NEW NUCLEAR POWER PLANT AT THE JASLOVSKÉ BOHUNICE SITE

ANNEX 2: REQUIREMENTS FOR THE ASSESSMENT SCOPE

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Requirements for the Proposed Activity Assessment Scope

Prior to the elaboration of the Environmental Impact Assessment Report for the Proposed Activity the Assessment Scope was established pursuant to the § 30 of the Act. The following requirements for the Report elaboration result from the Assessment Scope issued by the Ministry of Environment of the Slovak Republic (No.: 3282/2014-3.4/hp dated May on 26, 2014) and are respecting the subject-matter requirements of the comments submitted in the course of the Preliminary Study publication:

1. ALTERNATIVES FOR SUBSEQUENT ASSESSMENT

In order to perform subsequent impact assessment of the proposed activity „New Nuclear Power Plant at the Jaslovské Bohunice Site", except for the zero alternative (the current state of the area and the state that would occur if the proposed activity was not implemented), there is also a requirement to elaborate an assessment of the proposed activity for alternative No. 1: reactor block with pressurized water reactor of III+ generation with maximum net installed electric power up to 1700 MW_e at the same cadastral areas which are mentioned in the Preliminary study of the proposed activity.

The requirement solution:

The report includes an assessment of the proposed activity for the implementation alternative of one reactor block with pressurized water reactor of III+ generation with maximum net installed electric power up to 1700 MW_e and located at the same cadastral areas which were mentioned in the Preliminary study of the proposed activity. The zero alternative is selected as a reference one.

2. ASSESSMENT SCOPE FOR THE DETERMINED ALTERNATIVES

2.1. General terms

2.1.1. With respect to the nature and scope of the proposed activity and its proposed siting, the assessment report has to contain processing of all the paragraphs included in the Annex No. 11 of the Act No. 24/2006 Coll. adequately to the proposed activity nature but with an emphasis placed on a specific processing of all the paragraphs included in the Annex No. 15 of the Act No. 24/2006 Coll.

The requirement solution:

The Report contains the elaboration of all the paragraphs included in the Annex No. 11 of the Act and all the paragraphs included in the Annex No. 15 of the Act. The details of the formal and subject contents of the Report are given in the chapter Introduction.

2.1.2. There is no specified time schedule for the proposed activity assessment.

The requirement solution:

Organizational requirement – no other terms and conditions result from it for the formal and subject elaboration of the Report.

2.1.3. The comments of the countries concerned submitted by May 31, 2014 have to be incorporated in the assessment report of the proposed activity.

The requirement solution:

The Report takes into account the comments of the concerned countries that were submitted by May 31, 2014. Moreover, the Report takes into account the comments delivered later, including the comments from Bavaria.

2.1.4. The Customer shall submit 56 complete copies of the assessment report, 22 copies of the final summary and minimum of 6 electronic-media copies of text section (and, if possible, a graphic section as well) of the assessment report in Slovak language to the Ministry of Environment of the Slovak Republic, Environmental Impact Assessment Department.

The requirement solution:

The above mentioned requirements were met in the course of the Report distribution process.

2.1.5. Within the cross-border review, the Customer shall submit a complete version of the text section to the Ministry of Environment of the Slovak Republic (to the Environmental Impact Assessment Department) as follows: two copies in German language and four copies in English language, including the graphic section of the assessment report, on an electronic data medium.

The requirement solution:

The above mentioned requirements were met by the Report translations and distribution process.

2.1.6. The Customer shall submit two copies of text section of the Comprehensible Summary Report Abstract written in languages of the countries concerned (in Hungarian, Polish and Ukrainian languages) focusing particularly on an assessment of relevant cross-border impacts of the proposed activity – in printed execution, including the graphic section of the assessment report, on an electronic data medium.

The requirement solution:

The Comprehensible Summary Report Abstract focusing particularly on the assessment of the relevant cross-border impacts of the proposed activity was developed. The other above mentioned requirements were met through the Report translations and distribution.

2.1.7. The next procedure of the cross-border review shall regard the Article 5, par. 2 of the ESPOO Convention i.e. consultations performance. If an aggrieved party demonstrates interest in consultations, the Ministry of Environment of the Slovak Republic (MŽP SR), following an agreement with the Customer and the aggrieved party, shall set a date, place and contents of the consultations. In case the aggrieved party is ready to take part in public discussions on the proposed activity, the MŽP SR shall inform the aggrieved party (sufficient time in advance) about the place and time of the discussions performance.

The requirement solution:

Organizational requirement that will be observed in the next course of the assessment procedure. No other terms and conditions result from it for formal and subject elaboration of the Report.

2.2. Specific requirements resulting from generally binding legal regulations of the Slovak Republic.

The comments from the participants of the assessment process resulted in a requirement that the assessment Report shall elaborate in more details the following issues related to the proposed activity:

2.2.1. To elaborate an assessment of cumulative impacts of this investment venture (therefore to respect the existing impacts on the nature and landscape protection interests on the affected area), the impact of the proposed activity on the surrounding protected territories and on their subject of protection, protected trees as well as on the components of territorial ecological stability system, important landscape enhancement elements, protected species, biotopes of national and European importance during both the construction and operation (Protected Site Dedova jama and Protected Site Malé Vážky, to assess a potential impact of the proposed activity on the component of territorial ecological stability system, regional biological centre RBC3 - Červeník - Ypsilon, Protected Bird Area Špačinsko-nižnianske polia). If the assessment indicates such a need, some measures shall be proposed to assure the protection subject of the protected areas, which are nominated by the Regulation of MŽP SR No. 27/2011 Coll. pursuant to § 26 par. 6 of the Act No. 543/2002 Coll. on nature and landscape protection.

The requirement solution:

The impacts on the nature protection components, including the cumulative impacts, are assessed in the chapters C.III.7. The impacts on fauna, flora and their biotopes, C.III.9. Impacts on protected areas and C.III.10. Impacts on territorial ecological stability system. The measures (if needed) are included in the chapter C.IV. Impacts mitigating measures.

2.2.2. To evaluate the impacts on the protected areas affected by water intake (water reservoir Sĺňava - SKCHVU026 Sĺňava) and by water discharge to the Vah River (which might cause changes of temperature and chemical composition).

The requirement solution:

The relevant impacts on the protected areas (including the impacts of the water intake and discharge) are reviewed in the chapter C.III.9. Impacts on the protected areas. The impacts on the quantitative and qualitative non-radiation characteristics of water bodies are assessed in the chapter C.III.5. Impacts on water conditions. The impacts of the liquid discharges from NJZ on the radionuclides concentration in surface waters are assessed in the chapter C.III.16.3.1. Impact of radioactive discharges. All the defined limits for the surface waters are met.

2.2.3. In terms of water protection:

- *To describe how the observance of all the statutory provisions for surface and ground water protection as well as for flood protection will be secured.*
- *To assure that the impact of the discharged waste water and the water of the surface discharge to the recipient will be in compliance with the provisions of the Regulation of the Government of the Slovak Republic No. 269/2010 Coll. which stipulates the requirements for achieving a good water quality.*
- *To describe the waste water cycle and waste water management.*
- *To describe how the protection of the existing wells HB1- HB4 will be secured according to a relevant valid legislation and valid permissions issued by a relevant body of National Water Authority.*
- *To document that the surface water and ground water will be protected during the construction and operation of the proposed activity and potential unacceptable leak of harmful substances to the soil, ground water or surface water will be prevented.*
- *To document, that harmful substances and extremely harmful substances will be managed during the construction and operation of the proposed activity in order to comply with the provisions of § 39 of the Act No. 364/2004 Coll. on water and on amendments of the Slovak National Council Act No. 372/1990 Coll. on offences as amended (Water Act) and the Regulation No. 100/2005 Coll. that stipulates the details on handling dangerous substances, on emergency plan terms and on procedures for treatment of extraordinary deteriorated water.*

- *To document that the general provisions of the Act No. 364/2004 Coll. on water and on amendments of the Slovak National Council Act No. 372/1990 Coll. on offences as amended (Water Act) and the Act No. 7/2010 Coll. on flood protection will be observed during the construction and operation of the proposed activity.*
- *To document that the provisions of the standard STN 73 6005 – Space arrangement of conduits of technical equipment will be observed during the construction and operation of the proposed activity.*

The requirement solution:

Observance of all the statutory provisions (including the provisions that regard surface and ground water protection and flood protection) is a generally binding obligation. The EIA process reviews a feasibility of legal requirements observance. Their realization, including related administrative procedures managed by relevant authorities are a subject for the next stages of the preparation and operation of the proposed activity.

The data of water management solution and the impact on surface and ground water are included in the chapters A.II.8. Brief description of technical and technological design, B.I. Requirements for inputs - B.I.2. Water, B.II. The outputs data - B.II.2. Waste water, C.II.6. Hydrological conditions, C.III.5. Impacts on water conditions. The measures (if needed) are included in the chapter C.IV. Impacts mitigating measures.

The observance of all the statutory provisions for surface and ground water protection will be assured throughout the next stages of NJZ (New Nuclear Power Plant) design preparation by their incorporation in the design base during the preparation of NJZ construction and operation design as well as by a regular monitoring of the surface and ground water quality within a regular monitoring performance.

The wells HB-1 - HB4 have not been used since 2002. The well HB-1 is located on the main planned construction site of NJZ so its permit as a water source will have to be cancelled prior to the beginning of construction work. Afterwards, this borehole will have to be dismantled or reconstructed to a monitoring drill hole (dismantling of the pumping technology) depending on a design configuration of the NJZ structures.

The water wells HB-2 - HB-4 are located out of the NJZ area and out of construction site area too. Protection of the existing wells HB2- HB4 will be secured by relevant valid legislation and valid permissions issued by a relevant authority of national water management administration.

Tritium was monitored in these structures at the time they were used as a water source, which is to 2002. The groundwater levels in the structures HB-1 – HB-4 are currently monitored in monthly intervals (the installed technology does not allow the ground water sampling – it can be performed only if pumps are in operation – last time in 2002). Quality monitoring (and potential contamination) of the ground water at this area is provided by the structures P1, P2, P3, P5. In general their locations copy the location of the drill holes HB2 - HB4. The groundwater level and volume activity of tritium is measured in the structures P1 - P3 and P5 in yearly intervals. The monitoring has not yet detected any contamination of these structures, the wells are out of contaminated and out of endangered area too.

In case the structures HB-2 - HB-4 are to be used as water sources again, the ground water qualities need to be checked prior to their use followed by incorporation of the structures in the system of the ground water quality monitoring.

The protection from floods caused by storm rainfalls is technically secured by protective ditch that is described in the chapter A.II.8.3.4.4. Water management connection and systems. Safety documentation of NJZ nuclear facility in the course of consequential procedures will contain more detailed information on the facility protection from the floods.

The standard STN 73 6005 – Space arrangement of conduits of technical equipment, will be observed throughout all the stages of the preparation and implementation of the NJZ proposed activity at Jaslovské Bohunice site.

2.2.4. To document, that new sources of air pollution will come into the existence as a part of the proposed activity (back-up diesel generators, back-up boiler plant) categorized as medium or large sources of air pollution. At the next stage of the process a section dealing with "air protection issues" shall be included, in accordance with § 17 par. 2 of the Act No. 137/2010 Coll. on Air amended by the Act No. 318/2012 Coll. and its implementing regulations (hereinafter as "the Act on Air") and a relevant air protection authority shall be asked to issue a permission for a placement and construction of the source according to § 17 Art. 1 par. a) of the Act on Air (the diesel generators, the back-up boiler plant) approval of which belongs within (according to the § 26 of the Act on Air) cognizance of a relevant district environment authority.

The requirement solution:

Compliance with all the statutory provisions (including the provisions that regard air protection) is a generally binding obligation. The EIA process reviews a feasibility of the project compliance with legal requirements. Their realization, including related administrative procedures managed by related authorities, will be subjected to other levels of the proposed activity preparation and operation.

The data of the air pollution sources and the impact on the air are included in the chapters B.II. The outputs data - B.II.1. The air, C.II.5. The air, C.III.4. Impacts on the air. The measures (if needed) are included in the chapter C.IV. Impacts mitigating measures.

2.2.5. To describe general technical requirements and general operational conditions as per the Annex No.3 to the Decree of MŽP SR No. 410/2012 Coll. which executes some provisions of the Act on Air and which are in force through the construction activities and which should be performed in the course of construction during which the dust emission are generated (structures demolition, construction, transport).

The requirement solution:

Observance of all the statutory provisions (including the provisions that regard air protection) is a generally binding obligation. The EIA process reviews a feasibility of compliance with legal requirements. Their realization, including related administrative procedures managed by related authorities, will be subjected to the next stages of the proposed activity preparation and operation.

The data of the air pollution sources and the impact on the air are included in the chapters B.II. The outputs data - B.II.1. The air, C.II.5. The air, C.III.4. Impacts on the air. The measures (if needed) are included in the chapter C.IV. Impacts mitigating measures.

2.2.6. To complete a more detailed description of the geological conditions (geological structure of the area, engineering-geological conditions, geodynamic phenomena, state of the contamination of the geological environment):

- *To mark the area on which the reviewed activity will be performed and to add more legible figures and missing quotations of the applied sources.*
- *To complete the section „Engineering-geological conditions" which should contain more detailed data of the site.*
- *To document the way the site seismic aspects will be applied during the designing of the specific structures.*
- *To update and specify in more details the seismic risk of the region concerned in accordance with relevant regulations.*
- *To review an impact of the proposed activity (operation of nuclear power plant) on the ground water quality.*
- *To condition the construction permission by a performance of an adequate hydrogeological and engineering-geological survey of the respective site. To specify the geological surveys stages which were performed at the designed area of the new nuclear power plant.*
- *To condition the construction permission by an assurance of the ground water quality monitoring during the construction and operation of the nuclear power plant in accordance with the relevant provisions of the Act No. 569/2007 Coll. on geological works (Geological Act) as amended.*

The requirement solution:

The area of the design location is marked in the Annex No. 1 of the Assessment Report.

The geological conditions description is included in the chapter C.II.2. Geological conditions. The engineering-geological conditions are included in the chapter C.II.2.3. Engineering-geological conditions. The impacts on the geological

environment and ground water are assessed in the chapters C.III.2. Impacts on the geological environment and C.III.5. Impacts on the water conditions.

The engineering-geological data of the site were obtained by using the latest knowledge of the site. With respect to the NJZ site location (which is very close to EBO area), there were several reports (1965 – 1982) available for the assessment of engineering-geological survey condition. These reports document the preparation of individual power plants structures. Engineering-geological survey of the NJZ site [Šujan et al. 2012a] was performed in 2011. The results obtained from the work operations performed in 2011 at the NJZ site, together with the information from the archival sources (1965 - 1982), form the input data for the description of the construction site and its surroundings. The results of the geological works and the related analyses which were performed for the design purposes of NJZ since 2011 can be used for the development of the documentation for the Siting permit (according to the Atomic Act and the Decree of ÚJD No. 430/2011 Coll. on nuclear safety requirements). Detailed engineering-geological survey of the construction site and its relevant surroundings, including a respective scope of the hydrogeological and geophysical survey needs to be performed for the development of the design for Construction permission. The quotations and data sources have been added.

The measures (if needed) are included in the chapter C.IV. Impacts mitigating measures.

The site seismic risk is evaluated based on the currently valid analysis of the seismic risk for the site of Bohunice Nuclear Power Plants that was performed in the years 1996 - 1998 in compliance with the Safety Guide of the International Atomic Energy Agency 50-SG-S1 (Rev. 1) [IAEA 1991: Earthquakes and associated topics in relation to nuclear power plant siting. A safety guide. Safety series No. 50-SG-S1 (Rev.1).]. The analysis was subjected to an assessment performed by the Review Seismic Mission of IAEA in 1998 and its results were accepted in the course of preparation of the Extraordinary National Report of the Slovak Republic elaborated in terms of the Convention on Nuclear Safety (April 2012) within the process of complex assessment of the nuclear power plant safety and risk ("stress tests") following the accident which happened in nuclear power plant Fukushima-Daiichi after the earthquake and tsunami on March 01, 2011.

The seismic risk calculation will be later updated/verified with respect to a current valid legislation, at the stage of an application for the nuclear facility siting. Seismic classification of the buildings, systems and components will be performed in compliance with legislative regulations of the Slovak Republic, safety standards of IAEA and the requirements of ÚJD SR so that the specific conditions of the site will be taken into account.

All the reference nuclear units, considered for the NJZ, are designed with respect to the seismic effects load at minimum level 0,25 g (horizontal acceleration) and will be further adjusted within the design to the Jaslovské Bohunice site characteristics.

The assessment of the impact on ground water quality is given in the chapters C.III.5.2. Impacts on the ground water (non-radiation impacts) and C.III.16.3.2. Impacts on the ground water (radiation impacts). As to provide more precise ground water radiation situation (monitoring) resulting from the sources situated outside of NJZ, a prognosis was developed and it is included in the chapter C.II.15.3.2.4. Radiation situation in the ground water.

The observance of all the statutory provisions for ground water protection, including the Act No. 569/2007 Coll. on geological works (Geological Act) as amended, will be secured by their incorporating in the design base during the preparation of NJZ construction and operation design as well as by a regular monitoring of the ground water quality within a regular monitoring performance.

2.2.7. To elaborate an assessment of an impact of the radioactive material discharges to water courses.

The requirement solution:

The assessment of the impact of the radioactive material discharges to water courses is included in the chapter C.III.16. The other impacts - C.III.16.3. Ionizing radiation impacts - C.III.16.3.1. Radioactive discharges impact.

2.2.8. To elaborate an assessment of the situation and prognosis of development of radiation situation in the ground water.

The requirement solution:

The situation and prognosis of development of radiation situation in the ground water is in the chapter C.II.15. Environment pollution sources - C.II.15.3. Ionizing radiation - C.II.15.3.2.4. Radiation situation in the ground water.

2.2.9. To elaborate an assessment of non-radiation impact of the discharged waste water on the surface and ground water.

The requirement solution:

The assessment of the non-radiation impact of the discharged waste water is included in the chapter C.III.5. Impacts on water conditions.

2.2.10. To demonstrate a conformity with respected standards and legislative limits through results from the studies on the human health within the region as well as in terms of the environment protection and nuclear facility safety, also taking into account the existing nuclear facility at Bohunice site.

The requirement solution:

The assessment of the impacts on the human health, including a presentation of the relevant standards and limits, is included in the chapter C.III.1. Impacts on the population.

2.2.11. To review an impact of increased transport load caused by deliveries and removals of material and equipment necessary for the NJZ construction and operation and an impact on the urban areas of the surrounding communities considering a possible negative impact on the local citizens' real properties.

The requirement solution:

The assessment of the transportation is provided in the chapter C.III.1. Impacts on the population - C.III.1.4. Impacts on the infrastructure. These data form the input data for an assessment of related impacts including noise, air and human health.

Potential impact of the transportation on the citizens' real property was practically excluded. The only potential factor that might affect a construction state of the real property is vibration. However, it will not significantly differ from the current state. It is based on the fact that the vibrations level (i.e. speed or acceleration of vibrations) alongside the roads depends on passing of each individual discrete vehicle but not on an overall intensity of transportation. So an increase in the transport intensity does not result in an increase of the vibrations level, but only in an increase in the frequency of repetition of an identical vibration situation.

Traffic of heavy machinery can be expected particularly during the NJZ construction so the decrease of the roads state cannot be excluded (as a factor affecting the vibrations formation). That's the reasoning for monitoring of the vibrations impact on the areas with the most intensive transportation load (and to monitor the noise impact at the same time) and, following the results, to take relevant organizational or technical measures (if necessary).

More detailed data regarding the vibrations impact are provided in the chapter C.III.16.2. Impacts of vibrations; a respective proposed measure is provided in the chapter C.IV.4. Organizational and operational measures.

2.2.12. For the next stages of the design preparation it is required to assure that the non-radioactive waste management will be in conformity with the Act No. 223/2001 Coll. on the waste and on amendment of certain acts as amended.

The requirement solution:

Observance of all the statutory provisions (including the provisions that regard waste management) is a generally binding obligation. The EIA process reviews a feasibility of legal requirements observance. Their realization, including related administrative procedures managed by related authorities, will be subject to next stages of the proposed activity preparation and operation.

The data of the waste production are provided in the chapter B.II. The outputs data - B.II.3. Waste. The data of non-radioactive waste management are provided in the chapter A.II.8. Brief description of technical and technological design.

The measures (if needed) are included in the chapter C.IV. Impacts mitigating measures.

2.2.13. To consider a possibility of landscape greenery not only within the NJZ surroundings but also at the cadastral areas of the communities within the area concerned.

The requirement solution:

The proposal of landscape greenery belongs to a group of relatively standard measures taken during structures construction that change the landscape character. As it is obvious from the visibility range of the proposed activity (see the chapter C.III.8.), the measure like this cannot be applied at a scale of the whole visually affected area. As resulted from the modelling of the affected landscape relief and from the dominant way of the landscape utilization (agricultural utilization of the soil), the NJZ will be visible from several positions. Even today, the cooling towers are visible from many positions of the area concerned, the landscape vegetation does not perform a hundred-percent hiding function. It is not possible to hide visually a new structure of height 180 m by means of vegetation so that the NJZ structure is visually hidden from all the views of the area concerned.

It is recommended to plant taller vegetation on the landscape that surrounds NJZ (note: taller vegetation shall be planted so that it can perform the hiding and landscape enhancement function as soon as possible) focusing on masking (at least a partial) and aesthetic function. It is recommended to plant taller vegetation only on the areas having a potential to contribute significantly to the elimination of the whole NJZ area visibility and on which the planting is acceptable with regards to the property rights as well as in terms of the owner approval within the locations, where the greenery is to be planned. Identification of such locations according to the above mentioned conditions is a subject of the next stages of the design documentation. It is possible to determine the locations, extent and effectiveness of the planting by independent visibility models during the next stages of the proposed activity preparation (see the chapter C.IV.4.).

2.2.14. To specify the way the villages will be regularly informed about the facility state and its impact on the environment, i.e. about the monitoring results and their interpretation, after the operation is started.

The requirement solution:

According to the requirements of the Decree of ÚJD SR No. 430/2011 Coll. on nuclear safety requirements, each holder of the permit for nuclear installations operation and decommissioning in accordance with the Act No. 541/2004 Coll. on peaceful use of nuclear energy (the Atomic Act) and on changes and amendments to certain acts is obliged to develop and provide ÚJD SR with a quarterly and annual operational safety assessment. These reports are available to the public on websites of individual nuclear installations operators (in case of Jaslovské Bohunice site, it is the company JAVYS http://www.javys.sk/ and SE, a.s. http://www.seas.sk/).

The owner of the permit for NJZ will be obliged, in accordance with the Act No. 541/2004 Coll. and the Decree No. 430/2011 Coll., to inform the public through its website, press or by other publicly available means (always by April 30th) on the status of nuclear safety of nuclear installations and on the management of radioactive waste and spent fuel for the past calendar year.

The permit holder for NJZ will be obliged, according to the Decree of ÚJD SR No. 55/2006 Coll. on details in emergency planning for the event of an incident or an accident, to develop a guideline on a method of informing the public, to establish an information site in order to provide the public with information regarding the emergency planning and (within the emergency response organisation) to establish a position of the information site representative for public relations. The NJZ information site representative will be obliged to provide the population with information on a situation related to an emergency event depending on the receiver's technical possibilities according to the Decree of MV SR No. 388/2006 Coll. on the details for the provision of technical and operational conditions for the information system of civil protection.

The permit holder for NJZ will be obliged, according to the Decree No. 55/2006 Coll., to inform regularly the public on such activities and documents in the sphere of the emergency planning that are related to the public protection within the emergency planning zone and the provided information will have to be regularly updated reflecting the updates of the internal emergency plan. The information for the public will have to include at least the following:

- information on ionising radiation and its effects on human health and the environmental ,
- information on possible events in nuclear facilities, their severity level classification and possible impact on the public and the environment,
- information on principles of the public protection plans, public warning and notification of persons,

- information on activities to be performed by the public at individual events.

The NJZ operator will be obliged, according to the Act of FZ ČSFR No. 17/1992 Coll. on the environment, to publish information on the environment pollution. The NJZ operator will be obliged to publish measurement results regarding a quantity of a particular substance (emission) discharged to air or water as well as monitoring results regarding any other impact of a facility operated by him on the environment, in accordance with special regulations and decisions, in a generally understandable manner and at a generally and easily accessible place, regularly, not later than 10 days after the end of the month in which this obligation had to be met and, for summary, not later than 30 days after the end of a calendar year.

Moreover, the NJZ operator will be obliged to immediately notify the public in case he caused a serious threat or damage to the environment that resulted particularly from an operational incident (accident), fire or traffic accident, according to the Act No. 17/1992 Coll.

The public receives the relevant information from the Customer, the company JESS, by means of publicly available website http://www.jess.sk/ as well as by press, in the course of EIA process for the NJZ project, in accordance with the Act No. 24/2006 Coll., on environmental impact assessment and on supplement and amendment of other law.

Public will be kept regularly informed, after the launch of operation, by means of the NJZ operator's website as to comply with the legislative obligations to inform the public as well as by means of summary reports on nuclear safety of the nuclear installation (JZ), on the radioactive waste and spent fuel management and on the monitoring results of the JZ and the state of the environment surrounding the JZ.

The way, scope and means of radiation monitoring of the environment surrounding the nuclear power plant is described in details in the chapter C.II.15.3.2.3. Pollution situation of the site.

The monitoring network data are available on-line on the website of SHMÚ (Slovak Hydrometeorological Institute) www.shmu.sk as 24-hour average values. Since October 2006, the data for the European Radiation Database, located in Ispra (Italy), are prepared by means of ftp-server of SHMÚ in 1-hour intervals and published for the public on the website https://remon.jrc.ec.europa.eu/ of EURDEP system which can be accessed from the website of ÚJD SR http://www.ujd.gov.sk/.

Total results of the environment monitoring performed in the nuclear facility (JZ) surroundings and their interpretation are regularly published by means of annual reports and they are publicly available on the websites of individual JZ operators (in case of Jaslovské Bohunice site it includes the companies JAVYS http://www.javys.sk/ and SE, a.s. http://www.seas.sk/).

The annual reports of JZ impact on the environment provide complexed information on the air protection, water management, waste management, prevention of severe industrial accidents, chemicals and mixtures handling, environmental management system, EIA processes according to the Act No. 24/2006 Coll. and on activities focused on the environment protection.

The performance of the national monitoring system of nuclear facilities surroundings is described in the chapter C.II.15.3.2.3.2. Radiation monitoring performed at a national level.

Specific measure is proposed in the chapter C.IV.4.Organizational and operational measures to take this requirement into account.

2.2.15. Such reactor type shall be used during the design implementation, which currently stands for the best available technology and which has already been tested and operated in another country.

The requirement solution:

All the reference designs described in the chapter A.II.8.3.1.3. represent the top and currently the best available technology of PWR reactors in the world. Nowadays some of them have already been licensed in the country of origin or in another country, the other ones are subjected to the licensing process.

Regarding the designs AP1000, APR-1400, EPR and MIR-1200 – there are some reference power plants under construction. The construction of reference power plant for the design EU-APWR has been postponed and regarding the design ATMEA1 nowadays there is no reference power plant under a construction process. There is a requirement of the Customer to choose such NJZ design (prior to taking decision on a supplier nomination) which has been licensed in the country of origin, in another country of the EU or in another country with advanced nuclear experience and which is (as a minimum) at an advanced stage of construction at another site.

2.2.16. For the next stages of the design preparation, an instrumentation and control system of the highest level shall be provided with the newest safety and protection elements that will be able to evaluate a potential emergency situation and to assure the reactor shutdown and to prepare the core cooling even with no intervention of the operation staff.

The requirement solution:

All the reference designs are equipped with instrumentation and control systems of the highest currently available technical level. The basic concept of the instrumentation and control system of NJZ is described in the chapter A.II.8.3.2.4. Instrumentation and control system. The protection systems will be able to put the NJZ unit to a safe state themselves, even with no operational staff's intervention. Following the requirements of IAEA and ÚJD SR, the NJZ design and the safety analyses will consider time delays for the operation staff's interventions. All the reference reactors suppliers present a period with no operator's intervention min. 30 minutes or more which is in conformity with international standards and requirements of national nuclear regulatory authority. After the NJZ technology supplier is nominated, the instrumentation and control system applied by them will be carefully analyzed in a preliminary safety report and in a pre-operational safety report which will be subjected to a review performed by relevant state administration bodies (ÚJD SR).

2.2.17. For the next stages of the design preparation, the most effective system of radiation protection shall be provided for both the nuclear power plant area and its surrounding area.

The requirement solution:

The radiation protection system installed within the nuclear facilities area and the surrounding area is currently functional and effective. A description of the current system is presented in the chapter C.II.15.3.2.3.1. Monitoring systems of Bohunice nuclear installations surroundings.

The radiation protection system of NJZ will be implemented in compliance with the current legislative requirements and it will complete the existing functional system applying the ALARA principles.

2.2.18. For the next stages of the design preparation and within the emergency planning, an installation of measuring devices shall be proposed for the emergency planning zone that will monitor the air and the other components of the environment and which will be included in the early public warning and notification system in case an event occurs.

The requirement solution:

The basis of the current TDS, which is included in the early public warning and notification system, will be used for NJZ as well but it will be necessary to add the 1st circuit (dose rate monitoring in the closest surroundings of NJZ – see the chapter C.II.15.3.2.3.1. Monitoring systems of Bohunice nuclear installations surroundings) and, if necessary, to modify the other circuits as well following the currently valid requirements for monitoring system;, nowadays the 2nd and the 3rd circuit are in principle suitable for NJZ, too.

For this specific area (with respect to the operation of JE V2), the emergency planning zone was determined so that it extends to 21 km. It will be needed to elaborate calculation analyses to determine a new size of the emergency planning zone or to confirm the existing one for NJZ. The size of the emergency planning zone is reviewed by ÚJD SR in three consequent steps. In compliance with the provisions of the Atomic Act, Annex 1 (art. A. par. g); art. B. par. l); art. C. par. v)), ÚJD SR requires submitting:

- a proposal for the size of the emergency planning zone for a nuclear installation – at the stage of JE siting,
- a preliminary demarcation of the size of the emergency planning zone – at the stage of the construction approval,
- a demarcation of the size of the emergency planning zone at the stage of authorisation for commissioning.

The requirement is applied in the chapter C.VI.1. Monitoring proposal for the next stages of the design preparation. The 1st monitoring circuit – dose rate monitoring in the closest surroundings of NJZ, shall be added so that the new TDS for NJZ will cover the circumference of NJZ area within the whole range. It is required to review a necessity to modify the other monitoring circuits as well following currently valid requirements for monitoring system; in principle, nowadays the 2nd and the 3rd circuit are also suitable for NJZ.

2.2.19. To describe, for the period after commissioning, the existing water monitoring system detecting presence of radioactive elements in the wells of the surrounding communities that are situated within the area up to 5 km far from the new nuclear power plant.

The requirement solution:

The description of the system of water monitoring in the wells is presented in the chapter C.II.15. Sources of environmental pollution and its sub-chapter C.II.15.3. Ionising radiation.

The description of the existing water monitoring system in the wells of the surrounding communities is presented in the chapter C.II.6.2. Ground water (including a specification of individual cadastral areas which the operating and monitored drill holes belong to) and C.II.15. Sources of environment pollution or in its sub-chapters C.II.15.3.2.3.1. Monitoring systems of Bohunice nuclear installations surroundings and C.II.15.3.2.4. Radiation situation in the ground water.

All the existing facilities located within EBO area are currently included in a common monitoring program "Radiation Monitoring Program of JZ EBO surroundings". The current monitoring system is fully functional and it is also suitable for the period after NJZ is put into operation. Nevertheless, at the next stages of the design preparation a complete inspection of the monitoring system is recommended in terms of its capability as well as a potential recovery of the equipment due to a technical ageing of the existing system.

The chapter C.IV. Impacts mitigating measures provides recommendations within those spheres (including the ground water) that can be proposed for the highest safety level assurance and for a settlement of the surrounding communities' requirements.

2.2.20. To take into account the need to build a new nuclear power plant in respect to energy demand of the economy of the Slovak Republic in connection with the commitments of the Slovak Republic in the sphere of energy effectiveness resulting from the EU's requirements.

The requirement solution:

The energy intensity and the commitments of the Slovak Republic in the sphere of energy effectiveness resulting from the EU's requirements are taken into account in the justification of the proposed activity implementation. The data for the necessity justification of the new nuclear power plant are provided in the chapter A.II.6. Reason for siting at the site and in relation to international commitments in the chapter A.II.6.2. The necessity justification in relation to international commitments of the Slovak Republic. A comparison of the energy demand development and the total final consumption of energy in the EU countries is provided in the chapter A.II.6.5.2. Total final energy consumption; and regarding the electric energy it is provided in the chapter A.II.6.5.3. Electric energy consumption.

2.2.21. In relation to the period of operation and decommissioning of the other nuclear installations, it is required to provide a more precise text related to the planned operation of JE V2 with lifetime up to 60 years and to incorporate the decommissioning process of JE V2 in the cumulative impact assessment.

The requirement solution:

JE V2 operation period is not specified in the Report. It is a subject of other proceedings so it is not possible to deduce the data of perspective period of JE V2 operation from the Report.

As it is necessary to assess the cumulative impacts at their potential maximum, due to conservative reasons a concurrence of NJZ operation and JE V2 operation is considered for a maximum possible period up to 20 years.

The Report takes into account the expected impacts of subsequent JE V2 decommissioning. The impacts of a nuclear installation decommissioning on the environment are generally lower than the ones of the nuclear installation operation. It can be demonstrated by a comparison of the requirements for inputs and outputs for both the operational stage and decommissioning stage as well as by assessment of monitoring of the discharges coming from JE V1 which is being decommissioned and which used to be operated – see the chapter C.II.15.3.2. Radiation situation of the area concerned.

2.2.22. To describe the assessment of extreme meteorological conditions impact on the safety of the nuclear power plant situated at the Jaslovské Bohunice site.

The requirement solution:

The Report is a document which has been elaborated in the regime of the Act on the environmental impact assessment. So the nuclear safety is not its subject matter (it is not a safety documentation in the regime of the Atomic Act). It is reasonably expected that all the legal requirements related to nuclear safety (including the assessment of the extreme meteorological conditions) will be in the course of preparation, operation or operation termination of the proposed activity met.

Despite the above mentioned, the safety characteristics of the new nuclear power plant, including qualitative and quantitative characteristics of extreme meteorological conditions and the NJZ design approach to the solution of resistance to extreme meteorological conditions, are described in the chapter A.II.8. Brief description of technical and technological design.

2.2.23. To specify a more detailed way of the power outlet and connection to the electricity transmission grid of the Slovak Republic. To describe in more details the way of electric connection of the new nuclear power plant during its construction and operation.

The requirement solution:

The data of the way of power outlet and connection to the electricity transmission grid of the Slovak Republic, including the construction, are presented in the chapter A.II.8. Brief description of technical and technological design and in its sub-chapter A.II.8.3.2.3. Electrotechnical systems.

2.2.24. To extend and describe in more details the information on waste management (expected ways of treatment and recovery, information regarding the volumes and hazardousness categories of the waste that will be utilized at the site, if such a way of waste management is intended)

The requirement solution:

The conventional waste management is described in the chapters A.II.8.3.4. and B.II.3.

The management of non-radioactive waste (categories O and N) during NJZ operation will follow the currently valid legislation for the area of waste management (currently valid Act No. 223/2001 Coll. on waste as amended will be replaced on January 01, 2016 by the Act No. 79/2015 Coll. on waste and on a supplement and amendment of certain acts) and in compliance with a future internal documentation of the power plant which will process in details this act and its implementing regulations. One of the basic obligations of NJZ operator is currently to look for possibilities of the waste production decrease, the waste utilization and, if it is not possible, to recycle and recover the waste (in a material or energy manner) and to apply the waste disposal as the last possible solution. Every effort will be made to reduce of the waste dumps.

The waste management will follow the standard system – the waste will be passed to authorized companies specialized for the waste recovery and disposal.

Regarding the radioactive waste, its management is described in the chapter A.II.8.3.4.2, A.II.8.4.1.3 and in the chapter B.II.5.

2.2.25. To describe in more details the kinds of waste (i.e. conventional waste, non-radioactive waste) production of which is expected. Up to 600 tons of municipal waste and other waste are expected to be produced yearly. To specify the quantity of the other waste and whether the volume of the municipal waste is included within the volume of the other waste.

The requirement solution:

Individual kinds of waste and their volumes produced during the construction and operation are provided in the chapter B.II.3. Waste. The expected total volume of the other waste, which will be annually produced, is approx. 1200 t out of which approx. 600 t is formed by municipal waste.

2.2.26. To document that in case of production of the waste from demolition, the details on its management are stipulated by § 40 of the Act of NR SR No. 223/2001 Coll. on waste and on a supplement and amendment of certain acts as amended. To prefer material recovery of the waste. In case there is no possibility to recover the waste within a distance of 50 km from the place of the waste generation, the waste can be disposed of.

The requirement solution:

All the non-radioactive waste will be managed in compliance with the valid legislation (currently valid Act No. 223/2001 Coll. on waste as amended will be replaced on January 01, 2016 by the Act No. 79/2015 Coll. on waste and on a supplement and amendment of certain acts) and in compliance with a future internal documentation of the power plant which will process in details this act and its implementing regulations.

The construction waste will have to be separated, separately gathered, it will be required to provide a recovery of the separated construction waste items (ferrous metals, cables, plastics, wood, glass), to perform a recycling of debris, concrete and brick and, depending on possibilities and requirements, to provide a repeated use of the processed construction waste (e.g. for backfilling, ground conditioning by means of the recycled material within the construction site, etc.). In case there is an excess of the processed construction waste produced by the demolition or construction performance, it can be offered to other companies for utilization. In case the construction waste shall be transported, it will be performed by contractors and the waste will be deposited at the existing dumps located at the construction site neighbourhood.

2.2.27. To provide a list of expected types of waste with indication of their hazardousness categories and to provide information on an intended way of their management. For each way of the waste management it is satisfactory to provide the total waste quantity for which the specific way of management will be applied. The required information needs to be differentiated for the stage of construction and operation.

The requirement solution:

The expected types of waste, their classification in accordance with the Waste Catalogue, a division into hazardous waste and other waste, waste volumes and intended ways of waste management during operation and construction are presented in the chapter B.II.3. The other information on the waste management is presented in the chapter A.II.8.3.4.3.

2.2.28. To describe a possible way of sludge (produced by the water treatment system) management. To state whether this material shall be considered as waste or not.

The requirement solution:

In case a decarbonisation technology is not applied, the water treatment sludge is recommended to be classified as a by-product pursuant to § 2a of the Act No. 223/2001 Coll. as amended, starting from January 01, 2016 pursuant to §2 art. 4 of the Act No. 79/2015 Coll. on waste and on supplement and amendment of certain acts). This recommendation is presented in the chapter B.II.3. Waste.

2.2.29. More attention should be paid to a description of excavated soil management in case that it is waste pursuant to the Act on Waste with respect to prolonged duration of the construction works and expectation of extensive excavation works. To add a specification of the material and to explain how the excavated soil will be managed. It is not clear from the preliminary study text whether the excavation work will produce the excavation soil as waste material which will be managed in compliance with the Act on Waste or it will be so-called non-contaminated soil which is defined in § 1 art. 2 par. j) of the Act No. 223/2001 Coll. on waste as "non-contaminated soil or another naturally occurring material excavated in the course of construction work, in case it is clear that the material is to be used in its natural state at the site on which it was excavated". If there is an intention to use the excavation soil at the site of excavation, these facts have to be precisely mentioned.

The requirement solution:

The facts regarding the excavation soil and a way of its management are provided in the chapter B.II.3. Waste. This section says that some quantity of the excavation soil will be used at the construction site or the equipment construction site t so it will not be waste pursuant to the valid Act No. 223/2001 Coll. (on January 01, 2016 this Act will be replaced by the Act No. 79/2015 Coll. on waste and on a supplement and amendment of certain acts, the excavation soil is dealt in §1 art. 2, par. “h“ of the Act).

The remaining part of the excavation soil is related to the provisions of the Act No. 79/2015 Coll. on waste and it will be used for rehabilitation work of the decommissioned nuclear installations, rehabilitation of the equipment construction site or it will be offered as a covering material for the deposits of NNO (non-dangerous waste).

2.2.30. In case the operator concluded or preliminarily negotiated contracts of waste management with relevant companies, this should be mentioned.

The requirement solution:

With respect to the fact that the NJZ construction is just at a stage of pre-design preparation and its commissioning is planned for year 2027, it is not relevant due to a long period of time to have negotiations with companies that are engaged in waste management.

2.2.31. We recommend the Assessment Report should contain a list of the nearest operated facilities engaged in the waste management which are (or which might be) relevant for the waste produced by the assessed facility.

The requirement solution:

It is problematic to state whether the facilities, nowadays considered as suitable ones for the waste recovery and disposal, will be functional ones during the operation of (from the year 2027).

Just for information purposes the following existing and functional facilities for waste recovery and destruction that are located in Jaslovské Bohunice surroundings (district Trnava, Hlohovec, Piešťany) are presented below.

Tab. 1: Waste management facilities (district Trnava, Hlohovec, Piešťany)

Facilities for waste collection and recovery			
Operator	Operation location/types of waste	Performed activity	Capacity [t/year]
ASA Trnava, spol. s.r.o.	Trnava (plastics, wood, paper, glass) composting plant Trnava Collection yard Hlohovec (separ. waste from KO)	R12, R13 R03, R12, R13 R13	12 000 6 000 3 000
Metalimpex Slovakia,s.r.o. Trnava	Trnava (ferrous and non-ferrous metals)	R12, R13	12 240
Autovraky, s.r.o.	Trnava (car wrecks)	R05, R13	7 000
Rigips Slovakia, s.r.o.	Trnava (plastics)	R05 (150102)	18 m^3/h
RECOPAP s.r.o. Zohor	Trnava (paper, plastics, textile)	R12, R13	8 000
SEZAKO Trnava, s.r.o.	Trnava (sludge of category O)	R02, R12, R13	10 m^3/h
INERT Slovensko, s.r.o.	Trnava (sludge of category O and N)	R03, R13	Not mentioned
P-Energy, s.r.o. Trnava	Trnava (plastics)	R12, R13	300
Zberné suroviny, a.s. Žilina	Trnava (metals)	R12, R13	4 900
Zlievareň Trnava, s.r.o.	Trnava (ferrous and non-ferrous metals)	R04	12 000
HAMOS, s.r.o. Šamorín (composting plants)	Drahovce Krakovany - Stráže PD Piešťany Hlohovec Ostrov Siladice	R03, R13	9 000 5 000 10 000 12 000 5 000 6 000
KOVOMAT Slovakia, s.r.o. Žilina	Leopoldov (ferrous and non-ferrous metals)	R03, R13	2 000
Ekoplastika s.r.o. Slov. Nová Ves	PD Voderady - plant (plastics)	R03, R12, R13	6 000
Chemolak a.s. Smolenice	Smolenice (various organic solvents)	R02	200
BOMAT s.r.o. Veľké Orvište	Plant, area of PD Veľké Orvište (plastics, paper, glass, ferrous and non-ferrous metals)	R03, R04, R05, R11, R12, R13	1 000
Ján Krčula -RE PLAST Košolná	plant Agropo Zvončín (plastics)	R03, R12, R13	1 250

Explanation of the performed activity code pursuant to the Act No. 223/2001 Coll.:

R02 – recovery or regeneration of solvents
R03 – recycling or recovery of organic compounds that are not used as solvents (including composting and other biolog. transform. processes)
R04 - recycling or recovery of metals and metallic compounds
R05 – recycling or recovery of other anorganic material
R11 – utilization of the waste produced by the activities R1 up to R10
R12 – treatment of waste determined for processing by one of the activities R1-R11
R13 – waste storage prior to an application of one of the activities R1 up to R12 (except for a temporary storage prior to a collection at the production spot)

Dump types:

NNO – non-dangerous waste dump
NO – dangerous waste dump
IO – internal waste dump

Tab. 2: Existing facilities for waste disposal

Existing facilities for the waste destruction			
The waste dump name	Operator	Cadastral area	Total capacity [m^3] / the dump type
Pusté Sady	Komplex- odpadová spoločnosť, s.r.o.	Pusté Sady, Galanta district	321 463 / NNO
Čierna voda	KEREJTÓ T.K.O., s.r.o.	Čierna voda, Galanta district	1 800 000 / NNO
Rakovice waste dump	Kopaničiarska odpad. spoločnosť, s.r.o. Kostolné	Rakovice, Piešťany district	277 500 / NNO
Vlčie hory waste dump	Plastic People	Hlohovec, Hlohovec district	415 000 / NNO 4700 / NO 30 161 / IO
Trnava - Zavar	ASA Trnava	Trnava	1 800 000/ NNO

Source: POH (Waste Management Plan) of Trnava Region till the year 2015. Those facilities were chosen from Trnava Region POH which collect, process or dispose of the waste that might be produced by NJZ.

In the districts Hlohovec and Piešťany, the prospective waste management activities are focused particularly on construction of facilities for the waste collection. Trnava Region POH does not intend to increase waste dumps capacities within their districts.

2.2.32. To complete the strategic documents preview by adding the National Waste Management Plan of the Slovak Republic for the period of 2011 - 2015 and the Waste Management Plan of Trnava Region for the period of 2011 - 2015.

The requirement solution:

The data on the above mentioned strategic documents are added in the chapter A.II.8.3.4.3. Conventional waste management.

2.2.33. To complete the preview of all the authorizing bodies relevant for the assessed facility and to incorporate in this list also the Slovak Environmental Inspection Authority, Bratislava Environmental Inspection Authority, integrated pollution prevention and control department, if the assessed facility includes also IPKZ operations related to the Act of NR SR (National Council of the Slovak Republic) No. 39/2013 Coll. on IPKZ.

The requirement solution:

The authorizing bodies preview is presented in the chapter A.II.14.

As regards the applicability of the Act No. 39/2013 Coll. on integrated environment pollution prevention and control and on supplement and amendment of certain acts (IPKZ), NJZ will not include any facilities which would be involved by its regime. In case of NJZ, the only potential activity (specified in the Annex No. 1 of the Act on IPKZ) which might be considered is the one mentioned in the paragraph 1.1. Fuel combustion in plants with a total rated thermal input equal or higher than 50 MW. But the output of the considered back-up boiler plant (app. 3x12,5 = 37,5 MW) does not reach the mentioned value so it is not necessary to apply it within the IPKZ act regime.

2.2.34. To replace the term "forest land resources (LPF)" by the currently used term "forest lands (LP)" (pursuant to § 3 of the Act of NR SR No. 326/2005 Coll. on forests as amended).

The requirement solution:

The relevant chapters of the Assessment Report use the term "forest lands (LP)"

2.2.35. Based on the biological assessment results, the Assessment Report measures shall include necessary technical provision of birds protection on power transmission poles and the poles of overhead power transmission lines (pursuant to § 4, art. 4 of the Act of NR SR No. 543/2002 Coll. on nature and landscape protection as amended ("Each body performing a construction or a planned reconstruction of overhead power transmission line is obliged to apply such technical design which prevents from killing birds".) because the proposed activity will be performed nearby CHVÚ Špačinsko-nižnianske polia.

The requirement solution:

Regarding the 400 kV overhead power lines, the minimum distance between individual phases respectively between the phases and pole structures is approx. 5 m or more; regarding the 110 kV overhead power lines, the distance is approx. 2,5 m. Even the biggest birds' bodies' size (or a wingspan) does not exceed this distance. So it reliably meets the requirements of the provision of § 4, art. 4 of the Act No. 543/2002 Coll. on nature and landscape protection as amended that requires applying such technical design which prevents from killing the birds. The protective means, effectively preventing from the birds killing caused by electric current, is the structure of the poles and the geometry of the lines.

Following the biological assessment results, it is recommended (see the chapter C.IV.4.) to provide a monitoring of the areas below the power lines in order to detect possible death loss of birds and bats caused by their collisions with these structures. These areas should be monitored once a month during minimum one calendar year by means of walking rounds performed below or along these structures. In case the birds death loss is discovered caused by the line wires, these line sections will be equipped with signalling or warning elements (reflex targets, reflecting glass) in order to prevent from other collisions.

2.2.36. To review and respect the other relevant requirements included in the statements submitted to MŽP SR regarding the proposed activity.

The requirement solution:

The way of review and respecting the other relevant requirements included in the statements submitted to MŽP SR regarding the proposed activity is provided in the section 2.4. (page 52 of this document).

2.2.37. To assess in a written form the consideration of all the requirements and recommendations included in the submitted standpoints regarding the proposed activity or to provide reasoning of noncompliance with them as well as to assess the fulfilment of individual points of this Assessment Scope for the Proposed Activity.

The requirement solution:

The written assessment of the compliance with all the requirements and recommendations included in the submitted standpoints that regard the proposed activity is a subject matter of this document.

2.3. Specific requirements resulting from the assessment of impacts crossing the borders of the Slovak Republic (a procedure pursuant to the Espoo Convention)

***Hungary** – states in its standpoint, that the professional assessment of the proposed activity was elaborated following expertises of nuclear energy authorities, the authorities of environment protection, nature protection, water management, the public health and relevant authorities for crisis situations management. The standpoint states that in case of a normal operation of the planned "New nuclear power plant Bohunice" there is a low probability of a harmful impact on the environment in Hungary. Nevertheless, each unlikely deviation from the normal operation, caused by any reason, can result in risks with significant consequences for Hungary that must be minimized and monitored. Following the above mentioned, Hungary requires to clarify the following aspects within the EIA Report:*

2.3.1. To provide a way of solution of design basis accidents of the new nuclear power plant units as well as the study conclusions that regard conservative cases of severe accidents and their detailed assessment.

The requirement solution:

Solution way of the design basis accidents and severe accidents, the results and conclusions of these assessments are presented in the chapter C.III.19.1. Radiation risks.

2.3.2. To describe the exposure paths and results of health risks assessment.

The requirement solution:

The exposure paths and the results of health risks assessment are described in the chapter C.III.1. Impact on the population.

2.3.3. To specify the methods of estimation, presentation and assessment of radiological impacts resulting from the facility operation, for normal operation, abnormal conditions as well as during emergency situations.

The requirement solution:

The estimation, presentation and assessment of the radiological impacts resulting from the normal operation are provided in the chapter C.III.16. The other impacts or in its sub-chapter C.III.16.3. Ionizing radiation impacts. Under abnormal conditions (abnormal operation) the basic limit 1 mSv/year has to me observed for an individual from a critical group, for all the exposure pathways and while taking no protective measures.

The estimation and assessment of radiological impacts resulting from the emergency situations, including a severe accident, are presented in the chapter C.III.19.1. Radiation risks.

2.3.4. To present the calculations of radiation doses for the environment – for normal operation, for design basis accidents and severe accidents, and determination of zones.

The requirement solution:

The calculations of radiation doses in the environment for a case of NJZ normal operation, NJZ normal operation in accumulation with existing JZ at EBO site and the determination of the zones of the doses assessment are presented in the chapter C.III.16. The other impacts or its sub-chapter C.III.16.3. Impacts of ionising radiation. The zones of the doses assessment include also the closest or the most affected areas of Hungary. The doses assessment includes the discharges into water courses (including an impact on the Danube) as well as the doses of the discharges into the air.

The doses calculations for representative envelope cases of design basis and severe accidents of NJZ and the determination of the zones of the doses assessment are presented in the chapter C.III.19.1. Radiation risks. The doses are assessed within a distance 100 km from NJZ in order to enable assess a radiation impact on the closest urban territory of the neighbouring country (the Czech Republic: 37 km, Austria: 54 km and Hungary: 61 km).

In case of a severe accident, the assessment includes also washing out of the radionuclides fallout from the radioactive plume to the nearest water reservoir (Sĺňava) from NJZ in order to assess the impacts on the Danube and the ground water in the Danube surroundings.

2.3.5. To present a structure and operation of the facility monitoring system for the emissions and environment.

The requirement solution:

The structure and operation of the facility monitoring system for radioactive discharges and environment are presented in the chapter C.II.15.3.2. Radiation situation of the area concerned or C.II.15.3.2.3. Pollution situation of the site. Monitoring of the air non-radiation parameters at local and national level is described in the chapter C.II.5.1. Air quality, monitoring of surface water non-radiation parameters at local and national level is in the chapter C.II.6.1.3. Surface water quality and the local monitoring of the ground water is described in the chapter C.II.6.2. Ground water.

2.3.6. To compare the emissions planned values of the existing and proposed nuclear installations with the emission limits.

The requirement solution:

Releases monitoring results and the doses calculations of the releases from the existing JZ situated at EBO site and their comparison with the emission limits are presented in the chapter C.II.15.3.2. Radiation situation of the area concerned. The doses calculations following a single normal operation of NJZ as well as the ones of the summary of all the JZ situated at EBO site and the comparison with valid limits are presented in the chapter C.III.16. The other impacts or in its sub-chapter C.III.16.3. Impacts of ionising radiation. Regarding the summary releases (NJZ + the existing JZ at the site), the emission limits prescribed by Slovak legislation as well as the authorized limits prescribed by the decision of ÚVZ SR for EBO site are met with a large reserve.

2.3.7. For a case of an accident that is probably related with the highest extent of radioactive emission, it is required to present the activity level, the way it would develop at the state border and to present expected values of doses.

The requirement solution:

Regarding the envelope case of severe accident and the case of water contamination in the Váh River and the Danube (Hungary – dose load coming from a water source), the calculation values of the doses at the state border (the Czech Republic, Austria and Hungary) are provided in the chapter C.III.19.1. Radiation risks.

In terms of possible cross-border impact (the distances ≥40 km), the calculated results confirmed that total maximum annual as well as lifetime IED coming from all the exposure pathways, i.e. involving the dose commitment (a contribution to the lifetime dose) from an annual income of locally produced contaminated food will not exceed even a limit value 1 mSv/year set for the normal and abnormal operation conditions (the Council Directive 2013/59/Euratom of December 05, 2013; or ICRP publication 103).

The same conclusion is valid for a scenario variant of a severe accident with an identical source term presuming a maximized radionuclides fallout on the whole area of the nearest water reservoir on the Váh River (water reservoir Sĺňava) as a result of heavy rainfall following a radioactive cloud coming to this water reservoir subsequently contaminating the Vah and The Danube and with an assessments of impacts – radiation consequences on the closest territory of Hungary (junction of the Váh and the Danube).

2.3.8. Regarding the fuel to be applied for the new nuclear power plant – it is required to specify clearly whether just a fuel containing uranium dioxide shall be used or there is also a presumption to use a mixture (so-called MOX) fuel containing uranium dioxide and plutonium oxide, or to state that this issue will be decided later after the impact assessment is finished.

The requirement solution:

It is presumed a fuel based on UO_2 will be used for NJZ. It is not expected to use the MOX fuel type, but its application in the future is not excluded. The chapter C.III.19.1. Radiation risks includes a preliminary assessment of the impact the MOX fuel application will have on the accidents – it resulted in statement that the MOX fuel has no impact on the source term.

2.3.9. To assess the mutual, common, cumulative impacts of the planned new units of the new nuclear power plant and the other nuclear installations on the site and to present the details of this assessment conclusions.

The requirement solution:

The impacts of the new nuclear power plant are assessed respecting a concurrent (cumulative) effect of the other nuclear installations situated on the site and the environmental background. This assessment way was used for all the impacts on all the elements of environment.

With respect to the fact that the assessment of ionising radiation impacts is the most important for the nuclear installations, these impacts are analyzed in details in the chapter C.III.16.3. Impacts of ionising radiation for both a single effect of NJZ and the concurrent (cumulative) effect of NJZ and the other nuclear installations situated on the site.

2.3.10. Within the assessment of the new nuclear power plant impacts on the environment, it is necessary to discuss the environmental impacts of the new interim storage facility for spent fuel rods coming from the new nuclear power plant (regardless of the fact the storage facility will be established much later, may be even 10 years later, and it will be subjected to independent impacts assessment). The reason is that its establishment is necessary due to a construction of the new nuclear power plant whose fuel cannot be stored in the existing storage facility.

The requirement solution:

The issue of the spent nuclear fuel coming from NJZ is dealt in the chapter A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management. After the spent fuel storage at the reactor unit is terminated, the spent fuel will be, after the requirements for its safe transport and storage are met, handed over to a legal entity JAVYS authorized for disposal of RAO or spent fuel for further management. The company JAVYS is an owner and operator of the nuclear facility "Interim Spent Fuel Storage Facility" (the details can be found in the chapter A.II.8.4.1.2.).

Due to capacity reasons and the need to store the spent fuel produced primarily by the existing nuclear power plants in Slovakia, construction of new storage capacities is expected by extension of the existing MSVP. At the time of elaboration of NJZ Assessment Report, the EIA process for this facility is being performed, which is at the stage of the Assessment Report Review following the Assessment Scope prescribed by MŽP SR (Assessment scope for a change of the proposed activity "Completion of storage capacity of the Interim Spent Fuel Storage Facility at Jaslovské Bohunice site". MŽP SR, 2014). The Assessment Report for the MSVP completion states that the surrounding environment will not be affected by the storage facility operation. Just some non-significant impacts have been identified regarding air and water courses. Similar conclusions were obtained by previous EIA processes for the spent fuel dry store in Mochovce and for seismic upgrading and compacting MSVP in Jaslovské Bohunice. Both assessment processes confirmed that the surrounding environment will not be significantly affected by the storage facility operation and they didn't demonstrate a need of any measures to compensate or reduce the impacts of both storage facilities in question.

If the fuel from NJZ cannot be stored in the completed MSVP (which is currently under an independent EIA process), a new storage facility will be prepared for it – most probably as a new independent module of MSVP. An authorized organization - JAVYS will be in charge of the new storage facility. The storage facility (module) preparation for the NJZ fuel will be initiated in a sufficient lead time after the NJZ supplier is nominated. The best currently available technology will be used for the storage facility and the preparation process will include an independent EIA process. With respect to the performed assessment of the other spent fuel storage facilities situated in Slovakia and conservative expectations applied when assessing the NJZ impacts, the impacts of the new storage facility can be considered as non-significant.

2.3.11. To state whether it is necessary to construct a new facility for radioactive waste processing at Bohunice site to process the operational waste produced by the new nuclear power plant or whether the existing waste processing systems, and those ones that are under construction, are able to process the waste produced by NJZ, too. If new processing facilities are needed, the discussion on their impact on the environment, performed within the process of impacts assessment, is reasonable.

The requirement solution:

Construction of a new facility for processing and treatment of radioactive waste due to NJZ operation is not taken into account. Following approx. 13 – year operation experience, it is possible to state that the existing technologies of the nuclear facility "Radioactive waste processing and treatment technologies (TSÚ RAO)", particularly following their recent reconstruction, are sufficient (regarding their technology and capacity) for management of all the considered operational radioactive waste produced by NJZ and all the nuclear installations situated on EBO site as well as for management of all the solid waste produced by nuclear power plants in Mochovce. The radioactive waste management is described in more details in the chapters A.II.8.3.4.2, A.II.8.4.1.3 and B.II.5 of the Impacts Assessment Report.

Regarding the high activity radioactive waste management (according to a legislatively constituted classification of radioactive waste it is a medium level activity waste), the material pulled out from nuclear reactor or coming from its vicinity (see also the section B.II.5. of the Assessment Report), these solid radioactive wastes are in the safety satisfactory way (in sheltered cells) stored within the nuclear power plant in which it was produced. A development of the system to manage this group of waste produced by operated nuclear power plants, considered small at volume but significant at its activity, is already actual (due to a need to meet the provisions of the amendment of the Atomic Act No. 143/2013 Coll.), so it will be

satisfactorily solved much sooner than the NJZ starts the operation. It can be expected that this waste will stay in the storage cells in NJZ till the final stages of its decommissioning.

2.3.12. To present summary emission data with a division for determining isotopes for the new nuclear power plant, the existing facilities (and the activities, including the demolition of the existing facilities), as well as the spent fuel rods storage at the site and any new facility for radioactive waste management which might be necessary to be used due to the new nuclear power plant. It is required to take into account a potential leak of alpha nuclides to the environment (e.g. as a result of demolition activities at the nuclear power plant A1 which suffered from an accident).

The requirement solution:

The summary emission data with a division to determining isotopes for the new nuclear power plant, the existing facilities (and the activities, including the demolition of the existing facilities) are presented in the tables of annual releases into air and atmosphere in the chapter B.II.5. The source term for NJZ was determined as an envelope of maxima which are stated by individual suppliers of the reference designs – for the existing facilities as an envelope of measured maxima for the period of last 10 years (JE V2) and 5 years (JAVYS facilities).

The envelope source terms for JE V2 and JZ JAVYS include also the contributions from alpha radionuclides leak (Pu-238, Pu−239+240 and Am-241) to air and hydrosphere. The tables presented in the chapter C.II.15.3.2. Radiation situation of the area concerned show that their share in the total radiological impact is non-significant (their share in the source term is <0,2%).

Following the measurements performed at JE V2 and the analysis elaborated for NJZ, the contribution of gaseous releases and liquid releases from the spent fuel pool produced by normal operation including refuelling is negligible in comparison with the total discharges.

With respect to the conservative approach to the determination of the source term for NJZ, the contribution from NJZ has the biggest impact on the total discharges. Even with such a source term, the value of the total annual dose coming from NJZ and the existing JZ is 1,76E-06 Sv for the most exposed individual of the critical group of population, which is just 2,22% of the limit total condition (82 μSv per year) for all the currently functional JZ at Jaslovské Bohunice site and only 0,7% of the value of limit dose (0,25 mSv) from all the sources of JZ complex pursuant to NV SR No. 345/2006 Coll.

2.3.13. To determine radionuclides concentration values in the environment resulting from normal operation, abnormal conditions and severe accident, for various components of the environment, depending on a distance – by means of propagation calculations – mentioned in the preliminary study. In case the emissions are produced by the normal operation, the calculations will have to be based on total emissions produced by all the installations mentioned in the previous paragraph.

The requirement solution:

The chapter C.III.16.3.1. Impact of radioactive releases provides calculation of average annual concentration values of individual radionuclides [Bq/l] in the Váh River (zone No. 78 and No. 95 – the Váh mouth to the Danube) and the Danube (zone No. 96). The concentration values in the rivers are calculated for summary envelope discharges from NJZ and the existing JZ at Jaslovské Bohunice site.

For air and summary of the operation of NJZ and the existing JZ at EBO site, the support study for the EIA Report provides calculations of 20 highest values of time integral of volume concentrations [Bq.s/m^3], for aerosol C-14, elementary iodine I-133e and for organically bound iodine I-133o. With respect to generally low concentration values and low indicative ability of these values, these calculations were not presented directly in the EIA Report.

Time-integrated concentrations (TIC, [Bq.s/m^3]) of radioactivity in the atmosphere and surface contamination level [Bq/m^2] for two design basis accidents were determined in the support study for the EIA Report. With respect to a low indicative ability of these values, these calculations were not presented directly in the EIA Report. Time-integrated concentrations (TIC, [Bq.s/m^3]) of radioactivity in the atmosphere and surface contamination [Bq/m^2] and radionuclides concentration [Bq/m^3] in the Váh River and the Danube for envelope severe accident were determined in the support study of the EIA Report and they are presented in relevant analyses of severe accident in the chapter C.III.19.1. Radiation risks.

2.3.14. To compare the values of the expected emissions with the limits determined by relevant authorizing bodies and to compare the radioactive substances concentration values – their development in the environment components in compliance with the limit values.

The requirement solution:

The releases of radioactive substances into the atmosphere through the ventilation stacks of individual JE and JZ are monitored and reported in reports and notifications for respective bodies of national sanitary supervision (MZ SR, the Chief Hygienist Department – by means of ÚVZ SR and ÚJD SR).

The liquid discharges are balance-monitored through sampling of monitoring tanks that collect the waste water potentially polluted by radioactive substances. The tanks are discharged to the recipient of the Váh River water course (through waste pipe collector Socoman) after the samples are assessed provided this water activity is lower than the value of the authorized limit determined for this kind of waste water.

The limits for all the ventilation stacks located on the site (as defined paths of RAL release to the atmosphere) as well as for all the paths of the waste water discharges to the surrounding water courses are derived, with a significant reserve, from the value of effective dose for a representative person 82 μSv/year which is specified in the Decision of the Chief Hygienist of the Slovak Republic as an authorized radiological limit for RAL release to the surrounding environment from all the existing JZ at the site. When determining these radiological limits for individual JZ, ÚVZ SR respect the requirement of NV SR No. 345/2006 Coll. stating that, a representative person's dose for all urban areas cannot exceed the limit dose value 250 μSv/year for a cumulated impact of all the JZ situated at the site. Compared with the value 250 μSv/year per a site required by the legislation, it provides a sufficient reserve also for NJZ operation.

The environment doses calculations for a case of NJZ normal operation, for the summary of NJZ normal operation and the existing JZ at EBO site and a determination of areas of the doses assessment are presented in the chapter C.III.16. The other impacts or in its sub-chapter C.III.16.3. Impacts of ionising radiation. Even with such a source term, the value of the total annual dose coming from NJZ and the existing JZ for the most exposed individual of the critical group of population is 1,76E-06 Sv (infants) and 1,69E-09 Sv (the adults) and it is just 2,2% of the limit total condition (82 μSv per year) for all the currently functional JZ at Jaslovské Bohunice site. The calculated value is just 0,7% of the limit dose (0,25 mSv) coming from all the sources of JZ complex determined by Slovak legislation.

The radioactive substances concentration in the environment components is monitored. The way and results of monitoring are provided in the chapter C.II.15.3.2. Radiation situation of the area concerned. All the results are significantly below the limit values and a similar state is expected for NJZ and operation concurrence.

2.3.15. To determine a dose received by a critical group of population in case of normal operation, abnormal conditions and severe accidents by calculation methods specified in the preliminary study. As regards the normal operation, it is required to follow the cumulative emissions of all the installations. To perform some additional calculations to estimate a development of doses received by the people who are out of the critical group of population, depending on the distance as well.

The requirement solution:

Radiation consequences analyses for the normal operation releases were performed by the computer code RDEBO for all the age groups population and a distance up to 100 km. The assessments of the normal operation doses are presented in the chapter C.III.16. The other impacts or in its sub-chapter C.III.16.3. Impacts of ionising radiation. These analyses resulted in determining of a critical group as a resident in the zone No. 78. The zone No. 78 is situated at the junction of the derivation channel (the Váh River Drahovský Channel) in Leopoldov area. The contributions of individual exposure pathways to the total IED in the zone No. 78 are presented in the chapter C.III.16.3. This chapter includes also an assessment of the doses for all the other zones for the category of adults. Additional calculations for all the age categories were done in a respective support data study. With respect to the fact that the results of individual age categories do not differ significantly one from another, the Report provides a detailed presentation of results for the adults who stand for the largest group; just a commentary is provided for the other population groups.

The radiation consequences analyses for the design basis accidents were performed by the computer codes RTARC and RDEBO for all the population age groups and a distance up to 100 km. The detailed radiation consequences analyses for envelope severe accident were performed by the computer code COSYMA for the age group „the adults" which is pre-

defined in the computer code as a reference one and for a distance up to 100 km. The applied approach and the results are presented in the chapter C.III.19.1. Radiation risks.

2.3.16. To compare the doses values calculated as mentioned above with the limit values.

The requirement solution:

Normal operation (the chapter C.III.16.3. Impacts of ionising radiation): All the conservative presumptions say that maximum annual individual effective dose from annual discharges coming from NJZ and the existing JZ situated on Jaslovské Bohunice site is received by an individual in the zone No. 78. The value of this annual IED is 1,76E-06 Sv and it was calculated for the age category „infants" and the dose stands for a summary of all the atmospheric and hydrological exposure pathways. The annual dose value 1,76E-06 Sv is just 2,22% of the limit total condition (82 μSv/year) for all the currently functional JZ at Jaslovské Bohunice site. The calculated value is just 0,7% of the limit dose (0,25 mSv) coming from all the sources of JZ complex determined by Slovak legislation. It can be expected that in the case of the current functionality of all the currently existing JZ at Jaslovské Bohunice site and NJZ, the value of maximum permissible dose load on an individual from a critical population group will be two orders of magnitude lower than the limit value required by the Slovak legislation.

Accidents (the chapter C.III.19.1. Radiation risks): The calculated doses values were compared with the limit values – by means of the acceptance criteria pursuant to the safety guide of ÚJD SR (BNS I.11.1/2013) and the requirements of IAEA, WENRA and EUR for new nuclear power plants for cases of design basis and severe accidents. All the requirements of ÚJD SR, IAEA, WENRA for the accidents doses limit values are met and the preview of their assessments is presented in the conclusion of the chapter C.III.19.1. Radiation risks.

2.3.17. To define a size of protection area of the new nuclear power plant or to provide just an indication of the design implementation stage at which the protection area will be defined.

The requirement solution:

Due to emergency planning purposes, an emergency planning zone (threatened area) with a radius 21 km was defined for the site (with respect to the operation of JE V2). According to the Atomic Act, at the next stages of the approval process, it will be necessary to perform calculation analyses to determine a new or to confirm the existing size of the emergency planning zone.

The size proposal of the emergency planning zone surrounding JE submitted by the permit applicant is reviewed by ÚJD SR in three steps:

- a size proposal of the area threatened by the nuclear installation – at the stage of JE siting,
- a preliminary determination of the threatened area size – the construction approval stage,
- a determination of the threatened area size at the stage of approval of the nuclear installation commissioning.

Size of the protection area zone, i.e. of the zone surrounding the nuclear installation where a permanent settlement is excluded by an administrative measure, is not regulated by the current legislation of the Slovak Republic (i.e. the Construction Act, the Atomic Act, the Act on Protection, Encouragement and Development of the Public Health), therefore it is not likely to be newly determined for NJZ. Regarding the EBO site, the protection zone was historically determined as a boundary of permanently settled zone within a distance 2-3 km from the EBO site. This boundary remains valid for the existing installations, therefore for NJZ, too.

2.3.18. To explain conceptually the function of the backup control centre (the emergency control room) and, moreover, to explain whether an establishment of only one common backup control centre is intended for the new nuclear power plant or independent centres for each unit will be realized.

The requirement solution:

NJZ will be realized as one unit. It will have one control room and one backup (emergency) control room. A description is presented in the section Control and service workplaces in the chapter A.II.8.3.2.4. Instrumentation and control system.

2.3.19. To explain whether the existing emergency planning zones of Bohunice site will remain unchanged or they have to be modified. In the latter case the main parameters of the changes shall be presented.

The requirements settlement:

The threatened areas (the emergency planning zone) of the existing nuclear installations at Jaslovské Bohunice site are described in the chapter C.III.19.1.11.4. The area of threat.

The threatened area of NJZ will be defined following an application submitted by the next NJZ operator to ÚJD SR and which will include analyses and source data specified in the Annex 5 of the Decree of ÚJD SR No. 55/2006 Coll.

The determination of the NJZ threatened area and its size will take into account the relevant requirements and recommendations presented in the safety standards of IAEA (GS-R-2, GS-G-2.1) and WENRA.

2.3.20. To state whether the environment protection control system for a case of a routine operation and for the purposes of accident consequences management remains unchanged or it will have to be modified due to the construction of the new nuclear power plant.

The requirement solution:

The environment protection control system for a case of a normal operation and for the purposes of accident consequences management in relation to the construction of the new power plant will remain unchanged during the NJZ construction. The base of the currently valid TDS will be applied for NJZ operation but it will be necessary to add the 1st circuit of TDS and, if necessary, to modify the other circuits as well depending on currently valid requirements for the monitoring system; however the 2nd and the 3rd circuit are in principle suitable for NJZ as well. The scope of monitoring the components of environment, the components of food chains, surface and ground water, i.e. the control system in the JZ site surroundings can be maintained in current scope (see the chapter C.II.15.3.2.3.1. Monitoring systems of Bohunice nuclear installations surroundings). The construction of NJZ will not require any new measures in radiation monitoring taken at national level (C.II.15.3.2.3.2. Radiation monitoring at national level) and in the system of cross-border warning (C.III.19.1.11.3. Cross-border warning and interconnection with the systems of neighbouring states).

2.3.21. More serious emissions, which might result in an unfavourable impact on domestic environment and population, can leak to the atmosphere probably only as a result of an accident (fire, explosion). An earthquake and plane crashes are the most serious accidents caused by external circumstances. It is required to investigate their impact in details.

The requirement solution:

Assessment of accidents radiation circumstances is presented in the chapter C.III.19.1. Radiation risks. The same chapter includes a description of a solution dealing with a risk of terrorist attack including an intentional plane crash, a coincidental plane crash and external impacts induced by human activities. The requirements for NJZ resistance to natural impacts and earthquake are presented in the chapter A.II.8.3. Specific data of NJZ.

2.3.22. To provide a description of material conditions for radioactive waste separation for the waste collection, separately for each unit type and a description of all the waste types that will be stored or recycled.

The requirement solution:

Summary information on NJZ RAO management is provided in the chapter A.II.8.3.4.2. Radioactive waste management. Envelope data on quantity, type and RAO category are provided in the chapter B.II.5. As the answer to waste production and categories for individual units exceeds the envelope approach included in the EIA Report, the completing information is given within the answer to this requirement. The suppliers of individual reference designs of NJZ provided the following information on RAO production:

Tab. 3: RAO production as per the information provided by the reference designs suppliers:

Design	Liquid RAO per unit and year	Solid RAO per unit and year
AP1000	Saturated ion exchange media: 11,7 m^3	Filter media: 0,2 m^3 Pressable waste: 135 m^3 Non-pressable waste: 6,9 m^3
EU-APWR	Concentrates: 5 m^3 Saturated ion exchange media: - low activity: 7,1 m^3 - medium level activity: 8,2 m^3 Sludge: 1,2 m^3	Filter media: - low activity: 0,5 m^3 - medium level activity: 1,0 m^3
MIR-1200	Concentrates: 80 m^3 Saturated ion exchange media: - low activity: 10 m^3 - medium level activity: 15 m^3 Sludge: 0,5 m^3	Pressable waste: 40 m^3 Non-pressable waste: - low activity: 30 m^3 - medium level activity: 6,5 m^3
EPR	Concentrates: 18 m^3 Saturated ion exchange media: 2 m^3 Sludge: 2 m^3 Oil: 1 m^3	Pressable waste: 40 m^3 Non-pressable waste: 2 m^3 Burnable waste: 150 m^3 Filter media: 3 m^3
ATMEA1	Concentrates: 15 m^3 Saturated ion exchange media: 15 m^3 Sludge: 2 m^3 Oil: 3 m^3	Pressable waste: 40 m^3 Non-pressable waste: 2 m^3 Burnable waste: 40 m^3 Filter media: 3 m^3
APR-1400	Concentrates: 12 m^3 Saturated ion exchange media: 23 m^3	Pressable + non-pressable waste: 25 m^3

As regards radioactive material recycling, see the below answer to the requirement 2.2.23.

2.3.23. For each unit type to provide a description of the technical design applied in the course of condensation when evaporating the liquid radioactive waste produced during the primary circuit cleaning and to describe a processing of the issues regarding technology safe procedures.

The requirement solution:

There is some information available, respectively a preliminary general description of radioactive waste management for reference types of reactor units:

- AP1000 – its radioactive waste processing is based on filtration of liquid medium with no concentrate generation. Filtration and sorptive materials (ion exchange resins) are then processed by contractors, mostly by applying a mobile technology (dewatering/drying). In compliance with a standard practice applied in the USA, the liquid (and the solid one as well) radioactive waste management system is based on application of mobile facilities or the waste is sent to a company authorized for radioactive waste processing. The only stable processing technology at the facility is storage and ion exchange filtration; the other technologies, particularly the ones for the final treatment (solidification, drying, etc.) are considered as an alternative and they should be provided by means of a mobile technology.
- The radioactive waste management system of EU-APWR includes a technology of evaporation and ion exchange filtration. The concentrate is solidified at a cementation facility and packed into drums. The system is designed for 30-day storage of the processed waste in the auxiliary nuclear building.
- MIR-1200 for liquid radioactive waste processing applies the technologies of sedimentation, evaporation and filtration. Sludge and concentrates are processed by a cementation technology. The cement product is placed into protective concrete container which assures a radiation and technological safety during all the stages of handling the solid radioactive waste. Following the dewatering, the used ion exchange resins are, by means of a waste solidification device, packed into special containers with no cement addition. A storage for radioactive waste is considered, designed for storing of 448 pcs of steel-reinforced concrete containers with solidified radioactive waste in isolated cells.
- EPR design uses for liquid radioactive waste processing the technology of evaporation and ion exchange filtration. Produced radioactive concentrate and the used resins are then dried up. Alternatively a cementation technology is offered. In the country of the design origin, the cementation is widely used technology and its application for NJZ wouldn't mean any technological risks.

- ATMEA1 design uses for liquid radioactive waste processing the technologies of sedimentation, evaporation and filtration. Wet solid waste, e.g. evaporator concentrates, resins and sludge shall be solidified by the cementation.
- APR-1400 concept processes the liquid radioactive waste by a technology of reverse osmosis and demineralization. The used membranes of the reverse osmosis are drained and liquidated as dry solid waste. Saturated sorbents are solidified by a mobile device through polymerization technology, but information on characteristics of the used polymers is not available.

Two technologies and their combination are generally used to process liquid radioactive waste in the nuclear power plant in which it was produced:

- Ion exchange on ion exchange filters which capture undesirable components from the liquid waste. The ion exchange filters are used to clean the primary circuit water – in this case the saturated ion exchange may stand for medium level activity waste; or to clean other liquid waste or to re-purify the condensate – these ion exchange filters will be low level activity waste (see the next paragraph).
- evaporation – it is about a concentration of water active solutions by means of their evaporation. It results in a concentrate with a pre-defined salts concentration (so-called salinity) and a condensate which can be re-purified by ion exchange (see above) and then used again as a technological medium or discharged as a liquid discharge.

Further processing and treatment of the liquid RAO will be performed (in accordance with current approaches) by JAVYS facilities. NJZ design should apply principles of reaching more effective liquid RAO management in the power plant by a reduction of this RAO production. Detailed technological procedures of RAO management will be included in the NJZ design, but they shouldn't significantly differ from the way of the liquid radioactive waste management applied in the currently operated nuclear power plants.

2.3.24. The Danube, which forms the northern boundary of Hungary, might be hit by a potential pollution in a relatively short time, i.e. in about one day, and then the pollution can gradually reach the water layers of the subterranean wells on the Hungarian side. It is required to describe the surface water monitoring which will be available for a prevention of such contamination and an early warning.

The requirement solution:

Following the performed model calculations, after the cloud over Slňava is discharged and considering a retention function of the water reservoir Kráľová voda, the Danube would be reached in 5-7 days. The calculation of a severe accident scenario results in a fact that the radionuclides concentration values in the Danube will be so low and time-limited, that there will be no impact on groundwater bodies of the subterranean wells on the Hungarian side (the chapter C.III.19.1. Radiation risks). Other information on the discharge and monitoring of the waste water produced by NJZ and other installations located on EBO site is presented in the chapters A.II.8.3.4.4. Water management connection and systems, C.II.15.3.2.2.2. Characteristics of RAL substances discharged from the existing nuclear installations and C.II.15.3.2.3.1. Monitoring systems of Bohunice nuclear installations surroundings. The system of cross-border warning in case of an emergency radiation situation is described in the chapter C.III.19.1.11.3. Cross-border warning and interconnection with the systems of neighbouring states.

In case an event pursuant to the Act on water – extraordinary worsening or threat of water quality – JZ operator shall follow the plan of emergency measures against surface and ground water pollution and the internal emergency plan for the specific JZ. In case of an emergency situation, the operator is obliged to take immediate measures for the emergency situation elimination and to report the accident to supervisory authorities (ÚJD SR, ÚVZ SR, Slovak Environmental Inspection Authority, water course administrator – The Váh River basin – Slovak Water Management Company – central control room, and a respective state administration body of the environment protection – Trnava District Authority). The other steps lie within authority of the state administration bodies of SR and the administrators of the river basins of the Váh and the Danube Rivers. They follow the international agreements including the bilateral treaty between the governments of Slovakia and Hungary.

The Slovak Environmental Inspection Authority (SIŽP) is a professional supervisory body that performs a national supervision and imposes fines regarding the affairs of the environment care and that performs a local administration within the sphere of integrated prevention and inspection of the environment pollution. In compliance with the Convention on Cooperation in Protection and Sustainable Use of the Danube River, the SIŽP head office provides a continuous operation

of the Principal International Alert Center PIAC 04 Slovakia which is included in the international system of early warning and prevention along the whole territory of the Danube River Basin (The Accident Emergency Warning System (AEWS)) and which performs the tasks of SR within the international system of water protection and in case of a cross-border worsening of water quality in the boundary water courses. The system disposes with an information data base on dangerous substances and with a model which is able to simulate a pollution spread in a respective section of the Danube course and its main tributary rivers. It involves also pollution prevention and an assessment of the risks coming from the old environmental loads, particularly at flood situations.

Except for the inspection activity of SIŽP performed within the sphere of water protection, they also approve emergency plans and receive reports on an extraordinary worsening of water quality from its polluter and from those who discover any signs of an extraordinary worsening of water quality. SIŽP shall find out reasons of the extraordinary worsening of water quality, manages the work performed during the solution process and issues orders to perform necessary measures.

Extraordinary worsening of water quality or an extraordinary threat of water quality is a sudden, unpredictable and serious worsening or threat of the water quality caused by an unauthorized release of waste water or by an uncontrollable leak of harmful substances and exceptionally harmful substances.

Following the Act on Water, SIŽP performs their tasks regarding cross-border worsening of water quality in the boundary water courses. The operation of the international warning centre of SR is provided in compliance with the Convention on Cooperation in Protection and Sustainable Use of the Danube River.

As per the Act of NR SR No. 128/2015 Coll. on prevention of severe industrial accidents, SIŽP is a national supervision body regarding the issues of the prevention of severe industrial accidents. Surface water quality in the partial river basin of the Váh River is monitored and annually assessed by SHMÚ in cooperation with VÚVH and SVP at approximately 100 monitoring spots situated in the Váh River course and on 20 spots in the Danube River course, in their tributary rivers and in melioration and diversion channels. For the details see the chapter C.II.6.1.3. Surface water quality.

The Article 35 of the Treaty Establishing the European Atomic Energy Community (Euratom) commits each member state to construct facilities necessary for a performance of continuous monitoring of radioactivity level in the air, water and food so that a compliance with basic standards is demonstrated (radiation monitoring network - RMS). European Commission representatives have a right to enter these facilities and to inspect their performance. The requirements for radioactivity level monitoring are specified in more details in the recommendation of the European Commission No. 2000/473/Euratom dated June 08, 2000 on the application of the Article 36 of Euartom Treaty regarding the radioactivity level monitoring in the environment in order to assess the population exposure. The Slovak Government Decree No. 674/2004, dated July 07, 2004, delegated the Public Health Authority to be a national coordinator for provision of the monitoring results transmission to an institution authorized by the European Commission. SHMÚ is a sub-gestor of this article observance.

In order to assure the public health protection in case of a radiation accident, it is necessary to especially know the radiation situation (to monitor), to record and evaluate the dose load of the population and then to propose measures for the public health protection. So-called Radiation Monitoring Network (RMS) and Radiation Monitoring Network Centre (ÚRMS) were established for these purposes that have, in terms of the public health protection in case of a radiation accident, non-substitutable role within SR conditions.

According to § 9 of the Act No. 355/2007 Coll. on Protection, Encouragement and Development of the Public Health, the RMS is defined as a controlled system of technically, professionally and personally equipped professional stations, organizationally interconnected for the needs of radiation situation monitoring and data collection on the territory of the Slovak Republic which is established by the Public Health Authority (ÚVZ SR) in cooperation with central state administration bodies. RMS provides mainly:

- measurements of determined parameters in determined components of the environment by a system of measuring spots performed in accordance with a time schedule,
- assessment of the population exposure and the contribution to the exposure caused by activities resulting in an exposure at a normal radiation situation,
- sources for a systematic regulation of the population exposure,
- data on radiation contamination of the environment necessary for decisions on performance and termination of interventions and measures for the exposure limitation during a radiation threat,

- data on the exposure level for the population notification and for international information exchange on the radiation situation on the territory of the Slovak Republic.

Decision of the Cabinet of Ministers of the European Community No. 87/600/Euratom dated December 14, 1987 on the Community's measures for an urgent information exchange in case of a radiation emergency state – this decision defines that the system ECURIE (European Community Urgent Radiological Information Exchange) requires that any state, if it decides to take protection measures or detects abnormal leaks of radioactivity, has to notify the other member states. This objective gestor in the Slovak Republic is the Nuclear Regulatory Authority. ECURIE is supported technically and professionally by the system EURDEP (European Union Radiation Data Exchange Platform) which involves national data bases of the radiation monitoring in one central data base. It is available to all the parties engaged. Professional and technical centre of this system is Joint Research Centre (EC JRC) in Ispra, Italy. SHMÚ is the EURDEP system holder for the Slovak Republic.

SHMÚ is the only representative of the Slovak Republic in the data base of the radiation system of early warning EURDEP (European Union Radiation Data Exchange Platform) which involves the national data bases of the radiation monitoring in one central data base that is available to all the parties engaged.

The radiation monitoring of SHMÚ performs the treaty commitments of bilateral treaties with Austria, Hungary and since the year 2013 with the Czech Republic. The performance of these obligations is regularly inspected by the treaty partners.

2.3.25. To explain the warning system applied in case of an accident: how the Hungarian party will be notified and which channels will be used; to elaborate a proposal of an emergency action plan.

The requirement solution:

The warning system, that will be used to notify the Hungarian party, is described in the chapter C.III.19.1.11.3. Cross-border warning and interconnection with the systems of neighbouring states.

The system is fully functional and it is not necessary to modify it in a direct relation to NJZ.

In case an emergency event occurs in a nuclear installation, its operator is obliged to notify with no delay a respective supervisory body – Nuclear Regulatory Authority of the Slovak Republic (ÚJD SR) as well as the other national bodies and self-governing bodies following the approved list. In the period of the emergency event duration, the operator shall provide ÚJD SR with continuous information on a development of the event which shall be handled in the nuclear installation following the approved procedures. ÚJD SR shall establish „Emergency Headquarters" for the work performed in the Emergency Response Centre in Bratislava. The Emergency Headquarters shall work under a regime of permanent alert and its function is, in case of an emergency event rise, to notify with no delay the EÚ, the International Atomic Energy Agency and the neighbouring countries within the commitments of SR whose gestor ÚJD SR is (multilateral and bilateral treaties) and to inform the media and the public.

The information shall be delivered and received by means of liaison places. In case of events with a radioactive substances leak from a nuclear installation to the environment and other nuclear installation emergency events, the liaison place for information exchange between Slovakia and Hungary is ÚJD SR on the Slovak side and the Hungarian Atomic Energy Authority on the Hungarian side. The communication at international level shall be in English language. International means of notification and warning include: system WebECURIE, protected websites USIE (to notify IAEA), fax, telephone and e-mail.

Radiation data shall be exchanged between SR and Hungary by means of SHMÚ and Meteo-service in Budapest. The data files are transferred by means of leased line network RMDCN (Regional Meteorological Data Connection Network). This Exchange data are published in 10-minute intervals on the web site of the Hungarian meteo-service at the address www.met.hu/omsz.php in the section Levegőkörnyezet, gammadózis-teljesítmény.

Since October 2006, the data for the European radiation data base in Ispra (Italy) are prepared by means of ftp-server of SHMÚ in 1-hour interval and published on the website available to the public https://remon.jrc.ec.europa.eu/ of the system EURDEP.

It will not be necessary to develop a special "emergency action plan" because the final emergency plan of the population protection for NJZ following the requirements of the Slovak legislation has to be developed so that it is available (sufficient time in advance) prior to the beginning of NJZ active operation. The population protection plan has to be developed and submitted to the authorized state administration bodies for a review and approval not less than 8 months prior to the

beginning of the fuel loading to the reactor. According to the Atomic Act, the reviewed and valid population protection plan is one of the conditions to issue a licence for the beginning of active commissioning of each nuclear power plant in Slovakia.

2.3.26. The chapter II.8.4.1.2. of the preliminary study contains basic safety data on the proposed installation including the methods for involving extreme climatic impacts and floods. It is required to provide details on the calculations results that will be a component part of the pollution risks analysis.

The requirement solutions:

Detailed results of the calculations, that regard a potential radiation „pollution" of the environment as a result of NJZ operation, are presented in the chapter C.III.16.3. Impacts of ionising radiation. The radiation consequences analyses were performed for a case of normal operation discharges by the computer code RDEBO for all the population age groups and a distance up to 100 km. The calculation assessment of the radiation consequences of envelope design basis accidents and a severe accident (including the approach description and the results assessment) is presented in the chapter C.III.19.1. Radiation risks. A description of the approach to the assessment of the extreme climatic impacts and floods is provided in the chapter A.II.8.3.1.2. Basic safety data."

2.3.27. To describe a review of the risks for various scenarios, including speed and extent of the pollution spread in surface and ground water in relation to an accident.

The requirement solution:

The calculation results of the radiation consequences assessment of two representative design basis accidents, which are presented in the chapter C.III.19.1. Radiation risks, confirmed meeting the acceptance criteria pursuant to the requirements of EUR, the safety standard IAEA SSR-2/1 and the safety guide of ÚJD SR BNS I.11.1/2013.

In terms of a potential cross-border impact (distances ≥40 km), the calculated results confirmed that maximum annual IED from all the exposure pathways, i.e. involving the dose commitment (a contribution to the lifetime dose) from an annual income of locally produced contaminated food will not exceed (if statistically most probable meteorological conditions are considered) even a limit value 1 mSv/year set for the normal and abnormal operation conditions (the Council Directive 2013/59/Euratom of December 05, 2013; or ICRP publication 103).

The calculation results of the radiation consequences assessment of an envelope severe accident, which are also presented in the chapter C.III.19.1. Radiation risks, confirmed meeting the acceptance criteria pursuant to the requirements of EUR, the requirements of WENRA and the safety guide of ÚJD SR BNS I.11.1/2013.

In terms of a potential cross-border impact (distances ≥40 km), the calculated results confirmed that the total maximum annual IED as well as the lifetime IED from all the exposure pathways, i.e. involving the dose commitment (a contribution to the lifetime dose) from an annual income of locally produced contaminated food will not exceed even a limit value 1 mSv/year set for the normal and abnormal operation conditions (the Council Directive 2013/59/Euratom of December 05, 2013; or ICRP publication 103). The same conclusion is valid for a scenario variant of a severe accident with identical ZČ presuming a maximized radionuclides fallout on the whole area of the nearest water reservoir of the Váh River (water reservoir SÍňava) caused by a heavy rainfall intensity following a radioactive cloud coming to this water reservoir with subsequent contamination of the Váh and the Danube water course and with an assessment of impacts – radiation consequences on the closest territory of Hungary (the junction of the Váh River and the Danube River).

Following the performed model calculations, after the cloud over SÍňava is discharged (and considering a holding function of the water reservoir Kráľová voda), the polluted water will reach the Danube in 5-7 days.

The calculation of a severe accident scenario results in a fact that the radionuclides concentration values in the Danube will be so low and time-limited, that there will be no impact on groundwater bodies of the subterranean wells on the Hungarian side.

The calculations results of considered exposure pathways confirm that neither intervention levels for countermeasures application are exceeded within the assessed critical zones (the zone No. 95, or No. 96 and No.84 in terms of neighbouring state - Hungary) nor the limit value of annual IED 1 mSv/year for the normal and abnormal operation conditions. More detailed information is provided in the chapter C.III.19.1. Radiation risks.

2.3.28. It will be necessary to investigate an impact of potential accident on flora and fauna of the Danube River (protected network Natura 2000 indicating the species of the fish, insects, amphibians, molluscs, birds and a mammals) resulting from a pollution reaching the surface water in Hungary by means of surface water (the Váh and the Danube Rivers) respecting a distance and a dilution.

The requirement solution:

The calculation results of the radiation consequences assessment of an envelope severe accident, which are presented in the chapter C.III.19.1. Radiation risks demonstrate that the doses, received by the inhabitants living in the Danube surroundings, who use the Danube water or ground water which might be affected by the Danube, will not exceed the value 1 mSv/year which is set as a limit value for normal and abnormal operation conditions (the Council Directive 2013/59/Euratom of December 05, 2013; or ICRP publication 103). Natural background represents approx. 2,4 mSv/year. In case of a severe accident, the radionuclides concentrations in the Danube presented in the chapter C.III.19.1. are at a level of permissible values for surface and ground water. Moreover, the radionuclides concentration increase following the accident is just a short-term one.

As regards the radiation impacts on flora and fauna, a generally accepted approach is primarily applied saying that if the dose limits specified for public protection are met, then the requirements for fauna and flora protection (for which no special limits are specified) are met as well. The review of the cases conservatively presumes that the Danube water is used as a potable water source and a water source for agricultural activities and all the other human activities related to a human life along the river.

The settlement of the above mentioned requirement had one specific aspect: an impact on fauna and flora of the Danube water ecosystem on the Hungarian side as well as on the most loaded zones of the Váh River course on Slovak side assessed applying the approach ERICA - Environmental Risk from Ionising contaminants: Assessment and Management (and European Commission / European Atomic Energy Community - EURATOM). This approach is recommended in the document EUR (European Utility Requirements for LWR Nuclear Power Plants) and, as well, quoted in the methodical procedures of the documents of IAEA, ICRP. The ERICA model is currently the most extensive database of parameters needed to assess the impacts of ionising radiation on fauna and flora.

The assessment method consists in a modelling of radioisotopes transfer from an exposure medium (in case of aquatic ecosystems it is water or a sediment) to a biological component while taking into account a complex of recommended reference organisms and radionuclides concentrations in aqueous environment and sediments. Subsequently, an internal and external dose rate was predicted and their summary was then compared with the limit values for a case of both short-term and long-term exposure. The comparison result is so-called Risk Quotient (RQ). If its value is below 1, an exposure to ionising radiation does not result in a risk of negative impacts of the biological component of the environment.

So the model calculation was done for both a case of acute effects (of an accident) and a case of chronic exposure (normal operation). The following table provides a list of result values of the Risk Quotient for individual organisms and zones with the greatest possible impact situated on the territory of Slovakia and Hungary.

Tab. 4: Assessment results of ionising radiation impact on biological components of the environment in the most affected zones.

Organism	Risk Quotient			
	normal operation		severe accident	
	zone No. 66	zone No. 96	zone No. 43	zone No. 96
amphibian	3.51E-05	2.19E-06	1.44E-02	3.59E-04
benthic fish	4.41E-03	2.75E-04	4.99E-02	2.45E-03
bird	5.29E-05	3.30E-06	2.90E-02	1.28E-03
crustacean	5.02E-03	3.12E-04	3.71E-01	2.03E-02
insect larve	9.99E-03	6.22E-04	7.29E-01	3.99E-02
mammal	5.24E-05	3.26E-06	1.90E-02	4.66E-04
mollusc - bivalves	4.78E-03	2.98E-04	8.13E-02	4.19E-03
mollusc - gastropod	4.88E-03	3.04E-04	1.49E-01	7.97E-03
pelagic fish	4.59E-05	2.87E-06	1.97E-03	7.01E-05
phytoplankton	1.95E-05	1.22E-06	5.20E-03	2.88E-04
reptile	4.35E-03	2.71E-04	6.64E-02	2.88E-03
vascular plants	4.98E-03	3.10E-04	3.08E-01	1.68E-02
zooplankton	3.27E-05	2.04E-06	1.70E-03	6.32E-05

Remarks: Zone No. 66: The zone in which the pipeline headers from NJZ and other nuclear installation discharges into do the Drahovský channel
Zone No. 96: The zone through which the Danube River flows in Hungary (the first affected zone in Hungary).
Zone No. 43: The water reservoir Sĺňava in VSV direction and at the distance of 15 km from the NJZ site

The performed assessment results that the exposure to the ionising radiation does not pose any risk of potential adverse effects for any reference organism of the aquatic environment. The obtained values of the total dose rate are by 1 or more orders of magnitude lower than the limit values representing the lowest dose rates at which no adverse impact on aquatic ecosystems have been observed. So, in terms of radiation effects, the impact of NJZ on the biologic components of the environment can be considered as non-significant.

The Republic of Austria *– this country's standpoint says that in its first step the preliminary study was submitted to the public to be commented. A professional assessment of the proposed activity was provided by the Federal Ministry of Agriculture, Forestry, Environment and Water Management. The documentation was reviewed by a team of experts led by company Pulswerk GmbH – a consultant company of the Austrian Institute of Ecology. A result was submitted as an expert opinion. The following requirements (aside other things) were recommended for the prepared assessment scope:*

2.3.29. In terms of nuclear-technical aspects:

- *To specify the international documents (IAEA, WENRA, EUR) that shall be accepted for the new nuclear power plant with respect to safety requirements and to specify a degree of the binding force.*
- *To provide a relevant technical description of each reviewed type of reactor.*
- *To describe a current state of development of each reviewed type of reactor: installations under construction/in operation, existing certification process etc.*
- *To describe for each reviewed type of reactor the safety systems including the requirements for important safety systems and components.*
- *To provide results of probabilistic safety assessments (PSA) for each reviewed type of reactor.*
- *To provide basic data on the installation operation: operational period, refuelling cycle, anticipated accessibility, fuel burn-up, anticipated share of MOX fuel etc.*
- *To provide basic data on a method of long-term safe operation assurance (Plant Life Management, Ageing Management).*
- *To describe model events of design basis accidents and severe accidents.*
- *To describe (for each reviewed type of reactor) the measures for management of the design basis accidents and severe accidents as well as their consequences mitigating measures.*
- *To provide data (requirements) on dimensioning focused on protection against intentional plane crash and explanation whether the considered reactor types meet these requirements.*
- *To provide information on volume, activity and classification of the radioactive waste produced by the operation.*
- *To provide a volume of spent nuclear fuel.*
- *To describe the methods of radioactive waste management (particularly the high-level radioactive waste) and the spent fuel management (location and time of storage, data on a current status of site selection for permanent storage facility and strategies of back-end of nuclear energy).*
- *To provide current data on the site with respect to earthquake, floods and extreme climatic conditions.*
- *To provide data on safety limits for the new nuclear power plant with respect to the site characteristics.*
- *To provide data on potential interactions with the existing nuclear installations at the site and their potential consequences.*
- *To provide a source term for the most important categories of leaks including the leaks from the spent fuel storage pool.*
- *To provide understandable calculations of spread of radionuclides regarding normal operation, accidents and incidents (source term, height and duration of the leak, meteorological data) and their reasoning; the calculations shall take into account an impact on frontier regions of the neighbouring countries.*

The requirement solution:

The preview of national and international documents that shall be applied for NJZ is presented together with a commentary of an obligatory force level in the chapter A.II.8.2.2.5. Hierarchy of legislative requirements for NJZ.

Technical description for each reference type of reactor is presented in the chapter A.II.8.3.1.3. Basic data on reference designs. The same chapter includes a description of safety systems of the reference units. A preview of requirements for important safety systems and components is presented in the chapter A.II.8.2.5. Requirements for safety classification of NJZ equipment. The basic data on the installation operation are provided in the chapter A.II.8.2.1.4. Safety and economic characteristics of PWR reactors of III+ generation. The other data regarding the nuclear fuel are presented in the chapters A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management and B.I.3. Raw material. The basic data on a method of long-term safe operation assurance are presented in the chapter A.II.8.2.3.4.2. Periodical safety assessment.

Regarding the spheres Plant Life Management, Ageing Management, it is possible to state (exceeding the scope of information presented in the Assessment Report in the chapter A.II.8.2.3.4.2. Periodical safety assessment) the following: The periodical safety assessment pursuant to the Decree of ÚJD SR No. 33/2012 Coll. considers the assessment of cumulative effects of nuclear installation ageing to be one of basic aims of periodical safety assessment of the operated nuclear power plants. The details of the ageing management are presented in § 8 (Ageing Management) of the above quoted Decree and they are specified as follows:

1. The aim of the periodical assessment of ageing management is to assess whether the ageing management is provided in a systematic manner and whether the classified equipment is capable of performing its safety functions till the time of a next periodical assessment or till a beginning of decommissioning stage.
2. During the periodical assessment the permit holder shall investigate the following:
   a) strategy and documentation of the ageing management programs,
   b) completeness of the list of classified equipment items included in the ageing management programs,
   c) records and suitability of selection of the recorded data effecting the ageing as well as the data identifying a state of the classified equipment lifetime,
   d) results of the lifetime monitoring and effectiveness of the ageing management programs of replaceable classified equipment items,
   e) acceptance criteria, current and required safety reserves of the classified equipment,
   f) understanding level of physical conditions, dominant mechanisms of ageing, current safety reserve and the other impacts that might reduce the classified equipment lifetime,
   g) possibilities of mitigation of the ageing process consequences of the classified equipment.

The methodology which will be followed by the NJZ operator when performing the activities regarding the managed ageing is presented in the safety guide of ÚJD SR BNS I.7.2/2002. The methodical instructions of this guide regulate in details the approach to the ageing management within the following spheres:

- criteria for a selection of systems, structures and components;
- requirements for the ageing management organization;
- requirements for a data base of systems, structures and components;
- requirements for documentation;
- assessment of performing the ageing management programme;
- responsibilities.

The results of the ageing management assessment will be involved in supplementary safety documentation and will be submitted to ÚJD SR.

Besides the requirements for the ageing management included in the valid Slovak nuclear legislation, the ageing management programmes apply the requirements and recommendations of IAEA, e.g. "Safe Long Term Operation of Nuclear Power Plants", SRS No 57, Vienna, 2008 or, as well, summarizing source documents for ageing management that were elaborated by OECD NEA - Challenges in Long-term Operation of Nuclear Power Plants (Organisation for Economic Co-operation and Development – Atomic Energy Agency), NEA/CNRA/R(2012)5). These requirements will be respected in the design base of NJZ.

Detailed analysis of model cases of design basis accidents and severe accidents are presented in the chapter C.III.19.1. Radiation risks. The measures for the design basis accidents and severe accidents management and their impacts mitigating measures separately for each reference reactor are described in the chapter A.II.8.3.1.3. Basic data on reference designs and (at a more general level) in the chapter A.II.8.3.1.2. Basic safety data and in the chapter A.II.8.3.2. Technological design. The requirements for resistance to a plane crash are specified in the chapters A.II.8.3.1.2. Basic safety data, C.III.19.1.3. Characteristics of emergency states, C.III.19.1.8. Risk of terrorist attack and C.III.19.1.10. Risks arising as a result of other human activities performed on the site. Regarding NJZ, all the suppliers of the reference reactor types of III+ generation have confirmed in their technical information a resistance to a plane crash including a large plane crash. This declared resistance will have to be demonstrated at the next stages of the approval process in compliance with international requirements and standards that regard this issue. The information on volume, activity and classification of the radioactive waste produced by the operation is provided in the chapters A.II.8.3.4.2. Radioactive waste management and B.II.5. Radiation and other physical fields. The information on volume and type of waste for individual reference units (as per the data provided by the suppliers) is presented in the requirement solution 2.3.22. The data on spent fuel are presented in the chapter A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management; the data on volume of the spent fuel in the chapter B.II.5. Radiation and other physical fields. The methods of radioactive waste and spent fuel disposal are described in the chapters A.II.8.3.4.2. Radioactive waste management, A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management A.II.8.3.6. Data on operation termination and decommissioning. It also includes current development milestones of deep geological disposal which should be put to operation in 2065. Following its preliminary interruption in the last decade, the program of preparation and development of the deep geological repository in Slovakia was recovered in 2013. On the present, an inventory control of the original program outputs is performed in terms of their current applicability. The outputs related to the site selection turn out to be applicable – after the performed assessment of applicability of the original site selection criteria a reduction of its area is made for another research and exploration. A new approach is being established regarding the public involvement in the matter including a generation of stimulation system for communities charged by the work on site selection, construction and operation of the repository. A feasibility study is being upgraded, plans are being developed. In-situ geological survey should be initiated after year 2016.

Upgraded data on the site related to an earthquake are presented in the chapter C.II.2.4.1. Seismicity. Floods and extreme climatic conditions are dealt with in the chapter A.II.8.3.1.2. Basic safety data. The data on safety limits for the new nuclear power plant respecting the site characteristics are presented in the chapter A.II.8.2.4. Requirements for NJZ construction site selection. The descriptions of the existing nuclear installations on the site are presented in the chapter A.II.8.4. Data on other installations and intentions on the site; a preliminary assessment of potential interactions risks is presented in the chapter C.III.19.1.10. Risks arising as a result of other human activity performed on the site. As regards NJZ independence, it is necessary to mention that NJZ will be independent from the existing nuclear installations in a design of water supply, electric energy supply, water removal, electrical power outlet, physical protection and auxiliary systems (chemicals, technical gases). So the interactions can rise only as a result of a short distance between NJZ and the other installations on the site. Normal operation source term for the most important categories of leaks, including a characterization of the leaks from the fuel rods storage pool, is presented in the chapter B.II.5 Radiation and other physical fields. The description of a determination way and the determination of the source terms for accidents are presented in the chapter C.III.19.1.6.2. Source term for accidents. Detailed calculations of radionuclides spreading for normal operation respecting the impacts on frontier areas of the neighbouring countries are presented in the chapter C.III.16.3. Impacts on ionising radiation. Very detailed descriptions of the spread of radionuclides calculations for accidents and incidents (source term, height and duration of a leak, meteorological data) including their reasoning and assessment of the impacts on the frontier areas of neighbouring countries are presented in the chapter C.III.19.1. Radiation risks, particularly in its section C.III.19.1.6. Methodology of assessment of accident radiological impacts in the EIA process.

The other data related to nuclear-technical aspects of the reference units are presented in the following table.

Tab. 5: Basic nuclear-technical aspects of the reference designs

Design	Supplier	Licensing process state	Reference power plant	EUR certificate	Core damage frequency [1/reactor-year]	Large leaks frequency [1/reactor-year]
AP1000	Westinghouse Electric Company, LLC (WEC)	licensed: - in the USA (COL in 2011 Vogtle, 2012 Summer) - in China (2009) - iDAC in Greazt Britain (2011) - in Canada	- Sanmen 1,2 (China) under construction - Haiyang 1,2 (China) under construction - Summer 2,3 (USA) under construction - Vogtle 3,4 (USA) under construction	yes	2,4E-7 for internal events 5E-7 totally	1,96E-8 for internal events 6E-8 totally
EU-APWR	Mitsubishi Heavy Industries, Ltd. (MHI)	so far not licensed (the licensing process is in progress in the USA (planned for year 2014) and in Japan	- Tsuruga 3,4 (Jaan) the construction has been postponed	yes	less than 1E-5	less than 1E-6
MIR-1200	Consortium MIR.1200	licensed: - 2 units of Leningrad JE in Russia (2009)	- Leningrad II-1,2 (Russia) under construction - Belarusian 2 (Belorussia) under construction - Novovoronezh II-1,2 (Russia) – under construction	no (existing for a comparable design Tianwan 3,4 – under construction China)	5,8E-7 for power operation and for regimes with shutdown reactor	less than 2E-8 for limiting impact 3,67E-9 for worsening of the containment integrity
EPR	AREVA NP (AREVA)	licensed: - in Finland (2005) - in France (2007) - in China (2009) - iDAC in Great Britain (2012)	- Olkiluoto 3 (Finland) under construction - Flamanville 3 (France) under construction - Taishan 1,2 (China) under construction	yes	≈ 1E-6	≈ 1E-7
ATMEA1	ATMEA S.A.S. (ATMEA)	So far not licensed (assessment process is in progress in France (French nuclear regulatory authority accepted the safety options of the design in February 2012)	None	no (the supplier declares a conformity with EUR)	less than 1E-5	less than 1E-6
APR-1400	Korea Electric Power Corporation (KEPCO)	licensed: - standard design in South Korea (2002) - construction permit granted in 2008 (Shin Hanul/Ulchin 1,2 under construction, Shin-Kori 3,4 under construction)	- Shin-Kori 3,4 (South Korea) – under construction - Shin Hanul/Ulchin 1,2 (South Korea) – under construction - Barakah 1,2 (SAE) under construction	no	2,25E-6 for internal events and power operation dangers less then 1E-5 totally	less than 1E-7

2.3.30. In terms of energy or electrical-economic aspects:

- *To review technically and economically feasible alternatives of this nuclear power plant design while applying a balanced ratio of energy sources and to respect (except for fossil fuels) reasonably renewable energy sources, advanced cogeneration units and biomass power plants.*
- *To upgrade and review electricity demand prognosis in the Slovak Republic and the EU with respect to an economic development and modified legal framework (e.g. implementation of a new directive on energy effectiveness).*
- *To provide information on probable development of Slovak power plants capacities (decommissioning, construction) till the year 2030 and involvement of the new nuclear power plant in this development.*
- *To provide data on economic aspects of the design in question.*
- *To provide all the electricity production expenses (from the designing through the construction, operation, till a disassembly and preliminary and permanent storage of radioactive waste); these expenses shall be compared with alternative ways of electricity production.*
- *To describe a way of permanent high level nuclear safety assurance if high investments are needed on the one hand and, on the other hand, the market prices of electric energy are low.*
- *To provide a way of possible severe accidents management at the new nuclear power plant in terms of economic cost – a solution of responsibility for nuclear damage.*

The requirement solution:

The review of technical and economical alternatives of NJZ design can be found in the chapter A.II.6.5. Demand reasoning in relation to the development of electric energy production and consumption in which there is an analysis of availability and exploitability of the alternative electric energy sources. In principle, the development of nuclear power industry in SR and a determination of an optimal energetic mix is not a subject-matter of this EIA process for NJZ. The development of nuclear power industry, completed by an economically acceptable development of renewable sources, is a basic instrument of low-carbon power industry of the Slovak Republic for the period till year 2035. The nuclear energy preference in the energetic mix, which ensures a high reliability of electric energy supplies and energetic safety while keeping acceptable expenses and meeting the requirements for sustainable development, was decided at government level by the approval of the Energy Policy of the Slovak Republic in 2014. The Energy Policy of SR was approved by the Government of SR after SEA process had been performed including a cross-border review for this strategic document. A long-term slightly surplus balance in production and consumption of electric energy is one of the goals defined in the Energy Policy of SR which NJZ only supports to meet.

The prognosis of electric energy demand in the Slovak Republic with respect to an economic development and current legal framework (international commitments) is made in the chapter A.II.6.5. Project justification in relation to the development of electric energy production and consumption. The demand prognosis follows the Energy Policy approved by the Government of SR in 11/2014 so it maximally actual. As regards the commitments related to energy intensity, they are summarized in the chapter A.II.6.2. Project justification in relation to the international commitments of the Slovak Republic and dealt in details in the chapter A.II.6.5. Project justification in relation to the development of electric energy production and consumption in the sub-chapters A.II.6.5.2. Final energy consumption and A.II.6.5.3. Electric energy consumption.

Information on probable development of Slovak power plants capacities (decommissioning, construction) till year 2030 is provided in the chapter A.II.6.5.3. Electric energy consumption and it follows the current Energy Policy of SR approved by the Government of SR in 11/2014. Besides the information on the capacities development, presented in the Assessment Report, it is possible to complete the table from the Energy Policy of SR 2014, which involves NJZ in the balances of consumption and production. One of the goals of the Energy Policy of SR 2014 is to provide a permanently slight surplus balance which is necessary in terms of energy security of Slovakia.

Tab. 6: Development of available production of electricity in case of a concurrent operation of all the existing and prepared sources

Production in TWh	2012	2015	2020	2025	2030	2035
Total consumption – reference scenario	28,7	29,1	31	32,7	34,5	36,2
Current JE: JE V2+EMO1,2 (1940 MW)	15,5	15,5	15,8	15,8	15,8 (7,9)*	15,8 (7,9)*
Mochovce Power Plants 3,4 (942 MW)	0	0	7,9	7,9	7,9	7,9
New nuclear power plant 1x 1200 MW	0	0	0	0	9,1	9,1
Nuclear power plants totally	15,5	15,5	23,7	23,7	32,8 (24,9)*	32,8 (24,9)*
Renewable sources including VE	5,8	6,7	7,7	8,0	8,5	8,9
Current fossil fuel power plants	7,1	6,3	6,3	6	5,7	5
Advised fossil fuel power plants	0	0,3	0,7	1,0	1,3	1,7
Total production with EBO V2 + NJZJB	28,4	28,8	38,4	38,7	48,3	48,4
Total production in case EBO V2 operation is not prolonged					39,2	40,5

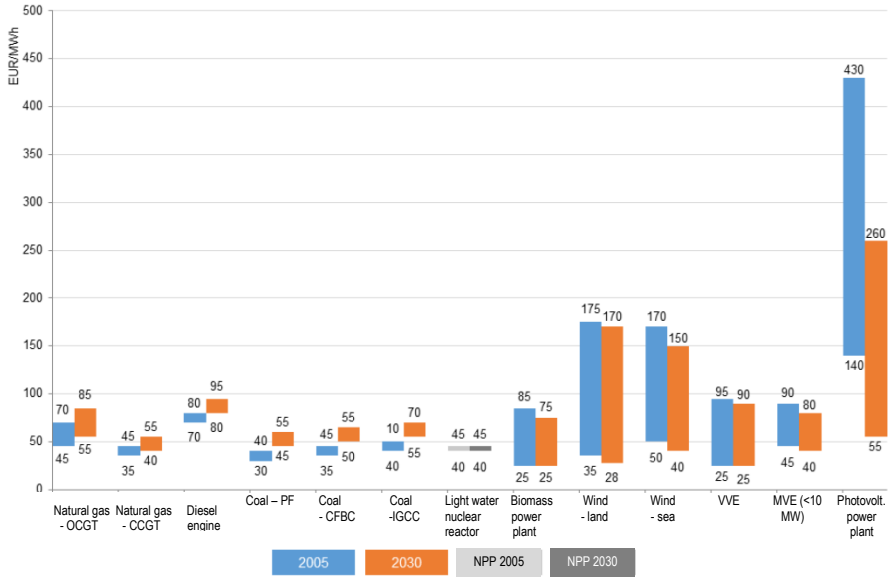
* the values in brackets stand for a case the EBO V2 operation is not prolonged
Source: The Energy Policy of SR (October 2014)

The data on economic aspects of the proposed design do not belong to the process of environmental impact assessment so they are not commented in details in the EIA Report. It can be stated for informational purposes that when implementing the decision on execution of new nuclear power plants construction it is necessary to take into account also an economic return of investment in terms of the capital needed for NJZ construction as well as the costs of its operation[1].

Construction of nuclear power plants is generally characterized by its high capital intensity. However, if relatively compared with other power plants, their operation is significantly less expensive, so it affects the economic profitability of the design in a much smaller degree thereby allowing a much better estimation of total expenses of the power plant for the period from the beginning of its construction till its decommissioning.

Above all, an increase in the fossil fuels price contributed to a higher attraction of nuclear power industry because the cost price of electricity from nuclear sources is in a very small degree dependent upon fuel prices, so it is relatively stable and predictable in the whole course of the power plant lifetime. Moreover, several studies have demonstrated that the electricity produced in this manner belongs to the cheapest ones of all the sources, which is displayed in the following figure.

Fig. 1: Preview of costs for production of 1 MWh of electricity in 2005 and their prognosis for 2030 (estimated ranges)

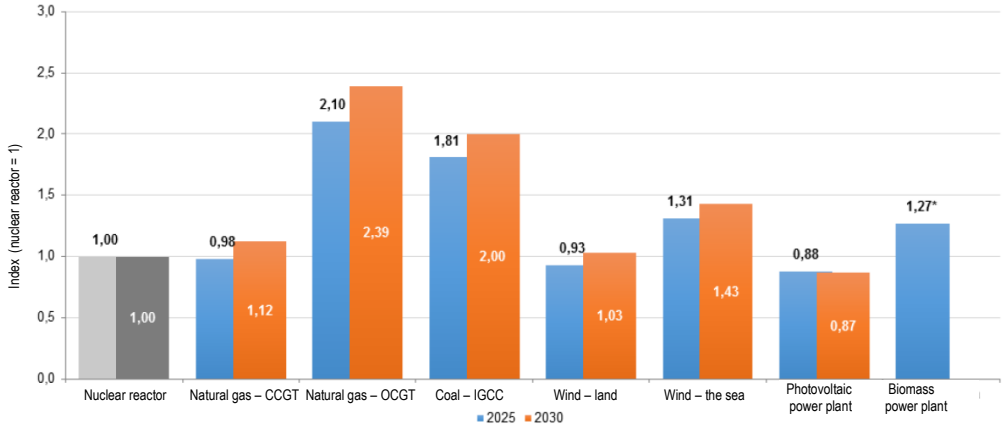


Source: The Energy Policy for Europe, the European Commission, 2007, Annex 2 (extract)

[1] The analysis of economic aspects exceeds the framework of EIA assessment which is focused exclusively on an assessment of the impacts on the environment. These aspects were analyzed within the Feasibility Study resulting in a conclusion saying that the design is feasible in case all the input parameters are met.

The long-term economic profitability of electric energy produced from nuclear sources was confirmed also in the study of British Department of Energy & Climate Change from December 2013. The goal of the study (called Electricity Generation Costs) was to summarize the estimated costs that arise by planning, construction, operation and decommissioning of the power plants and to compare them with the electric energy produced in the course of a whole lifetime cycle. The following figure presents a comparison of the estimated costs for production of 1 MWh of electric energy from various types of power plants put into operation in 2025 or 2030 (NJZ operation is considered to be commissioned within this period). The costs for production of 1 MWh from a nuclear source have index 1 for each year. If the index is >1, the electricity production from the particular source is more expensive than the one from a nuclear fuel and vice versa.

Fig. 2: Index comparison of the total estimated costs for production of 1 MWh regarding the power plants designs put to operation in the years 2025 and 2030



* the study didn't present the data for biomass after the year 2016, the index was calculated following the data obtained from the closest years
Source: Electricity Generation Costs, Department of Energy & Climate Change, 2013; modification to index values: WOOD & Co.

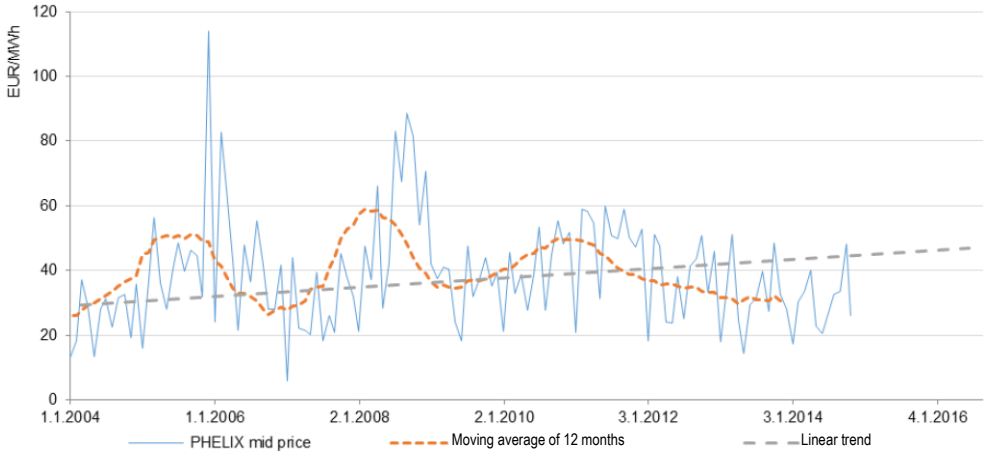
The comparison clearly shows that the electric energy produced in nuclear power plants is one of the cheapest ones. This study demonstrates that the nuclear energy can compete only with wind and solar technologies but the character of their production is not suitable to cover the basic load and they do not assure a stability of supplies.

The same conclusion was reached by the analysis performed as a source for the decision taken by the Government of SR in 2008 which reviewed individual types of electric energy production sources. They were compared following average unit costs of the whole lifetime period of these sources – the costs included not only the construction costs but as well the external costs such as – social-economic and environmental damage. The analysis was concluded by stating that in the conditions of SR the nuclear power plants belong to the cheapest sources of electricity production and the competitiveness of electric energy produced from nuclear sources had been confirmed by several studies performed in the European Union and other developed countries of the world.

The market prices of electricity were historically always reaching a level that covered these production costs and, at the same time, provided a sufficient rate of return on investment to new electric energy sources. However, the OZE's support by means of various programmes and financial Instruments resulted in a deformation of the electricity market, a high volatility of price and a decrease in its average level to values that in most of cases do not cover even the production costs. In a long-term view it is possible to expect that, after the validity of the supporting mechanisms expires, the market will be stabilized and the electricity price will reflect the real production costs from individual sources, so its increase cannot be excluded. The level which reflects the production and capital costs would assure a sufficient return on investment to NJZ and, at the same time, it would guarantee a generation of sales sufficient to cover the operation costs as well as sufficient maintaining investment assuring an operation safety in the course of the whole power plant lifetime.

Moreover, following the performed study of NJZ design feasibility as well as following the real foreign cases (e.g. the design Hinkley Point C in Great Britain) it is possible to presume that despite current volatile market prices of electric energy it would be possible to cover the operational and capital costs and, at the same time, to reach a sufficient return on investment.

Fig. 3: Development of average spot prices of electricity at Austrian-German market according to PHELIX index



Source : Bloomberg

Remark: The values of ELIX index that reflects the market prices of the markets of Austria, Germany, France and Switzerland has been followed since 2010 and its values significantly correlate with the PHELIX values and that's why it is not displayed in the chart.

The above mentioned results in a statement that for Slovakia the construction execution of nuclear power plant at Jaslovské Bohunice site is the most feasible and the most suitable alternative for assurance of energy security, self-sufficiency, adequate pro-export balance, low-carbon mix in production of electric energy and permanently sustainable development of power industry in Slovakia. In case the NJZ construction is not executed, the Slovak power industry ability to fulfil the aims of the Energy Policy of SR and the Strategy of Energy Security within these spheres might be significantly limited. Although the situation might be very serious particularly in case the operation of EBO V2 is not extended after the year 2028, the execution of NJZ construction can be considered to be the most suitable alternative (as regards technical and economical point of view) even without knowing an exact date of EBO V2 shutdown.

The data on costs details of the proposed design do not belong to the process of EIA and that's why they are not commented in the EIA Report in more details. The total costs for NJZ construction are presented in the chapter A.II.10. Total costs. Just for informational purposes, it is stated that the composition of electric energy in SR follows the Act of Energy Sector No. 251/2012 (§17) according to which an electricity supplier is obliged to inform households on composition of individual price components for the electricity supply. Each of these components is variable which means that its level depends on the level of consumed electric energy. It is set in EUR per 1 kWh/1 MWh.

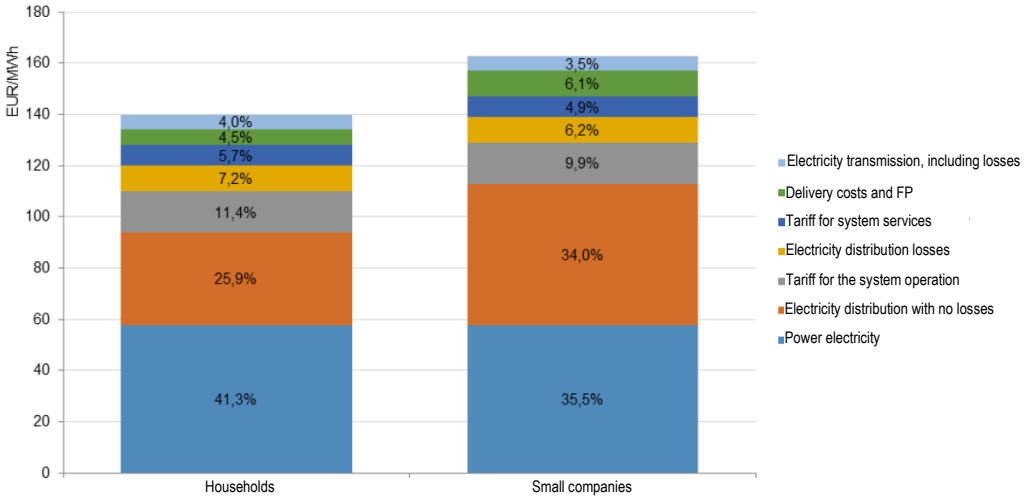
The price of electricity for households consists of the following components:

1. Power electricity – price for a point of supply and taken energy.
2. Price for the electricity distribution – a price for an access to the distribution system.
3. Tariff for the system operation (TPS) is a price paid by the final customers to make up a purse used to support electricity production from domestic coal, renewable energy sources and to support an organizer of the short-term market with electricity.
4. Tariff for electricity distribution losses - a price which takes into account the costs related to electricity purchase to cover the losses that physically arise during a distribution of required electricity volume at individual voltage stages.
5. Tariff for system services is a price related to the costs of power grid regulation that have to be paid to maintain its stability and reliability.
6. Delivery costs and fair profit (FP) – regulated part of electricity price taking into account the costs of delivery and a fair profit of electricity production.
7. Electricity transmission, including its losses – a component covering the electricity transmission by means of power transmission grid.

The other components of the final price of electricity, which are not regulated by the Regulatory Office for Network Industries, include a contribution to the National Nuclear Fund and a value added tax. The contribution to the National Nuclear Fund (NJF) is applied to cover the historical debt which arose when generating the sources applied to cover the

costs for final part of nuclear power engineering[2]. In 2014 the contribution level amounts to 3,15 EUR/MWh. Afterwards, the contribution is paid by a transmission grid operator and operators of regional distribution systems.

Fig. 4: Electricity price structure in 2013



Source: Annual Report of ÚRSO for the year 2013

As the above figure obviously shows, the power electricity represents at an average only 36% - 41% share of the total price for the final customers and its average price in 2013 reached 58 EUR/MWh. This component is the only one which affected by a movement of the electric energy market prices. However, an important price component is the tariff for the system operation which was originally set (for the year 2013) as 19,8800 EUR/MWh[3] - following the Decision of ÚRSO No. 0065/2013/E, individual planned aliquot parts of the costs shared in the tariff as follows:

- aliquot part of the costs for electricity produced from domestic coal, including the corrections, for the year 2011 amounting to 3,5403 EUR/MWh,
- aliquot part of the costs for electricity produced from renewable energy sources and electricity produced by technologies of combined electricity and heat production, including corrections, for the year 2011 amounting to 16,1992 EUR/MWh,
- aliquot part of the costs for organizing and evaluation of the short-term market with electricity amounting to 0,1405 EUR/MWh.

The above mentioned decision results in a statement that more than 80% of the tariff for the system operation is related to the costs for a support of electricity production from OZE and by KVET technologies and that nearly the whole remaining tariff part serves to support electricity production from the coal mined in Slovakia.

Tab. 7: Development of the tariff for the system operation

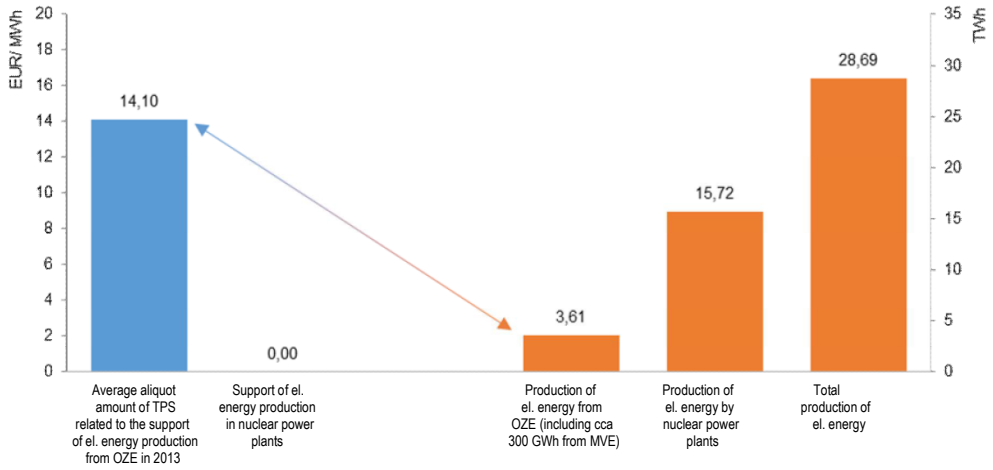
EUR/MWh	2010	2011	2012	2013	2014
TPS	6,30	14,85	15,70	16,02 - 19,88*	19,82 - 21,82*

*a change of the tariff in the course of the year
Source: The Decisions of ÚRSO

[2] The historical debt arose due to the fact there was no accumulation of financial sources for the final part of nuclear power engineering during the lifetime of shutdown nuclear power plants. On the present, the nuclear power plants operators are obliged to generate a reserve for the future disposal of the power plant by means of special contributions to their own account managed within the National Nuclear Fund.

[3] During the year 2013 this tariff was decreased to the level of 16,02 EUR/MWh and then, in 2014, increased again to 19,82 EUR/MWh.

Fig. 5: Comparison of selected tariffs and electric energy produced in 2013



Remark: In April 2013 the TPS tariff was changed by a decision of ÚRSO
Source: The decisions of ÚRSO, Year-book of SED, calculations of WOOD & Co

The above figure displays the TPS height related to the electricity produced from OZE in comparison with the volume of el. energy produced from these sources in Slovakia in the year 2013. Despite the fact that in 2013 the el. energy production from OZE (including MVE) represented only 3,61 TWh (approximately 12,6%), the TPS was paid for each MWh of the totally produced el. energy regardless of its source. So it is possible to state that the electricity production from OZE and KVET significantly increases the final electricity price by means of TPS despite the fact it covers just a small fragment of its total consumption in Slovakia.

TPS increase has a negative impact on the industry of the Slovak Republic as well. In September 2014 The Employers' Organizations, the National Union of Employers (RÚZ), the Slovak Chamber of Commerce and Industry (SOPK) and Club 500 issued a a worrying declaration as their reaction to 10% increase in this tariff in August 2014. They state that since 2007 the share of all the regulated components of electricity prices in Slovakia was increased from 25% of the final price to more than 50% of the summary bill for the electric energy (out of which TPS represents approx. 15%). Slovakia belongs to a group of countries of the EU with the highest share of industry in the generation of gross domestic product (the second most industrially developed member country following the Czech Republic) so high electricity prices significantly weaken competitiveness of Slovak industry and decrease the performance of the whole economy which is gradually reflected in a downward trend of employment in manufacturing industries[4].

Moreover, the compulsory purchasers of electricity produced from OZE and KVET (operators of distribution systems) have been for a long time indicating the fact that the income from TPS is not sufficient to cover all the costs related to the compulsory purchase of electricity produced this way.[5] That's why it is possible to presume that in case of a significant increase in electric energy production from OZE the height of this tariff would be increasing in the future.

On the other hand, it can be indicated that the electric energy production from nuclear power plants is not supported in Slovakia by any tariff. The contribution to the National Nuclear Fund is not directly related to electricity production in nuclear power plants that are currently in operation, but it is applied just to cover the historical debt related to the fact there was no accumulation of sources for decommissioning of the nuclear installations operated in the past (JE Jaslovské Bohunice A1 and V1). Moreover, the contribution is not directly related to a decommissioning of the currently operated JE. For this purpose, each currently operated power plant sends some financial means to an independent NJF account and the same commitment will regard the JE constructed in the future (so for NJZ too).

The way of permanent assurance of a high nuclear safety level in the whole course of NJZ lifetime is described in the chapter A.II.8.2.3.4. Safety assessment and maintenance of the design integrity in the course of NJZ lifetime. Following to the Atomic Act, when utilizing nuclear energy the highest priority shall be put on the nuclear safety. If it wouldn't be possible

4 The National Union of Employers. Online: http://www.ruzsr.sk/sk/vyhlasenie-zamestnavatelskych-organizacii

5 Energia.sk. Online: http://www.energia.sk/tema/elektrina-a-elektromobilita/tarifa-za-prevadzkovanie-systemu-vzrastla-takmer-o-patinu/12282/

to meet the nuclear safety requirements, NJZ operation would have to be terminated or ÚJD SR wouldn't issue a permit for further operation. However, the above mentioned economic comparison results in a statement that if the market price is not excessively degenerated by an artificial support of some sources, there is no reason to worry that at permanently high level of nuclear safety of the nuclear power plant operation will be uneconomical and the resulted economic pressure might negatively interfere with an approach to nuclear safety.

As per the severe accident assessments presented in the chapter C.III.19.1.7.3. Radiation consequences of a severe accident, the economic consequences (such as a regulation of consummation of local food, water and feed contaminated by radionuclides) will be limited for the closest surroundings of NJZ (app. 5 km). No cross-border impacts occur. Total maximum annual as well a lifetime IED coming from all the exposure pathways (including the commitment (contribution to the lifetime dose) from an annual income of locally produced contaminated food) will not exceed at distances over 40 km even the limit value 1 mSv/year for normal and abnormal operational conditions (the Directive of the Council 2013/59/Euratom dated December 05, 2013; or ICRP publication 103). The data of responsibilities for nuclear damage are presented in the chapter C.III.19.1.12. Liability for nuclear damage.

The Atomic Act commits the future NJZ operator to submit a document on a provision of financial coverage of the nuclear damage responsibility as a part of a nuclear installation commissioning permit.

The Republic of Poland *– the information on the planned design was submitted in compliance with the Polish legislation to the directors of the environment protection authorities in Katowice, Krakow and Rzeszow as respective bodies in terms of potential cross-border impact on the environment. An expertise report on the proposed NJZ Bohunice was elaborated by the National Nuclear Energy Agency as an office in charge of performance of supervision over the activities performed while applying nuclear material and ionising radiation sources. The performance was commented also by scientific and research units engaged in the issues of nuclear power industry, i.e. Centralne Laboratorium Ochrony Radiologicznej (Central Laboratory of Radiation Protection) and Narodowe Centrum Badań Jądrowych (the National Centre of Nuclear Research). The final standpoint included the following requirements for the assessment report elaboration:*

2.3.31. To complete the information in the chapter III.4.4.2.1 of the preliminary study which states that, following the measurements performed at the source of radioactive gaseous and liquid discharges, radiation is determined by means of model calculations – it is so-called effective dose of representative individuals living in the surroundings of nuclear installations. But there is no model or methodology by means of which these calculations are made.

The requirement solution:

A model, methodology and applied presumptions for the effective doses determination are described in the chapter C.III.16.3.1. Impact of radioactive releases. The calculations applied RDEBO computer code of the company VUJE that is used to assess normal operation doses and that is accepted by the Nuclear Regulatory Authority of the Slovak Republic (ÚJD SR).

This computer code was implemented and used also in the power plants Mochovce, Temelín and Dukovany.

2.3.32. To complete information in the chapter III.4.4.2.3 of the preliminary study which presents currently monitored radioactive substances on the territory of an existing power plant. There is a statement saying that a part of the values measured in the power plant surroundings is below the minimum measurable activity. What are the minimum measurable activities of radioactive substances like?

The requirement solution:

The minimum measurable activity, or minimum detectable activity (MDA) is the lowest activity which can be detected with 95% probability by specific instrument equipment under specific conditions.

The MDA values in the environment components for individual radionuclides or radionuclides groups assessed by the environment radiation monitoring laboratory in Trnava (LRKO), are presented in the following table.

Tab. 8: Minimum detectable activities in the samples of environment in LRKO Trnava

	unit	Cs-137	Sr-90	Pu-239	H-3	Σβ	Σα
Aerosols	μBq/m^3	2,0	0,053	0,0027			
Milk	mBq/l	44	1,7				
Agro-products (excluding clover)	mBq/kg	656	6,0	0,38			
Clover	mBq/kg	656	39	1,1			
Potamogeton	mBq/kg	793	109	3,1			
Soil	mBq/kg	718	334	11			
Sediments	mBq/kg	580	290	11			
Monthly fallouts-evaporation dry residue	mBq/m^2	108	7,1	0,47			
Monthly fallouts-marinelly	mBq/m^2	328					
Grass	mBq/kg	622	39	1,4			
Potable water	mBq/l	4,7	2,1		5045	68	
Surface water	mBq/l		2,3		5045	29	88
Water – drill holes	mBq/l				5045	42	
LRKO measures also C-14 activity in the samples of releases from JE V2 with MDA 0,3 Bq/m^3.							

2.3.33. The chapter IV.2.6 of the preliminary study presents annual activities of individual radionuclides groups releases to the air during normal operation. It is required to present whether permissible limits of releases to the air will be defined for the planned power plant.

The requirement solution:

As per the Order of the Government of SR No. 345/2006 Coll. it is possible to release radioactive substances to the air and surface water only if the highest individual effective doses for the residents living in the nuclear installation surroundings caused by their releases are assured to be below value 0,25 mSv/year (250 μSv/year). This value is considered to be a limit dose for designing and construction of nuclear installations. If there are more nuclear installations situated at one site which affect the residents' doses, this value refers to an overall exposure coming from all the nuclear installations situated at the site or region.

Prior to NJZ operation activation, permissible radiological limits of releases and maximum guide values of individual radionuclides releases will be determined by means of a decision taken by ÚVZ SR in which the NJZ operator will be allowed to relieve the RAL of an administrative control by its releasing to the surrounding atmosphere and hydrosphere. These limits and guide values will be determined following the future operator's detailed and justified application and they will be determined so that it will be safely guaranteed that the limit dose 250 μSv/year for the whole site will not be exceeded in any case, while respecting all the valid permits for RAL release from individual nuclear installations at the site that will be valid at the time before NJZ commissioning.

2.3.34. The chapter IV.2.6 of the preliminary study presents values of radioactive releases to water courses. In compliance with the presented information, the value of radioactive releases of tritium for the design of V2 power plant (that nowadays works at JE Jaslovské Bohunice site) is at the level of determined permissible limit. Is there a special methodology that is applied to calculate this radionuclide doses for people?

The requirement solution:

The permissible maximum guide value (limit) for tritium releases from JE V2 to water courses is 2,0E+13 Bq/year and a maximum annual release of the last 10-year period was 1,1E+13 Bq/year. Over the last years the H-3 releases are below 50% of the maximum guide value. The releases assessment analyzes all the exposure pathways and assesses a contribution of all radionuclides. Tritium represents a dominant radionuclide for internal exposure from releases to water courses. Methodology and computer code RDEBO simulate a tritium transmission through the atmosphere (water vapour) and the hydrosphere. Tritium gets to the plants through leaves (atmospheric fallout) and roots (the plants irrigation). Specific activities of tritium in the plants are calculated separately for HTO (tritiated water) and for OBT (organically bound tritium). Then there is a model of both tritium forms transport from the plants to the meat and milk of agricultural animals (via feed and potable water), to vegetables, fruit and other agricultural products until they reach humans.

2.3.35. The chapter II.8.4.6 presents information that the nuclear installation decommissioning is a subject-matter of the procedure of the environmental impact assessment. Is there an assumption of the neighbouring states participation in the assessment of this particular design impact on the environment regarding a decommissioning stage?

The requirement solution:

In compliance with the Act on EIA No. 24/2006 Coll., the participation of the neighbouring states is assumed. The above mentioned process of the environmental impact assessment should be performed after the year 2080, if the considered milestones of NJZ operation and decommissioning are observed.

2.3.36. To add an impact of the design on public health and safety, on soil environment and aquatic environment, on air quality and on the climate during all the stages of its implementation, operation or use and disposal.

The requirement solution:

The design impact on public health, on soil and aquatic environment, on air quality and on the climate during all the stages of its implementation, operation or use and disposal is a subject-matter of the elaborated Report on the Proposed Activity Assessment. The design impact on safety of people in terms of BOZP (occupational health and safety of the employees) is not a subject-matter of EIA. The safety of people living in the nearby surroundings, as well as the cross-border impacts in case of accidents, are assessed in the chapter C.III.19.1. Radiation risks.

2.3.37. To add an influence of the proposed nuclear installation during extraordinary and emergency situations. A detailed description and characteristics of potential imissions of radioactive substances on the territory of the Republic of Poland in case of emergency situations while respecting the most unfavourable meteorological conditions.

The requirement solution:

The results of the radiation consequences analyses, presented in the chapter C.III.19.1. Radiation risks, show that even if the most unfavourable case (severe accident) is considered, the lifetime effective dose coming from all the exposure pathways (i.e. involving also the commitment of annual consumption of locally produced contaminated food) falls below the value 1 mSv (the Directive of the Council 2013/59/Euratom dated December 05, 2013; or the ICRP publication 103) even at a distance of app. 20 km from NJZ. Minimum distance to Poland territory is 139 km, i.e. the impact is negligible. As regards a severe accident, realistic meteorological conditions are assumed - it means conditions that correspond to probability of their occurrence. As regards the design basis accidents, conservative unfavourable conditions were considered (i.e. determining conditions – wind direction, atmosphere stability category are not changed in the course of the event) to assess impacts on the closest cross-border area (the Czech Republic: 37 km, Austria: 54 km and Hungary: 61 km). Under these conservative conditions, the total maximum annual individual effective dose in the cross-border areas coming from all the exposure pathways, i.e. even involving the commitment (contribution to the lifetime dose) from an annual income of locally produced contaminated food will not exceed 1,5 mSv.

2.3.38. To propose an extent and conditions of the emissions monitoring, preventive and organizational measures minimalizing a possibility of a severe accident rise.

The requirement solution:

It is expected that in case of a severe accident the emissions will be monitored by means of the existing system TDS which is described in the chapter C.II.15.3.2.3.1. Monitoring systems of Bohunice nuclear installations surroundings. It will be possible to use the base of the existing TDS for NJZ as well, but it will be necessary to complete the 1st circuit following the currently valid requirements for monitoring system, eventually to modify the other circuits too – in principle, the 2nd and the 3rd circuits of TDS are currently suitable for NJZ. The emergency monitoring and cross-border warning are described in the chapter C.III.19.1.11.3. Cross-border warning and interconnection with the systems of neighbouring states.

Besides the requirements of the Slovak legislative regulations, the NJZ design has to meet the requirements of the safety standard IAEA SSR-2/1 "Safety of Nuclear Power Plants : Design" and WENRA (WENRA Report Safety of new NPP designs, Study by Reactor Harmonization Working Group RHWG, March 2013). It refers also to the spheres of preventive and organizational measures minimalizing a possibility of a severe accident rise.

2.3.39. To state whether it will be necessary to take any potential mitigating and corrective measures (and a character of the measures as well) in the territory of the Republic of Poland in case of a severe accident rise.

The requirement solution:

Following the assessment results presented in the chapter C.III.19.1. Radiation risks, in case of a severe accident it will not be necessary to take any mitigating and corrective measures in the territory of the Republic of Poland for the public protection. The Polish party will be notified of a potential event rise and development by means of the cross-border warning system that is described in the chapter C.III.19.1.11.3. Cross-border warning and interconnection with the systems of neighbouring states. It is presumed that, depending on the event development, the Polish party will perform their own control measurements of activity of agricultural products and, eventually, of some other environment components on their territory.

2.3.40. To describe the way of spent nuclear fuel and radioactive waste management.

The requirement solution:

The way of the spent nuclear fuel management is described in the chapter A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management. The radioactive waste management is described in the chapter A.II.8.3.4.2. Radioactive waste management. The volumes of spent fuel and radioactive waste are specified in the chapter B.II.5. Radiation and other physical fields.

2.3.41. To provide characteristics of potential impacts resulting from radioactive waste transport.

The requirement solution:

The risks of radiation waste transport are solved in the chapter C.III.19.1.9. Other radiation risks related to nuclear installations operation.

2.3.42. To respect the standpoint of the National Atomic Energy Agency of the Republic of Poland (the letter No. NCBJ/EJ1/16/2014 dated May 06, 2014).

The requirement solution:

The standpoint of the National Atomic Energy Agency of the Republic of Poland is respected in the section 2.4 of this annex: To respect and asses in a separate chapter relevant requirements for EIA process presented in the standpoints of the countries concerned: the Czech Republic, the Republic of Poland, Hungary, the Republic of Austria and Ukraine.

***Ukraine** – in a letter of the Ministry of Ecology and Natural Resources of Ukraine they submitted their comments regarding the construction of the new nuclear power plant in Jaslovské Bohunice:*

2.3.43. The preliminary study of the activity states that the siting of the proposed activity practically excludes a rise of significant cross-border impacts or it is unlikely. It is required to explain why a possibility of significant cross-border impact should be low or such that it can be ignored.

The requirement solution:

The statement (presented in the Preliminary Study) is based on an assumption the impact will be gradually decreasing with a distance being increased. So if an impact is acceptable in close surroundings, it will be acceptable as well in longer distances. This assumption was confirmed in the Assessment Report by more detailed analyses.

As regards the cross-border impacts of the proposed activity, due to a practical purpose more attention should be paid to radiation impacts of normal operation and radiation impacts of accidents. The normal operation radiation impacts are dealt in the chapter C.III.16.3.1. Impact of radioactive releases. The cross-border impacts, expressed in annual individual doses, are for the closest cross-border areas of the Czech Republic (37 km), Austria (54 km) and Hungary (61 km) at level 0,01 up to 0,1 μSv, which are insignificant doses (a dose from the natural background reaches 2,4 mSv/year or more). The calculation code is limited by the distance 100 km, so in case of Poland (139 km) and Ukraine (330 km) the doses are not evaluated in details but they will be significantly lower.

The impact of accidents is assessed in the chapter C.III.19.1. Radiation risks. Following the performed calculations, the conclusions of accidents assessment resulted in a statement that, even in a case of severe accident, the total maximum

annual IED as well as the lifetime IED from all the exposure pathways (even involving the dose commitment (a contribution to the lifetime dose) from an annual income of locally produced contaminated food) will not exceed even a limit value 1 mSv/year set for the normal and abnormal operation conditions (the Council Directive 2013/59/Euratom of December 05, 2013; or ICRP publication 103). In this case, as well, the impact on Ukraine territory will be significantly much lower (see the requirement 2.3.49 solution below).

2.3.44. Out of the last paragraph of the page 29 of the Preliminary Study (Description of EU-APWR design), it is not clear enough to determine the concept that is applied to mitigate the severe accidents consequences (internal one, by retention of melted active zone or external one, in the reactor shaft) and to set performance criteria of the protective shield.

The requirement solution:

The completed description of EU-APWR concept is presented in the chapter A.II.8.3.1.3. Basic data on reference designs. EU-APWR applies the external system of the molten core cooling. In case of reactor core meltdown, the molten core is captured in the reactor shaft space (so out of the reactor - ex vessel cooling). In order to achieve and maintain the heat removal in case the molten core occurs in the reactor shaft, the shaft is flooded by boric water by means of reactor shaft injection system. In order to assure a sufficient rate of the molten core cooling in the flooded reactor shaft, EU-APWR is equipped with a device for dispersion and cooling of the molten core in the reactor shaft space. This device consists of special porous grates and improves the dispersion of the molten core layer and slag generated by an interaction between the molten core and cooling water and improves a natural circulation of water in the reactor shaft.

Design parameters of EU-APWR containment: Inside height is 69 m and inside diameter is 45,5 m. The walls thickness is within the range 1,32 m - 1,8 m. Whole inside surface of the containment is covered by steel lining of thickness 6,4 mm. Free volume of the primary containment is 79 000 m^3. The design pressure is 0,470 MPa, the design temperature is 149°C. The design leak rate is 0,1% vol./day. The design life is 60 years. The limit excess pressure the containment really withstand with no damage is approx. 2 times higher than the design one (approximately 1,0 MPa).

Design base data of EU-APWR containment: The containment is designed for temperature and pressure for a case of a loss of coolant accident (LOCA) and a break of main steam piping. The design pressure is 0,470 MPa and there is a more than 10% reserve to the maximum pressure at LOCA. The primary containment is designed so that it is able to keep inside the energy and radioactive material resulting from a postulated loss of coolant accident and to assure a high degree of tightness against leaks occurred during normal operation and under emergency conditions. Both the reactor building and the containment building are designed within seismic category I. All the safety equipment items situated in the reactor building are classified as structures of safety class pursuant to EUR and their seismic category "I" follows the seismic requirements of EUR.

The containment building made of pre-stressed concrete has a sufficient resistance to conditions of a plane crash. EU-APWR is designed so that even in a case of a large airliner crash its key safety functions are preserved. So the purpose is:

- to preserve the ability of the core cooling or to preserve the containment integrity;
- to preserve the ability of the spent fuel cooling in the spent fuel storage pool or to preserve the integrity of the spent fuel storage pool.

2.3.45. The paragraph 3 on the page 30 of the Preliminary Study, description of EU-APWR design states that: "The containment, reactor building and the building of emergency diesel generators are designed with respect to the seismic conditions." What are the seismic conditions taken into account when designing? (Note of the translator: the SK original of the Preliminary Study states: Containment, reactor building and buildings of emergency diesel generators are seismic resistant.)

The requirement solution:

The Slovak original and the Report state (when describing the EU-APWR design) in the chapter A.II.8.3.1.3. Basic data on reference designs: Containment, reactor building and buildings of emergency diesel generators are designed as seismic resistant. The basic design of EU-APWR considers PGA of the reference site 0,3 g which is higher than the EUR requirement (0,25g). The seismic response spectra of the EU-APWR design are based on the Regulatory Guide of the USA (US NRC RG 1.60) and they are extension within a high-frequency range. The structures, systems and components

required for a safe shutdown are designed as the ones that are functional during and after an earthquake defined by the response spectra of EU-APWR. The supplier, company MHI (like all the reference designs suppliers) has confirmed that in case of need they are able to adapt the seismic design to the specific conditions of the NJZ site. It regards a possibility to increase the PGA value in the design solution as well as modifications of the seismic response spectra of the EU-APWR design.

2.3.46. The pages 34-35 of the Preliminary Study, APR-1400 Design. The above mentioned description cannot demonstrate the existence of a double containment of this design (as one of the basic elements of physical barrier) which is specific for PWR reactors of III+ generation as described on the pages 23-24 of the Preliminary Study.

The requirement solution:

The international regulations regarding the newly constructed nuclear reactors do not require directly an existence of the double containment of nuclear power plants. However, the containment construction has to assure functioning of the third physical protective barrier against radioactivity leak to the environment during an action of internal and external negative impacts. A way of the assurance depends on a design solution of the specific design. The double containment is just one of the possible solutions.

Some designs of III+ Generation have an internal containment constructed only at the section of hermetic nodes (separation), or the function of both containments is combined into one.

The APR-1400 design is not equipped with the double containment. The chapter A.II.8.3.1.3. Basic data on reference designs states: "The containment building of APR-1400 is a pre-stressed concrete structure of a cylindrical shape with a hemispherical dome placed on a common foundation plate together with auxiliary building. The cylindrical part of the containment structure is additionally pre-stressed by horizontal and vertical cables. The inside surface is covered by a sealed steel lining assuring the tightness."

As regards all the designs of the reference units containments (including APR-1400), their suppliers declare their resistance to the effects of the design basis and severe accidents, a large airliner crash and to other external and internal risks pursuant to the standardized lists of initiating events (IAEA) that must be respected in the design.

2.3.47. Which incidents are taken into account when analyzing the external impacts on safety of nuclear power plants as a whole, i.e. both the units that are operated as well as the considered new units?

The requirement solution:

The chapter A.II.8.3.1.2.3. Basic requirements for resistance to risks and failures of NJZ specifies the incidents and risks that are taken into account when analyzing the external impacts on NJZ safety. The main structures of NJZ will be designed as resistant to effects of a shock wave, a plane crash, a fire, a flood, a loss of off-site power supply, water and the other external impacts. Predominant factor of management of the risks resulting from human activity performed at the site will be a protection of control work places (control rooms and emergency control rooms) of NJZ against threat sources such as flammable vapour cloud, toxic cloud of chemical substances, toxic combustion products, and radioactive substances. These threat sources can originate from transport routes situated in the closest surroundings of NJZ as well as from the other nuclear installations situated on the EBO site. The safety of NJZ will be assured so that potential leaks from these sources will not endanger the nuclear safety. It means, if these substances leak occurs, the habitability of control rooms and emergency control rooms will remain preserved. NJZ will be equipped with technical means that will prevent from a penetration of radioactive, toxic or explosive substances into a control room. As regards a threat of the other devices in case of NJZ accident, the accident consequences are limited by the technical design and they are not a significant source of threat for the NJZ surroundings and for the other facilities situated on the site. Other relevant information on the external impacts is presented in the chapters A.II.8.3.1.2.4. Seismic resistance, A.II.8.3.1.2.5. Extreme meteorological and hydrological conditions in NJZ design, A.II.8.3.1.2.6. External impacts induced by human activity, C.III.19.1.8. Risk of terrorist attack and C.III.19.1.10. Risks arising as a result of other human activities performed on the site.

2.3.48. The chapter II.8.4.4.1., page 46, the last paragraph of the Preliminary study. What is a concept (cycle closure) of spent nuclear fuel (VJP) management provided by the national strategy? On the present, an interim nuclear spent fuel storage facility is used to store the fuel from Slovak nuclear power plants situated at the site of Jaslovské Bohunice nuclear power plants. In case of NJZ construction – where will the spent nuclear fuel be stored? Will the Ukrainian party be submitted an EIA assessment regarding the spent nuclear fuel storage?

The requirement solution:

The issues of the spent nuclear fuel are dealt in the chapter A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management. Preparation of the deep geological repository is dealt in the final part of the chapter A.II.8.3.4.2. Radioactive waste management.

After the storage of the spent fuel is terminated at the reactor unit, the spent fuel will be (following the compliance with the requirements for its safe transport and storage) handed over to a legal entity authorized for radioactive waste or spent fuel disposal (JAVYS) for a further management processes. JAVYS is an owner and operator of the nuclear facility "Interim Spent Fuel Storage Facility" – for more details see the chapter A.II.8.4.1.2. Due to capacity reasons of the necessity to store primarily the spent fuel produced primarily by the existing nuclear power plants in Slovakia, construction of new storage capacities is expected by means of an extension of the existing MSVP. As mentioned in the solution of the requirement No. 2.3.10, all the spent fuel of the Slovak Republic should be stored in the storage facility in Jaslovské Bohunice operated by JAVYS. Strategic documents of SR expect it to be extended in this decade – therefore, considerably before the NJZ starts its operation. If it is not possible to store the spent fuel produced by NJZ in the completed MSVP (which is now subjected to an independent EIA process), a new storage facility will be prepared for it, most probably as a new independent module of MSVP. Authorized organization – JAVYS will be in charge of the storage facility preparation. The preparation will begin in a sufficient time in advance after an NJZ supplier is nominated. The best currently available technology will be applied for the storage facility and the preparation process will include an independent EIA process which the Ukrainian party will be informed of.

The National Strategy of SR or a national programme of spent fuel and radioactive waste management of SR consider the spent fuel storage exclusively in the deep geological repository following a storage period of several tens of years. It is not currently intended to reprocess the spent fuel and to store and reposit the high-level waste from the reprocessing operations. Regarding the implementation of the deep geological repositing, so far the Slovak Republic has not abandoned a possibility to take part in activities resulting in a deep geological repository shared with several states.

2.3.49. The chapter III.4.2.2. Climatic characteristics. The pages 83 and 84 of the Preliminary Study contain information on wind direction for the sites of possible areas for new units. It is presented that the measurements were performed at the height 19 m above the ground level in the course of 23-year period. As regards the cross-border impact, the Ukrainian party is interested in a prognosis of radioactive substances in case of a random leak from the height of 100-150 m (level of the ventilation stacks of the new units).

The requirement solution:

In case of a severe accident occurred at NJZ with the reactor core meltdown, the radionuclides leak through the ventilation stack is not possible. The envelope source term for the leak through ventilation stack was conservatively derived for a design basis accident caused by a drop of fuel set with VJP into BSVP either in the containment or in the BSVP building (auxiliary building) resulting in a damage of all the fuel elements of this set and in a leak of all the volatile radionuclides (see the chapter C.III.19.1. Radiation risks).

The suppliers of the reference units have their designs equipped with a ventilation stack at a height 56 m up to 100 m. The analyses were performed in two variants – for a stack height 56 m and 100 m. As regards the distances up to ~60 km, the calculated effective doses are higher for the stack of height 56 m (particularly within the distances up to 10-15 km). Beyond the distance ~60 km the differences of the values of calculated effective doses are minimal, i.e. the impact of the stack height is negligible.

As regards an accident with radioactive leak through the ventilation stack, lifetime effective dose coming from all the exposure pathways (i.e. involving the commitment from an annual income of locally produced contaminated food) falls below the value 1 mSv set for normal and abnormal operation conditions (the Council Directive 2013/59/Euratom of December 05, 2013; or ICRP publication 103) as near as at a distance of ~15 km from NJZ for the stack height 56 m (as regards the stack height 100 m, as near as at a distance of ~11 km). Minimum distance of Ukraine territory is 330 km, i.e. the radiation impact

of the considered design basis accident with a conservatively defined source term to the environment is negligible for the closest territory of Ukraine (as regards all the potential stack heights of NJZ at the EBO site). In case of a severe accident, the radioactive substances can leak to the environment only through the containment leakages (particularly through piping penetrations and cable penetrations that are usually situated in the ground level premises of the containment). The results of the radiation consequences analyses presented in the chapter C.III.19.1. Radiation risks result in a statement that, even if considering a severe accident, the lifetime effective dose coming from all the exposure pathways (i.e. involving the commitment from an annual income of locally produced contaminated food) falls below the value 1 mSv (the Council Directive 2013/59/Euratom of December 05, 2013; or ICRP publication 103) as near as at a distance of approx. 20 km from NJZ, so Ukraine territory cannot be hit.

2.3.50. To provide an explanation why the submitted material does not consider any alternative sites for the construction of the nuclear unit (e.g. JE "Mochovce" site).

The requirement solution:

The explanation is subjected to the chapter A.II.6.4. Justification of siting at Jaslovské Bohunice site. The chosen site is in conformity with the approved national strategic documents that were reviewed within independent SEA processes. No national strategic document considers siting of NJZ at a site other than Jaslovské Bohunice.

2.3.51. To add for the proposed activity concerning the construction of the new unit at Jaslovské Bohunice site some other information on additional safety measures of the unit that results from the experience from "Fukušima-1" nuclear power plant accident for a resistance to external extreme impacts (earthquake, tornado, external floods, extreme temperatures and their combinations) which should be involved in the designs particularly with respect to their need:

- *to improve the safety aspect of the nuclear power plant energy supply from the external energy sources;*
- *to prevent a rise of an explosive hydrogen concentration in the closed containment;*
- *to establish a system of emergency gases discharge from the containment with a simultaneous purification of the discharged radioactive substances;*
- *to master severe accidents, etc.*

The requirement solution:

All the units considered for NJZ are included in III+ Generation which is generally characterized by a reinforcement of the resistance to extreme risks and by its ability to manage even the conditions of a severe accident with no loss of the containment tightness. As regards individual reference designs, their technical means for this goal performance differ one from another and they can be characterized as follows:

Except for design basis accidents management, all the designs (especially the design solution of the containment) contain a management of design extension conditions (DEC), including the severe accidents.

The safety level of all the units expressed by e.g. severe accidents frequency and large leaks frequency, is (compared with currently operated units) considerably higher; in order to increase the power plant safety, two different approaches were applied: either an extension of the safety divisions backup or an application of passive safety elements in case of AP1000 and, pretty much, in case of MIR-1200.

All the containments are of a full-pressure type but their detail design solutions differ. EPR and MIR-1200 have standard double containments, the other designs apply a containment which is partially doubled and having a ventilation of the interstice at the penetrations section.

All the primary containments are made of pre-stressed concrete, except for AP1000, which has a simple steel containment allowing a passive heat removal to the environment supported by a system of the containment shell external spraying from a tank that is situated on the upper part of the concrete protection building.

The primary containment volumes are within a range of 57 000 m^3 (AP1000) up to 90 000 m^3 in case of APR-1400.

As regards a molten core stabilization, AP1000 is based on the molten core maintaining in the reactor pressure vessel, EPR and ATMEA1 have a special space for a molten core dispersion with a system of downward and upward cooling, MIR-1200 has a molten core catcher, EU-APWR uses flooded devices for a dispersion and cooling of the molten core in the reactor

shaft. APR-1400 relies on a reactor shaft flooding with no application of a special device for the molten core stabilization in the containment.

All the containments are equipped with hydrogen removal systems designed for severe accidents. AP1000 uses exclusively hydrogen combustion devices, EPR, ATMEA1 and MIR-1200 use passive autocatalytic recombiners, EU-APWR and APR-1400 use a combination of recombiners and combustion devices.

The design solutions focused on the heat removal from the containment differ one from another. In case of AP1000, a passive heat transfer through steel containment shell to the external air is applied. EPR has, except for the containment fans, a special spray system for case of severe accidents. MIR-1200 has a redundant spray system and the passive system of heat removal via heat exchangers installed out of the containment, on its external wall. ATMEA1 and EU-APWR have a standard containment spray system combined with a residual heat removal system. APR-1400 has, except for a standard spray system, a back-up emergency spray system for severe accidents.

So far, no design considers an application of filtrated ventilation of the containment in case of severe accidents. The design means of the containment safely prevent from a development of conditions under which the filtrated ventilation i.e. the containment depressurization by relieving a part of the gaseous volume to the environment, would be necessary.

All the designs offer suitable time reserves in terms of the power plant independence from an external support – 30 days with no water make-up for provision of residual heat removal from the unit.

All the designs have increased resistance to Station Blackout event which is characterized by a simultaneous loss of work, reserve and emergency sources of electric power supply except for rechargeable batteries.

Special design measures for severe accidents management were implemented in all the designs. That's why the requirements for emergency planning and the protection measures taken for the power plant surrounding could be minimalized.

In order to be commercially utilized in the EU countries, the safety designs of all the reactors have to flexibly reflect the developing requirements for new reactors safety, e.g. by respecting the requirements of WENRA's Report: „Safety of new NPP designs, March 2013".

2.3.52. To propose some other measures for preventive controlling, for assurance of the units stability against extreme external impacts.

The requirement solution:

The protection measures against the external impacts are included directly in the design of the reactors of III+ generation, in which resistance reinforcement to external impacts belongs to the basic design characteristics of this generation units.

The additional preventive measures proposed for NJZ include an independent line of raw water inlet, provision of an independent source of cooling water in NJZ site that is sufficient for a period of at least 30 days. The design takes into account a construction of a protective mound around the NJZ area for a removal of storm rainfall water from the surrounding landscape. The next stage of the design preparation will consider an extension of the existing prohibited air space LZP29. The NJZ area is situated so that there will be a sufficient distance between the safety related facilities and the main local road (the road III/50415) linking the village Žlkovce, EBO area and the village Jaslovské Bohunice. NJZ own seismic monitoring as well as a monitoring of a long-term movement of buildings are considered to be added. The NJZ structures will be designed so that, in case of a damage caused by an external event, the non-safety related auxiliary buildings (those which were not subjected to safety related qualification) can not endanger the safety related buildings and systems.

Other preventive measures to assure stability of the units against extreme external impacts are not proposed within the elaboration of the Assessment Report but they may result from an assessment of the requirements for NJZ siting within the process of siting proceedings and a consequent licensing procedures for a construction permit grant.

The Czech Republic *–the Ministry of Environment of the Czech Republic (MŽP ČR) informed in a letter that they had received 30 comment statements regarding the proposed activity. Seven subjects concerned asked for participation in the process of environmental assessment of the cross-border impacts. Following the information presented in the proposed activity preliminary study and in the comments of the subjects concerned, MŽP ČR expects that the proposed activity might have a serious impact on the environment of the Czech Republic. It requests due to this reason to review the proposed activity as an activity resulting in potential cross-border impacts and it declares their interest in participation in the process of EIA. At the next stages of the EIA process, i.e. in the documentation of assessment of the proposed activity impacts on the environment and the public health, it is necessary to assess in more details particularly the following:*

2.3.53. Cumulative impact of the proposed activity (construction of a new nuclear power plant in an implementation alternative at Jaslovské Bohunice site) and all the other operated nuclear installations on EBO Jaslovské Bohunice area on an imission load of the air, including a load of the radionuclides released to the atmosphere on the affected area of South Moravian Region within so-called „long-distance transmission of the pollution" (cumulative impact of all the operated complexes).

The requirement solution:

The cumulative impact of all the operated complexes is taken into account in the Report. Summary radiation impact at the border with the Czech Republic (individual effective dose) is within an order of magnitude 1 μSv/70 years which represents a non-significant value corresponding with a dose received from natural background during a period of maximum several hours.

As regards non-radiation impacts, the chapter C.III.4.1. Impacts on the air quality reviews the cumulative impact of all the sources situated on the area, as well as the one from the long-distance transmission, including the background value. In the view of a very low imission impact of standard harmful pollutants emitted at the area concerned within NJZ implementation, it is possible to consider a long-distance transport to more distant areas non-significant.

2.3.54. The health risks related to the operation of the reviewed proposed activity and to the cumulative impact of the new nuclear power plant operation and all the EBO nuclear installations operation under common standard conditions, under conditions of potential operation failures and at potential emergency states (a leak of radioactive substances of various states to the environment components – soil, water and particularly air), not only in connection with a local exposure of the population living on the area affected by the proposed activity i.e. the population living in the emergency planning zones, but also in connection with cross-border impacts (exposure of the population living in the potentially affected area of the South Moravian Region in the Czech Republic).

The requirement solution:

The assessment of the health risks is presented in the chapter C.III.1.1. Health impacts and risks. The cross-border impacts of ionising radiation from the reviewed activity are out of question. In terms of health protection, lifetime risks of health detriment are fully compliant even at the closest residential area. Maximum probability of a health detriment occurrence in the cross-border zone turns out to be at the mouth of the Váh River to the Danube River (Hungary) where the values reach 1E-07 order of magnitude. In the other cross-border zones, including the Czech Republic, this probability is even by 1 - 2 orders of magnitude lower. Generally, these values are negligible and in no case can be reflected on the public health.

The acceptance criteria compliance was confirmed also by the results of calculation evaluation of the radiation effects of two design basis accidents and effects of an envelope severe accident presented in the chapter C.III.19.1. Radiation risks.

2.3.55. To indicate an expected range of on-site and off-site emergency planning zones within a transparent situation map and to comment the framework measures related to the public health protection during operational failures of the facility and particularly at emergency states of various scope and impact, including assumed cross-border impacts.

The requirement solution:

At the present stage of NJZ design preparation, at Jaslovské Bohunice site, it is not possible to determine formally the expected range of on-site and off-site emergency planning zones (or a threatened area, in compliance with the terminology valid in the Slovak Republic).

The chapter A.II.8.2.2.4. Requirements for emergency prepardness provides a description of the existing threatened area and a specification of the stages of NJZ licensing process at which the threatened area will be determined for NJZ.

2.4. To take into account and assess (in a special chapter) the relevant requirements for EIA process provided in the comments of the countries concerned: the Czech Republic, the Republic of Poland, Hungary, the Republic of Austria and Ukraine

The requirement solution:

The solution of the relevant requirements of the countries concerned for the EIA process is provided above under these paragraph numbers:

Hungary: 2.3.1. - 2.3.28.
The Republic of Austria: 2.3.29. - 2.3.30.
The Republic of Poland: 2.3.31. - 2.3.42.
Ukraine: 2.3.43. - 2.3.52.
The Czech Republic: 2.3.53. - 2.3.55.

The way of respecting and assessment of the other relevant requirements and questions presented in the comments of the countries concerned and other subjects concerned is provided in the below summary.

Relevant requirements and/or comments for EIA process are those that regard *the sphere of impacts on the environment* specified in the Act No. 24/2006 Coll. on Z. z. on environmental impact assessment as amended. It is reasoned by the purpose of the environmental impact assessment specified in § 2 of the above mentioned Act. As per this provision, the purpose of the proposed activities assessment is:

- to identify, describe and assess the direct and indirect impacts of the proposed activity on the environment,
- to clarify and compare the advantages and disadvantages of the proposed activity including its alternatives; to compare with the zero alternative as well,
- to determine measures that will prevent from the environment pollution, mitigate the pollution or prevent from the environment damage and
- to obtain an expertise opinion for issuing a decision on the activity licence pursuant to special regulations.

In terms of § 3 of the above mentioned Act, *an impact on the environment* is „any direct or indirect impact on the environment including an impact on the population health, flora, fauna , biodiversity, soil, climate, atmosphere, water, landscape, natural habitats, tangible property, cultural heritage and any interaction of these factors".

So the relevance of requirements and comments is taken into account by application of these legal criteria.

It means that other requirements and comments, substantially being *out of the sphere of the environmental impacts,* are not considered and assessed. Their consideration and assessment is provided in a more general manner – by a reference to relevant relations they are dealt within. It regards particularly the spheres of nuclear safety, radiation protection, physical protection and emergency planning. They are respected and assessed within the EIA process from an environmental point of view (from a point of view of environmental impacts) but not from technical, organizational or some other points of view (design, constructional, operational, strategic, economical, legislative or some others). It is reasonably expected that all the issues coming out of the sphere of environmental impacts are solved (or will be solved) at respective stages of the new power plant preparation in compliance with the currently valid legislation. But it is not substantially important whether it has already happened or it will happen at the next preparation stages.

Tab. 9: List of requirements and questions presented in the standpoint comments of the countries concerned and other subjects concerned and a way of their solution

2.4.1. Reasons of the need
2.4.1.1. Objection that the nuclear energy is not competitive without state aids.
Justification of a need for NJZ is presented in the chapter A.II.6.5. Justification of the need in relation to a development of production and consumption of electric energy. The assessment of the NJZ price expediency is provided in the answer to the requirement 2.3.30.
2.4.1.2. The document is based on a further increase in current consumption. In terms of "Best practical environmental option", potentials for the consumption reduction should be assessed using the "Demand side management" by means of respective financial means amount for the proposed investment and effects of a similar procedure should be introduced (a potential of possible savings was not assessed taking into account including the utilization of the planned NJZ investment for the savings).
Detailed justification of the consumption prediction respects the valid Energy Policy of the Slovak Republic from 2014 and they are presented in the chapter A.II.6.5.3. Electric energy consumption. In Slovakia, the electric energy consumption / 1 person is less than a half of the consumption in Austria and Germany.
2.4.1.3. Requirement for a multicriterial assessment of a need for NJZ.
The need for NJZ is dealt in the chapter A.II.6.5. Justification of the need in relation to the development of electric energy production and consumption. The multicriterial assessment was performed in the strategic documents (especially the Energy Policy of SR 2014) which recommended the development of nuclear power industry in Slovakia and NJZ siting in Jaslovské Bohunice site. In order to prepare the Report on NJZ Assessment, a detailed background data study was elaborated ("Justification of the need of NJZJB design in relation to the energy policy of SR, other strategic and conceptual documents of SR and international commitments of SR") which dealt the multicriterial assessment of the demand for NJZ.
2.4.1.4. Requirement for detailed reasoning of energy demand for NJZ.
The justification of the need for NJZ are given in the chapter A.II.6. Justification of siting at the site, particularly in its sub-chapter A.II.6.5. Justification of the need in relation to the development of electric energy production and consumption.
2.4.1.5. Objection that for a design of such a high power output, there is no corresponding domestic demand for electric energy so the design is primarily determined for an export of the electric energy.
The issues of the consumption development and the balance of the production and consumption are dealt in the chapter A.II.6.5. Justification of the need in relation to the development of electric energy production and consumption. Additional information regarding the development of available production of electricity is provided in the answer to the requirement 2.3.30 in this Annex. Following the prognoses of MH SR, presented in the Energy Policy of SR (October 2014), if the construction of NJZ was not executed, the Slovak Republic would be endangered (after JE V2 decommissioning) by a shortage of electric energy production capacities which cannot be substituted in a near future by any other low-carbon sources.
2.4.1.6. Comment, that the electric energy consumption in Slovakia dropped within the period of years 2000 – 2011 by 20% so a new source is not needed.
Within the period 2000 – 2011 there was no decrease in electric energy consumption (it remained approximately at the same level), but a decrease in a final consumption of energy as a result of an increase in energy effectiveness. All the scenarios applied within the Energy Policy of SR 2014 take into account an increase in electric energy consumption in connection with HDP increase and standard of living increase. Primary purpose of NJZ is a reliable and safe substitution of expiring coal and gaseous sources and, in the future, a substitution of JE V2 at EBO site.
2.4.1.7. Objection that the design justification is based on non-realistic estimations of increase in electric energy consumption.
The estimations of increase in electric energy consumption are taken from the approved Energy Policy of SR from the year 2014. In Slovakia, the current electric energy consumption per 1 person is less than a half of the consumption of Austria and Germany and there is a definite dependence between the electric energy consumption per 1 person and HDP per 1 person (see the chapter A.II.6.5.3. Electric energy consumption). If HDP of Slovakia shall be approaching HDP EU28 in the future, under contemporary conditions, it will be accompanied with an increase in electric energy consumption. However the final consumption of energy does not need to increase, which is again in compliance with the predictions presented in the Energy Policy of SR 2014.
2.4.1.8. Objection, that there is no energy-political need for an extension of JE Bohunice including a close start- up of the operation of JE Mochovce. Slovakia will have an excessive capacity of energy production. So NJZ wouldn't be determined for own consumption purposes but for export. To reason this construction by a growing current consumption is unjustified.
All the balances included in the Energy Policy of SR consider MO3,4 commissioning. Despite the fact, the energy balance of SR will be (without NJZ) deficit after JE V2 shutdown in about 2035.

2.4.1.9. Requirement for a detailed justification of the need for NJZ and its performance including all the input expectations and a comparison of the nuclear power plant advantages with alternative sources and with their combination.
The justification of the need for NJZ is performed in the chapters A.II.6.2. Justification of the need in relation to international commitments of SR and A.II.6.3. Justification of the need in relation to energy policy of SR. A review of technical and economical alternatives of NJZ design is presented in the chapter A.II.6.5. Justification of the need in relation to the development of electric energy production and consumption which analyzes an availability and exploitability of alternative electric energy sources. Development of Slovak nuclear power industry is not subjected to this EIA process for NJZ. The development of nuclear power industry as a strategic trend was accepted by the approval of the Energy Policy of SR in 2014 following a performed SEA process for this strategic document.
2.4.1.10. Requirement to demonstrate a net contribution to society as a basic requirement to reason the nuclear energy exploitation while respecting all the relevant and available aspects of the environment, social and economic views.
The new nuclear power plant contributes to fulfil several priorities of the current Energy Policy (particularly a decrease of dependence on fossil fuel import, an increase in share of low-carbon and carbonless production of electricity and exploitation of nuclear energy as a main carbonless source of electricity) and its goals in the sphere of electricity industry (especially a self-sufficiency and reasonable pro-export ability in electricity production, flexible, low-carbon and sustainable structure of the source base, maintenance and optimizing of the structure of the electricity production sources in terms of economic and environmental sustainability and safety of the power grid and, at last, strengthening of energy security supporting a construction of sources that are able to stabilize the power grid.)
2.4.1.11. Requirement for an update of electric energy demand prognosis with respect to a change of nuclear power plant capacity within an assessment scope compared with the published Preliminary Study.
The update of the demand prognosis is performed in the chapter A.II.6.5. Justification of the need in relation to the development of electric energy production and consumption following the latest data provided in the approved Energy Policy of SR 11/2014.
2.4.1.12. Requirement for an update of electric energy demand prognosis with respect to a change of new European energy goals till 2030 and the Directive of the EU on energy effectiveness.
The electric energy demand prognosis pursuant to the approved Energy Policy of SR respects all the binding European energy goals till 2030 as well as the Directive of the EU on energy effectiveness. As regards the electric energy consumption, referring to the chapter A.II.6.5.3. it can be stated that the electric energy consumption per 1 person in Slovakia is less than a half of the consumption in Austria or Germany.
2.4.1.13. Objection that the basic conceptual documents which are referred to by the project justification (the Energy Policy of the Slovak Republic, the Slovak Spatial Development Perspective and ÚPD of TTSK) were produced in a formal way within their section that regards nuclear power industry) so as to support the Resolution of the Government of SR No. 948/2008 which, as a matter of fact, decided on the siting of the nuclear power plant at Jaslovské Bohunice site. A procedure like this is not democratic.
The Resolution of the Government of SR No. 948/2008 was obviously reflected in the above mentioned strategies proposals, which is a standard procedure. But all the strategic documents, both at national and regional levels, were, in compliance with the act, reviewed during the SEA process involving participation of the public, authorities concerned and civil rights groups concerned, prior to their approval. The SEA process for the Energy Policy included a cross-border review.
2.4.1.14. Requirement for economic reasoning of the contribution of the new nuclear power plant situated at the nominated site compared with other alternatives.
Basic economic reasoning is provided in the answer to the requirement 2.3.30. Within the Energy Policy of SR 2014 a multicriterial analysis was performed which respected, except for exclusively economic reasons, some other aspects as well – reliability and safety of supplies, competitiveness, CO_2 emissions and other environmental tasks, social aspects and international commitments.
2.4.1.15. Notice (MH) stating that a national programme is being prepared at the moment that should substitute the currently valid Strategy for the Final Stage of Peaceful Utilization of Nuclear Energy in SR and which should take into account the construction of NJZ. The preparation of the above mentioned national programme is performed so as to completely meet the requirements resulting from the Council Directive No. 2011/70/Euratom.
The national programme proposal reflects the NJZ design as an activity under preparation. Following a supplier nomination and more precise specification of balances of spent nuclear fuel and radioactive waste production for a specific reactor type, it will be necessary to update the National Programme. That's why the chapter C.IV.4. Organizational and operational measures provides a recommendation for its future update while taking into account the balances of production of spent nuclear fuel and radioactive waste at the time after the specific reactor type supplier is selected.
2.4.1.16. Disagreement with the Preliminary Study statement that quitting utilization of the site for power industry purposes wouldn't be rational from environmental point of view.
Primary utilization of brownfields (such as the EBO site) for industrial purposes is an optimal solution in ecological point of view.

2.4.1.17. During the period 2000-2013, an average growth rate of electricity consumption in SR was only 0,2 % per year, but average growth rate of HDP was 4,2 %. Continuing decrease of energy intensity of Slovak economy in connection with the commitments of the Slovak Republic within the sphere of energy effectiveness resulting from the EU Directive on energy effectiveness will keep producing significant pressure against the consumption growth. After the operation of Units 3 and 4 of Mochovce power plant is launched, the electricity production in the Slovak Republic will have significantly surplus – the volume will be 7 up to 9 TWh a year. In addition, heavy industry and significant consumers are under a huge pressure of variable economic conditions, but any production reduction would result in a significantly negative impact on the energy consumption. The Report should take into account these facts.

The balances of consumption and production development were taken for the Report from the Energy Policy of SR 2014. After MO3,4 commissioning, the current slightly negative balance will be changed to a positive one. However, the surplus will be gradually decreasing as a result of the coal sources shutdown and an increase in electric energy consumption (contemporary electric energy consumption in Slovakia per one person is less than a half of the consumption of Austria or Germany). If NJZ was not under operation at the time of JE V2 shutdown, the balance would be negative within a range of app. 4-5 TWh/year, which is, in terms of the Energy Policy goals, undesired state.

2.4.1.18. Requirement to take into account another planned stage of power uprate of JE V2 units of the company Slovenské elektrárne, a.s.

Long-term plans for changes of individual electric energy producers' production capacity are taken into account in the prognoses presented in the Energy Policy of SR. The trends of environment radiation parameters, presented in the chapter C.II.15.3.2.3.3. Results of the surroundings monitoring, show that JE V2 power increase to 107%, which was performed gradually during the period of years 2004 – 2010, was expressed negatively neither in the releases nor in the monitored environment components. The performed power increase to 107% was reviewed within the EIA process and it is taken into account within the Assessment Report for NJZ. At the time of NJZ Preliminary Study publishing, there was no other intention of JE V2 power increase under the EIA process. A future environmental assessment of a new potential power increase should take into account a concurrent effect of NJZ.

2.4.2. Technical design

2.4.2.1. Requirement to propose preparation of more suitable alternatives of stand-by power supply for internal consumption except for the described design as per which the internal consumption power supply will be led from the same new substation (within the energy distribution network of SR) as the power is transmitted outward.

A description of the stand-by power supply of NJZ is presented in the chapter A.II.8.3.2.3. Electrical systems. In addition to the main 110 kV stand-by power supply inlet from the substation 400 kV, there will be a back-up source of the internal consumption power supply of NJZ – JE V1 substation 110 kV and it will be connected with NJZ by an underground cable line 110 kV.

2.4.2.2. Requirement for a detailed description of the power outlet from the NJZ. It is required to know which new lines and which existing lines are expected to be used for the new nuclear power plant.

The power output is described in the chapter A.II.8.3.2.3. Electrical systems. All the lines between NJZ and the new electric station Jaslovské Bohunice will be realized as new ones. The same regards the stand-by power supply of internal consumption.

2.4.2.3. Requirement to specify the facilities respectively infrastructure of the company JAVYS that will be used during the construction and consequently in the course of operation.

The exploitability assessment of the existing structures which was performed within the Feasibility Study resulted in a conclusion that as most of the civil structures were constructed in the 60's and the 80's of the last century, their reconstruction would be ineffective and that's why they won't be used in NJZ operation. However, it will be possible to use some of the vacated areas for construction site equipment and their purpose will correspond with the current one. The following table presents a scope within which the existing structures can be used for equipment of NJZ construction site.

Tab. 10: Possible utilization of the existing A1 and V1 civil structures for the equipment of NJZJB construction site

Area	Civil structure	Designation	Utilization
JE A1	53	Pumping station of potable and fire-fighting water	Operational
JE A1	701	Transformer substation and switch house R 0,4-45.1,2	Operational
JE A1	48	Central Material Entry	Operational
JE A1	61	Health Care Service	Sanitary
JE A1	59/20	Civil Defence Shelter below the structure 61	Operational
JE A1	631c	Health Care Service – complementary structure	Sanitary
JE A1	60/A1/1	Entry post – A1 entry check point	Operational
JE A1	60	Administrative building	Operational
JE A1	632a	Entry structures – Administrative building	Operational
JE A1	632b	Lecture hall	Operational
JE A1	632c	Entry structures – Kitchen, canteen	Sanitary
GDS	683	Bus stops and parking spaces A1	Operational
GDS	740-IX.1	Boiler house	Operational
GDS	740-IX.11	Telephone Central	Operational
GDS	440	Gas reducing station, external arrangements and fencing, fire protection system	Operational

The existing public utilities network situated on the area of NJZ siting and construction share the same conclusion with the above mentioned structures - their reconstruction would be ineffective for an application within NJZ operation, but it will be possible to use some of these structures when establishing the construction site. It regards e.g. water management networks, external lighting, cable channels and earthing, heat distribution systems and gas pipeline. The possibilities of the above mentioned structures utilization at EBO area mean an important advantage of Jaslovské Bohunice site because they will contribute to a higher speed of NJZ construction, reduction of its costs and they will reduce the occupation of land necessary for construction and operation of NJZ.
2.4.2.4. Requirement for high safety standards regarding fuel quality inspection and fresh and spent fuel management in terms of minimizing the surroundings threat.
A description of nuclear fuel management is described in the chapter A.II.8.3.4.1. Nuclear fuel and spent fuel management. The safety standards for fuel quality inspection and for fresh and spent fuel management in terms of minimizing the surroundings threat will be applied in compliance with the Decrees of ÚJD SR, the requirements of IAEA, WENRA and the standards that are valid in the country of the fuel supplier's origin.
2.4.2.5. Comment that the preliminary study does not deal with a way of the waste heat exploitation. There is a requirement to add information on a way that the design considers for using the heat from NJZ for heating.
In case of need and demand, NJZ will allow substituting the heat supply from JE V2 (after JE V2 operation termination) to towns Trnava, Hlohovec and Leopoldov and village Jaslovské Bohunice. In principle, it will be possible to extend the heating system to some other towns and villages.
2.4.2.6. Comment that NJZ is intended to be situated too close to Austrian border.
The EBO site has been used for nuclear power industry for a period more than 40 years. The strategic documents of SR do not consider any other site for NJZ construction. NJZ impacts on Austria were assessed and eliminated within the Report.
2.4.2.7. Requirement for an assessment of uranium production and treatment impacts on the environment and population at the areas of mining, transport and processing facilities.
Uranium and nuclear fuel are energy commodities that will be purchased on the world market and it can be provided by several prestigious suppliers. Mining, treatment of uranium ore and fuel production are assessed in separate EIA processes according to respective country's legislation. Similarly, in case of a gas power plant construction, the gas mining location and conditions as well as a gas transport from the mining location to the consumption spot are not reviewed. The same regards all industrial constructions.
2.4.2.8. Use of a common foundation plate for both unit containments is recommended.
Within the determination of the Assessment Scope, the proposed activity was more precisely specified for one reactor unit of PWR type of III+ generation with a net electric power up to 1700 MW_e. A description of the foundation plates is presented in the chapter A.II.8.3.1.3. Basic data on reference designs.
2.4.2.9. Objection against siting of NJZ which wouldn't be already safely operated in another country at the time of commissioning.
The Requirements for the Assessment Scope include (under the paragraph 2.2.15.) a statement: The requirement is taken into account in the technical measures proposal in the chapter C.IV.2.
2.4.2.10. Objection that it is not clear which reactor types or technologies are available to be chosen.
Only a power plant with pressurized water reactor (PWR) of III+ generation is taken into account. The reason is that these kinds of power plants represent the best currently available technology and this reactor type is the only one dealt within the Feasibility Study. The reactors of PWR type represent a nuclear power plant type which is most frequently applied in Europe and in the whole world and which has a number of safety advantages. Within the conditions of the Slovak Republic, these advantages include long-term operational experience. A nuclear plant like this can be delivered by several manufacturers, but their nomination is not subjected to the EIA. A supplier nomination will be executed at the next stages of the design preparation during which no applicant can be excluded in advance and, vice versa, it is not possible to request a participation of any manufacturer. The environmental impacts of all the commercially available power plants with PWR reactor of III+ generation are similar in terms of quantity and quality. The EIA process considered a common conservative envelope of all the characteristics following the data provided by the reference unit suppliers (a summary of the reference units is presented in A.II.8.3.1.3. Basic data on reference designs) which might influence the environment. The same regards safety requirements prescribed by legislative regulations for nuclear power plants.
2.4.2.11. Requirement to assess impacts of individual types of reactors considered for NJZ on the environment and the human health.
The assessment used an envelope method which does not assess individual units by means of their comparison, but it determines an envelope of the most unfavourable parameters. An assessment of impacts on the environment and health is executed for a cumulative acting of these parameters on the environment and health. A description of the approach is presented in the Report, in its chapter Introduction.
2.4.2.12. Requirement to describe in details the technical and safety design of each considered reactor type.
For the purposes of the Assessment Report, reasonably detailed technical and safety designs of each considered reactor type are presented in the chapter A.II.8.3.1.3. Basic data on reference designs. Common technical and safety characteristics of the designs are presented in the chapter A.II.8.3.2. Technological design.
2.4.2.13. Requirement to provide sufficient sources of cooling water for all the nuclear installations of the site during emergency states.
NJZ will be equipped with a water reservoir with a 30-day capacity for residual heat removal in case of a loss of raw water supply (more details are

provided in the chapter A.II.8.3.4.4. Water management connection and systems).
2.4.2.14. Requirement to provide a separate information in the EIA Report regarding the main environmental characteristics of individual reactor types in terms of RAO production, spent fuel production and RAO releases.
Individual production of waste (separately for each supplier) is presented in the answer to the requirement 2.3.22. It is because various suppliers apply various approaches and technologies of RAO processing. As regards the balances of spent fuel and releases, there are no principle differences among the reference units and it is sufficient to use envelope values (maxima), as mentioned in the Report, in the chapters B.I Requirements for inputs and B.II Data on outputs.
2.4.2.15. Requirement to specify the volume of RAO and mainly spent fuel, as well as the volume of emissions (e.g. tritium) released to water courses, separately for each reactor type. Even beyond-design basis accidents can differ one from another very much.
Regarding operation, the answer is presented in the previous comment. As regards accident source terms, the principle of envelope values when determining a source term in the fuel and coolant and a principle of leaks effecting limitation as per the requirements of EUR were applied. During standard licensing proceedings a nominated supplier will have to demonstrate that their unit's emergency source term of a leak to environment will be lower than that one assessed in the EIA Report.
2.4.2.16. Requirement to perform a multiple alternatives assessment of the reactor type.
The proposed activity is not dealt in multiple alternatives. More detailed justification of this fact is presented in the chapter C.V. Comparison of alternatives. The justification results in a statement that for the proposed activity there is no other real alternative solution available except for the proposed one – neither other site, nor other technology. Due to this reason, following the Customer's application and a review of the facts presented therein, Ministry of Environment of the Slovak Republic waived (in the letter No.8356/2013-3.4/hp dated November 28, 2013, see the Annex 2 of the Preliminary Study) the requirement for multiple alternatives.
2.4.2.17. Requirement to perform a multiple alternatives assessment of the reactor site selection.
The explanation is subjected to the chapter A.II.6.4. Justification of siting at Jaslovské Bohunice site and the answer to the requirement 2.3.50.
2.4.2.18. Requirement to perform a multiple alternatives assessment of a way of siting at a site with respect to the site characteristics.
The explanation is subjected to the chapter A.II.6.4. Justification of siting at Jaslovské Bohunice site. Following the multicriterial assessment, the feasibility study recommended NJZ siting within Jaslovské Bohunice site, on its unbuilt area, and situating the construction site equipment on one part of area of decommissioned power plants JE A1 and JE V1.
2.4.2.19. Requirement to prepare a precedence order of individual reactors in terms of their impact on the environment and health, including potential impacts.
The purpose of the EIA process for NJZ is not to decide which unit will be chosen, but to assess whether (in terms of the environment) the nuclear unit of PWR type and III+ generation with its power output up to 1700 MW_e can be situated and operated on the site while applying the most conservative parameters of individual reference types. From this point of view, all the reference reactors are equal.
2.4.2.20. Objection regarding the application of the envelope method (black box) as a main assessment method.
The envelope methods (Plant Parameters Envelope) is a common method used worldwide to assess the impacts of nuclear power plants (recently used in e.g. Canada, Finland, the USA and the Czech Republic) and it is respected by regulatory authorities. Moreover, the application of boundary parameters envelope is considered in the Proposed Activity Assessment Scope issued by Ministry of the Environment of SR.
2.4.2.21. Objection that none of the reference reactor types is currently in operation and there is no operational experience.
There is a requirement included in the Assessment Scope (paragraph 2.2.15) stating that such reactor type shall be used during the design execution, which represents currently the best available technology and which has already been tested and operated in another country. The requirement is taken into account and dealt in the chapter A.II.8.1. Scope of activity. This requirement will be implemented latest at the permitting stage of NJZ commissioning. There is the Customer's requirement that before the supplier's nomination is decided, the chosen NJZ design shall be licensed in the country of origin, in a country of the EU or in another country having a well-developed nuclear industry and it shall be at least at a stage of advanced construction in another site.
2.4.2.22. Objection that the descriptions of individual reactor types, presented in the Preliminary Study, are too general.
The Report (compared with the Preliminary Study) provides many more details in the descriptions of individual unit compliance thus the requirements for the environmental impacts assessment. They are included in the chapters A.II.8.3.1. Technical data and A.II.8.3.2. Technological design.
2.4.2.23. Objection that the statement on observance of IAEA's, WENRA's, EU's requirements and national acts is not supported by a justification.
The observance of IAEA's, WENRA's, EU's requirements and national acts will be supported by a justification during a next NJZ licensing process as per the Atomic Act. Hierarchy of requirements that will be applied for NJZ is presented in the chapter A.II.8.2.2.5. Hierarchy of legislative requirements for NJZ.
2.4.2.24. Objection that if a specific reactor design is not chosen it is not possible to assure on principle a compliance with the requirements of IAEA, WENRA, EU and national acts.
The above mentioned requirements will be applied for NJZ design (see the A.II.8.2.2.5. Hierarchy of legislative requirements for NJZ) and the demonstration of the compliance will be a matter of the documents for the following licensing process as per the Atomic Act.

2.4.2.25. Objection that there are some contradictions in the Preliminary Study regarding the descriptions and safety characteristics assessment. The applications of active and passive systems are identified as safety advantages. An application of standardized components and procedures is emphasized to increase safety, but on the other hand, innovative methods are intended to be used.
The Report includes a more precise description of the safety systems and unified rate of information for individual reference units (see the chapter A.II.8.3.1.3. Basic data on reference designs and the chapter A.II.8.3.2. Technological design).
2.4.2.26. Objection that a detailed safety assessment, including accidents effects, will be performed within another process with no interconnection with EIA process.
It is correct that the detailed safety assessment will be performed within another process, but this process will be interconnected with EIA. All the future assessments will have to demonstrate that, regarding normal and emergency states, the source terms of radioactive substances leaks to the environment will be lower as those applied in EIA process for NJZ.
2.4.2.27. No specific technical data, thus no specific inputs and outputs of the design are known.
Sufficiently detailed technical data is known for the EIA. Each of the NJZ suppliers will have to observe the envelope of qualitative and quantitative parameters applied in the Report (or, in collaboration with the Customer, to assess a proposed activity change within the EIA process).
2.4.2.28. Objection, that the worldwide practical experience of NJZ confirm a low quality of work operations, inadequately trained staff, underestimation of actual costs, prolongation of construction period, preferring a price to safety and quality.
The objection is not related to EIA process for NJZ. Worldwide experience will be taken into account by the Customer in the course of the following NJZ design preparation. Except for the negative experience there are cases of positive experience, as well. For example, construction of JE V2 – during the design preparation experienced a change of the design type from V230 (JE V1) to V213 (JE V2); or Sizewell B in Great Britain, or on the present – NJZ Barakah construction in SAE.
2.4.2.29. Comment that it is not clear whether one or two units will be constructed.
The proposed activity regards a construction of 1 unit of PWR type, III+ generation with a net electric power up to 1700 MW_e.
2.4.2.30. Comment, that neither the Preliminary Study nor the statements of the Assessment Scope clearly say whether it will be a unit of III generation or a unit of III+ generation. Both these terms are used in the documents.
The proposed activity regards a unit of III+ generation (a group of characteristics of reactors of III and III+ generations are common and that's why the Report text contains information on III generation, as well).
2.4.2.31. Requirement that if application of generation III units is considered (not exclusively an application of III+ generation), a multiple alternative assessment of these two generations should be added.
The proposed activity regards a unit of III+ generation. So the multiple alternative assessment of III and III+ generations is irrelevant for the impacts assessment.
2.4.2.32. Comment that APR-1400 and AP1000 are not of III+ generation at least due to the application of single containment.
The structure of III+ Generation containment hast to assure a reliable functioning of the third physical protective barrier against a radioactivity leak to the environment during the action of internal and external impacts. A way of this assurance depends on a design solution of the specific design. The double containment is just one of the possible solutions. Some reference designs propose a containment with a double jacket structure consisting of internal shell (providing tightness) and an external shell (protection against external impacts) with a ventilated space between them. The other designs have a containment of single execution consisting of reinforced concrete structure with an inside steel lining and of shielding structure at the penetrations section with a vented interspace.
2.4.2.33. Comment, that the units of power 1700 MW are too big for the energy system of SR and their application might result in failures of the el. system and some other induced environmental effects.
The EIA Report does not assess these technical issues of the electric system stability. Electricity transmission system of SR is owned by another subject (SEPS). As per the Feasibility Study, in principle a unit with power 1700 MW_e can be connected to the electrical system and, as well, the Energy Policy of SR admits a possibility of 1 NJZ unit having power up to 1700 MW_e.
2.4.2.34. Comment that the large range of possible NJZ power output values mentioned in the Preliminary Study (1,2 GW to 2,4 GW) is a sign of an insufficient knowledge of real energy demand of Slovakia or a sign of being out-of-date.
In relation to the development of the Energy Policy of SR licensing process, the NJZ Assessment Scope determined that the subject matter of the proposed activity for the Report elaboration is 1 unit with a net electric power up to 1700 MW_e.
2.4.2.35. Requirement to review the fact that AP1000 is a design developed for electric network with frequency 60Hz.
For the EU countries, AP 1000 has a standardized design on base 50 Hz (see the GDA process for AP1000 in Great Britain). The AP1000 design with frequency 50 Hz is under construction in China.
2.4.2.36. Requirement to assess at least the alternative 2 x 1,2 GW and 1 x 1,7 GW with respect to big power differences and necessarily related differences in environmental impacts during a normal operation and accidents.
Within the determination of the Assessment Scope, the proposed activity was more precisely specified for one reactor unit of PWR type of

III+ generation with net electric power up to 1700 MW_e.
2.4.2.37. Requirement to specify more precisely the power modes which the power plant will be operated in.
The power plant will be operated in a mode of basic load (100 %) and following the needs of the transmission grid operator it will allow performing support services for frequency and power regulation including a power operation within a range of 50-100 %.
2.4.2.38. Requirement to add the certificate confirming that a long-term use of the regulation range 50-100% when operating NJZ will have no impact on the declared CDF in the course of the whole lifetime.
This type certificates will be included in the licensing documentation in accordance with the Atomic Act. In case of 50 -100 % regulation it is about the Customer's requirement so that they will be able to guarantee preparedness for a provision of support services for the transmission system operator (SEPS). A real long-term operation of NJZ unit at a decreased power is not expected.
2.4.2.39. Objection, that the required thermal efficiency 37 % is low in comparison with the other energy sources.
This thermal efficiency represents the best practice for nuclear power plants. Energy exploitability of nuclear fuel can be further increased if, after JE V2 operation is terminated, NJZ will be utilized for heat supply to the surrounding towns and villages.
2.4.2.40. Requirement to consider an alternative site if it is not feasible to exploit the heat produced by NJZ within the site.
It is not feasible to currently exploit the heat produced by NJZ (except for possible heating the town Piešťany) because the neighbouring towns are supplied with heat produced by JE V2. After the JE V2 operation is terminated, it will be possible to preserve (thanks to NJZ) this ecologically friendly service.
2.4.2.41. Requirement to add the information on a continuity with the strategic intentions of SEPS that will be necessary for NJZ connection to the power grid of SR.
The strategic intentions of SEPS are not subjected to the proposed activity and they have to reflect (like NJZ) the approved Energy Policy of SR. NJZ connection to the transmission system of SR is described in the chapter A.II.8.3.2.3. Electrotechnical systems.
2.4.2.42. Requirement to add information on the ability of the power grid of SR to adopt safely such a big source while considering the power range intended for NJZ and considering the existing source 2 x 500 MW_e at the same site.
In relation to the NJZ implementation, the transmission system (described in the previous paragraph) will be strengthened. The transmission system strengthening results from the approved Energy Policy and it lies within another subject's authority (SEPS).
2.4.2.43. Requirement to add information on the existing emergency zones at the site, new zones for NJZ and planned protective measures of emergency planning for NJZ.
The issues are dealt in the chapter A.II.8.2.2.4. Requirements for emergency planning and particularly in the sub-chapter C.III.19.1.11.4. The area of threat.
2.4.2.44. Comment, that the source of the nuclear fuel purchase is not specified.
The nominated NJZ supplier is required to deliver NJZ technology together with nuclear fuel in consideration of a possibility of the nuclear fuel supplier diversification. In case the fuel supplier is changed, the fuel will be purchased on the world market where several prestigious suppliers offer fuel deliveries for various reactor types. In this sense, the nuclear fuel is a standard commodity.
2.4.2.45. Comment, that the proposed activity implementation will increase the operator's dependence (and a dependence of SR as well) on external companies and other countries due to the necessity to purchase the nuclear fuel abroad.
It is correct that, having no uranium mining in Slovakia, the development of nuclear power industry formally increases the energy dependence of the country. Compared to gas or oil, there is no need of nuclear fuel continuous deliveries. A single fuel delivery (once a year or once a several years' period) is sufficient. Moreover, it is possible to purchase and stock the fuel several years in advance. It allows an effective managing of a risk of potential dependence on suppliers and other external impacts.
2.4.2.46. Requirement to verify a possibility of a nuclear fuel shortage and its impact on the economic efficiency of the proposed activity.
Fresh fuel sets will be purchased on the world market which provides sufficient reserves for the period of NJZ lifetime (source: OECD NEA: Uranium 2014: Resources, Production and Demand). The delivery of the fuel sets can be provided by several prestigious suppliers.

2.4.3. Safety aspects
2.4.3.1. Requirement to assess the cross-border impacts on the Czech Republic, particularly the impacts of potential NJZ accidents on the environment and the public health on the territory of the Czech Republic.
The cross-border impacts are assessed in the Report. The impacts of NJZ normal operation are not measurable for ČR (see the chapter C.III.16.3.1.3. Assessment of radioactive discharges impacts). The impacts of accidents are assessed in the chapter C.III.19.1. Radiation risks. The limit value 1 mSv/year for a normal operation will not be exceeded within the closest frontier regions, in case of the most probable meteorological conditions.

2.4.3.2. Requirement to assess the effects of radioactivity leaks caused by accidents and their impact on the public health and the environment in both the NJZ surroundings and beyond the neighbouring countries' borders.
The accidents impacts are assessed in details in the chapter C.III.19.1. Radiation risks for envelope cases of design basis accidents and a severe accident. In case of NJZ accident, the limit value 1 mSv/year for the normal operation will not be exceeded in case of the most probable meteorological conditions.
2.4.3.3. Requirement to provide detailed information on simulation of radioactive substances spreading under normal operation and accidents conditions including a provision of information on applied input parameters of the spread calculation (source term, height and duration of the leak, meteorological data) and their justification.
All the required information is presented in the chapters C.III.16.3. Impacts on ionising radiation for a normal operation and C.III.19.1. Radiation risk for accidents.
2.4.3.4. Requirement to perform a spatial separation of independent sources of emergency power supply based on a safety analysis of NJZ area utilization, which will be documented in the EIA study.
The area for NJZ construction was chosen so as not to restrict the siting of individual reference units following their generic designs. All the suppliers declare spatial and functional separation of independent emergency power supply systems. The certificates and verifications will be elaborated for the chosen design within the course of licensing procedures following the Atomic Act.
2.4.3.5. Requirement to take into account the lessons of Fukushima experience regarding multi-source and multi-installation interactions, e.g. common threats, common physical connections, physical effects and interactions of energy units and facilities in which the spent fuel will be kept, in case of external and internal emergency events.
NJZ will be built as a single-unit. All the important infrastructure connections will be realized separately for NJZ. NJZ will be designed so as to take into account a possibility of accident in other installations on the site, including a severe accident.
2.4.3.6. Requirement that, regarding the NJZ design, the EIA Report shall take into account the safety results of EU stress tests, as well as the knowledge obtained from Fukushima, which is a necessary condition for the decision on MŽP opinion.
The hierarchy of obligatory requirements for NJZ includes the requirements of WENRA 2013 for new units, which take into account the lessons obtained from JE Fukushima as well as the results of stress tests.
2.4.3.7. Requirement to perform a deterministic safety assessment of each reactor type.
Deterministic safety assessment will be performed for a chosen unit within the process of Preliminary Safety Report development as a part of documentation required for construction permit.
2.4.3.8. Requirement to provide a list of design basis accidents for the new nuclear power plant.
The list of design basis accidents for NJZ will correspond with the list pursuant to the safety guide of ÚJD SR BNS I.11.1/2013. This guide provides a more complex and longer list than the ones which are presented in the documents of WENRA, IAEA and EUR.
2.4.3.9. Requirement stating that the assessment in EIA Report shall include not only normal operation, but also model cases of failures (Design basis Accident - DBA), cases of failures that exceed the model cases BDBA (Beyond Design basis Accident) and severe accidents of the new nuclear power plant (first of all a forecast of failures and accidents cases probability, presentation of accidents scenarios description, assessment of their source terms).
All the required information is presented in the chapters C.III.16.3. Impacts of ionising radiation for a normal operation and C.III.19.1. Radiation risks for accidents while taking into account the representative envelope cases of design basis accidents and a severe accident.
2.4.3.10. Objection saying that in a view of an absence of operational experience, the probability of accidents can be higher than the one presented by the Customer and the Supplier.
A detailed PSA study will be elaborated for the nominated unit at the following stages of the licensing process, which will methodically correspond with the requirements for PSA pursuant to ÚJD SR, IAEA and WENRA. The expectations presented in the PSA will have to be verified and justified. In any case, the criteria presented in the Report will have to be met: • core damage frequency (CDF) is lower (at least by one order of magnitude) than in case of the existing operated JE (the CDF value is significantly lower than 1E-5/year), • probability of large and early releases of radioactivity (LER) to the environment is lower (at least by one order of magnitude) than in case of the existing operated JE (the LER value is significantly lower than 1E-6/year).

2.4.3.11. Objection that the Preliminary Study does not deal severe accidents effects.
A representative case of severe accident, including all the main expectations and their justifications and commented results, is presented in the chapter C.III.19.1. Radiation risks.
2.4.3.12. Objection that the Preliminary Study does not include safety systems descriptions except for general statements that they will be installed and they will be able to manage or limit the accidents effects.
The safety systems descriptions were extended in the Report and they are presented in the chapter A.II.8.3.1.3. Basic data on reference designs and

regarding the common technical and safety characteristics of the designs in the chapter A.II.8.3.2. Technological design.
2.4.3.13. Requirement to assess in details a severe accident and its impacts on Austria and to justify that the applied approach is representative for all reactor types or to perform separate assessments for each reactor type.
A representative case of severe accident, including all the main expectations and their justification, an assessment of cross-border impacts and the commented results are presented in the chapter C.III.19.1. Radiation risks.
2.4.3.14. Requirement to specify the parameters of maximum design basis accident that were accepted for the new nuclear power plant.
The parameters of representative envelope cases of design basis accidents are presented in the chapter C.III.19.1. Radiation risks.
2.4.3.15. Requirement of the Republic of Poland to provide emergency plans and procedures as well as the data regarding the chosen reactor technology.
Information on emergency planning and cross-border warning system are presented in the chapter A.II.8.2.2.4. Requirements for emergency planning.
2.4.3.16. Question asking whether the off-site emergency plans will be consulted with the neighbouring countries and whether these plans will be available to these countries after they are developed.
The off-site emergency plan is not consulted with the neighbouring countries because it regards primarily only the region in which the emergency planning zone is situated (on the present 21 km from JE V2 – see the chapter C.III.19.1.11.4. Emergency planning zone. It is so because in case of an accident the public protection activities are expected to be performed only in the emergency planning zone. Public protection plan (off-site emergency plan) is produced by district authorities whose territory is situated within the emergency plan zone. The communities that are situated within the emergency planning zone, elaborate abstracts from the public protection plan of the related district or executing documents for an implementation of planned measures. The above mentioned public protection plans are based on an on-site emergency plan of JZ operator who is obliged to provide the authors of the public protection plans with source documents on the expected threat in case of an incident or accident. The public protection plan is approved by the Ministry of Interior of SR following a review performed by ÚJD SR. In case of an accident, the neighbouring countries are notified by means of the cross-border warning system (see C.III.19.1.11.3. Cross-border warning and interconnection with the systems of neighbouring states). The off-site emergency plans can be available to the neighbouring countries following a mutual agreement.
2.4.3.17. Disapproval with nuclear power industry which stands for a source of unreasonable risk especially in case of a serious accident of Chernobyl type which can never be excluded.
Nuclear energy exploitation is preferred in the Energy Policy of SR due to the fact the electricity is produced with no harmful emissions released to the air and that's why it is one of the driving powers of low carbon growth. Following a study (Kharecha, Hansen: Prevented Mortality and Greenhouse Gas Emissions from Historical and Designed Nuclear Power, Environmental Science & Technology, 2013), the electricity produced in nuclear power plants saved in the whole world during the period 1971 - 2009 approximately 64 gigatons of emissions that are equivalent to CO_2 so avoiding approx. 1,84 million of deaths related to the air pollution (following the highest estimation it might reach 7,5 million of deaths). Depending on the fuels replaced by the nuclear fuel, till 2050 nuclear energy might help in avoiding further 420 thousand up to 7,04 million of deaths and 80 - 240 gigatons of emissions equivalent to CO_2. In relation to the nuclear power plants safety and radioactive waste management it is possible to argue that most of the doubts result rather from a fear of nuclear power industry than from specific risks proven by science. As per the number of deaths attributed to individual types of electricity source, the nuclear power industry is one of the safest ways of electricity production (Source: Comparing Nuclear Accident Risks with Those from other Sources, OECD and NEA, 2010).
2.4.3.18. Expressed fear of potential cross-border impacts in case of a severe accident and a negative impact on Germany population.
A representative case of severe accident, including all the main expectations and their justification, assessment of cross-border impacts and the commented results are presented in the chapter C.III.19.1. Radiation risks. The information presented in the answer to the requirement 2.3.49 for Ukraine is valid also for Germany whose closest part is at a distance 285 km from NJZ.
2.4.3.19. Requirement to perform a detailed analysis of a potential loss of cooling water supply caused by a flood, a sedimentation conditioned by a flood, a drought and low tide and some other reasons as well (a seismic event, a dam rupture etc.).
NJZ will be equipped with a water reservoir having a 30-day capacity for residual heat removal in case of a loss of raw water supply (more detailed information is provided in the chapter A.II.8.3.4.4. Water management connections and systems in which there are some other facts regarding the NJZ water supply.
2.4.3.20. Notice that the calculations of the applied documents lack the documents of Nuclear Regulatory Commission (NRC) and they are not stipulated in writing within the environmental impacts assessment.
The documents of US NRC will not be applied for NJZ in a blanket approach manner. They can be applied in the spheres where national documents, the documents of IAEA, WENRA do not include respective details for application in practice. The Report includes an application example of US 10 CFR approach, part 50.150 and US NRC RG 1.217 for acceptability assessment of a large plane crash effects and several US NRC NUREG documents for a determination of a source term for severe accidents.

2.4.3.21. Objection that there is no explicit embodying of important IAEA documents into the licence base of the new nuclear power plant, namely the following IAEA documents: IAEA NS-G-2.15 "Severe Accident Management Programmes for Nuclear Power Plants Safety Guide", IAEA NS-G-3.1, "External Human Induced Events in Site Evaluation for Nuclear Power Plants Safety Guide", IAEA Safety Guidelines SSG-3, SSG-4 Development and Application of Level 1(2) Probabilistic Safety Assessment for Nuclear Power Plants Specific Safety Guide, IAEA Safety Guidelines SSG-9 "Seismic Risks in Site Evaluation for Nuclear Installations Specific Safety Guide", Safety design standards IAEA SSG-2/1, requirement 12 features to facilitate radwaste management and decommissioning, IAEA Safety standards and requirements vlg IAEA NS-R-3 (site). SSR-2/1 (Design).
The hierarchy of requirements, which will be applied for NJZ, is presented in the chapter A.II.8.2.2.5. Hierarchy of legislative requirements for NJZ. All the above mentioned documents included within the objection will be involved in the licence base for NJZ.
2.4.3.22. Requirement that within the EIA Report it is required to follow (in general terms) and observe all the applicable methodical documents of the organization IAEA and, as well, the requirements of the organization US NRC (US Nuclear Regulatory Commission) that are suitable as „a methodical base" for achieving a standard within the sphere of nuclear power plants that correspond with the situation of the 21st century.
The hierarchy of requirements, which will be applied for NJZ, is presented in the chapter A.II.8.2.2.5. Hierarchy of legislative requirements for NJZ. All the above mentioned documents included within the objection will be involved in the licence base for NJZ. The documents of US NRC will not be applied for NJZ in a blanket approach manner. They can be applied in the spheres where national documents, the documents of IAEA, WENRA do not include respective details for application in practice.
2.4.3.23. Requirement to explain whether (or in which manner) the „Ageing Management" aspects shall be taken into account when choosing one of several potential reactor types, e.g. following the next criteria: (International experience with operation of previous installations produced by respective producers; Review of actual choice of material and completed processes with respect to a predisposition to ageing effects; Review of related structures with respect to involved reserves and possibilities of the execution inspection).
The approach to the Ageing management is not included in the EIA process but it will be taken into account at the following stages of the licensing process according to the Atomic Act. All the suppliers will be obliged to demonstrate (in compliance with related standards) how their designs respect the requirement for at least 60-year design basis lifetime of NJZ. A description of an approach to regular safety assessments is presented in the chapter A.II.8.2.3.4.2. Regular safety assessment.
2.4.3.24. Requirement to assess severe accident effects in the existing spent fuel storage at the site in terms of preserving the ability to perform safety functions including the operating personnel of the new nuclear power plant at the same site.
The requirement is dealt in the chapter C.III.19.1.11.4. Conclusion of the preliminary assessment of risks resulting from human activity performed at the site. The control rooms of NJZ have to be protected against a penetration of radioactive substances in case of accidents occurred at other nuclear installations situated at the site – it regards also the conditions of severe accident if this accident cannot be practically excluded as per the definition of WENRA 2013.
2.4.3.25. Requirement that the assessment of normal operation doses has to take into account the period of time during which the radioisotopes are released and a requirement to assess a potential impact of single short-term higher releases.
The doses produced by normal operation are assessed in the chapter C.III.16.3.1.3. Assessment of radioactive discharges impacts. The discharges occur nearly evenly which can be demonstrated by the records from the Reports of Radiation Assessment of the Surroundings regarding the existing nuclear installations for individual years.
2.4.3.26. Objection that without safety characteristics verification performed on a real operated unit it is not possible to guarantee an achievement of these characteristics only following manufacturer's data mainly due to a prediction of NJZ performance in case of a severe accident.
The safety characteristics for a chosen unit will be independently verified in detail at the following stages of the licensing process as per the Atomic Act.
2.4.3.27. Requirement to choose the reactor type while applying nuclear safety and operation ecology as the only determining criteria that are superior to economic and financial interests of the owner and operator.
Contractual documents and assessment criteria will be developed for the supplier nomination which will define the requirements for nuclear safety and operational ecology which will be in conformity with the highest existing standards pursuant to the requirements of ÚJD SR, IAEA and WENRA.
2.4.3.28. Requirement to assess the events during which radioactive substances leak to environment despite the fact the containment function is not broken (so-called containment bypass).
An event of containment bypass type is assessed together with the design basis accidents in the chapter C.III.19.1. Radiation risks. A preliminary screening results in a fact that the most serious effects will result from the event „fuel set disruption during spent fuel handling" so this event was subjected to an assessment of radiation effects.
2.4.3.29. Requirement to provide information of "Loss of offsite power" case solution in the NJZ design.
The event „Loss of offsite power" will be included in the design base for NJZ. All the suppliers declare a sufficient resistance of their designs to this event. The event is included in the list of emergency conditions as per the safety guide of ÚJD SR BNS I.11.1/2013.

2.4.3.30. Requirement to provide information on a way of long-term emergency cooling of the core and spent fuel storage pool.
Basic information on the long-term emergency cooling of the core and spent fuel storage pond is presented in the chapter A.II.8.3.1.3. Basic data on reference designs; and regarding the common technical and safety characteristics of the designs in the chapter A.II.8.3.2. Technological design. In principle, a boiling heat transfer and natural circulation is applied. The removed heat is transferred to the surroundings through the containment wall or via steam generator and steam damping valve stations at the secondary side to the atmosphere. For the water refilling purposes NJZ will be equipped with a water reservoir with a 30-day capacity.
2.4.3.31. Requirement that a new emergency monitoring system has to co-operate with VARVYR system that is operated on the present.
The new monitoring system will be an addition to the existing one and it will co-operate with VARVYR system (see the chapter C.IV.5. Other measures).
2.4.3.32. Requirement to provide information on measures and a guarantee of their functionality in case of the nuclear power plant accident or its partial technological equipment accident and their potential harmful impacts on all environment components of the frontier regions territory of the Czech Republic.
The requirement is dealt in the chapter C.III.19.1.11.3. Cross-border warning and interconnection with the systems of neighbouring states as well as in the answer to the requirement 2.3.24 of the assessment scope.
2.4.3.33. Requirement for a classification of failure states and their impact on the environment.
The classification of failure states in terms of their impacts is performed in the chapter C.III.19.1.3. Characteristics of emergency states as well as in the chapter C.III.19.1.4. Characteristics of events according to International Nuclear Event Scale (INES).
2.4.3.34. Requirement to describe the measures for mitigation and minimization of the failure states effects and bringing the nuclear installation to the initial state or a steadily safe condition.
The basic information on mitigation and minimalization of the failure states effects and on bringing the nuclear installation to the initial state or to a steadily safe condition is presented in the chapter A.II.8.3.1.3. Basic data on reference designs and for common technical and safety characteristics of the designs in the chapter A.II.8.3.2. Technological design.
2.4.3.35. Requirement to provide detail results of PSA studies for each reactor type (CDF, LRF and LERF) including a probability distribution, contributions of individual initiating events including internal and external events, operational states (operation, refuelling and other modes), a contribution of the events at the spent fuel storage pond.
Probabilistic characteristics are presented in the Report as requirements. Their demonstration will be a matter of the following licensing process as per the Atomic Act. Regarding CDF and LRF, their data provided by the suppliers are presented in the answer to the requirement 2.3.29 of the assessment scope.
2.4.3.36. Requirement to provide the most important scenarios of accidents including the accidents of fuel rods storage pool (it is required to specify the necessary manual actions as well as periods that are available for it) considered in the PSA studies.
A description of reference scenarios of design basis and severe accident is presented in the chapter C.III.19.1. Radiation risks. The list of emergency conditions for NJZ will be based on the safety guide of ÚJD SR BNS I.11.1/2013 which takes into account lists of events pursuant to IAEA, WENRA and EUR. Detailed scenarios will be described in the documentation of preliminary and preoperational safety analysis reports and in the PSA study for a chosen reactor type. These documents will be elaborated as a source for the following stages of the licensing process as per the Atomic Act.
2.4.3.37. Requirement to provide a detailed description of measures for inspection of severe accidents or mitigation of their effects considered in the PSA studies.
A description of measures for mitigation of severe accidents impacts is presented in the chapter A.II.8.3.1.3. Basic data on reference designs and for the common technical and safety characteristics of the designs in the chapter A.II.8.3.2. Technological design. A detail PSA study will be elaborated for a chosen unit at the following stages of the licensing process as per the Atomic Act – the study will be methodically in compliance with the requirements of ÚJD SR, IAEA and WENRA for PSA. The considered measures and their efficiency will have to be verified and justified.
2.4.3.38. Requirement to provide a source term for the most important categories of leaks including leaks from the fuel elements storage pond considered in the PSA studies.
The source terms applied in the Report to assess the accidents effects are described in details in the chapter C.III.19.1.6.2. Source term for accidents.
2.4.3.39. Requirement to provide confidence intervals considered in the PSA studies as per the IAEA standards SSG-3, SSG-4 and an explanation of discovered uncertainties.
The confidence intervals pursuant to the international standards (including SSG-3, SSG-4) will be applied in the PSA study which will be developed for a chosen unit at the following stages of the licensing process as per the Atomic Act.
2.4.3.40. Question whether the Customer elaborated a preoperational PSA and whether it took into account the issues of external events, the events of spent fuel storage pond and the ones of the other nuclear installations situated at the respective site.
The PSA study will be elaborated for the chosen unit at the following stages of the licensing process as per the Atomic Act. Basic information from the suppliers' PSA studies will be required at the stage of a supplier nomination.

2.4.3.41. Requirement to perform a full-scope PSA analysis for each reactor type because such analysis is relevant for a cross-border impacts assessment.
This requirement is unrealistic because, before being nominated, no supplier will provide all the technical details that are necessary for an elaboration of a full-value PSA study. The full-scope PSA study for the chosen unit will be elaborated at the following stages of the licensing process as per the Atomic Act. Basic information from the suppliers' PSA studies will be required at the stage of a supplier nomination.
2.4.3.42. Objection against the assessment of accidents radiation effects by means of an envelope method applied for all the reactor types together (black box type).
The accidents assessment provided in the chapter C.III.19.1. Radiation risks is maximally conservative. The next analyses (performed within the licensing process as per the Atomic Act), performed for a specific chosen unit, should result in lower effects than those presented in the EIA Report.
2.4.3.43. Requirement to add the assessment of collective doses in case of accidents.
Collective doses criteria for accidents are not determined, that's why they were not assessed. Considering a limited impact of accidents and a low level of individual doses it is possible to predict a general acceptability of collective doses as well.
2.4.3.44. Requirement to provide a source term for accidents, periods of radioactive substances release to environment and meteorological data considered when assessing the accidents effects.
All the required data are presented in the accidents descriptions and analyses included in the chapter C.III.19.1. Radiation risks.
2.4.3.45. Requirement to describe accident scenarios of ground and surface water contamination.
Descriptions of severe accident scenarios of ground and surface water contamination are presented in the chapter C.III.19.1. Radiation risks.
2.4.3.46. Requirement to assess a severe accident with a radioactive substances leak exceeding a distance 100 km and hitting territory of European countries.
In the chapter C.III.19.1. Radiation risks, there is an assessment statement that at the distance of 100 km from NJZ, the lifetime doses caused by a severe accident are at the level of 100 μSv (0,1 mSv). These values correspond with the radiation limits for normal operation. That's why it is not necessary and beneficial to assess the doses at longer distances.
2.4.3.47. Requirement that the reactor with nuclear fuel, in which a fission reaction takes place, has to be involved in the highest protection degree so that in case of a nuclear event no radioactive substances penetrate the primary circuit boundary.
Requirements of equipment classification in terms of NJZ quality assurance are presented in the chapter A.II.8.2.5. Requirements for safety classification of NJZ equipment. The requirement for the containment tightness, which was implemented when determining a source term, corresponds with a leak (leakage) 0,5 % of the containment volume under a full pressure within a 24-hour period.
2.4.3.48. Requirement to find out and provide the initial reference state in order to allow future demonstration that the volume of radioactive substances discharged from the new nuclear power plant is small and to allow verifying the elaborated analytic prognoses.
The requirement is taken into account in the chapter C.IV.4. Organizational and operational measures.
2.4.3.49. Requirement to implement safety requirements of IAEA and WENRA for new power plants, including the minimum required values of core damage frequency (CDF) and large release frequency (LRF) that must be "virtually excluded" in the sense this term is interpreted by WENRA.
The requirements are implemented in the chapter A.II.8.2.3. Safety goals of NJZ design and regarding an exclusion of a severe accident occurrence in the fuel storage pool in the chapter C.IV.2. Technical measures.
2.4.3.50. How long will it take (under various meteorological conditions) to hit territory of Poland after a rise of a severe accident? Was this case simulated?
The closest territory of Poland is at the distance of 139 km from NJZ. Under realistic meteorological conditions (based on a measured occurrence probability and considering wind direction changes and a category of weather stability) and at the distance of 100 km, the lifetime doses will be (when considering ingestion) 100 μSv (0,1 mSv) and 2-day doses (with no ingestion) approx. 2 μSv. That's why the situation in Poland was not simulated in more details. A summary of the calculations results is presented in the chapter C.III.19.1. Radiation risks. So, as regards Poland, there is a general conclusion that the cross-border effects of a severe accident will not exceed international limits for normal operation.
2.4.3.51. Objection against a too general description of physical protection assurance presented in the Preliminary Study.
The requirements for physical protection are described in the chapter A.II.8.2.2.3. Requirements for physical protection. Detailed information regarding the physical protection belongs to classified materials.
2.4.3.52. Disagreement with the Preliminary Study statement that all the cited reactor types are guaranteed against an accidental plane crash.
An approach to dealing with the plane crash is described in the chapters C.III.19.1.8. Risk of terrorist attack and C.III.19.1.10.2. Preliminary assessment of a risk of accidental plane fall on NJZ. All the suppliers declare an increased resistance of their designs against a large plane crash.
2.4.3.53. Objection that the Preliminary Study does not deal a case of war conflict and its potential impacts on NJZ. With respect to the Ukraine crisis the threat is real.
A review of a war conflict risk does not fall within EIA process.

2.4.3.54. Objection that the Preliminary Study does not deal a case of a terrorist attack.
An approach to a terrorist attack is described in the chapter C.III.19.1.8. Risk of terrorist attack.
2.4.3.55. Requirement that the EIA Report shall contain related statutory requirements regarding measures against a terrorist attack and sabotage which are not subject to confidentiality.
The statutory requirements against a terrorist attack and sabotage, which are not subject to confidentiality, are presented in the chapters A.II.8.2.2.3. Requirements for physical protection and C.III.19.1.8. Risk of terrorist attack.
2.4.3.56. Objection that no nuclear installation is able to withstand bunker defeat weapons. In consideration of the conflict in Ukraine, these weapons can easily get to Slovakia, too.
An approach to the physical protection and terrorist attack issue is described in the chapters A.II.8.2.2.3. Requirements for physical protection and C.III.19.1.8. Risk of terrorist attack. Special weapons use against NJZ has to be excluded at a level of national measures against a terrorist attack.
2.4.3.57. Objection that it is not possible to eliminate completely a risk of terrorist attack, sabotage or a coincidental external threat of a nuclear installation. These risks can be just reduced to a reasonable limit.
This is a justified objection. The aim of NJZ physical protection and national protection against a terrorist attack is to reduce this risk so as to get it below the reasonable limit. Moreover, regarding the risks that cannot excluded, NJZ resistance has to be demonstrated.
2.4.3.58. Requirement that for the planned reactor type (6 reactor types in this case) all potential accidents and emergency scenarios with no intervention of a third party as well as those caused due to a third party intervention – terrorist attacks, sabotages, and beyond design basis emergency situations were to be considered.
This requirement will be met at the consequent stages of the licensing process as per the Atomic Act. The accidents considered within NJZ design will correspond with the best standards. When elaborating the EIA Report, the initiating events were compared resulting in a statement that the safety guide of ÚJD SR BNS I.11.1/2013 contains a complex list of emergency events and takes into account the lists of events pursuant to IAEA,WENRA and EUR. Representative cases of accidents were assessed in the Report in terms of radiation effects. An approach to the protection against a terrorist attack is described in the chapter C.III.19.1.8. Risk of terrorist attack.
2.4.3.59. Requirement to apply the guide of IAEA NS-G-3.1 "External Human Induced Events in Site Evaluation for Nuclear Power Plants Safety Guide" for an assessment of external risks.
The guide is cited in the Report several times and it will be included in the licence base for NJZ.
2.4.3.60. Requirement to provide a summary of all potential sources of radioactive, chemical and dangerous substances, mechanisms of their release in the course of construction and operation of the new nuclear power plant.
The main potential dangerous substances are presented in the chapters C.III.19.1.10. Risks arising as a result of other human activities performed on the site C.III.19.2. Non-radiation risks.
2.4.3.61. Requirement to provide data on radioactive discharges occurring at the stage of a power plant demolition during operation termination and decommissioning – following German experience, these discharges can be the most extensive ones in the course of the power plant lifetime.
Expectations of the discharges occurred at the stage of demolition and decommissioning are presented in the chapter B.II.5. Radiation and other physical fields. The experience obtained during JE V1 and JE A1 decommissioning does not support the statement about the releases grow. It is proved by lower limits of releases set for decommissioned installations as well as the results of the discharge monitoring that are presented in the chapter C.II.15.3.2.2. Emission situation at the site.
2.4.3.62. Requirement to add the results of extreme meteorological parameters of the site (extreme temperatures, wind, tornado, rainfall, snow, frost cover, lightning) with intensity once a 10 000-year period and their potential combinations as a base for assessment of impacts on the nuclear power plant safety.
The extreme meteorological parameters of the site are presented in the chapter A.II.8.3.1.2.5. Extreme meteorological and hydrological conditions in NJZ design.
2.4.3.63. Requirement for NJZ resistance to a seismic event and a plane crash.
The requirements for resistance to a seismic event and a plane crash are presented in the chapters A.II.8.3.1.2.3. Basic requirements for resistance to risks and failures of NJZ, A.II.8.3.1.2.4. Seismic resistance, C.III.19.1.8. Risk of a terrorist attack and C.III.19.1.10. Risks arising as a result of other human activities performed on the site.
2.4.3.64. Requirement to elaborate a seismic analysis of the site.
The seismic assessment of the site is included in the chapters A.II.8.3.1.2.3. Basic requirements for resistance to risks and failures of NJZ, A.II.8.3.1.2.4. Seismic resistance and C.II.2.4. Seismicity, tectonics and geodynamic phenomena.
2.4.3.65. Requirement to provide safety limits for dimensioning of the nuclear power plant with respect to seismic risk of the site.
The safety limits are presented in the chapters A.II.8.3.1.2.4. Seismic resistance and C.II.2.4. Seismicity, tectonics and geodynamic phenomena. A reliable seismic resistance is required for NJZ which corresponds with the site parameters and a seismic event frequency once a 10 000-year period.

2.4.3.66. Requirement to clarify the methodology applied for a determination of relevant external events.
The methodology of approach to the external risks assessment is presented in the chapters A.II.8.3.1.2.3. Basic requirements for resistance to risks and failures of NJZ, A.II.8.3.1.2.4. Seismic resistance, C.III.19.1.8. Risk of a terrorist attack and C.III.19.1.10. Risks arising as a result of other human activities performed on the site.
2.4.3.67. Requirement to provide a list of external events that have to be reviewed, a justification of the choice and the main characteristics of the external events.
The list of main external events is presented in the chapter A.II.8.3.1.2.3. Basic requirements for resistance to risks and failures.
2.4.3.68. Requirement to specify the assessed combinations of external events.
The external events combinations were assessed for the meteorological conditions in the background data study based on input data from SHMÚ. The combinations analysis didn't result in any strange and unexpected random or conditional combinations. Generally, a consideration of a 10 000-year extreme with conservative boundary conditions (e.g. a 10 000-year rainfall and a sewage system congestion) is more conservative than a consideration of combinations of lower level extremes.
2.4.3.69. Requirement to assess impacts of external events resulting from human activities performed in the surroundings of the new power plant site on safety (a crash of various types of plane, a terrorist attack, road transport events occurred in the surroundings), a requirement to assess a probability of such phenomena.
An assessment of the above mentioned events at a level which is fully sufficient for EIA process is presented in the chapters C.III.19.1.8. Risk of terrorist attack and C.III.19.1.10. Risks arising as a result of other human activities performed on the site.
2.4.3.70. Objection that a time available for taking an action against a plane is too short in case of the nearby airports (Piešťany).
The objection resolution would be included in the classified materials. For NJZ, there is a requirement for an increased resistance to a large plane crash (see C.III.19.1.8. Risk of terrorist attack).
2.4.3.71. Requirement to demonstrate and document a sufficiently large no-fly zone for a protection against air attacks or to demonstrate a resistance of all the containment designs of the considered reactors to a plane crash.
An increased resistance of NJZ to a large plane crash is required (see C.III.19.1.8. Risk of a terrorist attack). The no-fly zone size will be reviewed at the following stages of the licensing process. Generally, the no-fly zone contributes to a reduction of probability of accidental plane crash. The analyses elaborated for the site didn't conservatively consider a reduction coefficient.
2.4.3.72. Requirement to take into account large planes that will be / are being developed with respect to the planned 60-year operation of NJZ.
An increased resistance of NJZ to a large plane crash is required. Specific plane parameters – speed, weight, fuel volume, and impact angle will be probably included in the classified materials. Moreover, following the legislation of SR, a nuclear installation operator is obliged (with a periodicity at least once a 10-year time) to perform a complex periodical assessment of safety taking into account a practice, potential legislation changes, technical and technological progress (including an impact on change of risks) and to submit it to supervisory bodies.
2.4.3.73. Requirement to provide the required surveys of the site in order to obtain a licence for the nuclear installation siting.
The requirements for site are presented in the chapter A.II.8.2.4. Requirements for NJZ construction site selection
2.4.3.74. Requirement to take into account unfavourable meteorological conditions when assessing the cross-border impacts in case of radioactive substances leak to the environment.
As regards design basis accidents, the cross-border impacts analysis took into account the most unfavourable meteorological conditions including a consideration of local rainfall on the closest area situated beyond the border. As regards a severe accident, realistic meteorological conditions were considered (following standardized approaches) according to their occurrence probability based on long-term measurements performed at the site. The details are presented in the chapter C.III.19.1. Radiation risks.
2.4.3.75. Recommendation that, with respect to the fact that the site is situated in seismically most active territory of SR, the cross-border impacts assessment should focus on a prevention of potential accidents activated by risky natural processes, particularly earthquakes.
For NJZ design, a seismic resistance corresponding with the site conditions is required. The details are presented in the chapters A.II.8.3.1.2.3. Basic requirements for resistance to risks and failures of NJZ, A.II.8.3.1.2.4. Seismic resistance, A.II.8.2.4. Requirements for NJZ construction site selection and C.II.2.4. Seismicity, tectonics and geodynamical phenomena.
2.4.3.76. Question, if there was there cooperation with the Polish party regarding a seismic or another kind of monitoring?
There is an agreement concluded between Poland and Slovakia called The Agreement between the Governments of SR and Poland on Timely Notification of Nuclear Accidents, Information Exchange and Cooperation in the Field of Nuclear Safety and Protection against Radiation (Bratislava, 17.9.1996). There are no provisions regarding cooperation in the field of seismic or any other kind of monitoring.
2.4.3.77. Requirement to make the seismological study of the site (performed in 2012 and mentioned in the Annual Report of JESS) available.
The study is an intellectual property and a business secret of JESS company. This sphere studies are being continued and they will support the

documentation for licensing procedures for the nuclear installation siting as per the Atomic Act.
2.4.3.78. Requirement to perform (before some other installations are established at this site) an exact seismic and seismic-tectonic analysis of a real state following the newest state of technology (IAEA Safety Guidelines SSG-9 "Seismic Risks in Site Evaluation for Nuclear Installations Specific Safety Guide") including a performance of paleoseismic studies to extend the knowledge by information on original earthquake and to interpose relevant powerful earthquakes for dimensioning of the proposed activity and relevant auxiliary facilities.
The above mentioned analysis pursuant to SSG-9 will be performed and it will be one of the sources for the documentation for licensing procedures for the nuclear installation siting as per the Atomic Act.
2.4.3.79. Requirement to assure a seismic qualification of all critical components, not only the reactor – particularly the service water line from the water reservoir, the line for the water reservoir and for a respective reserve reservoir.
The concept of the facilities selection for a seismic qualification is described in the chapter A.II.8.3.1.2.4. Seismic resistance. The approach corresponds with international standards applied within this sphere.
2.4.3.80. Requirement to explain why the return period for SL-1 amounts to 475 years instead of 500 years.
The SL-1 value was determined following the Eurocode EC-8 (STN EN 1998) and it corresponds with the return period 475 years. So it is determined in a more conservative manner than required by the Decree of ÚJD SR No. 430/2011 Coll. which requires to apply a return period 100 years for SL-1.
2.4.3.81. Notice, that within the distance of 100 km from Jaslovské Bohunice site there were some quakes reaching values 7-8. The Preliminary Study mentions it but there is a requirement to add an assessment.
A new probabilistic calculation of seismic risk will be performed for the purposes of NJZ design preparation, which will apply actual safety guides of IAEA (particularly the document SSG-9 Seismic Risks in Site Evaluation for Nuclear Installations [IAEA 2010]). Within the process of PSHA study preparation, all the basic sets of inputs are being elaborated (such as a new seismological database and earthquakes catalogue, a geological database, a seismotectonic model and a selection of ground motion prediction equations (GMPE)). The assessment will be one of the sources for the documentation for licensing procedures for the nuclear installation siting as per the Atomic Act.
2.4.3.82. Notice saying that the designing process of specific constructions reviews the seismicity of the site as per the standard STN EN 1998-1 Design of structures for seismic resistance including respective changes.
The above mentioned standard is used to review all the constructions and facilities of NJZ. As regards safety systems, constructions and facilities, stricter requirements will be applied for higher resistance SL-2 as per the guides of IAEA (see the chapters C.II.2.4. Seismicity, tectonics and geodynamical phenomena and A.II.8.3.1.2.4. Seismic resistance).

2.4.4. Impacts cumulation
2.4.4.1. Objection against a cumulation of sources of risks at one site.
The programmes of national strategic documents assign the Jaslovské Bohunice site for a development of nuclear power industry. Till 2008, the nuclear power plant JE V1 was operated at this site. Compared with previous types of power plants, the safety parameters of NJZ are significantly increased. Therefore, the cumulative risk expressed in the summary CDF/LERF will be lower than the one of the simultaneous operation of JE V1 and JE V2. Despite an expected possibility of a simultaneous operation of NJZ and JE V2 for a period which will not exceed 20 years, following JE V2 shutdown the cumulative risk will fall below the contemporary level.
2.4.4.2. Comment saying that the proposed activity execution cumulated with other existing and prepared designs will increase a number of risk factors and an environmental load on the area concerned and threatened zones.
Till 2008 the nuclear power plant JE V1 was operated at this site. Compared with previous types of power plants, the safety parameters of NJZ are significantly increased. Therefore, the cumulative risk expressed in the summary CDF/LERF will be lower than the one of the simultaneous operation of JE V1 and JE V2. JE V2 is one of the most reliable power plants in Europe and a high safety level of this power plant was demonstrated by stress tests as well. In 2012 the operator of MSVP provided ÚJD SR with a safety analysis of beyond design basis events occurred in MSVP. This analysis was focused on initiating events as well as the stress tests that were performed in JE V2. As regards the other facilities, an accident can result in a leak of just a small volume of radioactive substances having no significant impact on the environment. This is taken into account in the size of the threatened area which is (for JE V2) demarcated by a circle of radius 21 km and for the other installations it is demarcated by a boundary of the guarded area. The environmental load produced by a cumulative action of NJZ and other installations is the main subject of the submitted Report assessment. Just one potentially significant cumulative environmental impact was identified and a mitigating measure was determined for it. It regards an arrangement of waste water discharge in terms of minimization of ground water load below outlet opening into the Drahovský Channel. The measure is presented in the chapter C.IV.4. Organizational and operational measures.
2.4.4.3. Requirement to assess cumulative risks from more nuclear installations situated at the site.
As regards cumulative impacts on the environment, they are the main subject of the submitted Report assessment. A preliminary assessment of risks resulting from other activities performed at the site is a subject of the chapter C.III.19.1.10.3. Preliminary assessment of risks resulting from other human activities performed at the site. The NJZ design will consider a severe accident at another nuclear installation at the site. Severe accident effects in NJZ are assessed in the chapter C.III.19.1.7.3. Radiation consequences of a severe accident. Thanks to the containment tightness maintenance (which is a design requirement for NJZ for a severe accident mode), the radiation consequences are low and they will not endanger the ability to operate JE V2 and the interim spent fuel storage facility. As regards the other facilities, a permanent performance of the operating staff in case of an

accident is not necessary.

2.4.4.4. Requirement stating that NJZ layout shall be so as to minimalize a possibility the nuclear installation of the site will endanger one another.

The requirement will be met. NJZ will be situated on a separate plot, out of the contemporary area (see A.II.8.4.1. Outline of other installations and proposed activities at the site), that will be utilized only as a construction site equipment and partially as an area of related NJZ infrastructure. NJZ will have its own independent connections to the main infrastructure networks and it will not exploit any technologies of the existing nuclear installations for safety functions performance.

2.4.4.5. Requirement to describe a way of elimination of negative impacts the NJZ construction will have on the units that are currently under operation.

NJZ will not interfere with the infrastructure networks of the existing installations. The effects of hypothetical NJZ accidents will be locally limited (see C.III.19.1. Radiation risks) and they will not endanger the other nuclear installations ability of being necessarily operated (JE V2, MSVP).

2.4.4.6. Requirement to describe a way of elimination of negative impacts the currently operated units decommissioning will have on NJZ units which will be operated (spatial separation etc.).

Thanks to the spatial separation (see A.II.8.4.1. Outline of other installations and proposed activities at the site) and a separation of related technical infrastructure, the future decommissioning of JE V2 will have practically no impact on NJZ unit.

2.4.5. Spent nuclear fuel, radioactive waste

2.4.5.1. Requirement to specify the isotopes in the spent fuel and to compare the isotopic composition of the spent fuel for various depths of the spent fuel.

Radioisotopic composition of the spent fuel and its composition depending on the burn-up depth are presented in the chapter A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management.

2.4.5.2. Requirement to explain why the spent fuel is not considered to be waste.

Following the definition presented in the Atomic Act, the spent nuclear fuel is not explicitly considered to be radioactive waste, but it is managed (adequately in terms of nuclear safety) like radioactive waste. As per the Atomic Act (§ 2, letter s) it is "a nuclear fuel which was irradiated in a nuclear reactor core and indefinitely removed from it; the spent nuclear fuel can be considered as an applicable source which can be reprocessed or determined for a storage if it is considered as radioactive waste". This definition determines two actually available scenarios of spent fuel management:

- reprocessing – its purpose is (using physical and chemical methods) to remove fission and corrosion products from the spent fuel so that it will be possible to produce new fresh fuel,
- direct disposal in a deep geological repository – in this case the spent fuel is considered as radioactive waste.

2.4.5.3. Requirement to add an analysis showing how the level of burn-up affects the total volume of produced problematic isotopes in the spent fuel.

Radioisotopic composition of the spent fuel and its composition depending on the level of burn-up are presented in the chapter A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management.

2.4.5.4. Requirement to add a clear specification of the spent fuel disposal.

As regards the spent fuel produced by Slovak nuclear power plants, the strategic documents of SR do not consider its reprocessing performed abroad, but its direct disposal in a suitable type of repository. A construction of Slovak deep geological repository is considered in preference for a final stage of VJP management – its disposal in the deep geological repository. Alternatively (depending on a situation development in the specific region), there is still a possibility of participation in activities leading to a development of a common repository for several countries. The details are presented in the chapter A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management.

2.4.5.5. Requirement to provide data on how and by whom the radioactive waste management and disposal, the spent fuel storage, the power plant decommissioning and the spent fuel permanent disposal will be financed. Moreover, it is required to provide a way these financing obligations will be determined in.

The principle „paid by the polluter“ is carefully followed. It means, the operational RAO management is financed by the power plant in which the waste was produced. The radioactive waste and spent fuel producer has to hand them over to the company JAVYS for a centralized management. The spent fuel storage is paid (till the operation termination) also by the nuclear power plant which the spent fuel was produced in. Management of the radioactive waste produced by the decommissioning process, decommissioning process, spent fuel storage process that follows a termination of operation of the installation producing the spent fuel and everything related to the deep geological disposal is financed by the National Nuclear Fund which cumulates the resources by means of legislatively determined payments of the owners/operators of the nuclear installations as well as the payments of the transmission and distribution system operators (the final consumer). Refer to respective provisions of the Act No. 238/2006 Coll. on the National Nuclear Fund for decommissioning of nuclear facilities and for management of spent fuel and radioactive waste and its executive regulations.

2.4.5.6. Requirement to add the diagram of low activity and medium level activity radioactive waste generation – annual production, production of the whole operation period, production at the stage of the power plant decommissioning.

Summary information on a management of RAO produced by NJZ is presented in the chapter A.II.8.3.4.2. Radioactive waste management. Envelope data on the volume, type a category of RAO are presented in the chapter B.II.5. Since the answer to production and categories of waste regarding individual units exceeds the envelope approach included in the EIA Report, this additional information is provided in the answer to the requirement

2.3.22.
2.4.5.7. Requirement to add information on an overall categorized inventory of RAO of the site – so from both NJZ and the other nuclear installations situated at Jaslovské Bohunice site.
The overall inventory of the spent fuel produced by all the nuclear power plants of SR is presented in the strategic document The Proposal of National Policy and National Programme of Spent Fuel and Radioactive Waste Management in SR as an update of the strategic document The Strategy for the Final Stage of Peaceful Utilization of Nuclear Energy 2015. The annual waste production rates are presented in the chapter B.II.5 Radiation and other physical fields.
2.4.5.8. Requirement to provide information on the annual spent fuel production of the reviewed reactor types within the structure of annual production and the production of the whole operation period.
The annual spent fuel production is presented as an envelope value in the chapter B.II.5. Radiation and other physical fields.
2.4.5.9. Requirement to add information on the overall inventory of spent fuel of the site, including the existing spent fuel storage facility, nuclear power plant JE-V2 and NJZ.
The overall inventory of spent fuel produced by all the nuclear power plants of SR (following a contemporary approach, all the spent fuel will be stored in Jaslovské Bohunice) is presented in the strategic document The Proposal of National Policy and National Programme of Spent Fuel and Radioactive Waste Management in SR as an update of the strategic document The Strategy for the Final Stage of Peaceful Utilization of Nuclear Energy 2014/2015. The spent fuel production of NJZ is presented in the chapter B.II.5. Radiation and other physical fields.
2.4.5.10. Requirement to provide information on an expected way and place of a temporary storage of the low activity and medium level activity radioactive waste from NJZ.
In the Integral RAO Storage Facility in Jaslovské Bohunice or in storage premises of JE A1 (see the section A.II.8.4.1.4. Reports on assessment).
2.4.5.11. Requirement to specify more precisely the disposal place of the low activity and medium level activity waste produced by NJZ.
The requirement is dealt in the chapter A.II.8.3.4.2. Radioactive waste management. If the RAO from NJZ meets the acceptance criteria, it will be reposited in the RÚ RAO in Mochovce. After the repository capacity is filled (which will not be before the end of the first half of the century), the new repository capacities will have to be dealt and decided with a sufficient time ahead. If the RAO does not meet the acceptance criteria (medium level activity waste coming from the operation and decommissioning), the waste will be stored directly in NJZ till the time suitable and safe repository capacities are generated – most probably a deep geological repository.
2.4.5.12. Objection that there is no information on a permanent storage of RAO produced by NJZ following individual categories.
The information on a permanent storage of RAO produced by NJZ is presented in the chapters A.II.8.3.4.2. Radioactive waste treatment and B.II.5. Radiation and Other Physical Fields of the Assessment Report as well as in the answer to the previous requirement.
2.4.5.13. Requirement of the Republic of Poland to receive a notification in case of planned or accepted changes regarding the way of spent nuclear fuel and radioactive waste management.
The mutual agreement on safety of spent fuel and radioactive waste management, ratified by Slovakia and Poland, established a process of elaboration of generally available national reports on spent fuel and radioactive waste management that are updated once a 3-year period and which present all the relevant information and its modifications.
2.4.5.14. Requirement to submit a reference to the national programme that (as per the Directive of EU No. 2011/70 Euratom) shall present specific schedules of construction, execution and the costs of the permanent repositories for high-level waste and spent fuel.
The Proposal of National Policy and National Programme of Spent Fuel and Radioactive Waste Management in SR as an update of the strategic document The Strategy for the Final Stage of Peaceful Utilization of Nuclear Energy. National Nuclear Fund, 2015 (the reference presented in the chapter A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management and A.II.8.3.4.2. Radioactive waste management).
2.4.5.15. Requirement to evidence that the national programme takes into account the NJZ production of spent fuel and radioactive waste.
The preparation process of NJZ is mentioned in the Programme together with information that the data on spent fuel and radioactive waste production are under a development process and so far they are not included in the balances presented in the Programme. Requirement for the next Programme updating is presented in the chapter C.IV.5. Other Report measures.
2.4.5.16. Requirement to add the information on a current state of preparation of the deep geological repository for Slovakia – has the site already been chosen or the site is still being chosen or Slovakia participates in a choosing of a common site with some other states.
Preparation process state of the deep geological repository is described in the chapter A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management (see also the answer to the requirement 2.3.29.). The deep geological repository should be put to operation in 2065.
2.4.5.17. Objection against the new nuclear power plant preparation in a situation when the site for the deep geological repository is neither available nor chosen.
The deep geological repository is being prepared. The beginning of NJZ preparation is not conditioned by a chosen site for the deep geological repository. The Directive 2011/70/Euratom does not prescribe meeting it in a sense like this. But it must be clear when, how and by whom the subject of the requirement will be performed and how much it will cost.

This is the most essential part of the above mentioned Directive, it is its purpose and sense.
2.4.5.18. Requirement to add information on a way of NJZ decommissioning and disposal of the radioactive waste coming from the decommissioning process.
The required information is presented in the chapters A.II.8.3.6. Data on operation termination and decommissioning and B.II.5 Radiation and other physical fields.
2.4.5.19. Requirement to add information on a capacity of the surface final storage facility for low activity and medium level activity radioactive waste at Mochovce site (national final repository, RU RAO).
The information on RAO repository capacity in Mochovce is presented in the chapter A.II.8.3.4.2. Radioactive waste management.
2.4.5.20. Requirement to clarify whether the NJZ waste is intended to be deposited at this repository (RU RAO Mochovce). If yes, it is required to provide information on necessity and possibilities of its extension.
The requirement is dealt in the chapter A.II.8.3.4.2. Radioactive waste management. If the RAO from NJZ meets the acceptance criteria, it will be reposited in the RÚ RAO in Mochovce. After the repository capacity is filled (which will not be before the end of the first half of the century), the new repository capacities will have to be dealt and decided with a sufficient time ahead.
2.4.5.21. Requirement to provide data on a current state of the strategy of final part of nuclear power engineering in SR in consideration of the national final repository or an exploitation of one common final repository in Slovakia or in another country.
The requirement is dealt in the chapters A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management and A.II.8.3.4.2. Radioactive waste management.
2.4.5.22. Requirement to provide data on expected capacities of the deep geological repository.
Currently there is no reference design available for the deep geological repository. An update of the feasibility study (which is 14 years old) is currently being developed. The capacity of the deep geological repository will naturally follow an estimation of the balances of spent fuel and radioactive waste that cannot be deposited in the existing surface repository in Mochovce. The deep geological repository will be filled with all the spent fuel coming from the Slovak nuclear power plants and a smaller part of medium level activity waste which cannot be deposited in the surface repository. It is not possible to provide more precise details on the capacity.
2.4.5.23. Requirement to add information on a preparation schedule of the deep geological repository.
The requirement is dealt in the chapter A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management (see also the answer to the requirement 2.3.29). So far, only main milestones of the preparation process of deep geological storage have been determined.
2.4.5.24. Requirement to specify a period during which the spent fuel elements will be stored in stocks.
Following the contemporary approach it will take tens of years (till the termination of the deep geological repository preparation and the decay power decrease so that the fuel can be deposited in the deep geological repository).
2.4.5.25. Requirement to add information on which site is intended for a construction of storage facility for spent fuel coming from NJZ.
The requirement is dealt in the chapter A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management. The spent fuel will be stored in a modified section of the extended MSVP or in a separate storage facility.
2.4.5.26. Requirement to provide more precise details on which interim spent fuel storage facilities in Slovakia are considered and which sites they are situated in as regards both the new nuclear power plant and the other nuclear power plants.
Following the EIA Report regarding the Completion of Storage Capacity of the Interim Spent Nuclear Fuel Storage Facility in Jaslovské Bohunice site, this storage facility will be used for storage of all the spent nuclear fuel produced by Slovak power plants. In case the technology of the completed MSVP allows it, it will be used for NJZ as well. If not, a new storage facility will be constructed in a sufficient lead time for NJZ, most probably it will be a new independent module of MSVP.
2.4.5.27. Objection against the assumed cumulation of other nuclear installations in Jaslovské Bohunice site, there will be not only NJZ but also storage capacities for spent fuel – even now the site is used to store all the spent fuel produced by the decommissioned JE-V1 and operated power plants JE V2 and EMO1,2.
This is a worldwide trend. The EIA processes for nuclear installations are just the ones that assess such a concurrence. The cumulation in one site will increase the effectiveness of monitoring (radiation and physical one) and will reduce a number and length of nuclear material transports.
2.4.5.28. Objection against the new nuclear power plant due to the fact the issue of spent fuel disposal was not completely solved.
Regarding the issue of spent fuel disposal, there are some aims, milestones, procedures and responsibilities established and financing provided at a national level (strategies and programmes) meeting thus the main requirements of the Directive 2011/70/Euratom.

2.4.6. Population and the public health, infrastructure
2.4.6.1. Requirements of the communities in the surroundings to be regularly informed on the installation state, on its impact on the environment as well as on measured values of potential radiation or another form of potential release of radioactive substances to the environment.
The requirement is carefully dealt in the answer to the requirement 2.2.14. and in order to meet it there is a measure proposed in the chapter C.IV.4. Organizational and operational measures.
2.4.6.2. Requirement to assure the doses received by the population of the surrounding communities resulting from radioactive releases of all the nuclear installations of the site will be in compliance with the limits.
The summary doses for the population are assessed in the chapter C.III.16.3. Impacts of ionising radiation. The doses are deep below the existing limits.
2.4.6.3. Requirement to assess the impacts of all nuclear installations of the site on the population health.
The elaboration of the report included an assessment of the condition of public health (see the chapter C.II.11.2. Public health condition) which proved that the health state of the people living within the distance of 15 km from EBO site didn't differ from two socially and economically similar monitored zone that cannot be physically affected by the nuclear installations situated at EBO site. Cumulative impacts on health with NJZ contribution were assessed in the chapter C.III.1.1. Health impacts and risks with a conclusion that the health risk level (including the cumulative contribution of NJZ) will remain in all respects low and below the recommended limit values.
2.4.6.4. Requirement to allow the Volunteer Fire Brigades (DHZ) of the surrounding communities to participate in drills and inspections of respective rescue and safety forces when drilling activities during an emergency event at a nuclear power plant.
The requirement does not regard the EIA process. We recommend applying this comment at the stage of preparation and approval of the Population Protection Plan (see the chapter C.III.19.1.11.2. Population Protection Plan (off-site emergency plan)) that is elaborated by district authorities whose territory is situated within the emergency planning zone. The communities situated within an emergency planning zone make abstracts of the population protection plans of a respective district or, more precisely, executive documents for the planned measures implementation. The above mentioned population protection plans follow an on-site emergency plan of JZ operator who is obliged to provide the elaborators of the population protection plans with source data on an expected threat in case of an incident or an accident. The Population Protection Plan shall be approved by the Ministry of Interior of SR following a review performed by ÚJD SR.
2.4.6.5. Requirement to provide DHZ members of the communities concerned with training and regular retraining, if they require it.
The requirement does not regard the EIA process. We recommend applying this comment at the stage of preparation and approval of the Population Protection Plan (see the chapter C.III.19.1.11.2. Population Protection Plan (off-site emergency plan)) that is elaborated by district authorities whose territory is situated within the emergency planning zone. The communities situated within an emergency planning zone make abstracts of the population protection plans of a respective district or, more precisely, executive documents for the planned measures implementation. The above mentioned population protection plans follow an on-site emergency plan of JZ operator who is obliged to provide the elaborators of the population protection plans with source data on an expected threat in case of an incident or an accident. The Population Protection Plan shall be approved by the Ministry of Interior of SR following a review performed by ÚJD SR.
2.4.6.6. Requirement to provide VFB or the communities concerned with a dosimeter for a basic orientation in case of a nuclear event. A regular metrological inspection of the measuring instrument shall be provided.
The requirement does not regard the EIA process. We recommend applying this comment at the stage of preparation and approval of the Population Protection Plan (see the chapter C.III.19.1.11.2. Population Protection Plan (off-site emergency plan)) that is elaborated by district authorities whose territory is situated within the emergency planning zone. The communities situated within an emergency planning zone make abstracts of the population protection plans of a respective district or, more precisely, executive documents for the planned measures implementation. The above mentioned population protection plans follow an on-site emergency plan of JZ operator who is obliged to provide the elaborators of the population protection plans with source data on an expected threat in case of an incident or an accident. The Population Protection Plan shall be approved by the Ministry of Interior of SR following a review performed by ÚJD SR.
2.4.6.7. Requirement to appoint contact persons working in the power plant that will be in charge of a communication with specific agreed communities in the course of construction and operation of NJZ. A contact person has to be familiar with particularities of her /his allocated community.
Since its establishment, the company JESS has been laying great stress on communication at all levels – not only with the communities that are situated within the nuclear installations region, but also with the relevant state administration bodies and self-government bodies. The company JESS is a member of the Public Information Commission (OIK) Bohunice (www.oik.sk) in sessions of which it actively participates and provides information on NJZ design progress at each of its stages. At the same time, OIK is an organizational branch of the Association of Towns and Villages of Slovakia in Jaslovské Bohunice region by means of which it informs the general public and the professional public on currently performed activities of the company. The company's management representatives use especially a personal communication when communicating with the communities concerned in order to assure an understandability of individual steps taken within the frame of the whole design. At the next stages of the design related to a construction preparation, the construction and operation, the positions for the sphere of communication with the surrounding communities will be constructed and supported. On the present the external communication is provided by an active provision of actual information on the design by means of news releases, articles and interviews published in the regional and Slovak national media, participation in professional workshops and information available at webpage www.jess.sk.

2.4.6.8. Requirement to allow once a year the residents of the communities concerned to ask for a meeting with an operator's representative and a contact person appointed for their community and to discuss the issues, operation and impacts of the power plant on the surroundings and on a specific community. The operator is obliged to participate in this meeting.
The company JESS is a member of the Public Information Commission (OIK) Bohunice (www.oik.sk) in sessions of which an authorized representative of the operator actively participates and provides information on NJZ design progress at each of its stages, several times a year. At the same time, OIK is an organizational branch of the Association of Towns and Villages of Slovakia in Jaslovské Bohunice region by means of which it informs the general public and the professional public on currently performed activities of the company. The company's management representatives appreciate any activities contributing to a better and frank communication with the residents of the region concerned. A modern information centre is intended to be established which will be available to the general and professional public. A regular provision of information on the design as well as an opportunity to discuss the issues of nuclear power plants sphere is possible by means of participation in workshops and public meetings organized within the region. Naturally, in the future information on operation state and impacts on the environment will be published, which is imposed by the legislation, as well.
2.4.6.9. Requirement to monitor regularly an impact of the nuclear power plant on man's organism and to monitor the citizens (ionising radiation) living close to the power plant.
In terms of immission situation at the site and the doses received from the releases, the impact of NJZ will be monitored in a way similar to the one applied today. The monitoring program will be adequately extended. If the determined limits are not exceeded, it is not necessary to establish any other special monitoring programmes for the citizens. The monitoring results and doses assessment are open available documents (see also the answer to the requirement 2.2.14)
2.4.6.10. Proposal to elaborate (after the new nuclear power plant operation is activated) a report on the health state of the citizens living in the emergency planning zone and to update it periodically.
The requirement for a periodic monitoring of the public health state in the surroundings is presented in the chapter C.IV.4. Organizational and operational measures.
2.4.6.11. Requirement to observe the permitted limits of radioactive releases as provided by law.
The releases limits (the limit 250 mSv/year for a resident involved in a critical group which is a summary limit of all the nuclear installations situated at the site) will be in any case satisfied.
2.4.6.12. There is a doubt that the existing limits for the site (0,25 μSv or 0,082 mSv) will be exceeded in case of the new nuclear power plant.
Following the doses assessments in the chapter C.III.16.3. Impacts of ionising radiation, these limits will be satisfied with a reserve even if regarding a summary operation of all the existing installations and NJZ.
2.4.6.13. Objection saying that the determined dose risk index 0,05 of person died of cancer / sievert (ICRP 2007) is too low.
The applied indices follow the generally respected international document for an estimation of bodily injury whose recommendations follow the up-to-date scientific knowledge of ionising radiation impacts on man.
2.4.6.14. Request to observe legislative requirements and sanitary standards particularly regarding noise, vibration, ionising radiation and smell.
In the course of NJZ preparation, construction and operation all the statutory provisions will be observed.
2.4.6.15. Requirement to ask for an opinion of a public health care body at a following solution stage in compliance with the Act of NR SR No. 355/2007 Coll.
This requirement does not regard EIA process. In the course of NJZ preparation, construction and operation all the statutory provisions will be observed.
2.4.6.16. Objection saying that at usual temperatures 20-30 °C bacteria legionella are created in the cooling towers which infect the population living in the surroundings of the installation. In order to prevent from it, as a rule, biocides are added to the cooling water that is partially led by circulation. Similarly, in case of a condensed water steam leak from a cooling tower, these biocides might endanger the population's health by means of rainfall from clouds created from the cooling towers.
Presence of pathogenic microorganisms can be a health and safety risk in case of many cooling systems operations. The bacteria legionella occurrence is generally regulated by application of suitable biocidal products. Prior to choosing optimal agents for a correct treatment it will be necessary to take into account the environment protection and health protection and, in this sense, a respective measure has been proposed.
2.4.6.17. Recommendation to apply the newest state of technology and health protection requirements of human medicine at noise control in the course of construction and operation (WHO Night noise guidelines 40 dB at night).
Construction machinery operations performed at night are not expected. In order to exclude negative impacts on a sleep it is necessary to keep the noise level below the value of 30 dB in interior. Following the WHO document (The Guidelines for Community Noise, 1999) a noise level decrease by 15 dB is assumed during a transmission of outside noise to a room by partially opened window. As regards the noise sources of NJZ, this assumption will be met in all the closest structures, so the noise load in these sites can be considered as acceptable in terms of health protection. Other measures regarding noise are presented in the chapter C.IV.4. Organizational and operational measures.
2.4.6.18. Objection saying that the new nuclear power plant implementation does not guarantee an employment of the people living in the surroundings.
An impact on the employment is assessed in the chapter C.III.1.3. Social and economic impacts. The NJZ implementation really does not guarantee the

employment of the people living in the surroundings, but it creates a significant positive impulse for their employment.
2.4.6.19. Comment saying that the existing nuclear installations have a negative impact on the local environment and the public health.
The assessment of the immission situation, doses from releases, health state and an opinion poll didn't result in any facts which would prove a negative impact of the existing installations on the environment and the public health.
2.4.6.20. Comment saying that a possibility of an accident and its related risks as well as the measures taken to incorporate the region in an emergency planning zone have a negative mental impact on the population which cannot be compensated by positive sides of a short-term and uncertain employment.
The mental impact on the population is commented in the chapter C.III.1.2. Psychological impacts. If the existing nuclear installations have some negative impacts on the public mental state, they can be considered as low ones which were not reflected on the health state in any of the monitored factors. Possible negative impacts can be compensated by a frank communication and informing the residents which is followed by the proposed measure in the chapter C.IV.4. Organizational and operational measures.
2.4.6.21. Notice saying that the contemporary legislation does not provide the population of the surrounding communities with a legal title to a preferential employment in the course of NJZ implementation, so the considerations regarding an employment increase in the region that are presented in the Preliminary Study, are just declarations.
An impact on the employment is assessed in the chapter C.III.1.3. Social and economic impacts. Following the contemporary legislation, the NJZ implementation really does not guarantee the employment of the people living in the surrounding communities. But it creates a significant positive impulse for their employment.
2.4.6.22. Objection saying that the communities don't participate in the licensing process for determination of the emergency planning zone size.
The emergency planning zone is determined exclusively in a regime pursuant to the Atomic Act (see the chapter C.III.19.1.11.4. Emergency planning zone) and the elaborator of the Assessment Report is not allowed to comment this issue in details as per another act.
2.4.6.23. Notice saying that if the NJZ emergency planning zone is reduced, the communities not included in the emergency planning zone will lose a tax income for the nuclear installation siting.
The emergency planning zone is determined exclusively in a regime pursuant to the Atomic Act (see the chapter C.III.19.1.11.4. Emergency planning zone) and the elaborator of the Assessment Report is not allowed to comment this issue in details as per another act.
2.4.6.24. Requirement to provide portable signs for a case of a traffic restriction or threat on the 2nd and 3rd class roads during the NJZ construction.
The requirement does not regard the EIA process. This condition will be applied in the course of the related proceedings – land use proceedings and construction proceedings.
2.4.6.25. Notice saying that no material and articles can be put on the roads.
The requirement does not regard the EIA process. This condition will be applied in the course of the related proceedings – land use proceedings and construction proceedings.
2.4.6.26. Notice saying that no obstacles can appear during the roads maintenance operations and the drainage conditions of the roads cannot be violated.
The requirement does not regard the EIA process. This condition will be applied in the course of the related proceedings – land use proceedings and construction proceedings.
2.4.6.27. Warning that there can be no pollution of roads. A potential pollution has to be removed with no delay and damaged roads have to be reset.
The requirement is dealt in the chapter C.IV.4. Organizational and operational measures.
2.4.6.28. Requirement to specify the traffic connections of NJZ, to add a detailed graphic annex indicating the traffic connections and to address the administrators of the roads concerned to ask for an opinion of the proposed traffic connections.
A traffic connection providing an access to the next NJZ area will be realized by means of a new tertiary surface road that will be connected to the existing road III/50415 by a level crossing. A joining system of tertiary roads of NJZ area will depend on a final arrangement of individual structures. A detailed requirement solution will be performed within the next proceedings – land use and construction proceedings.
2.4.6.29. Requirement to provide a calculation of parking spots (performed in compliance with STN standards) in the EIA Report.
This requirement exceeds the frame of EIA process. A parking area size pursuant to a respective number of NJZ employees (approx. 650) is expected for NJZ operation. The calculation of a total number of parking spots (as per STN 73 6110) is as per the following relation: $N = P_o * k_a * k_v * k_p * k_d = 93*0,95*1,0*1,0*1,2 = 106$ spots In which: P_o – basic number of parking spots as per STN 73 6110 art. 16.3.9 k_a – coefficient of an impact of automobilization degree k_v – coefficient of an impact of community size k_p – coefficient of an impact of the dealt region/territory/structure location k_d – coefficient of an impact of division of transport work

So, in relation to the NJZ operation min. 106 parking spots for passenger cars are needed. This value will be reliably met, the number of parking spots will be min. 150.
2.4.6.30. Requirement for a periodical reconstruction of the roads damaged due to an increased traffic frequency of trucks during the period of the new nuclear power plant construction.
The requirements are dealt in the chapter C.IV.4. Organizational and operational measures.
2.4.6.31. Requirement to prevent from an intrusion of the residents caused by a related traffic of trucks and exhaust gases especially during the construction period.
The issues of the intrusion caused by the traffic and exhaust gases are involved in the health impacts assessment. The assessment of impacts on the public health is presented in the chapter C.III.1. Impacts on the population. The taken measures are dealt in the chapter C.IV.4. Organizational and operational measures.
2.4.6.32. Condition saying that the process of licences issuing pursuant to the Act No. 50/1976 Coll. on Spatial Planning and Construction Order (the Construction Act) as amended and the implementation of the proposed activity have to observe the provisions of the Act No. 135/1961 Coll. on roads (the Road Act) as amended and the Public Notice No. 35/1984 Coll. which executes the act on roads (Road Act).
All the legal provisions will be observed in the course of preparation, construction and operation of NJZ.
2.4.6.33. Condition saying that each potential intervention to the bodies of the 2nd and 3rd class roads situated in Piešťany territorial district can be executed only following a permit issued by Piešťany District Authority, Department of Road Transportation and Roads.
All the legal provisions will be observed in the course of preparation, construction and operation of NJZ.
2.4.6.34. Requirement saying that the Investor shall communicate with the communities concerned at each management level during the construction thus providing a continuous course of the power plant construction with no violation of the residents' life.
The requirement is respected by a proposal of respective measure in the chapter C.IV.4. Organizational and operations measures.

2.4.7. The environment components
2.4.7.1. Requirement for a specification and classification of the air pollution sources in compliance with the provision of § 3 of the Act No.137/2010 Coll. on air.
The data on the air pollution sources are included in the chapters B.II. Data on outputs - B.II.1. The air. In compliance with the Public Notice of Ministry of Environment of SR No. 410/2012 Coll. which executes some provisions of the act on air, the new operated energy sources will be classified as medium sources of air pollution (1.1 Technological units containing combustion devices including gas turbines and stationary piston combustion engines with an installed total rated thermal input ≥ 0,3 MW). A specific classification of the air pollution sources, including related administrative procedures (issue of permit with the source construction siting), will be a subject of the following stages of the proposed activity preparation.
2.4.7.2. Requirement to observe the provisions of the act on air.
All the generally binding legal provisions will be observed in the course of preparation, construction and operation of NJZ.
2.4.7.3. Notice saying that in case the back-up sources fall under the Act of NR SR No. 39/2013 Coll. on IPKZ (integrated pollution prevention and control) a valid construction and integrated permit issued by SIŽP will be required.
NJZ will include no devices that fall under the regime of the Act No. 39/2013 Coll. on integrated environment pollution prevention and control as amended (IPKZ) – see the chapter C.III.19.2. Non-radiation risks.
2.4.7.4. Requirement saying that the EIA Report shall present details on at least input powers of the planned back-up sources and expressly specify their relation to the act on IPKZ (integrated pollution prevention and control); if it regards IPKZ operations, this fact has to be described in the assessment report.
As regards the applicability of the Act No. 39/2013 Coll. on integrated environment pollution prevention and control as amended (IPKZ), NJZ will include no devices that fall under the regime of the act. In case of NJZ, the only potential activity (presented in the Annex No. 1 of the Act on IPKZ) which can be considered is the one covered by the paragraph 1.1. Fuel combustion in plants with total rated thermal input which is equal or higher than 50 MW. But the output of the considered back-up boiler station (cca 3x12,5 = 37,5 MW) does not reach the above mentioned value so it is not necessary to apply it in the regime of IPKZ act (see the chapter C.III.19.2. Non-radiation risks).
2.4.7.5. Requirement saying that the EIA Report shall present information on soil erosion and air particle pollution as significant medium of negative impacts on the public health.
Soil erosion and other soil conditions are presented in the chapter C.II.3. Soil conditions. With respect to the relief character, most of agricultural soil types within a broader area of interest are not threatened by water erosion or its intensity is very low. On the present, the erosion action of the water courses within the territory concerned is stabilized, particularly a hill wash and splash erosion. Within the broader area of interest the wind erosion can be classified as a more intense one up to an intense one as it regards an open, predominantly flat relief used in great blocks, with no more intensive planting of wind barriers which would partially eliminate this unacceptable phenomenon. This phenomenon appears during a non-vegetative period. Secondary suspended particles emissions – particle pollution resulting from activities connected with ground handling (topsoil stripping, ground work and excavation work, loading and unloading of ground etc.), including a dust raised form the roads surface – is taken into account when calculating the

suspended particles emissions in the territory (a more detailed description is presented in the chapter C.III.4. Impacts on the air, the proposed measures of these impacts minimization is presented in the chapter C.IV.4. Organizational and operational measures.

2.4.7.6. Comment saying that when assessing the impact of the nuclear power plant on CO_2 emissions, the whole cycle of the nuclear power plant shall be assessed (construction, operation, decommissioning) as well as the whole cycle of the nuclear fuel and radioactive waste.

The data on the impact on the air are presented in the chapter C.III.4. Impacts on the air, in which the greenhouse emissions produced in the course of the NJZ lifetime cycle are assessed.

2.4.7.7. Notice saying that when assessing the impact of the nuclear power plant on CO_2 emissions it is important to assess a global impact – not just a balance for Slovakia. If uranium is mined, processed and enriched and the fuel is produced abroad, it is necessary to take it into account by the balance.

The data on the impact on the air are presented in the chapter C.III.4. Impacts on the air, in which the greenhouse emissions produced in the course of the NJZ lifetime cycle are assessed.

As regards NJZ, it is assumed that the CO_2 emissions values will be within the stated range 1,8 - 48 tCO_2-e /GWh. If we considered a new nuclear power plant having electric power 1700 MW_e and lifetime 60 years, 893 520 GWh of electric energy would be produced during this period. When considering the above mentioned values of the greenhouse emissions, it would mean a production of 1 608 336 up to 42 888 960 tCO_2-e (average 22 248 648 tCO_2-e).

If this electricity volume would be produced in a coal power plant, it would mean (when considering the coal power plants emissions) a production of 571 852 800 up to 1 518 984 000 tCO_2-e (average 1 045 418 400 tCO_2-e). So the construction and operation of NJZ, which would be used as a substitution of the coal power plant, would save approximately 1 002 529 440 tCO_2-e, so it means a saving of 16 708 824 tCO_2-e a year when taking into account the considered lifetime.

2.4.7.8. Requirement to determine the extreme climatic conditions so that the climatic changes and their potential expressions during the period of NJZ operation termination are taken into account.

The extreme climatic conditions are determined in the chapter A.II.8.3.1.2.5. Extreme meteorological and hydrological conditions in NJZ design. When determining them, their author (SHMÚ) took into account a potential impact of a climatic change by the year 2100.

2.4.7.9. Requirement to take into account a climatic change effect for the assessment of a sufficient instantaneous availability of water for the whole period of the new power plant operation till the stage of the operation termination.

The analyses of the instantaneous availability of water take into account the climatic change impacts applying a conservative scenario. The details are presented in the chapters B.I.2. Water and C.III.5.1.1. Impact on quantitative characteristics.

2.4.7.10. Notice saying that the climatic change causes not only a change of meteorological parameters trends, but also an increased frequency of occurrence of sudden extreme phenomena and their absolute values.

This effect was assessed in the Study of SHMÚ in 2012 for EBO site and its main results are presented in the chapter A.II.8.3.1.2.5. Extreme meteorological and hydrological conditions in NJZ design.

2.4.7.11. Objection against the fact the nuclear energy was classified as a low-carbon or even carbon-free sources.

Nuclear power industry belongs to a group of low-carbon sources and the NJZ operation is nearly a carbon-free one. This statement details can be found e.g. in the document of OECD/NEA The Role of Nuclear Energy in a Low-carbon Energy Future (2012). The nuclear power industry is presented as a low-carbon one in the Energy Policy of SR 2014 and in the Energy Roadmap 2050 (EK 12/2011).

2.4.7.12. The assessment report shall include proposals of suitable compensation measures, post-design analysis and a monitoring of protected parts of nature and landscape.

The results of biological survey and assessment as well as the results of assessment of the impact on the landscape character didn't result in a requirement to monitor the protected parts of nature and landscape. Equally, no compensation measures are necessary.

The standard procedures of the post-design analysis include a systematic monitoring and measuring of impacts, inspection of meeting the conditions specified by the activity permit and an assessment of their effectiveness as well as a provision of a professional comparison of the assumed impacts with a real state (see the chapter C.VI.1.).

In terms of measures for a prevention of the proposed activity impacts the chapter C.IV.4 contains recommendations to provide:

- a monitoring of a state of biotopes and species that are subjected to protection within CHVÚ Špačinsko-nižnianske polia and CHVÚ Slňava performed by authorized persons or institutions at least 1 year prior to the construction and for a period of 1 year during the NJZ operation,
- a year-long monitoring of fauna (at least monitoring of vertebrates) on the area in question or within the defined localities L1-L4 performed at least 1 year prior to the construction of NJZ and for a period of 1 year during its continuous operation,
- a monitoring of areas located below the power lines and in the neighbourhood of cooling towers in order to detect possible death loss of birds and bats caused by their collisions with these structures. These areas should be monitored once a month during min. one calendar year by means of rounds performed below or along these structures.

2.4.7.13. Disagreement with building cooling towers having an expected height 180 m.

One cooling tower per unit is a standard design solution which corresponds with the best currently available technology. As regards the conditions of EBO site, the height of one tower was determined to be approx. 180 m. The assessment of NJZ impact (including an impact of a cooling tower) on the landscape is presented in the chapter C.III.8. Impacts on the landscape taking into account also a demolition of four cooling towers of the

decommissioned JE V1 having a height approx. 125 m. The impact of such defined intention is assessed as little significant or insignificant, as an impact having slightly negative up to indifferent (neutral) manifestation. The proposed measures for minimization of negative visual impacts are presented in the chapter C.IV.4.

A potential alternative solution would be represented by 2 cooling towers with height approx. 164 m. The comparison of the environmental impacts resulted in the fact that the impacts of one tower having a height 180 m are practically the same as the ones of two towers having a height 164 m. Due to these reasons the feasibility study recommends preparing NJZ design with one cooling tower per one unit.

2.4.7.14. Requirement to compensate the interventions to the landscape, particularly to the area threatened by the nuclear installation, following a mutual agreement of the communities concerned, the investor and the operator.

A possibility of amenity planting not only in the NJZ surroundings but also in the communities' cadastral areas of the region concerned is dealt in the requirement No. 2.2.13. The other measures leading to a reduction of a visible proposed activity impact on the scenery (presented in the chapter C.IV.4.) include a requirement to retain a raw concrete colour of the large cooling tower (with a potential structured surface), the colours of smaller structures can be adapted to the colours of structures that have already been constructed at the site.

2.4.7.15. Requirement to perform trees planting so that the view of the nuclear site will be partially softened by afforestation; following a landscape architect's design a landscape amenity planting shall be recommended in order to mitigate negative impacts on the landscape. (A view of the dominant structures of the nuclear power plant decreases the prices of the communities' plots and structures.)

A possibility of landscape gardening in both the surroundings of NJZ and the cadastral areas of the communities concerned is dealt in the requirement No. 2.2.13.

2.4.7.16. Notice saying that the closest protected area is CHVÚ Špačinsko-nižnianske polia.

The assessment of the proposed activity impacts on the environment respected and took into account the protected area CHVÚ Špačinsko-nižnianske polia (see the chapters C.II.9.1.2. Areas of Natura 2000, C.III.9.1.2. Impacts on the European network of protected areas and C.III.9.4. Impacts in the course of construction and operation termination).

2.4.7.17. Notice saying that there is a proposed raw water offtake structure for NJZ in SV direction from NJZ area situated at the edge of the Protected Site Slňava with the fourth degree of protection and at the boundary of the Protected Bird Area SKCHVU026 Slňava. The route of the raw water subterranean pipeline and the waste pipeline leading from NJZ intersects the regional biocorridor of the Dudváh water course at two spots. North of the NJZ area boundary, at a distance of approx. 100 m, there is the Protected Bird Area SKCHVU054 Špačinsko-nižnianske polia.

The proposed activity collisions with the protected areas, Natura 2000 network, ÚSES and the other factors of the nature protection were respected and taken into account when assessing the proposed activity impacts on the environment (see the chapters C.III.9. Impacts on the protected areas and C.III.10. Impacts on territorial ecological stability system).

2.4.7.18. Statement saying that the territory in question is protected by the 1st territory protection degree of nature and landscape pursuant to § 12 of the Act No. 543/2002 Coll. on nature and landscape protection as amended (Act on Nature Protection). The area concerned does not reach the protected areas and there is no protected tree pursuant to the provisions of the Act on Nature Protection.

The statement was taken into account when assessing the proposed activity impacts on the environment.

2.4.7.19. Requirement to occupy the agricultural land in compliance with the Act No. 220/2004 Coll. on protection and use of agricultural land and amending the Act No. 245/2003 Coll. on integrated pollution prevention and control and amending certain laws as amended.

In the course of NJZ preparation, construction and operation, all the statutory provisions of binding force will be observed.

2.4.7.20. Notice saying that in case it is relevant, a levy will be rated for an occupation of agricultural land in accordance with the Government Order No. 5/2013 Coll. on levies for deprivation and occupation of agricultural land.

In the course of NJZ preparation, construction and operation all the statutory provisions of binding force will be observed.

2.4.7.21. The Preliminary Study states that the non-radioactive sludge from the water treatment plant was certified as a by-product. A certificate copy shall be added to the annex section of the assessment report in order to clarify whether this material shall be considered as waste or not.

The water treatment sludge is proposed to be classified (in case a decarbonisation technology is not applied) as a by-product (on the present in compliance with § 2a of the Act No. 223/2001 Coll. as amended, Since January 01, 2016 in compliance with §2 par.4 of the Act No. 79/2015 Coll. on waste and on amendment and completion of several acts). This recommendation is presented in the chapter B.II.3. Waste.

2.4.7.22. Proposal to manage the waste disposal by means of the community whose territory NJZ will be situated on.

The communal waste management is dealt in the chapter A.II.8.3.4.3. As per the unexpired act on waste, the communal waste produced on a community territory (residents, business companies...) is managed by the community in compliance with a valid VZN. With respect to the fact the NJZ area will be situated on several communities' cadastral areas, we propose the investor should negotiate with the communities to agree upon a community which will manage the KO take off (VZN of the communities, communication with the communities on a way of payment for KO charges, purchase of KO containers, reporting of the employees number to a municipal authority). During the construction period the issues of KO produced by the employees shall be dealt by the construction contractor, the operator has to manage KO since the time the construction is put to operation.

With respect to the very large area of NJZ, a great number of employees, a particularity of the scene (nuclear power industry), the operator is allowed (within their system of waste management and following their agreement with respective communities) to keep their own containers for the communal waste and separated items of the communal waste and to conclude a contract with a company that takes the waste away from respective communities.

An offtake and a disposal or a recovery of the communal waste will be managed by means of this organization.
2.4.7.23. Attention shall be paid to a legal requirement to elaborate a waste management program of the creator – even today represented by the future operator. This program has to be in compliance with the Waste Management Program of Trnava Region and with the programs of the communities whose territories the installation is situated on.
In the course of NJZ preparation, construction and operation all the statutory provisions of binding force will be observed.
2.4.7.24. Requirement to observe respective provisions of the act on waste and the provisions of Decree of MŽP SR No. 283/2001 Coll. on execution of some provisions of the act on waste as amended.
In the course of NJZ preparation, construction and operation all the statutory provisions of binding force will be observed.
2.4.7.25. Requirement to assess the contamination of ground water and water sources situated on the territory, including uncontrolled wells (potable water, water used for own production of fruit and vegetables watering), particularly in the village Madunice.
The monitoring of the site and its surroundings is performed following an approved Monitoring Program of Radiation Control of JZ EBO Surroundings. The arrangement of ground water monitoring structures is displayed in the chapter C.II.6.2. Ground water in which individual monitoring structures are divided following cadastral areas. The assessment of the existing radiation situation of the ground water (including the surrounding villages) is presented in the chapter C.II.15.3.2.4. Radiation situation in the ground water. The existing ground water monitoring system sufficiently assures a capture of potential contamination. It is necessary to remark that a potential threat of the ground water by a contamination coming from other sources situated at JZ Bohunice site is detectable at Madunice village by means of monitoring system arranged within a range of the closest villages upstream of Madunice. Along the ground water affluent (ergo, along the affluent of potential ground water contamination) there is a number of monitoring structures which would capture the contamination before it appears in Madunice (see the complete monitoring of JZ, monitoring in Pečeňady village, Veľké Kostoľany, the structures HHL-6 and HHL-7). Currently there are two water wells monitored in the cadastral area of Madunice village - DKH and ME-1 (once a year, tritium, level). Since Madunice village has its own potable water source in its cadastral area and the local population is afraid a long-term activity of all the nuclear installations situated at the site might devalue this source in the future, the well HM-1 in Madunice village is recommended to be included in the monitoring system/program focusing on monitoring a level and volume activity of tritium – the monitoring frequency: once a year (see the chapter C.VI.1. Monitoring proposal). One structure monitoring in Madunice village is sufficient to investigate a situation of the whole village (therefore, the uncontrolled wells as well), because there is a hydro-geological interconnection of the region and the complete area of the ground water affluent is monitored by the above mentioned system in closer areas of JZ Bohunice.
2.4.7.26. Notice saying the following provisions shall be observed: 1) the ones of the Act No. 364/2004 Coll. on waters amending the Act of SNR (the Slovak National Council) No. 372/1990 Coll. on offences as amended by later regulations (Water Act), 2) § 39 of the Water Act specifying general conditions of dangerous substances handling, 3) the Decree of MŽP SR No. 100/2005 Coll. which provides details on dangerous substances handling, the terms of emergency plan and on solution procedures for extraordinarily deteriorated water state.
In the course of NJZ preparation, construction and operation all the statutory provisions will be observed.
2.4.7.27. Notice saying that the investor is obliged to ask a respective body of national water administration for a licence pursuant to § 26 par. 1 of the Water Act for planned water constructions in compliance with § 52 of the Water Act (civil structures).
In the course of NJZ preparation, construction and operation all the statutory provisions will be observed.
2.4.7.28. Notice referring to a general statutory obligation to provide a reduction of waste water pollution at the place of its production and to exploit the possibilities of the waste water repeated use.
In the course of NJZ preparation, construction and operation all the statutory provisions will be observed.
2.4.7.29. Recommendation to solve the rainfall water drainage by means of a natural infiltration in an artificial reservoir created nearby EBO and by regulation of the rainfall water outlet to the proposed recipient - the Dudváh River. Regulation performed depending on rainfall frequency. Moreover, the artificial reservoir would be used as a possible back-up source of water, secondarily as technological (service) water. Following a prospective connection to the existing irrigation infrastructure it might be used for agricultural purposes. There is a recommendation to review an economic and ecological impact of this way of rainfall water drainage on a direct operation of the new nuclear power plant, its construction and surroundings.
As results from the data presented in the Report (the chapter C.II.2. Geological conditions), the area ground consists of loess and sand loess that are just slightly pervious due to their granularity character with prevailing silt with sand and loam additions, they practically produce a hydrogeological insulator (the flow capacity of the setting is below 10^{-6} m^2/s) so the area is not suitable for a natural infiltration. From this point of view, the realization of the reservoir is not well-founded.
2.4.7.30. Requirement for a detailed description and a scheme of subsoil situation, positions of various ground water levels, a specification of characteristic states of ground water level (high, medium, low ground water level) as well as a description of measures to be taken to prevent from a ground water contamination by chemicals and radionuclides and the planned measures to be taken to prevent from a spread of such kinds of contamination to a broader neighbourhood.
The detailed description and scheme of subsoil situation, the positions of various ground water levels, and the specification of characteristic states of ground water level (high, medium, low ground water level) are presented in the chapters: C.II.2.2. Hydrogeological conditions and C.II.6.2. Ground

water. The description of measures to be taken to prevent from a ground water contamination by chemicals and radionuclides as well as the planned measures to be taken to prevent from a spread of such kinds of contamination to a broader neighbourhood are presented in the chapters C.III.5.2. Impacts on ground water (non-radiation ones) and C.III.16.3.2. Impacts on ground water (radiation ones). A proposal of potential measures and a proposal of the monitoring completion are in the chapters C.IV. Impacts mitigating measures and C.VI.1 Proposal of monitoring.

2.4.7.31. Requirement to review contamination of the wells situated nearby the site of the shutdown power plant A1.

Within the elaboration of the chapters regarding the ground water (non-radiation and radiation characteristics, the chapters C.II.6.2. Ground water and C.II.15.3.2.4. Radiation situation in the ground water), including the impacts assessment (C.III.5.2. Impacts on ground water (non-radiation ones) and C.III.16.3.2. Impacts on ground water (radiation ones), the assessment covered also the area of existing plants, NJZ construction area, area of the construction site technical equipment and the area of all the surrounding communities that are included in the monitoring program of JZ Bohunice. So these chapters include an assessment of the wells situated within the area of JE A1 which is being decommissioned.

2.4.7.32. Requirement to review the water intake for the new nuclear power plant from a river or a dam in case of a low water level.

The low water level impacts are taken into account in the Report from several points of view. The impacts on quantitative and qualitative parameters of the Váh River (if the NJZ waste water is released at a low flow) are assessed in the chapters C.III.5.1.1. Impact on quantitative characteristics and C.III.5.1.2. Impact on qualitative characteristics. The impacts of the radioactive substances concentration (tritium in particular) in the Váh River at a low flow are assessed in the chapter C.III.16.3.1.4. Assessment of the pollution of the Váh River recipient depending on a flow change. The system of water supply in case of an extraordinary water level fall or other extraordinary events is described in the chapter A.II.8.3.4.4. Water management connection and systems.

2.4.7.33. Requirement to perform once a year a water quality inspection in a well of each community situated in the emergency planning zone to detect a presence of radioactive elements.

The monitoring of the site and its surroundings is performed following the approved Monitoring Program of Radiation Control of JZ EBO Surroundings. The arrangement of ground water monitoring structures is displayed in the chapter C.II.6.2. Ground water in which individual monitoring structures are divided following cadastral areas. The assessment of the existing radiation situation of the ground water (including the surrounding villages) is presented in the chapter C.II.15.3.2.4. Radiation situation in the ground water. The existing ground water monitoring system sufficiently assures a capture of potential contamination.

The requirement has already been met within the existing monitoring. In case of NJZ construction, the NJZ will be involved in the existing monitoring system which is sufficient for these purposes. The requirement will be met in any case (either with or without NJZ construction).

2.4.7.34. Requirement to perform an emergency archaeological survey of Pravé pole – Bronze Age burial place following the requirements of KPÚ TT. Prior to a siting permission issue, KPÚ TT shall be asked for comments.

Prior to the siting permission issue the investor will ask KPÚ TT for taking a decision related to this matter (see the chapter C.IV.4. Organizational and operational measures).

2.4.8. Others

2.4.8.1. Requirement for a public hearing in Germany.

The public hearing will be performed in the Slovak Republic and in the countries with which Slovakia entered into a convention on public hearings provided these countries ask for it. Definitely, these hearings can be participated by German citizens as well. Slovakia has not entered into a convention like this with Germany. Germany is allowed (as a country which has applied for a participation in the process of the proposed activity assessment in terms of potential cross-border impacts) to ask for cross-border consultations regarding the proposed activity.

2.4.8.2. Objection saying that the process does not correspond with the conditions of the Aarhus Convention (giving no specific reason).

The process is performed following valid legislation of the Slovak Republic and international commitments, conventions and contracts, including the Aarhus Convention.

2.4.8.3. Objection saying that the art.7, par. 5 of the Directive 2011/92/EU is not observed (Updated text as per the amendment 2014/52/EU: The detailed arrangements for implementing paragraphs 1 to 4 of this article, including the establishment of time-frames for consultations, shall be determined by the member states concerned, on the basis of the arrangements and time-frames referred to in article 6 par. 5 to 7, and shall be such as to enable the public concerned in the territory of the affected member state to participate effectively in the environmental decision-making procedures referred to in article 2 par. 2).

The conditions of article 7 par. 5 of the Directive 2011/92/EU (Updated text as per the amendment 2014/52/EU), which provide the public concerned in the territory of the affected member state with a guarantee of effective participation in the environmental decision-making procedures, are observed.

2.4.8.4. Objection saying that the article 2, par. 6 of the Espoo Convention is not observed (The Party of origin shall provide, in accordance with the provisions of this Convention, an opportunity to the public in the areas likely to be affected to participate in relevant environmental impact assessment procedures regarding proposed activities and shall ensure that the opportunity provided to the public of the affected Party is equivalent to that provided to the public of the Party of origin).

The article 2, par. 6 of the Convention has been observed.

2.4.8.5. Objection saying that the article 3, par. 8 of the Espoo Convention is not observed (For the Preliminary Study stage: The concerned Parties shall ensure that the public of the affected Party in the areas likely to be affected will be informed of and provided with possibilities for making comments or objections on the proposed activity and for a transmittance of these comments or objections to a competent authority of the Party of origin, either directly to the authority or, where appropriate, through the Party of origin.)
The article 3, par. 8 of the Espoo Convention has been observed.
2.4.8.6. Objection saying that the article 3. 9 of the Aarhus Convention is not observed (Within the scope of relevant provisions of this Convention, the public shall have access to information, have the possibility to participate in decision-making process and have access to a legal protection in environmental matters without discrimination as to citizenship, nationality and domicile and, in case of a legal person, without discrimination as to where it has its registered seat or an effective centre of its activities).
The article 3. 9 of the Aarhus Convention has been observed.
2.4.8.7. Objection saying that, as regards Germany, both governments forgot about providing the public concerned with information at the stage of the Preliminary Study.
The German public (as the public of a country which does not neighbour on Slovakia) was informed following the fact the Bavarian party being interested in participation in the review process as a country concerned. The comments and opinions of German citizens and organizations regarding the Preliminary Study were taken into account. During the following process stages Germany is formally considered as a country concerned taking part in the process.
2.4.8.8. Objection saying that the German public was addressed too late and even at the time of holiday season which is not acceptable as per the finding of the Aarhus Convention Compliance Committee (ACCC).
A reasonable period of 4 weeks was available to the German Public to comment the Preliminary Study in German language. The Preliminary Study had 177 pages. In the end of June 2014 the Bavarian party informed Slovakia on their intention to participate in the cross-border assessment process. It was the Bavarian party who proposed the period of 4 weeks to be available for the public's comments after the source documents in German language are submitted. The Aarhus Convention does not prescribe a season of the year in which the public shall be informed. At the following process stages we will respect the comment regarding the requirement not to inform the public at the time of holiday season.
2.4.8.9. Objection saying that the following provisions of the Aarhus Convention were violated: In the course of Jaslovské Bohunice environmental impacts assessment (EIA), the following cases of the Aarhus Convention violation occurred: Aarhus 1 (...each Party shall guarantee a right for ...), 3.1 (... shall take the necessary legislative, regulatory and other measures, including a measure to achieve compatibility between the provisions ... in this Convention...), 3.2 (... officials and authorities assist and provide guidance to the public in facilitating participation in decision-making...), 3.9 (Within the scope of the relevant provisions of this Convention, the public shall have access to information, have the possibility to participate in decision-making and have access to justice in environmental matters without discrimination as to citizenship, nationality or domicile and, in case of a legal person, without discrimination as to where it has its registered seat or an effective centre of its activities), 6.4 (...when all options are open...), 9.2 (...access to justice...).
None of the above mentioned provisions of the Aarhus Convention is violated during this process. As regards the article 6.4, the running review process of the specific NJZ preliminary study does not judge whether Slovakia will continue developing the nuclear power industry or not, but it judges whether it is possible to implement (in environmental points of view) the NJZ of PWR type, III+ generation with electric power up to1700 MW_e at Jaslovské Bohunice site. The development of the Slovak nuclear power industry is determined by the Energy Policy of SR which was assessed within the SEA process, including the cross-border assessment.
2.4.8.10. Objection saying that the Preliminary Study was not available on Internet.
The Preliminary Study was and still is available on Internet. It is available on the websites of the Ministry of Environment of SR (http://enviroportal.sk/sk/eia/detail/novy-jadrovy-zdroj-v-lokalite-jaslovske-bohunice) in all languages (SK, EN, DE, PL, HU, UA) as well as on the websites of the company JESS. (http://www.jess.sk/sk/home/o-spolocnosti/dokumenty) in Slovak language.
2.4.8.11. Requirement to clarify the zero alternative.
The zero alternative is defined in the chapter C.V. Comparison of alternatives.
2.4.8.12. Requirement to assess the zero alternative.
The zero alternative is a state which would occur if the proposed activity didn't take place. The commentary, that regards the zero alternative assessment, is presented in the chapter C.V. Comparison of alternatives.
2.4.8.13. Requirement to make decisions on the zero alternative within the EIA process for the proposed activity and not by means of the strategic documents approved by the government.
The strategic documents were reviewed within the SEA process following the same act No. 24/2006 Coll. as a proposed activity, including the cross-border assessment and records of the cross-border consultations (https://www.enviroportal.sk/sk/eia/detail/navrh-energetickej-politiky-sr). The zero alternative and the implementation alternative are not directly compared within the EIA process for the proposed activity. The zero alternative is used for a reference comparison of the importance (bearing capacity) of the implementation alternative impacts.
2.4.8.14. Comment saying that there is no assessment of the initial level to enable assessing of NJZ impact.
The initial level is assessed in details in the chapter C.II. Characteristics of the contemporary state of the environment.

2.4.8.15. Objection saying that the Preliminary Study does not include a multiple alternative solution. Despite the fact it was approved by MŽP, it is an imperfection of the whole EIA process.
Following a justified requirement of the Customer, MŽP SR (in their letter No. 8356/2013-3.4/hp dated November 28, 2013 and pursuant to § 22 par. 7 of the act) waived the requirement for the multiple alternative solution of the proposed activity noticing that if the preliminary study comments result in a necessity of another real alternative of the activity, this fact will be taken into account when determining an assessment scope and a schedule. When determining the assessment scope, MŽP SR stated that „in order to perform another assessment of the proposed activity "New Nuclear Power Plant at Jaslovské Bohunice Site", besides the zero alternative (contemporary state of the site and a state that would occur if the proposed activity didn't take place), another assessment shall be elaborated – a proposed activity alternative with one reactor unit with a pressurized water reactor of III+ generation with max. net installed electric power up to 1700 MW_e at the same cadastral areas that were mentioned in the preliminary study of the proposed activity.".
2.4.8.16. MŽP's quitting the multiple alternative solution means a breach of European and Slovak law.
A justified quitting the multiple alternative solution is in compliance with Slovak and European law. A description of the alternatives considered by the Customer prior to making an application for quitting the multiple alternative solution is presented in the chapter A.II.9. Alternatives of the proposed activity.
2.4.8.17. Requirement to review the alternatives of NJZ siting at various sites within the EIA process
The reasons of NJZ siting at Jaslovské Bohunice site are presented in the chapter A.II.9. Alternatives of the proposed activity.
2.4.8.18. Requirement to justify the alternatives in compliance with the Directive 2011/92/EU, article 5 par. 3 d) (an outline of the main alternatives studied by the developer and an indication of the main reasons for his choice, taking into account the environmental effects).
A description of the alternatives considered by the Customer prior to making an application for quitting the multiple alternative solution is presented in the chapter A.II.9. Alternatives of the proposed activity.
2.4.8.19. Objection saying that the reasons for rejection of alternative/renewable energy sources are based on outdated views are slovenly and inaccurate.
The discussion on the alternative electric energy sources which is presented in the chapter A.II.6.5.4. Summary is based particularly on the proposal justification in the analytic section of the Energy Policy of SR 2014.
2.4.8.20. Requirement to review a combination of various renewable energy systems that can ensure a permanent and full energy supply.
A review of a combination of various renewable energy systems is not a subject of the proposed activity and that's why it was not performed.
2.4.8.21. Requirement to satisfy commitments and aims of Slovakia regarding the share of renewable sources, increase in energy effectiveness and energy savings.
The satisfaction of commitments and aims of Slovakia regarding the share of renewable sources, increase in energy effectiveness and energy savings are dealt by the Energy Policy of SR 2014. The proposed activity is in compliance with this policy. The justification of the proposed activity (NJZ) necessity is analyzed in details in the chapter A.II.6. Reasons for siting at the site.

2.4.8.22. Recommendation to reformulate the statement saying that photovoltaic power plants "endanger seriously a safety of the transmission grid" to the statement "have negative impacts on the transmission grid operation". At the same time we recommend to add a statement on an installed capacity of the photovoltaic power plants in Slovakia.
The Report formulations were added and more precisely specified in the chapter A.II.6.5. Demand reasoning in relation to the development of electric energy production and consumption (in its sub-chapter A.II.6.5.4. Summary) in compliance with the recommendation and data presented in the approved Energy Policy of SR.
2.4.8.23. Recommendation to quantify the mentioned biggest potential of biomass power plants as stated in case of geothermal power plants or wind power plants.
The biomass power plants potential is presented in the chapter A.II.6.5. Demand reasoning in relation to the development of electric energy production and consumption (in its sub-chapter A.II.6.5.4. Summary).
2.4.8.24. Objection saying that NJZ does not represent a departure from fossil sources and there are no prospects of its long-term development in the future.
NJZ represents a definite departure from fossil fuels and there is a potential for its development at least during the 21st century – for a period of the expected lifetime of NJZ.
2.4.8.25. Requirement to review (as an alternative) the modern cogeneration installations for a combined production of electricity and a long-distance heat supply as well as a construction of decentralized thermal biomass power plants.
The energy policy of SR takes into account the development of the cogeneration sources at a level of several tens of MW_e having in mind also the air protection and a low-carbon production. Such small capacity sources do not represent an alternative to NJZ. The cogeneration sources are usually gaseous ones and their potential serious grow would increase the energy dependence and act against the spirit of the Energy Policy of SR. The cogeneration installations are important particularly in terms of provision of support services. They are not optimal for a long-term cover of base load

from both economical and ecological points of view. As regards the biomass potential, it is assessed in the chapter A.II.6.5. Demand reasoning in relation to the development of electric energy production and consumption (in its sub-chapter A.II.6.5.4. Summary). A development of biomass exploitation is one of the aims of the Energy Policy of SR within the sphere of heat-power engineering.
2.4.8.26. Disagreement with the biomass potential assessment in the Preliminary Study, particularly regarding the arguments about inappropriate transport load and related effects of biomass exploitation.
The Report states that the negative impacts of biomass regard a situation "the considered electricity production from biomass is of the same level as NJZ electricity production". A similar argumentation is presented in the SEA Report when assessing the Energy Policy of SR and dealing the advantages and disadvantages of biomass. The Energy Policy supports biomass particularly in the sphere of heat production at suitable sites; the electricity production from biomass is supported just within a limited scope.
2.4.8.27. Requirement to quit the implementation of the proposed activity in case of negative results of EIA process and assessment of the impacts on the environment and population.
If the assessment discovered significant impacts on the environment and health that cannot be effectively eliminated or compensated by means of impacts mitigating measures, the assessment would result in a conclusion that the proposed activity cannot be implemented with any significant negative impacts. In such a case a respective authority (MŽP SR) wouldn't recommend the implementation of this activity in their final opinion on the proposed activity.
2.4.8.28. Disagreement with the Preliminary Study statement that electric energy is basically a decentralized energy source.
The Preliminary Study and the Report state: "Electric energy is basically a decentralized energy source. At the final consumption point it is ecologically friendly (its exploitation does not result in any harmful substances) and it is universally used (it can be converted to other forms of energy)." This statement is true and there is nothing to be changed. At the moment the electric energy gets to the electric grid, it represents a decentralized energy source which can be used at any place having the electric grid available and in a quantity for which the grid capacity is suitable.
2.4.8.29. The Preliminary Study contains incomplete names of companies sharing the process of elaboration - EQUIS and NuSi.
Names of all the companies and cooperating persons were revised and completed.
2.4.8.30. Recommendation, exceeding the framework of the basic requirements of the Annex No. 11 of the act, to perform also a targeted studies that analyze in details individual impacts on the environment (including the cross-border impacts), including the public health.
These studies were performed prior to the report elaboration within the process of its preparation and they are presented in the section C.XII.1. Supporting studies for the Report elaboration. The Report contains all the essential information of these studies necessary for the assessment of the impacts on the environment and health, including the cross-border impacts.
2.4.8.31. Disagreement with the statement that there is one advantage of the III+ Generation: a simplified standard design which will result in a shortened licensing period and a reduction of construction and operation costs.
The statement is true. The III+ Generation represents mostly the designs that were originally developed as III Generation and which were upgraded with respect to economic, licensing and safety requirements.
2.4.8.32. Recommendation to cite complete texts of the acts titles in the EIA Report.
The Report cites complete texts of the acts titles (without the universal additions of the acts titles: ".... and on amendment and supplement of several acts"). There is one exception that regards a frequently repeated title of the Act No. 541/2004 Coll. on peaceful use of nuclear energy (the Atomic Act), which is presented just as the Atomic Act in order to shorten the text length.
2.4.8.33. Notice saying that in the course of licensing proceedings for the construction siting, ÚJD SR shall issue an approval of the nuclear installation construction siting as per § 5 par. 2 of the Atomic Act independently of another administrative authority's proceedings, so within independent and separate administrative proceedings.
The notice is respected in the Report. E.g. see the chapter A.II.16. Kind of required permit pursuant to special regulations.
2.4.8.34. Requirement to provide the supporting data used to model the cross-border risks in case of accidents in order to perform an independent analysis.
The supporting data, presented in the Report, allow performing an independent analysis of the cross-border impacts. The comments regarding an incompleteness of input data and expectations coming from the other EIA processes for nuclear installations were taken into account when elaborating the Report.
2.4.8.35. Requirement saying that the EIA Report shall contain data on the planned provision of environmental monitoring in a sufficient scope.
The Report contains information on the planned provision of environmental monitoring in a sufficient scope in the chapter C.VI.1. Monitoring proposal.
2.4.8.36. What are the requirements for ecological monitoring source data?
NJZ is planned to be constructed close to the existing nuclear installations complex having a long history in this region. It is one of the most carefully explored sites with a very detailed environmental monitoring. The existing plants are periodically monitored following an approved monitoring plan regarding all the spheres of the environment. The monitoring results provide a very detailed and complex view of the site and its broader surroundings. So the source data for the environmental monitoring of NJZ are based particularly on the existing monitoring and its results as well as on the expected outputs from NJZ.

2.4.8.37. Requirement to present a design of the nuclear power plant monitoring program, including a number of monitoring posts, their arrangement and types.
A description of the existing monitoring program is presented in the chapter C.II.15.3.2.3.1. Monitoring systems of Bohunice nuclear installations surroundings. A proposal of the monitoring completion for NJZ is presented in the chapter C.VI.1. Monitoring proposal.
2.4.8.38. Question asking whether a monitoring of broader surroundings of the power plant is (or will be) performed.
The monitoring is performed in broader surroundings of the power plant. A description of the radiation monitoring is presented in the chapter C.II.15.3.2.3.1. Monitoring systems of Bohunice nuclear installations surroundings. Radiation monitoring performed at national level is dealt in the chapter C.II.15.3.2.3.2. Radiation monitoring performed at a national level. Monitoring of conventional surface water pollution is described in the chapter C.III.5.1.2. Impact on qualitative characteristics and the monitoring of conventional air pollution in the chapter C.II.5.1. Air quality.
2.4.8.39. Objection saying that the government, as an advocate of the new nuclear power plant, reject bearing responsibility for a full compensation of a damage caused by a nuclear accident.
The issue of liability for nuclear damage is described in the chapter C.III.19.1.12. Liability for nuclear damage. The liability for a nuclear damage is born by the operator which is in compliance with international conventions and agreements. The Atomic Act and the Act of NR SR No. 54/2015 Coll. on civil liability for nuclear damage and on its financial coverage lay an obligation upon the future operator of NJZ to submit a document confirming provision of the financial coverage of the liability for nuclear damage as a part of the application for nuclear installation commissioning permit. The determining provisions will come into force on January 01, 2016.
2.4.8.40. Requirement to provide a sufficient financial coverage of damage in case of severe accidents (in the neighbouring countries as well).
The liability for nuclear damage, including the financial coverage, is dealt in the chapter C.III.19.1.12. Liability for nuclear damage. Severe accidents consequences are dealt in the chapter C.III.19.1.7.3. Radiation consequences of a severe accident having a conclusion that the economic consequences (restriction of a consumption of locally produced food) are just local ones and cross-border consequences do not occur.
2.4.8.41. Information saying that the Insurance Forum Leipzig presented an estimation of a damage caused by a severe accident in Europe amounting to 600 billion EUR.
The liability for nuclear damage is dealt in the chapter C.III.19.1.12. Liability for nuclear damage. The liability for damage, determined in Slovakia, corresponds with a standard European practice.
2.4.8.42. Requirement to complete legislatively the issue of compensation for nuclear accidents addressed to the affected communities situated in the new nuclear power plant surroundings.
The liability for nuclear damage is dealt in the chapter C.III.19.1.12. Liability for nuclear damage. The operator's liability is related also to a compensation for the affected communities situated in the nuclear installation surroundings. The liability is currently dealt as per § 29 of the Atomic Act and on January 01, 2016 the Act of NR SR No. 54/2015 Coll. on civil liability for nuclear damage and on its financial coverage come into force. This act regulates nuclear installation operator's liabilities and the principles of enforcing the right for compensation of damage. The determining provisions will come into force on January 01, 2016.
2.4.8.43. Requirement to perform an estimation of the costs of severe accidents consequences removal and their comparison with the existing Slovak regulations regarding the nuclear damage liability.
The calculations of the costs of severe accidents consequences removal were not performed in the Report because the economic aspects of the accidents are not subjected to EIA. The Report contains an assessment of severe accident radiological consequences in its chapter C.III.19.1.7.3. Radiation consequences of a severe accident, including a specification of the area with restriction of a consumption of locally produced food (which is an economic damage). This zone limits are several kilometres far from NJZ and they regard just a period of one year after the accident.
2.4.8.44. Requirement for a responsible approach of the Government to the comments of the communities situated within the nuclear power plants surroundings on the acts related to nuclear energy exploitation.
The comment does not regard specifically the assessment process of NJZ impacts on the environment in which all the surrounding communities' comments are carefully taken into account.
2.4.8.45. Objection saying that the NJZ costs are not complete, they do not involve the costs of radioactive waste disposal and storage, insurance charges for compulsory insurance with a sufficient coverage.
The costs, presented in the chapter A.II.10. Total costs, stand for total expected investment costs of NJZ construction spent by the time of commissioning. The financing of storage and disposal of radioactive waste, decommissioning costs and insurance coverage for a case of nuclear damage are dealt in respective chapters of the Report.
2.4.8.46. Comment saying that the indicated costs amounting to 4 - 6 billion EUR "per one unit" (compared with the real costs of other currently implemented designs) are unreasonably low.
The environmental impacts assessment is not focused on an assessment of the economical aspect of the design. The specified costs correspond with the expected costs following a market research performed by the Customer at the time of the feasibility study elaboration (2012). Moreover, the costs correspond with an estimation of NJZ unit costs provided in open sources. It is not possible to compare the costs with the costs of designs in case of which the expected construction period was significantly prolonged due to various reasons which naturally raised their costs.

2.4.8.47. There are some worries that the safety of systems and safety measures will be neglected as a result of observing the specified costs.
Following the Atomic Act, when exploiting nuclear energy, a top priority is given to nuclear safety. If it was not possible to meet the requirements of nuclear safety based on the legislative requirements for NJZ, the NJZ licensing process would be interrupted and ÚJD SR wouldn't issue a permit for the next stages of NJZ preparation (construction, commissioning and operation).
2.4.8.48. The NJZ construction necessarily needs state guarantees or a support from public funds in order to be profitable (examples: Hinkley Point, Temelín).
Models of way of NJZ construction financing are not subjected to EIA. On the present, the nuclear power industry in Slovakia is in no way financially supported by state or public funds. The support of renewable sources by means of TPS tariffs paid by the consumers is included in the answer to the requirement 2.3.30 of the assessment scope.
2.4.8.49. Objection saying that the Assessment Scope didn't take into account some comments of Lower Austria.
The comments, which were not directly included in the assessment scope, were involved in the requirement 2.4: To respect and asses in a separate chapter relevant requirements for EIA process presented in the standpoints of the countries concerned: the Czech Republic, the Republic of Poland, Hungary, the Republic of Austria and Ukraine; and they are dealt with in this section of settlement of the assessment scope requirements.
2.4.8.50. Requirement to assess an impact of the whole fuel cycle on the environment (as regards the new nuclear power plant).
Uranium and nuclear fuel is a power industry commodity which will be purchased at the world market and which can be provided by several prestigious suppliers. Mining, treatment of uranium ore and fuel production are assessed in separate EIA processes according to a respective country's legislation. Similarly, in case of a gas power plant construction, the gas mining location and conditions as well as a gas transport from the mining location to the consumption spot are not reviewed. The same regards all industrial constructions. The information on spent fuel management, including its permanent storage in the deep geological repository, is included in the Report chapters A.II.8.3.4.1. Nuclear fuel and spent nuclear fuel management and A.II.8.3.4.2. Radioactive waste management.
2.4.8.51. Requirement to explain the basic characteristics of the programs "Plant Life Management" and "Ageing Management".
The basic characteristics of the programs "Plant Life Management" and "Ageing Management" are explained in the answer to the requirement 2.3.30.
2.4.8.52. Objection saying that the Preliminary Study contains only a design description which does not meet requirements for a complete illustration of the design impacts on the environment.
The complete illustration and assessment of the design impacts on the environment is subjected to the chapter C.III. of this Report - Assessment of impacts on the environment, including health.
2.4.8.53. Requirement to include the following items in the EIA Report: safety concept and basic safety criteria, geological, hydrogeological and seismic conditions at the site, containment and other safety related civil structures, a principle of deeply stepped safety, a principle and a concept of safety systems, a description of safety related components and accident conditions, a concept of spent fuel and radioactive waste management – a disposal system, radioactive releases, an assurance of nuclear and technical safety, a detailed definition of safety standards, a concept of operation termination (including a chosen method of assessment of radiation impact and other impacts on the environment).
All the above mentioned aspects are included in the respective chapters of this Report.
2.4.8.54. Comment saying that the Preliminary Study lacks an assessment of the incidents and accidents of NJZ, ecological impacts assessment of uranium mining, the fuel production, the power plant decommissioning, radioactive waste disposal.
The assessment of NJZ incidents and accidents, the power plant decommissioning and the radioactive waste disposal is subjected to respective chapters of this Report. The ecological impacts assessment of the uranium mining and the fuel production is not included in the Report because it is not subjected to the proposed activity. Uranium and nuclear fuel is a power industry commodity which will be purchased at the world market and which can be provided by several prestigious suppliers. Mining, treatment of uranium ore and fuel production are assessed in separate EIA processes according to a respective country's legislation.
2.4.8.55. Objection saying that NJZ is planned to be sited at the plots owned by the company Eenergia, s.r.o. following valid contracts and the company asks for a compensation of the invested expenses and a lost profit.
NJZ is planned to be sited at plots owned by the company JESS. Following a performed survey these plots are subjected to no valid contracts concluded with other companies.
2.4.8.56. Notice saying that in relation to the NJZ implementation it is necessary to update or complete the spatial plans of the communities concerned.
The obligation to update the spatial plans of the communities concerned is presented in the chapter C.IV.1. Land use planning measures.
2.4.8.57. Requirement to elaborate and review (except for EIA) the Strategic Program of Nuclear Power Industry Development within the SEA process (similarly as performed in Poland).
The SEA process (2013-2014) included a review of the Energy Policy of the Slovak Republic which defines the nuclear power industry as a preferred low-carbon source of electric energy.

2.4.8.58. As regards the elaboration of the EIA Report, the company AMEC, being a company which works for nuclear power industry, is involved in a conflict of interests.
The company Amec Foster Wheeler s.r.o. is primarily focused on a sphere of the environment protection and assessment. It performs its activities within the spheres of industry, standard, nuclear and renewable power industry, infrastructure, transport, trade, logistics, mining operations, waste management and some others. As regards the nuclear sphere, it disposes of an extensive know-how which can be considered (in relation to EIA for a nuclear installation) as an advantage. The company is absolutely independent and, as regards property relations, there is no interconnection with an operator of nuclear power plant, so there is no conflict of interests.
2.4.8.59. There is a fear of a new design owner coming who will take only economic interests.
If any new potential owner (such considering is an evident speculation at the time the Report is being elaborated) want to construct and operate NJZ, they will have to respect the envelope of potential impacts on the environment, proposed measures, monitoring and post-design analysis following this Report, the conditions of the Standpoint of the MŽP SR to the proposed activity, provisions of the Atomic Act, the Decrees of ÚJD SR, regulations and standards included in the licence base of the NJZ design as well as the other statutory regulations valid in the Slovak Republic.
2.4.8.60. Objection saying that the elaboration of the Preliminary Study was oriented on the buyer's aims.
The Preliminary Study was elaborated with a scope and contents that exactly correspond with the requirements of the Act No. 24/2006 Coll. on environmental impacts assessment. The Preliminary Study's purpose was not to assess in details the impacts on the environment, this is a purpose of the Report on Assessment of the Proposed Activity Impacts on the Environment.
2.4.8.61. Requirement to include Slovenské elektrárne, a.s. in the list of the subjects concerned.
The Act No. 24/2006 Coll. on environmental impacts assessment does not handle the term "a subject concerned".
2.4.8.62. Requirement to include a shutdown, a decommissioning in the process of environmental impacts assessment.
The Report adequately assesses the whole life cycle of NJZ – construction, operation, operation termination and decommissioning. However, except for several exceptions (transport load, noise and conventional harmful pollutants in the course of construction), the stage of operation has a determining impact so the utmost attention is paid to it.
2.4.8.63. Objection saying that no time horizon of decommissioning can be deduced from the Preliminary Study. But at this design stage it is necessary for the environmental impacts assessment.
The time horizon of decommissioning is presented in the figure of the chapter A.II.8.4.2. Considered period of operation and decommissioning of the other nuclear installations at the site. The main data on the decommissioning are presented in the chapter A.II.8.3.6. Data on operation termination and decommissioning. The data on decommissioning inputs and outputs are subjected to respective chapters in the section B of the Report and the data on impacts are presented in the section C.III. of the Report.