impacts mitigation, the inclusion of RW and SF that will be generated by EBO3 into the balances of necessary capacities for storage and disposal in the future update of the National Program for RW and SF Management; would it be possible to provide a deadline for this measure?	in relation with the RW and SF to be generated by the new NPP.	considered directly. It needs to be considered, but the first SF from EBO3 will be produced sometime between 2035 and 2040. The additional expansion of the temporary storage facility should provide enough space for all generated SF. However, the design and volume of the future SF is not known, but there is still 20 years time to resolve the problem. For the final disposal: if the volume and the form of the SF after 20 years will still be the same, a parallel line can be made. In such a parallel line 90 additional SF elements can be stored. The capacity of the third parallel line will be filled after 50 years. However, there is still 40 years to resolve the question.	
c) In the EIAR (mainly in section A.II.8.3.4.2) there is a constant confusion between "storage" and "disposal" and "treatment" and "management" which makes difficult to evaluate the RW management solutions proposed for EBO3; it is therefore suggested to correct the wrong terms.		A mistake made during translation.	Y
d) A confusing statement appears in the non-technical summary (section C.X.2.2 of EIAR): "Crucial minority of wastes will be very low active and low active wastes", which is in contradiction with the statement in section B.II.5 of the EIAR. In this sentence, "minority" should be replaced by "majority".		Originally, it was "majority".	Y
6.5 Energy economics aspects			
a) In today's global energy environment, NPP investors need to consider many dimensions of risk in addition to the basic nuclear safety-related risk. Therefore, would it be possible to indicate what is the risk management strategy for EBO3 project?		Basic risk analysis was performed, where the framework conditions of the project could be impacted. Also, the risk analysis of the project financing was performed. Several additional risk analyses were undertaken and for each the basic recovery measures were considered An update of the risk analyses is to be done regularly, also in the future stages of the project.	Y

Expert Statement on EIAR for EBO3 (UMWELTBUNDESAMT 2015)	Background	Answer provided by Slovak delegation during the bilateral consultation	Answer accepted?
b) It is also suggested to correct the titles of:		A mistake made during translation.	Y
Table A.II.1 and Figure A.II.1 – instead of "Forecast of the gross electricity consumption development pursuant to scenarios of Energy Policy of SR" it should be "Forecast of the gross domestic energy consumption development pursuant to scenarios of Energy Policy of SR";			
Section A.II.6.5.2. should be "Final Energy Consumption" and not "Final Power Consumption";			
Table A.II.2 and Figure A.II.2 – instead of "Forecast of the final power consumption development pursuant to the scenarios of Energy Policy of SR" it should be "Forecast of the final energy consumption development pursuant to the scenarios of Energy Policy of SR".			

2 CONCLUSIONS AND RECOMMENDATIONS

Following the discussions held during the Consultations with the Slovak delegation, it can be concluded that all questions raised during the assessment of the EIAR for EBO3 were addressed and majority adequately answered. However, on 5 of the questions raised there remains a need for some further discussion, for which the meetings to be held under the “Bilateral agreement" might be expected to be an ideal fora. Those are the issues where some additional investigations is ongoing or will be conducted in the future, but also the issues that could be addressed in necessary details only when the actual reactor type is selected. The issues suggested to be discussed at the meetings under the “Bilateral agreement“ include:

- The question of Post Fukushima upgrades has been clarified (to the extent possible, given that no vendor has been selected). Nevertheless, the information provided indicated that the PSHA for Bohunice site is underway. The meetings under the “ Bilateral agreement” are believed to be a good forum where the scope and the results of PSHA could be exchanged.
- The question related with the fuel burn-up could be addressed in required detail only when the specific reactor type has been selected.
- The question related with the maximum source term in a case of accident affecting all units on the site needs additional clarification (and the justification) as to whether the enveloping values used are indeed covering for a simultaneous most severe accident at all units.
- The discussion regarding the 95% and the maximum expected deposition (99%) rates on Austrian territory determined that those are exceeding the Austrian intervention level for I131 and Cs137. In this relation, the recommendation is provided below. In addition, the deposition rates and the measures to assure that those are kept under the limit values where the intervention is required in accordance with the Austrian regulation (JESS 2015) are to be disused at the future meetings under the “Bilateral agreement”.
- The question on the coordination of the on-site emergency response plans by operators of different units at Bohunice site was answered, but the issue as to who would assure the coordination was left out. This could be clarified during the meeting(s) under the “ bilateral Agreement “ in the future.

Regarding the transboundary impact on Austrian territory, the Slovak delegation presented the data on the effective doses projected for 2 days and 7 days, as well as the avertable committed doses to thyroid for the design basis accidents. A direct comparison with the intervention levels (established in BGBl. Nr. 145/2007) was then possible, showing that none of these levels will be exceeded. However, in case of a severe accident, the values of the ground deposition (95%) presented by the Slovak delegation show that the level established in BMLFUW 2014 for ground deposition of I-131 would be exceeded and therefore, agricultural countermeasures will be needed.

It is therefore recommended to request from the Slovak authorities to select for the EBO3 such a reactor for which the releases of I-131 in case of the most severe accident will be limited to ensure that the ground deposition on the Austrian territory remains below the level of 700 Bq/m^2 (JESS 2015), Anhang 3, Abgeleitete Richtwerte), the level where preventive measures needs to be implemented.

3 LIST OF ABBREVIATIONS

AP1000 ..... Generation 3+ reactor designed by Westinghouse Electric Company

APWR ..... Advanced pressurized water reactor, Generation 3 reactor designed by Mitsubishi

BDBA ..... Beyond Design-Basis Accident

BMLFUW ..... Federal Ministry of Agriculture, Forestry, Environment and Water Management of Austria

CDF ..... Core Damage Frequency

DBA ..... Design-Basis Accident

EBO3 ..... New NPP at Jaslovské Bohunice site

EIA ..... Environmental Impact Assessment

EIAR ..... Environmental Impact Assessment Report

EPR ..... European Pressurized Reactor, Generation 3 reactor designed by Areva

EU ..... European Union

EUR ..... European Utility Requirements

IAEA ..... International Atomic Energy Agency

JESS ..... Jadrová Energetická Spoločnosť Slovenska, a. s.
(Nuclear Energy Company of the Slovak Republic)

LILW ..... Low and Intermediate Level Waste

LRF ..... Large Release Fraction

MCR ..... Main Control Room

NSD ..... Nuclear Safety Directive (Council Directive 2009/71/EURATOM)

NPP ..... Nuclear Power Plant

PGA ..... Peak Ground Acceleration

PSAR ..... Preliminary Safety Analysis Report

PWR ..... Pressurized Water Reactor

RW ..... Radioactive Waste

SA ..... Severe Accident

SF ..... Spent Fuel

SR ..... Slovak Republic

VUJE ..... Slovak engineering company

WENRA ..... Western European Nuclear Regulators Association

UJD SR ..... Nuclear Regulatory Authority of the Slovak Republic

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ENVIRONMENT AGENCY AUSTRIA **umweltbundesamt**

Umweltbundesamt GmbH
Spittelauer Lände 5
1090 Vienna/Austria

Tel.: +43-(0)1-313 04
Fax: +43-(0)1-313 04/5400

office@umweltbundesamt.at
www.umweltbundesamt.at

EMAS
Geprüftes Umweltmanagement
REG.NO. AT- 000484

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