



GENERAL DIRECTOR FOR ENVIRONMENTAL PROTECTION

Warsaw, 28 January 2025

DOOŚ-WDŚI.420.47.2023.SP.36

(Previous case designation: DOOŚ-WDŚZOO.420.30.2023.SP)

RULING

The General Director for Environmental Protection, having examined the application of BWRX-300 Włocławek sp. z o.o. of August 4, 2023 for the determination of the scope of the report on the environmental impact of the project, pursuant to Article 68(2)(2) and 69(3) of the Act of 3 October 2008 on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessments (Journal of Laws of 2024, item 1112), hereinafter referred to as the EIA Act:

I. Determines the scope of the environmental impact report of the project involving the "Construction and operation of a small modular nuclear power plant with a total capacity of up to 2000 MWe using BWRX-300 technology at Włocławek, city municipality of Włocławek" in accordance with Article 66 of the EIA Act.

II. Points out:

1. Alternatives to be explored:

1.1. location alternatives for the planned project, taking into account locations of heat and energy consumers;

1.2. alternatives for technical solutions:

a) open cooling system;

b) closed cooling system;

and if a closed cooling system is selected:

a) cooling system using natural draft cooling towers (cooling tower);

b) cooling system using forced-air cooling towers (fan cooler).

2. The scope and detail of the data required to characterise the project, the types of impacts and the elements of the environment requiring detailed analysis:

2.1. Description of the planned project:

- 2.1.1. Description and characteristics of the building structures and installations, covered by the application for a decision on environmental conditions, constituting the infrastructure necessary for the service, as referred to in Article 2(1b) of the Act of 29 June 2011 on the preparation and implementation of investments in nuclear power facilities and accompanying investments (Journal of Laws of 2024, item 1410), hereinafter referred to as the Nuclear Special Act, which may constitute projects referred to in the Regulation of the Council of Ministers of 10 September 2019 on projects likely to significantly affect the environment (Journal of Laws of 2019, item 1839, as amended), hereinafter referred to as EIA Regulation, to be presented with details enabling their qualification on the basis of the aforementioned Regulation and the assessment of anticipated significant impacts on the environment.
- 2.1.2. Provide a description of the reactor cooling system, the safety containment systems and the spent fuel pool, ensuring, in particular, the dissipation of post-shutdown heat to the final heat outlet, in operational and emergency conditions.
- 2.1.3. Provide a description of the operation of emergency systems, including those associated with reactor core meltdown, and a description of reactor protection systems, safety systems and solutions provided for extended conditions design conditions, the operational reliability of passive safety solutions.
- 2.1.4. Based on the current available multi-year hydrological data, it must be demonstrated that the water sources for cooling are able to provide the necessary constant amount of water under different meteorological conditions (especially at low water levels), taking into account the demand of other existing users.

2.2. Description of environmental elements requiring detailed analysis:

- 2.2.1. Provide a description of the natural elements of the environment covered by the scope of the predicted impact of the planned project on the environment with details including, inter alia, an analysis:
 - a) natural habitats and the species of plants and animals listed in Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ EU L 206, 22.7.1992, p. 7);
 - b) birds listed in Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (OJ EU L 020, 26.01.2010, p. 7);

- c) plants, animals and fungi protected under the Act 16 April 2004 on nature protection (Journal of Laws of 2023, item 1336, as amended), hereinafter referred to as the Nature Protection Law;
- d) rare and endangered plants, animals and fungi (included in the "red books" and on national and regional "red lists");
- e) plant, fungi and animal protection zones;
- f) species composition, abundance and locations of animals during specific phenological periods and life stages, including information on functional habitats (e.g. breeding, spawning, feeding, overwintering, refuges, roosts, migration corridors), and information on the manner and intensity of surface and spatial use by the fauna;
- g) the area and conservation status of natural habitats and other plant communities;
- h) the conservation status of populations and habitats of plant and animal species, distinguishing between: species listed under Directive 92/43/EEC, Directive 2009/147/EC and others;
- i) taxonomic composition, abundance and biomass of phyto- and zooplankton and phyto- and zoobenthos, taking into account the seasonal variability of phytoplankton and zooplankton;
- j) species composition, abundance, age structure, distribution and density of ichthyofauna, including fish larvae and fry;
- k) the abundance and distribution of invasive alien species;
- l) biodiversity in relation to species, habitats and ecosystems.

2.2.2. Description of the aquatic environment:

- a) present up-to-date bathymetric data of the Vistula River riverbed at the site of the planned cooling water input;
- b) in the description of the status of surface water bodies, hereafter referred to as water bodies, the values of the individual quality indicators, comprising the hydromorphological, biological and physicochemical elements, classifying the ecological status/potential of the water body, and the chemical elements, qualifying the chemical status of the water body, affected by the construction and operation of the project, should be identified;
- c) in the description of the status of groundwater bodies, hereinafter: groundwater bodies, the values of individual quality indicators included in the composition of the elements qualifying the status of the physico-chemical status, chemical status and quantitative status of the groundwater bodies affected by the implementation and operation of the project.

2.2.3. Information on ionising radiation and nuclear safety:

- a) a description of the radiation status of the environment (background) for the region where the project is located, based on at least 12 months of pre-execution monitoring, including:
 - concentrations isotopes of radioactive isotopes in atmospheric aerosols,

- total activity of alpha radioactive isotopes and beta radioactive isotopes in the air,
- power of spatial equivalent dose $H^*(10)$ in air at 1 m above ground level,
- concentrations of radioactive isotopes (including those of anthropogenic origin) in environmental components sampled and representative of the site region (including bioindicators), in particular: soil, groundwater, inland surface waters,
- concentrations of radioisotopes in food produced, sampled and representative of the location region, including in particular: plant products (fruit and vegetables) and cereals, animal products (meat, eggs), milk, drinking water, grass (fresh feed);
- b) analysis of the causes of the disappearance of flow in the Ośła watercourse (Ośła RW20001727929 water body) in terms of the possibility of their negative impact on the foundation safety of the facility;
- c) an analysis of the impact of the exploitation of the Wieniec medicinal water deposit located approx. 1 km from the boundaries of the planned power plant site on the safety of the facility's foundation.

2.2.4. Socio-economic conditions:

- a) a description of the current socio-economic conditions in the area of influence of the project, including, inter alia:
 - the number of inhabitants (permanent and temporary) and their distribution, the demographic structure of the population, the location closest to the development in relation to the power station,
 - a projection of population and land-use changes for the area under consideration over the lifetime of the nuclear facility until its decommissioning is completed,
 - an analysis of the extent of deployment from a major project industry relevant to evacuation,
 - an analysis of the range of distribution from the project of public facilities of hospitals, clinics, kindergartens, schools, detention centres, prisons, relevant to evacuation,
 - uses of water resources (e.g. water supply for population and industry, agriculture, fishing, tourism, recreation, navigation, etc.),
 - the health status of the population in terms of diseases that may result from exposure to ionising radiation, including in particular cancer;
- b) information on the projected number of permanent and temporary staff employed during the implementation of the project (with an indication of the variation over time).

2.3. Environmental impacts requiring detailed analysis:

- 2.3.1. The description of anticipated significant impacts of the planned project on the environment should include, among others, a detailed analysis:
 - a) impacts on the inventoried elements of the biotic environment

resulting from:

- changes in hydrogeological and hydromorphological conditions;
 - the physical effects of the project, such as, but not limited to: felling, destruction, conversion, fragmentation or isolation of natural habitats and plant and animal habitats;
 - impact on the ecological structures and processes that determine the proper functioning of natural habitats and plant and animal populations;
 - projected changes in the population parameters of the inventoried fauna species (e.g. impact on abundance due to increased mortality, change in density, structure);
 - create a barrier to the migration and dispersal of organisms, limiting the area in which they can be found;
 - impacts on breeding sites, feeding grounds, resting places, migration routes (continuity and functioning of international, national, regional and local corridors);
 - impact on biodiversity;
 - the impact of increased anthropopression;
 - impact of light pollution;
- b) impacts on forms of nature conservation, in particular on Natura 2000 sites and the continuity of ecological corridors linking them, taking into account the provisions arising from conservation plans or plans for conservation tasks;
- c) threats posed by the emergence and spread of invasive alien species;
- d) impacts on the receiving ecosystem resulting from the introduction of wastewater and rainwater and snowmelt caused by, among other things:
- mining and shaking sediments bottom sediments, an increase in the concentration of suspended solids in the water;
 - emissions of substances and energy to water and changes in water quality;
 - occurrence of state of emergency (including uncontrolled release of radioactive substances);
 - penetration ingress offish and other organisms to the cooling system;
 - changes in species composition, range, abundance and biomass of fauna and flora.

2.3.2. Impact on the aquatic environment, description of anticipated significant impacts of the planned project on surface and groundwater, including water bodies and the possibility of achieving the environmental objectives referred to in Article 56, Article 57, Article 59 and Article 61 of the Act of 20 July 2017. - Water Law (Journal of Laws of 2024, item 1087, as amended), hereinafter Water Law:

- a) a description of the measures planned to be taken to lower the

temperature of the cooling water before it enters into the receiver;

- b) analysis of the impact of heated water discharge on receiving water quality in summer and winter, taking into account worst weather conditions, i.e. low water levels; to be presented graphically the extent of the plume of heated water entering the receiver from the power station;
- c) determination of the range of impact of heated water by establishing the mixing zone of this water with the receiving water, together with its graphic representation;
- d) a description of the predicted changes in the values of the quality indicators referred to in points 2.2.2.(b) and (c), in relation to the impacts resulting from the implementation and operation of the project, their effects on the individual quality elements and the status of the water bodies, groundwater bodies and the possibility of achieving the environmental objectives set for them;
- e) analysis of the possible impact on the Wieniec medicinal water deposit, located approx. 1 km from the boundaries of the planned power plant site.

2.3.3. Radiological impacts, including in emergency situations:

- a) analysis of the radiological impact of the project during normal operation of the nuclear power plant, taking into account the predicted releases of radioactive isotopes to the atmosphere (in particular: H-3, C-14 and halides - all relevant from the point of view of exposure of radioactive isotopes of iodine, noble gases and aerosols), and to water (in particular: H-3), including:
 - evaluation of the total annual effective doses from different exposure pathways, for different age groups, resulting from the assumed annual releases of radioisotopes;
 - evaluation of the annual absorbed dose to the thyroid gland for different age groups, resulting from assumed annual releases of iodine radioisotopes into the environment;
 - to assess the potential for accumulation of radioactive substances in environmental components, including flora, fauna and human organisms;
- b) analysis of the radiological impact of the project in emergency situations, taking into account the anticipated releases of radioactive isotopes to the atmosphere and water, in particular: H-3, Cs-134, Cs-137, Sr-90 and all exposure-relevant radioactive isotopes of iodine (particulate, aerosol, gaseous fractions), together with an assessment of the levels of radioactive contamination and effective doses to individuals in the general population, taking into account the provisions for the avoidance of early and large releases of radioactive substances and the values of intervention levels for each type of intervention and the criteria for the cancellation of the intervention, including:

- the impact on people and the environment (radiological consequences) in the event of emergency conditions, for the sequence of design and severe accidents which is borderline in terms of radiological consequences, included in the extended design conditions, as well as those postulated for the purpose of emergency preparations - determined in accordance with the Polish regulations in force in this respect and taking into account the relevant international requirements and recommendations, together with the dispersion of radioactive isotopes in the water environment and the atmosphere, and the assumed probability of occurrence of particular types of accidents;
 - the anticipated extent of the emergency planning zone, where the introduction of contingency measures in the event of an accident falling within the category of extended design conditions is considered;
 - representation of source members for defined categories of nuclear object states;
- c) for points (a) and (b), the calculation methods and codes used and the input parameters used for the calculation of the dispersion of contaminants (amount and composition of the radioactive isotopes released, height and duration of the release, meteorological data) must be given, together with a justification for their choice;
- d) determination of the projected extent of the planned restricted use area around the nuclear power plant, including the area referred to in Article 36f, paragraph 2, point 1 of the Act of 29 November 2000. - Atomic Law (Journal of Laws of 2024, item 1277), hereinafter referred to as Atomic Law; the area should also be presented in cartographic form;
- e) presentation of the results of probabilistic safety analyses for the type of reactor under consideration - data on the frequency of core damage and the frequency of large or early releases of radioactive substances, including in the context of internal and external events taking into account the location near industrial plants and a railway line running through the project area;
- f) description of external natural and anthropogenic events, together with a methodology for identifying significant events that could endanger the safety of a nuclear power plant and a description of the combination of these events, in particular concerning
- seismic phenomena taking into account the results of current observations,
 - extreme weather events and their consequences (e.g. freezing, droughts and other impediments to cooling water intake, floods, storms, gales, snowstorms),
 - possible accidents or explosions at neighbouring facilities of an industrial or military nature and those resulting from transport;
- g) description of internal events that could pose a safety risk to the nuclear

power plant;

- h) provide information on planned organisational and technical solutions, dedicated to the reduction and mitigation of severe accidents, including strategies to maintain the integrity of the safety case;
- i) to provide information on planned organisational and technical solutions for effective life-cycle and ageing management in the context of the long-term operation of a nuclear power plant as an essential element of nuclear safety.

2.3.4. A description of the predicted significant impacts of the planned project on the climate and a description of the resilience to climate change should be provided based on the climate change scenarios adopted for the analysis over the lifetime of the power plant (approx. 60 years).

2.3.5. An analysis of the impacts of the project in each phase of implementation on socio-economic conditions, with particular on the impact on the quality and living conditions of people.

3. Scope and methods of research:

3.1. Description of the natural elements of the environment covered by the scope of foreseen environmental impact of the planned project should be drawn up based on the up-to-date results of the nature inventory referred to in Article 66(1)(2a) of the EIA Act.

3.2. The nature inventory should be carried out taking into account the following guidelines:

- a) the spatial extent of the nature inventory should cover the area of the impact of the project, taking into account the areas where cumulation of impacts with other projects may occur;
- b) surveys should be carried out at optimum times for each habitat type and species of flora, fungi and lichens;
- c) the fauna inventory should be carried out over a period of not less than 12 months, with the duration of the surveys, the frequency of inspections and their timing being adapted to the biology and ecology of the species/species group under study, taking into account the variation in animal activity from one phenological period to the next.

3.3. When assessing the conservation status of natural habitats and populations of plant and animal species listed in Directive 92/43/EEC, account should be taken of the parameters set out in the Regulation of the Minister of the Environment of 17 February 2010 on drawing up a draft plan of protection tasks for the Natura 2000 area (Journal of Laws 2024, item 99) and the indicators used as part of state environmental monitoring carried out by the Chief Inspectorate for Environmental Protection.

Justification

On August 4. 2023, GDEP received an application from BWRX-300 Włocławek sp. z o.o. for the issuance of a decision on environmental conditions for the project entitled: 'Construction and operation of a small modular nuclear power plant with a total capacity of up to 2000 MWe using BWRX-300 technology in Włocławek, city municipality of Włocławek'. Together with the

application for the issuance of the aforementioned decision, the investor also applied, pursuant to Art. 69(1) of the EIA Act, for the determination of the scope of the environmental impact report of the project.

GDEP has established and weighed the following.

The planned project consists in the construction of a nuclear power facility, as defined in Art. 2 par. 1a of the Nuclear Special Act, and includes the construction of a nuclear power plant, which is a project that may always have a significant impact on the environment, as defined in § 2 par. 1 pt. 4 of the EIA Regulation, and the infrastructure necessary for its operation, including installations classified as projects likely to have a significant impact on the environment, and therefore, pursuant to Article 71(2) of the EIA Act, requires a decision on environmental conditions.

A nuclear power plant, according to Article 3(6f) of the Atomic Law, is a facility for generating electricity or heat from nuclear fuel for purposes other than research. According to Article 2(2) of the Nuclear Special Act, a nuclear power plant is a nuclear power facility and, together with the infrastructure necessary to operate it, referred to in Art. 2(1b) of the Nuclear special Act, constitutes an investment in construction of a nuclear power facility. The authority competent to issue a decision on environmental conditions for the above-mentioned project, pursuant to Art. 75 par. 1 item 1a of the EIA Act, is GDEP, and at the same time, as follows from Art. 69 (3) of the EIA Act, GDEP is the authority competent to issue a decision determining the scope of the environmental impact report of the project.

The planned project consists of the construction and operation of a nuclear power plant with a maximum of 6 power units with a capacity of 300 MWe, a modular BWRX-300 technology nuclear reactor, a control room building and an engine room building (turbine, generator), with a total electrical output not exceeding 2000 MWe. In addition, auxiliary buildings will be located on the power plant site, including a spent fuel storage facility, a radioactive waste storage facility, office buildings and a workshop. The project also includes the construction of infrastructure: a water intake, a pumping station, cooling water pipelines, cooling systems, an electrical substation, and power lines to the Anwil S.A. industrial plant and the national power grid. The nuclear power plant will generate electricity or electricity and heat. Part of the electricity will supply the industrial plant Anwil S.A.

The light water boiling reactor (BWR) is a common type of power reactor. It is a moderated and cooled nuclear reactor with water circulating in a single circuit - water converted to steam in the reactor is directed directly to the turbine that drives the generator, before being cooled and condensed back into the reactor. The fuel used in the reactor will be low-enrichment uranium oxide. The annual fuel requirement for one BWRX-300 reactor will be approximately 6.6 tonnes.

Ensuring the safe operation of the BWRX-300 reactor is based on the use of passive systems whose operation is based on natural physical phenomena (convection, gravity). The reactor design reduces the number of active components from the safety systems, increasing their reliability. Basing the safety of nuclear power plant operation on passive systems contributes to the fact that the correct operation of these systems is not dependent on actions taken by the operator, nor is it dependent on the availability of external power. Nor can these systems fail of the type that can occur in other technologies based on the operation of solenoid valves or pumps. Passive systems ensure that the reactor core is effectively cooled during normal operation and also in the event of emergency conditions. The system will operate even in the event of a power

outage. The reactor building will be equipped with safety systems to protect against the potential consequences of a reactor accident. The spent fuel pool, on the other hand, will be located at ground level in the reactor building, its capacity will be sufficient to store the spent fuel from eight years of operation and the full discharge of the core.

The project is planned in the Kuyavian-Pomeranian Voivodeship, in the city of Włocławek, on an area of approx. 135 ha, of which the area intended for the construction of the power plant will be approx. 110 ha. The planned project area is located in the western part of the city of Włocławek, in the vicinity of industrial areas, including the Anwil S.A. industrial plant and the Włocławek CCGT gas and steam power plant. The planned project area is bordered by:

- from the north-east - 220/110kV power station, national road no. 91, Anwil S.A. industrial zone,
- from the east - undeveloped green areas, housing estate, Brzezie railway station approx. 0.3 km away and a construction company,
- to the west - single farm buildings and forest areas,
- from the south, forest areas.

The area designated for the construction of the reactors is mostly covered with low vegetation and in some places with trees and bushes. A railway line runs through the area of the planned project; the course of the line will not be changed in connection with the construction of the project. The construction of power units is planned on the western side of the site. The infrastructure corridor, i.e. the cooling water pipelines, will be built in the industrial area of the Anwil S.A. plant. The construction of the power line, which will carry the power output from the power plant, is planned for a forested area in the immediate vicinity of the industrial site.

Water is used to cool the systems in a nuclear power plant. There are two types of water cooling systems: open system and closed system. The choice of cooling system for the planned power plant will be considered as part of the project variation. According to data provided by the technology supplier, the water requirement for the open system is estimated to be around 50 000 - 90 000 m³/h for all units, while the water requirement for one nuclear unit for the closed system is estimated to be between around 800 m³/h and 1200 m³/h. In the closed cycle, the volume of water withdrawn to replenish the cooling system is considerably less than in the open cycle, but this water is lost irretrievably through evaporation and uplift in the cooling towers. In the open cycle, the entire volume of water withdrawn after passing through the cooling systems of the power plant will then be discharged to the receiver, the temperature of the discharged water will, however, be higher than the temperature of the water in the receiver. A closed system can be based on cooling towers or fan coolers. The water for the power plant's cooling system will be taken from the Vistula River, located approx. 3 km from the project site. The water will be supplied to the power plant by means of pumps and pipelines. The intake of water from the Vistula River and the pumping station will be located in undeveloped land. The pipelines will be located in an infrastructure corridor approximately 1.5 km wide, most of which will run through the premises of Anwil S.A.

The number of nuclear power units, i.e. the construction and operation of 4 nuclear units, 5 nuclear units or 6 BWRX-300 nuclear units, will also be subject to variation. The number of units built will have an impact on the amount of water required for cooling, impacts such as noise emissions to the environment, the amount of waste produced, including radioactive waste, the amount of wastewater produced, the amount of energy produced.

Three 220 kV power lines, three 110 kV power lines, gas, sewage, water and telecommunications networks currently run through the planned project site. The aforementioned

networks will be moved outside the planned nuclear power plant site before construction work begins. The Ośła River, which disappears on the site of the planned project, also flows through the site. Due to the construction of the nuclear power plant, the riverbed will be moved outside the site or will be included in the canal.

In accordance with Art. 69(1) of the EIA Act, the applicant may, when submitting the application for the issuance of the decision on environmental conditions for projects which may always significantly affect the environment, instead of the environmental impact report of the project, submit the Project Information Sheet together with the application for determination of the scope of the report. In turn, in accordance with Art. 69(3) of the EIA Act, the authority determines the scope of the report by way of a decision. In this case the provisions of Art. 68 apply.

Pursuant to Article 68(2), an authority, in determining the scope of a report, may, with view to the location, nature and scale of the environmental impact of the project:

- 1) waive the requirements as to the content of the report referred to in Article 66(1)(4), (13), (15) and (16); this does not apply to public roads and railway lines, which are projects which may always have a significant impact on the environment;
- 2) indicate:
 - a) types of alternative options to be examined,
 - b) the extent and detail of the data required to characterise the project, the types of impacts and the elements of the environment requiring detailed analysis,
 - c) scope and methods of research.

GDEP did not consider it appropriate to deviate from any of the requirements set out in Article 66(1) of the EIA Act in relation to the planned project.

In the course of the proceedings, GDEP by letters dated August 30, 2023, marked: DOOŚ-WDŚZOO.420.30.2023.SP.4-7, requested opinions on the scope of the environmental impact report of the project from the President of the National Atomic Energy Agency (hereinafter referred to as: PAA President), the Director of the Regional Water Management Authority in Gdansk of the State Water Management Company Wody Polskie, the Kuyavian-Pomeranian State Regional Sanitary Inspector and the Minister of Climate and Environment. In response to these submissions, GDEP received opinions:

- 1) Minister of Climate and Environment of September 8, 2023, mark: DIŚ-III.414.3.2023.MT;
- 2) Kuyavian-Pomeranian National Provincial Sanitary Inspector of September 13, 2023, mark: NNZ.9022.4.70.2023;
- 3) PAA President of September 14, 2023, mark: DBJ-ZOP.4902.1.2023;
- 4) Director of Regional Water Management Authority in Gdansk of September 18, 2023 r., sign: GD.RZŚ.4901.57.2023.JS.

The PAA President and the Director of the Regional Water Management Authority in Gdansk have indicated the scope of the report in great detail. However, this scope results from Article 66 of the EIA Act, which means that the applicant is obliged to include it in the report regardless of the position of the authority defining the scope of the report. GDEP, while defining the scope of the report, taking into account, inter alia, the positions of the bodies cooperating, indicated that the report should be consistent with the content of the cited provision (point I. of

the ruling). GDEP, while defining the scope of the report, specified in the operative part of this ruling the scope and detail of the required data allowing to characterise the project, types of impacts and elements of the environment requiring a detailed analysis, indicated also by the PAA President and the Director of the Regional Water Management Authority in Gdansk.

It follows from the data presented the Project Information Sheet, that due to the scale of the project and the preventive measures applied, the range of impacts associated with the construction and operation of the project will not extend beyond the territory of the Republic of Poland. However, in the case of a nuclear power plant, the occurrence of negative impacts with a transboundary range as a result of the aftermath of a major (serious) accident cannot be excluded. Following the above, in accordance with the precautionary principle adopted in the countries of the European Union, recommendations on the application of the Convention on Environmental Impact Assessment in a Transboundary Context, drawn up in Espoo on 25 February 1991 (Journal of Laws of 1999, No. 96, item 1110, as amended) *to nuclear-related activities (Good Practice Recommendations on the Application of the Convention to Nuclear Energy-related Activities. UNITED NATIONS PUBLICATION. e-ISBN 978-92-1- 362921-5)* On September 12, 2023, the General Director for Environmental Protection electronically sent the project information sheet for information purposes to Poland's neighboring countries, i.e.: The Czech Republic, the Republic of Lithuania, the Federal Republic of Germany, the Slovak Republic and Ukraine, and then sent the same information to the Republic of Belarus on October 6, 2023.

Pursuant to Article 7(1) of Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (OJ EU. L. 2012 No. 26, p. 1 as amended), hereinafter the EIA Directive, a procedure shall be carried out at the request of a Member State. Pursuant to Article 3(7) of the Espoo Convention, if a party considers that its environment may be affected by significant adverse transboundary impacts as a result of a proposed activity, a discussion on the possibility of such impacts will be initiated at its request as an affected party.

The Ministry of Environment of the Republic of Lithuania, in a letter dated October 12, 2023, stated that due to the distance between the planned project site and the border of the Republic of Lithuania, which is more than 300 km, there is no likelihood of a significant adverse transboundary impact and therefore Lithuania is not requesting a transboundary environmental impact procedure.

Ukraine did not respond to the information provided, which was considered a lack of interest in participating in the proceedings.

Pursuant to the above-mentioned regulations, the Czech Republic, the Federal Republic of Germany, the Slovak Republic and the Republic of Belarus applied to the GDOŚ for a transboundary environmental impact assessment and notification of the possible transboundary environmental impact of the planned project.

In connection with the above, the GDEP issued a decision of November 6, 2023, marked: DOOŚ-WDŚZOO.420.30.2023.SP.13, on necessity to carry out the proceedings on transboundary environmental impact of the project and imposed on the applicant the obligation to prepare in English and German: the Project Information Sheet, the application for the decision on environmental conditions and determination of the scope of the environmental impact report of the project and those parts of the report which will make it possible for the countries on the territory of which the planned project may have an impact to assess the possible significant transboundary environmental impact of the project.

After the decision has been issued, on 27 December 2023, the GDEP received a request from the Federal Ministry for Climate Protection, Environment, Energy, Mobility, Innovation and Technology in Austria in accordance with Article 3(7) of the Convention on Environmental Impact Assessment in a Transboundary Context, done at Espoo on 25 February 1991, and Article 7 of the EIA Directive, to provide official notification of a possible significant transboundary environmental impact of the project.

Subsequently, after the applicant submitted the Project Information Sheet and an application for an environmental decision in English and German, GDEP, by letters dated: 22 January 2024, mark: DOOŠ-TSOOŠ.440.12.2023.BW.1 and DOOŠ-TSOOŠ.440.12.2023.BW.2, 1 February 2024, GDEP notified the Republic of Austria, the Czech Republic, the Federal Republic of Germany, the Slovak Republic and the Republic of Belarus, pursuant to Article 109(1) of the EIA Act, of a possible transboundary environmental impact and forwarded the necessary documentation.

Republic of Belarus (Ministry of Natural Resources and Environmental Protection
Republic of Belarus) raised the following issues in a letter dated 31 October 2023:

- 1) the report should provide data on the radioisotope composition and the amounts of emissions and releases to the environment resulting from the operation of the planned nuclear power plant, including in the event of an emergency, taking into account the transboundary impact;
- 2) the report should indicate how radiation monitoring will be carried out at the deployment points of the planned nuclear reactors;
- 3) the information on the parameters of the nuclear fuel in the form of GNF2-type fuel rods envisaged for use in the planned power plant was questioned;
- 4) pointed out the lack of information on the certification (licensing) of the reactor design BWRX-300 nuclear power plant;
- 5) the use of a direct-flow cooling system has been questioned, indicating that it is not environmentally beneficial, as in such a system the cooling water, containing radioactive substances, will be discharged directly to an external source. According to the Belarusian side, closed-flow water system variants, which use an evaporative cooling tower to dissipate the necessary heat, are preferred for application;
- 6) it was requested that *a reference be* provided to technical documents on the ranges of large accidental releases justifying the extremely low probability of such a release in the case of the BWRX-300 reactor, the occurrence of which is less than 1 in 100 000 000 years;
- 7) it was pointed out that there was no analysis in the Project Information Sheet of the negative consequences for the nuclear power plant as a result of extreme precipitation (risk of flooding) with a probability of 0.01%, therefore the report should justify the lack of risk of flooding with extreme precipitation with a probability of 0.01%;
- 8) the report should provide an analysis of severe accidents and the actions envisaged to mitigate their consequences, including the provision of hydrogen safety, reactor core cooling systems under severe accident conditions, neutralisation of radioactive iodine and radioactive gases released during the accident;
- 9) the report should provide information on the potential for serious

- failures simultaneously in several power units;
- 10) the report should provide information on the safe shutdown technology used in the BWRX- 300 design, how the sub-critical state of the reactor is reached in the event of loss of external power if the absorber rods are driven by a pumping system;
 - 11) the report should indicate how the feeding of the tank will take place spent nuclear fuel in the event of a tank leak and loss of power;
 - 12) the report should provide information on current plans for the construction and start of operation of a new repository for low- and intermediate-level radioactive waste and provide estimates of the quantities of radioactive waste from the operation and decommissioning of small modular nuclear power plants that are planned to be placed in the new repository;
 - 13) the report should present data and calculations on seismicity and seismic impacts in the area of the planned project, taking into account seismic-tectonic models, together with characteristics of zones of possible earthquake occurrence;
 - 14) The Belarusian side requested *an assessment of the magnitude of seismic impacts on the territory of the Republic of Poland from strong, deep-focus earthquakes in the seismic zone in the Vrancea Mountains in the Eastern Carpathians.*

The Republic of Austria (Federal Ministry for Climate Protection, Environment, Energy, Mobility, Innovation and Technology), by letter of 22 February 2024, presented the conclusions of the Project Information Sheet analysis and recommendations for the scope of the report. The Austrian side raised the following issues in its position paper:

- 1) questioned no indication alternative location of the project;
- 2) it was pointed out that the report should clearly explain whether the power plant will also be a source of thermal energy and how the use of the power plant only as a source of electricity and both electricity and thermal energy influences the choice of location for the project; if only electricity is to be generated at the power plant, it should be explained why an alternative location was not considered, and if no thermal energy is to be used, the question of alternative locations should be discussed;
- 3) in the case of the use of heat from a nuclear power plant, the issue of back-up capacity (location, fuel, storage, routing) should be discussed;
- 4) locations of all four reactors should be shown on a map;
- 5) site selection should be based on Polish regulations and in accordance with the document "IAEA SSR1 Site Evaluation for Nuclear Installations";
- 6) it was submitted that the BWRX-300 reactor is not a proven technology, licensing of the BWRX-300 reactor has not been completed in any country, and therefore a report for the investment in question would only need to be submitted once the licensing procedures under nuclear law for nuclear power plants of this type in other countries have been completed, at least one of the planned reactors has been built, and experience has been gained in operating this type of nuclear facility;
- 7) indicated that the report should include in the description of the project:
 - description and confirmation that there are separate, redundant and independent systems of shutdown of the nuclear power plant and a description of their

- compliance with regulatory requirements,
 - description of shared components, used at multiple levels safeguards and multiple levels of a multi-level security concept,
 - description of how safety analyses have been carried out in accordance with the applicable provisions,
 - if any, a description of active redundancy mechanisms in relation to passive systems in the event of failure,
 - description of passive systems that require power to activate;
 - detailed description of the isolation condenser system and a description of the associated pools, analysis of the pool heat exchangers for leaks and the impact of these leaks on the water chemistry of the primary system,
 - presentation of the implementation of a discharge or increase in load remaining outside the scope of the standard BWRX project,
 - general description of ageing management and maintenance concept and details in relation to structure, layout and components (SSC),
 - description and characteristics of planned fuel GNF2, discussion of possibilities the use of accident tolerant fuel (ATF) in the future,
 - description of the necessary modifications to be made to use mixed plutonium-uranium (MOX) fuel,
 - description of the dismantling plan;
 - presentation of calculations and results on radiological emissions during normal operation, which will be carried out on the basis of the current reactor construction concept;
- 8) the report should indicate how the decision on environmental conditions is taken into account when issuing the investment decision and how the administrative bodies involved in the investment process take into account the conditions of the decision and the findings of the report, and how they are obliged to implement them;
 - 9) due to the project's location in the vicinity of industrial plants, the report should indicate how the administrative bodies responsible for implementing Directive 2012/18/EU of the European Parliament and of the Council of July 4, 2012, on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC (OJ EU L 197 of July 24, 2012, p. 1), hereinafter referred to as the Seveso Directive, participate in the proceedings for issuing a decision on environmental conditions;
 - 10) the report should describe in detail the surroundings of the planned investment with particular reference to other industrial activities;
 - 11) the report should present an analysis of the cumulative impact of the planned nuclear power plant and the industrial plants in its vicinity during normal operation and in emergency situations;
 - 12) the danger zone observed under accident conditions (accidents in one or more industrial facilities or in one or more reactors) should be defined in the report for each industrial facility located in the vicinity of the power plant, taking into account the emissions

- from the analysed industrial facilities occurring in the event of an accident;
- 13) the report should present scenarios for the further development of the industrial area in the vicinity of the planned project, especially plants covered by the Seveso Directive, an analysis of the resilience to any changes in the profile of economic activities in the vicinity of the project and an assessment of the potential risks to the nuclear power plant from a simultaneous failure of the nuclear power plant and nearby industrial facilities;
 - 14) the risk analysis for the planned power plant should be carried out on the basis of the safety standards "Risks associated with man-made external events in the assessment of nuclear sites IAEA No. SSG-79";
 - 15) major accident analysis should take into account:
 - presentation, description and context: the DBA design failure, the DBC design condition and the DEC-A/B extended design condition,
 - analysis and technical measures to limit the consequences of a major failures,
 - description of the management an accident with core meltdown and the principle of the molten core retention strategy in the reactor vessel, including the availability of water supply systems to cool the vessel from the outside,
 - description of how to deal with hydrogen accumulation during an accident,
 - description of the ventilation system for the safety enclosure with appropriate filters,
 - all events resulting from natural environmental conditions that may pose a threat to the safety of the power plant, man-made events that threaten the safety of the facility and that may occur as a result of economic activities carried out in the vicinity of the planned power plant,
 - situations related to warfare,
 - activities to control and track the production process of components;
 - detailed and comprehensive description of the core inventory, the postulated failure sequences and frequencies, and the energy released due to postulated failures, in particular in the context of transboundary impacts,
 - summary of the radionuclides released during the postulated accident sequences, particularly in the context of transboundary impacts;
 - explain why there are discrepancies in the Project Information Sheet regarding the probability of a major accident occurring (of the order of 1 in 10 000 000 years exploitation, and elsewhere 1 per 100,000,000 years of exploitation);
 - 16) the report should provide information on how it is planned to integrate the nuclear power plant into a future energy system based on a higher proportion of renewable energy sources and under which framework conditions it is possible to operate the nuclear power plants according to current power demand; analyses should also be provided on the impact of operation according to current power demand on safety-relevant components (including ageing and wear phenomena);
 - 17) the analysis of the impact of climate change on a nuclear power plant should also take into account the extent to which extreme weather events (i.e. heavy rain, floods, droughts, strong winds, etc.) may promote accidents both at the planned nuclear power plant and at industrial plants in the vicinity;

- 18) the report should discuss how national and international regulations and recommendations, e.g. of the International Atomic Energy Agency (IAEA), the Western European Nuclear Regulators Association (WENRA), the World Association of Nuclear Power Plant Operators (WANO) and the European Atomic Energy Community (Euratom) have been implemented;
- 19) the report should list all documents not yet submitted as part of the proceedings to issue a decision on environmental conditions necessary for the safety assessment of the facility, which will only be submitted as part of the authorisation procedure for the operation of the facility under nuclear law;
- 20) information on the probability of an accident, its practical exclusion and releases should be presented in the report as conservatively as possible. If changes are made to the relevant safety considerations as part of the nuclear licensing procedure, these should also be made available to the public;
- 21) the report should indicate the amounts of waste generated during the day-to-day operation of the power plant and the concept of storing spent fuel on site in excess of the storage pools;
- 22) the report should describe how the operator ensures nuclear safety, in particular: how human resources, management systems, quality assurance, education and training programmes are set up.

The Federal Republic of Germany (Ministry of Social Affairs, Health, Integration and Consumer Protection of the State of Brandenburg), in a letter dated 1 March 2024, indicated that the report should:

- 1) discuss in detail the chosen technology for the construction of the SMR reactor and justify its choice with an indication of the selection criteria and alternatives;
- 2) describe the effects of external events (e.g. flooding, extreme drought, airplane crash, cyber-attack) on the reactor, its safety systems, the fuel element repository and the repository for low- and intermediate-level radioactive waste;
- 3) indicate how to deal with a possible loss of coolant, especially in the event of a leak outside the reactor safety containment with simultaneous failure of the shut-off valves;
- 4) describe safety measures against core meltdowns due to external events or internal incidents and failures;
- 5) provide a detailed explanation of the principle of operation, efficiency, reliability and limitations of safety systems, in particular with regard to simultaneous impact on several reactor modules;
- 6) provide data on the amount and type of radioactive substances expected to be released under different accident scenarios;
- 7) carry out modelling of different scenarios for the impact of a radioactive release on the population in neighbouring countries, assuming different weather conditions;
- 8) provide basic information on the planned transport routes for nuclear fuel (including whether they will pass through German territory) and the means of transport used;
- 9) provide information on whether and, if so, how radioactive waste will be transported or whether transboundary transports are planned, e.g. conditioning.

The Czech Republic (Ministry of the Environment of the Czech Republic) stated in a letter dated March 27, 2024, that the report should:

- 1) indicate how the BWRX-300 reactor will meet safety standards and virtually eliminate large and early releases of radioactive substances as a result of the accident;
- 2) analyze the risks associated with the location of the planned facility in the Ośla river floodplain and the measures that will need to be implemented to reduce the risk of a failure or leakage of radioactive substances; how should the information from the documentation be understood (chapter 4.2.4. of the Project Information Sheet): *During the site visits, a flow in the riverbed was observed in its upper reaches and its disappearance on the site; what is the actual flood risk from the nearby Vistula River;*
- 3) clarify whether the location on the edge of a lignite deposit will not be a potential threat to activities aimed at exploiting this raw material (e.g. for the chemical industry);
- 4) the report should analyse the risks and consequences of radionuclide leakage as a result of a hypothetical accident scenario on the population and environment of the Czech Republic;
- 5) include an analysis of the occurrence of emergency situations and their impact on the Czech Republic, particularly in relation to the current war situation and the risk of military attack;
- 6) assess the cumulative effects of the accident at nearby plants, in particular the Anwil S.A. chemical plants belonging to the ORLEN Group, which produce nitrogen fertilizers and plastics;
- 7) assess the risk of a failure on railway line no. 18 Kutno-Piła Główna, which runs directly through the nuclear power plant site, and clarify whether such contact poses a risk to the area of the protected nuclear source;
- 8) describe what plans will be implemented and preparations made for major emergencies and how the public will be involved in emergency preparedness;
- 9) describe what the extent of radiation contamination will be in the event of a major accident with the release of radioactive substances and how great the risk is for the territory of the Czech Republic;
- 10) it should be explained why, with the construction of up to 6 nuclear units each with a capacity of 300 MWe, the total electrical output of the plant is to be 2000 MWe;
- 11) indicate what the actual consumption and availability of cooling water in the area will be, taking climate change into account, and assess the issue of sufficient cooling water supply;
- 12) indicate how the discharge of cooling waters will affect tritium and other levels and temperatures receiving waters;
- 13) describe the threat to the water resources of the Main Groundwater Reservoir No. 220 Pradolina Środkowej Wisły, within which the planned power units are located, which has an approved available resource of 200,000 m³/d, and the average depth of groundwater intakes is 60 m;
- 14) indicate whether the location of the nuclear power plant just 1 km from the border of the Wieniec medicinal water deposit will not be too much of a threat to this resource, and also explain whether pumping underground Wieniec mineral water resources may pose

- a threat to the nuclear power plant;
- 15) describe the specific impact the nuclear power plant will have on protected bird and animal species, taking into account that the distance to the Natura 2000 areas of the Wloclawek Vistula Valley and the Lower Vistula Valley is only 3 km, and that there are other protected areas nearby;
 - 16) assess what impact the operation of the power plant and the associated noise, the abstraction of water for cooling purposes and the discharge of heated water will have on the natural environment;
 - 17) present measures to minimize negative impacts on the natural environment during the construction phase;
 - 18) the type and quantity of radioactive waste expected to be generated during the operation and decommissioning phases of the plant should be indicated;
 - 19) include an assessment of the management of spent fuel and other radioactive waste, its storage and its impact on the environment and public health; the analysis should also cover the construction of a repository or disposal facility for radioactive waste.

The Slovak Republic (Ministry of the Environment of Slovakia) in a letter dated April 26, 2024 raised that the report should:

- 1) analyse possible impacts in terms of the magnitude of their potential consequences and identify measures to address them in emergency situations (e.g. radiation effects in case of an accident), in the case of radiation risks associated with the operation of SMR (e.g. transport of radioactive material), in the case of risks of a possible terrorist attack and in the case of risks of other human activities (e.g. plane crash, explosion, fire);
- 2) estimate the volume and activity of radioactive substances released into the environment during the operation of the nuclear installation and as a result of the accident, and assess their impact on the environment; carry out detailed migration studies (the predicted dispersion of radioactive materials in the air in the event of a major accident); provide an analysis of the predicted radiation doses to the inhabitants of neighbouring countries;
- 3) describe how the transport of nuclear fuel to the nuclear power plant will take place, indicate the mode of transport by which the fuel will be delivered (rail, road, sea or air), indicate whether transport will take place through Slovakia and, if so, assess the risks associated with transporting nuclear material through its territory as well;
- 4) the report should describe the radioactive waste treatment and conditioning technology, the planned radioactive waste management strategy and the methods for long-term storage of spent fuel; evaluate the cumulative impact of nuclear power plant operation, radioactive waste treatment and conditioning technology and spent fuel storage;
- 5) the report should demonstrate/prove the capacity for treatment and storage of radioactive waste and storage of spent nuclear fuel from the operation of all planned nuclear power plants in Poland;
- 6) analyze the project's resilience to climate change (prolonged drought, strong winds, heat waves, cold waves, extreme precipitation, etc.). Analyze whether the Vistula River is a sufficient source of cooling water for the selected cooling system variant in the context of climate change and the predicted decrease in the river's flow; evaluate systems and design measures to ensure the availability of sufficient water to ensure the functionality of the power plant; determine measures to avoid flooding of the cooling water source

during periods of flooding and groundwater flooding, which could lead to disruption of the cooling water supply and the functionality of the power plant;

- 7) specify what measures will be taken to prevent water leakage from the primary circuit in the main condenser, which could result in radioactive substances entering the Vistula River;
- 8) it is recommended to carry out ongoing radiation monitoring in order to be able to implement appropriate preventive measures and procedures in advance, if necessary; to present a methodology for monitoring the impact of the facility's operations on the environment and the health of the population of neighbouring countries; to present a method for informing neighbouring countries of the results of the monitoring and of possible emergencies and risks associated with the operation of the facility;
- 9) any analysis in the report should be supported by appropriate calculations that can be independently verified.

In addition, the Slovak Republic has requested to consider the technical review criteria set out in Commission Delegated Regulation (EU) 2022/1214 of March 9, 2022 amending Delegated Regulation (EU) 2021/2139 as regards business activities in certain energy sectors and Delegated Regulation (EU) 2021/2178 with regard to the public disclosure of specific information in relation to these types of economic activity - text relevant to the EEA (OJ EU L 188 of 15.07.2022, p. 1), in particular such as:

- 1) effective implementation of the nuclear safety objective, including the application of the principle of deep defense and an effective safety culture,
- 2) introduction of requirements for the radioactive waste management fund and the nuclear decommissioning fund (which can be combined),
- 3) a documented plan containing detailed stages for the commissioning of a high-level waste repository by 2050, included in the national program under Directive 2011/70/Euratom,
- 4) demonstration of the availability of resources corresponding to the estimated costs of radioactive waste management and decommissioning at the end of the expected service life of the nuclear power plant.
- 5) use of accident-tolerant fuel (ATF).

The Slovak Republic also reiterated the need to pursue and fulfil the objective of nuclear safety of nuclear installations, as regulated by Article 8a of Council Directive 2014/87/Euratom of 8 August 2014 amending Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations, and taking into account the International Atomic Energy Agency (IAEA) safety standards, as well as the Western European Nuclear Regulators Association (WENRA) benchmarks and safety guidelines. It also requested a description of how selected requirements of the IAEA safety standards (SSR-2/1) will be ensured or met: requirement 7, 24, 30.

Pursuant to Article 111(1) of the EIA Act, comments and applications concerning the Project Information Sheet submitted by the Party participating in the proceedings on transboundary environmental impact shall be considered when issuing decisions referred to in Article 63(1) and Article 69(3) of that Act. It follows, therefore, from the above that it is

obligatory to consider, when issuing the ruling determining the scope of the report on the environmental impact of the project, comments and applications, but only those concerning the Project Information Sheet. This is confirmed by the position of the doctrine: *'The commented provision imposes on the public administration bodies conducting the proceedings in the case the obligation to issue the decision indicated in Article 104. At the same time, it determines the consequences that are associated with the participation of the state in the transboundary proceedings. This is because the state may comment on the information sheet of the project and may also submit comments and applications as a result of consultations. The former are considered when issuing a decision and the latter when issuing a decision* (B. Rakoczy, *Ustawa o udostępnianiu informacji o środowiska i jego ochronie, udziału społeczeństwa w ochronie środowiska oraz o ocenach oddziaływania na środowisko. Commentary*, LexisNexis 2010). The comments and requests made by the Republic of Belarus, the Republic of Austria, the Federal Republic of Germany, the Czech Republic and the Slovak Republic do not generally relate to the Project Information Sheet, but rather to the scope of the environmental impact report and to issues that go beyond the content of the report.

In addition, some of the comments made by the Czech Republic and the Slovak Republic do not relate to transboundary environmental impacts, and the comments regarding such impacts do not relate to the proceedings concerning the transboundary impact of the planned project. The comments submitted by the above-mentioned countries, which do not concern transboundary impacts, include: exploitation of the lignite deposit, impact on the waters of the Vistula river and on the resources of the main groundwater reservoir, impact on the Wieniec medicinal water deposit, and impact on the Natura 2000 area and the natural environment. Nevertheless, the GDEP referred to all comments and applications submitted within the scope of transboundary environmental impact in the further part of the ruling.

Referring to the comments of the Affected Parties regarding the choice of technology of the planned nuclear power plant, the GDEP explains that during the proceedings related to the issuance of the decision on environmental conditions, the authority does not assess the validity of the technology chosen by the investor in which it plans to implement the project, nor the legitimacy of its implementation. The public administration body is bound by the investor's application, which means that it is obliged to assess the parameters of the project, including the type of chosen technology and proposed technical solutions, indicated in the application and the Project Information Sheet. This position is supported by the jurisprudence of administrative courts - the Voivodship Administrative Court in Warsaw, in its verdict of 15 October 2021, case ref. no. IV SA/Wa 1309/21, indicated: *The public administration body assesses the report in terms of its formal and substantive content, however, always in relation to the concept of the investment realisation adopted by the Investor, which is not subject to verification, as the body is bound by the application for the issuance of a decision on environmental conditions for a specific project.* The role of the authority deciding on environmental conditions is to assess the admissibility of the investment covered by the application in terms of environmental requirements and conditions. This authority determines the conditions for the use of environmental resources for the investment specified in the application, the scope of which is decided by the applicant. The authority assesses the environmental impact and protection of a specific investment with specific technical parameters based on the results of the environmental impact report. According to the principle of legalism, the authority acts within the limits of the investor's application.

The GDEP considered as unfounded the proposal submitted in the transboundary proceedings to submit the report only after completion of the licensing procedures provided for in the nuclear law and construction of at least one nuclear power plant of this type. Neither the provisions of international law, including the EIA Directive, nor the AIA conditional the issuance of an environmental decision on the obligation to operate a given type of project in another country. It should also be noted, as indicated in the Project Information Sheet, that the BWRX-300 reactor uses the design and licensing basis of an earlier design by GE-Hitachi Nuclear Energy Americas LLC - the ESBWR 1520 MWe reactor, which has undergone the licensing process in the United States of America (p. 36). In addition, p. 35 of the Project Information Sheet indicate that: *So far, during the more than 60-year history of BWR development, 113 boiling water reactors have been built and put into operation worldwide, and two ABWRs are currently under construction. There are currently 48 BWRs in operation worldwide. The highest concentration of boiling water reactors is in the USA, where 31 of the 93 reactors currently in operation are BWR⁸-type units. Outside the USA, the technology is used in Sweden, Finland, Spain, Switzerland, Japan and Taiwan, among others.* Adopting the approach of the Republic of Austria, the lack of operation of a particular type of technology in a country automatically results in the impossibility of its operation in any of the other countries, thus new projects would not be possible, which would hinder the development of innovative technologies, including in the field of energy.

The GDEP also did not take into account the suggestions made in the transboundary proceedings concerning the indication of the way in which the planned nuclear power plant will be integrated into the future energy system based on a greater share of renewable energy sources and the discussion in the report of the way in which national and international safety regulations and recommendations will be implemented, considering that this goes beyond the scope of the environmental impact assessment of the project and the proceedings on the issuance of a decision on conditions. The scope of the environmental determination procedure for the project in question covers the implementation of a specific investment and does not address issues at the state policy level.

Pursuant to Article 68(2)(2)(a) of the EIA Act, the authority, when determining the scope of the environmental impact report for a project, may - guided by the location, nature and scale of the environmental impact of the project - indicate the types of alternative variants requiring examination. Annex IV to Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (OJ EU. L. 2012, No. 26, p. 1, as amended) indicates that the report should provide: *a description of reasonable alternatives (for example, relating to the project's design, technology, location, size and scale) considered by the developer that are relevant to the proposed project and its characteristics, and a statement of the main reasons for choosing the option, together with a comparison of the environmental impact.* The Project Information Sheet attached to the application for the environmental decision did not indicate another location option of the project. However, in the opinion of the GDEP, due to the nature of the planned project, the location variants of the project should be analysed, taking into account the requirements and limitations resulting from the location of heat and energy receivers. The analysis of alternatives for a given project is the basis for a properly conducted environmental impact assessment of the project. Location variation is an important means of variation and can be carried out at different levels of analysis and different levels of detail. The location can be considered as a possible variant at the preliminary stage of the concept – project strategy, which does not include the

exact layout of the individual infrastructural elements and technical solutions of the project and at the stage(s) presenting more and more precise location of various solutions in subsequent conceptual phases up to the planning of the spatial layout and the location of particular components of the project in the place of the previously selected location. In this approach, carrying out the location variant of the project at the initial conceptual phase does not exclude technical variants at a different level of planning and with different detail (technical scope) than the location variant. Such an approach will make it possible to objectively identify the variant selected for implementation with its justification while considering all factors significantly affecting the extent of the environmental impact. Consideration of location variants of the planned project as a whole will allow to optimise the location which is the least onerous for the environment: nature, people, due to types and amounts of emissions, e.g. noise to the environment, gases and dust to the air. Despite the fact that one of the project's objectives is to generate electricity that can be supplied to industrial plants of Anwil S.A. from the ORLEN group, among others, located in the vicinity of the planned power plant, this objective does not exclude the possibility of analyzing location options for the planned project. Guided by the above rationales, GDEP in point II.1.1. of its ruling imposed the obligation to analyse location variants of the project.

The need to analyse the impact of the planned project on the basis of alternative location options was also reported by the Affected Parties, mainly the Republic of Austria.

In addition to the location variant, the GDEP in point II.1.2. of the ruling indicated the necessity of analysing variants resulting from different technical solutions possible for the planned project. The Project Information Sheet indicated two possible variant elements for the project: technical variants for the cooling system and variants for the number of nuclear units. Two technical solutions the cooling system are considered, i.e. an open cooling system and a closed cooling system, while the variants for the closed cooling system are: natural draft cooling (cooling tower) and forced draft cooling towers (fan cooling tower). The data from the BWRX-300 technology supplier presented in the Project Information Sheet indicate that the water demand for the open system is estimated at about 50 000 - 90 000 m³/h, while the water demand for a single nuclear unit for the closed system averages about 800 m³/h, and in extreme situations (summer period) can reach about 1200 m³/h. The investor does not exclude the possibility of implementing any of the considered cooling systems. However, it should be emphasised that the estimated water consumption for cooling purposes with an open system is very high, especially considering the water levels in rivers in Poland in recent years. When selecting the technical options considered in the report, it should be borne in mind that these options must be rational, i.e. applicable. The main differences between open and closed cooling systems are as follows on the amount of water withdrawn. In a closed cycle, the amount of water withdrawn to replenish the cooling system will be considerably less than in an open cycle, but this water will be lost through evaporation and uplift in the cooling towers. In an open cycle, on the other hand, large quantities of water are discharged into the receiver, but their temperature is higher than the temperature of the water in the receiver.

As potential options, the investor is considering the construction and operation of 4, 5 or 6 nuclear units using BWRX-300 technology.

In order to ensure the possibility of a full assessment of the environmental impact of a given project, the report should present a description of the analysed variants, determine and compare their predicted environmental impact and justify the variant proposed by the applicant (Art. 66(1) point (5)(6)(6a)(7) of the EIA Act). The description of the variants must be precise

and at the same time explain all aspects of the project and its environmental impact.

Different locations of the planned project are connected with different impacts of the project on particular environmental components at the stage of its execution, exploitation and decommissioning. Variants for the location of the project allow selecting its location in such a way that the impact on the environment, including nature, is minimised. The lack of such variants significantly limits the analysis of the possible environmental impact of the project.

The reactor cooling systems are installations that generate significant environmental impacts of the planned project. Due to the technology to be used and the location of the project, it is necessary to present in the report details on the technical solutions of the cooling system: due to the type of system planned to be used - open or closed, which is related to the amount of water used for cooling and the impact on the Vistula River, and due to the technical solutions of the closed cooling system (cooling system using natural draft cooling towers - cooling tower and cooling system using forced draft cooling towers - fan cooling tower).

In view of the above, the GDEP, in accordance with Article 68(2)(2)(a) of the EIA Act in points II.1.1. and II.1.2. identified the location of the project and the reactor cooling systems as types of alternative options to be investigated.

The obligation to analyse the above-mentioned options is in line with the demands of vulnerable countries in this regard.

Art. 66(1)(1) of the EIA Act indicates in detail what elements the description of the planned project should contain. Precise characteristics of the project is necessary to perform a comprehensive analysis of the environmental impact of the project. Therefore, the GDEP in point II.2.1.1. of its ruling obliged the investor to present a detailed description and characteristics of building structures and installations, covered by the application for the decision on environmental conditions, constituting the infrastructure necessary to service referred to in Article 2(1b) of the Nuclear Special Act, which may constitute projects referred to in the EIA Regulation. This description should make it possible to qualify the construction works and installations on the basis of the above regulation, as well as to assess their anticipated significant environmental impact.

In the opinion of the GDEP, the description of the project should also pay particular attention to the description of the cooling systems: reactors, safety enclosure and spent fuel pool, which will ensure dissipation of post-shutdown heat in both operational and emergency conditions. These systems are very important they provide a safeguard against the occurrence of an accident on the plant site resulting in a significant environmental impact in terms of radiation. Therefore, this requirement is included in this ruling in point II.2.1.2.

This provision and the requirements imposed in the operative part of the ruling as to the description of the project also exhaust the demands of the affected states and oblige the investor to present such issues as: the technology and technical data of the proposed power plant, the systems and structural elements or equipment important for the safety of the nuclear facility as well as the nuclear fuel used.

One of the most specific and significant impacts of the planned nuclear power plant is the radiological impact (resulting from the presence of ionising radiation), as its normal operation (exploitation) involves the emission of radioactive substances to the atmosphere and the water environment, the levels of which will have to meet the applicable standards. Polish regulations do not specify a limit on the effective annual dose to the general population from the radiation impact of a nuclear power plant. However, the dose in operating conditions at the

boundary of the restricted use area around a nuclear power plant is 0.3 millisieverts (mSv/year) (Article 36f(2)(1) Atomic Law). In contrast, the latest edition of the European utilities' requirements provides a dose limit of 0.3 mSv/year for the entire nuclear power plant ("European Utility Requirements for LWR Nuclear Power Plants, Version E, Volume 1: Key Principles and Objectives, Chapter 4: Key EUR Issues", December 2016). In order to determine the anticipated environmental impact of such an impact, it is necessary to provide information on the baseline radiation situation (background) of the location region. The spatial scope of the location region is defined in § 1(3) of the Regulation of the Council of Ministers of 10 August 2012 on the detailed scope of assessment of the site intended the location of a nuclear facility, the cases excluding the possibility of considering the site as fulfilling the requirements for the location of a nuclear facility and on the requirements for a location report for a nuclear facility (Journal of Laws 2012, item 1025, hereinafter referred to as r.t.l.o.j.), and is 30 km from the boundaries of the planned location of a nuclear facility. In accordance with § 3 (1) in connection with § 2 (10) of this regulation, the distributions of concentrations of radioactive isotopes in ground, surface waters, underground waters and in the atmosphere, as well as the analysis of the distribution of the power of ionising radiation doses by state of as of the date of the site evaluation shall be considered within a range appropriate for their evaluation in a selected area, which shall not be smaller than the region of the site. It is important to establish a baseline for the quantities characterising the radiological parameters of the environment (e.g. doses, dose powers, concentrations of radioactive substances in the various components of the environment), in order to enable the projected impacts to be presented in the report and subsequently to assess the actual environmental impact of the site, as recommended by the International Atomic Energy Agency (IAEA) (e.g. "IAEA Safety Guide No. RS-G-1.8 on Environmental and Source Monitoring for Radiation Protection", "IAEA Safety Standards Series No. WS-G-2.3 on Regulatory Control of Radioactive Discharges into the Environment. Safety Guide") and with international practice. The basic quantities characterising the radiological parameters of the environment that should be measured in the context of assessing the radiation situation in the country are contained in the Regulation of the Council of Ministers of 17 December 2002 on stations for the early detection of radioactive contamination and establishments carrying out measurements of radioactive contamination (Journal of Laws of 2002, No. 239, item 2030) and concern such environmental components as, inter alia, soil, surface water, drinking water, atmospheric aerosols, milk and other food products.

Therefore, in point II.2.2.3. of this ruling, GDEP obliged the investor to conduct a detailed analysis of the radiological impact, including emergency situations. Taking into account the specificity, location and scale of the project, GDEP indicated in point II.2.2.3. (a) of this ruling the elements, which should be included in the description of the radiation status of the environment (background). Apart from the components of the environment indicated in the aforementioned decree, it is reasonable to determine the concentration of radioactive isotopes in the components of the environment taken and representative for the region of the location, such as bioindicators or groundwater. In the opinion of the GDEP, in the case of construction of a nuclear power plant, it is necessary to provide the radiation background covering the full spectrum of elements of the environment covered by the scope of the anticipated impact of the planned project, as required by Art. 66(1)(2) of EIA Act. Indicated in point II.2.2.3.(a) indicators characterising the radiation background of the environment also result from international practice (e.g. IAEA document "Environmental Impact Assessment Management for Construction and Operation in New Nuclear Power Programmes"). The GDEP has set a deadline

for pre-execution radiological monitoring of at least 12 months to take into account seasonal phenological changes. Drawing up a detailed description of the radiation status of the environment within the aforementioned timeframe will also allow to capture the trends of changes in radiological parameters for the project location region.

In point II.2.3.3.(a) of the ruling, the GDEP obliged the investor to present an analysis of the radiation impact, taking into account two basic pathways of radionuclide release - to air (through the reactor ventilation stack) and to water (discharge of effluents to a receiver). The GDEP indicated typical radioactive isotopes released during normal operation of the nuclear power plant, to be included in the above-mentioned analysis, and required the evaluation of their release effects in the form of presentation of annual doses (total annual effective doses from individual exposure pathways and thyroid dose) for different age groups, resulting from the assumed annual releases of radioisotopes into the environment. The operation of the nuclear facility will involve the release of radioactive substances into various components of the environment (including directly into the air, surface water and indirectly into groundwater, soil, food, etc.).

The analysis, indicated in the ruling, of the total annual effective doses from individual exposure pathways and the annual thyroid dose, for different age groups, resulting from the assumed annual releases of radioactive isotopes (including iodine) into the environment, makes it possible to assess the exposure of workers and people from the general population in this respect (compliance with the dose limits for ionising radiation) on the basis of the provisions of the Regulation of the Council of Ministers of 11 August 2021. on indicators allowing the determination of ionising radiation doses used in the assessment of exposure to ionising radiation (Journal of Laws 2021, item 1657). The radioactive isotopes listed in the ruling indicated for analysis in normal operation of the power plant cover the whole range of possible releases of radioactive substances to the atmosphere in various forms (aerosols, gases) and to water (in particular, the H-3 content in water is an indicator of the magnitude of releases to the aquatic environment). Radioactive iodine isotopes (especially the isotope I-131) require special attention because of the potential effects of their negative impact on the human body.

The analysis of releases should also take into account incidents of accidents, assess their effects, as well as determine the potential exposure of individuals and populations. The GDEP has imposed an obligation to list in the report all isotopes that may be released during an accident (point II.2.3.3.(b) of the ruling). The listed isotopes: H-3, Cs-134, Cs-137, Sr-90, radioactive iodine isotopes (particulate, aerosol, gaseous fractions), have the greatest impact on the potential total effective dose received by the population as a result of the accident, due to their half-life and effects on the human body and the environment. The assessment of the level of radioactive contamination and doses during an accident causing the release of radioactive substances into the environment makes it possible, inter alia, to provide the data necessary in the process of analysing the advisability of carrying out intervention activities aimed at protecting the population and introducing restrictions on the production and consumption of contaminated food and drinking water in accordance with the Regulation of the Council of Ministers of 27 April 2004 on the values of intervention levels for particular types of intervention activities and the criteria for cancelling these activities (Journal of Laws of 2004, No. 98, item 987). The GDEP obliged to provide in the report the predicted sizes of the zones on which the contingency measures are being considered.

In addition, in relation to paragraphs II.2.3.3.(a) and II.2.3.3.(b), the developer was required to state the calculation methods and codes used, as well as the input parameters used in

the contaminant dispersion calculations (amount and composition of radioactive isotopes released, height and duration of the release, meteorological data), together with a justification for their selection (paragraph II.2.3.3.(c) of the ruling).

It follows that the ruling emphasises the obligation to analyse the primary impact of the nuclear power plant, which is the emission of radioactive substances into the environment during the normal operation of the power plant. This impact was requested to be taken into account by the countries involved in the transboundary proceedings.

The GDEP also included in point II.2.3.3.(d) of the ruling to present in the report the expected extent of the limited use area. The requirement to designate such an area around a nuclear facility under the rules set out in the Act of 27 April 2001. - Environmental Protection Law (Journal of Laws of 2024, item 54, as amended), results from Article 36f (1) of the Atomic Law. A limited use area is created if it results from the environmental impact assessment of a project that despite the application of available technical, technological and organisational solutions, environmental quality standards outside the site cannot be met. At the same time, in accordance with Article 36f(2)(1) of the Atomic Law the limited use area around the nuclear facility includes the area, outside of which, in the operating states of the nuclear facility covering normal operation and anticipated operational events, the annual effective dose (effective dose) from all exposure pathways will not exceed 0.3 millisieverts (mSv). GDEP points out that the above requirement implies the necessity to attach to the report a copy of the cadastral map, certified by the competent authority, with the course of the boundaries of the area in which it is necessary to establish a limited use area, pursuant to Art. 66(4) of the EIA Act.

The provision of Article 66(1)(1)(g) of the EIA Act requires that the description of the project should include the risk of serious accidents or natural and construction disasters assessed on the basis of scientific knowledge, taking into account the substances used and technologies applied, including the risk related to climate change. On the other hand, pursuant to Article 66(1)(6) of the EIA Act, the report should contain the determination of the predicted environmental impact of the analysed variants, including in the case of the occurrence of a serious industrial accident and a natural and construction disaster, also in a transboundary context. The cited provisions require the developer to include in the report a range of information requested by the affected states. As these requirements derive directly from the legislation, there is no need to write them into the operative part of the ruling.

In their positions, the Affected Parties emphasise that the most relevant element in a transboundary environmental impact assessment procedure is the analysis of the potential incidents and accidents at the planned nuclear power plant, arguing for the possibility of the release and dispersion of radionuclides in the atmosphere in the event of a severe accident over long distances, covering areas of these countries. They pay particular attention in their positions to a detailed analysis of the safety of the project, the consequences of an accident and measures to minimise emissions. The GDEP shares the view contained in the transboundary comments that analyses related to nuclear safety should be presented in the report, and therefore in point II.2.1.3. of the ruling imposed the obligation to describe the functioning of emergency systems, including those related to reactor core meltdown, and the description of reactor protection systems, safety systems and dedicated solutions for extended design conditions, taking into account the operational reliability of passive safety solutions.

The exposed states highlighted the risks associated with accidents at the nuclear site in relation to the surroundings, which are industrial sites, as well as the impacts resulting from possible accidents at these sites and their impact on the nuclear site. The GDEP has taken into

account the need to analyse the impact of the project in terms of accidents that may occur on the nuclear site and on the industrial sites. Point II.2.3.3.(e) of the ruling identifies as a further element requiring detailed analysis of radiological impact in the context of emergencies the safety analysis for the reactor type under consideration, taking into account data on the frequency of core damage and the frequency of occurrence of large or early releases of radioactive substances, including in the context of internal and external events taking into account the location in the vicinity of industrial plants and a railroad line running through the project area.

The report should also provide a description of internal and external events (together with the methodology for determining significant events) that could pose a safety risk to the nuclear power plant, as described in clause II.2.3.3.(f-g) of the ruling. According to paragraph II.2.3.3.(f), third indent, the safety risk of the nuclear power plant should be considered, taking into account possible accidents or explosions at neighbouring industrial or military sites and those arising from transport. This also involves taking into account, in the planning of the siting of the nuclear installation and in the analyses of its impact, the major-accident hazard zones around neighbouring industrial sites, insofar as such zones have been designated.

One of the Affected Parties called for the identification of danger zones around industrial plants neighbouring the planned power plant in the event of an accident at these facilities, but it should be pointed out that this issue is beyond the scope of this procedure. Each industrial site determines the danger zones on its own, analysing possible emergency situations on its territory. In the report, it is necessary to indicate organisational and technical solutions dedicated to limiting and mitigating the consequences of severe accidents, including strategies for maintaining the integrity of the safety enclosure (point II.2.3.3. lit.(h) of the ruling), as well as ways of managing the plant taking into account the ageing of the plant in view of its long-term operation with regard to nuclear safety (point II.2.3.3.(i)), which was also pointed out by the Affected Parties that submitted comments.

Austria's remark on the discrepancy in the Project Information Sheet concerning the probability of a major accident, in principle a severe accident estimated once in 10 000 000 years or once in 100 000 000 years concerns the Project Information Sheet. In the report, the investor will refer in detail to the issues concerning the probability of a severe accident (the requirements for an accident and the related impact derive from point II.2.3.3.(b) of the ruling) and the possible occurrence of a serious industrial accident (a requirement deriving, inter alia, from Article 66(1)(6) of the EIA Act).

Additionally, it should be noted that nuclear safety issues related to the planned project will be the subject of relevant, detailed analyses in the course of the procedure for issuing a permit for construction of a nuclear facility, conducted by the PAA President (Article 36d of the Atomic Law). An element of these proceedings is, among others, the location report, which is subject to the assessment of the aforementioned body. The requirements for the scope of the report are defined in § 6 r.t.l.o.j.

However, the Regulation of the Council of Ministers of 31 August 2012 on nuclear safety and radiological protection requirements to be met by the design of a nuclear facility (Journal of Laws 2012, item. 1048) defines nuclear safety and radiological protection requirements to be included in the design of a nuclear facility, bearing in mind the necessity to ensure nuclear safety, radiological protection, physical protection and safeguards of nuclear materials during commissioning, operation and decommissioning of a nuclear facility and the possibility to carry out efficient emergency management in the a radiological emergency, and taking into account the recommendations issued in this respect by the International Atomic Energy Agency (IAEA)

and the Association of Western European Nuclear Regulators.

According to Article 86l of the Atomic Law, emergency planning zones shall be defined around the power plant under the terms of this provision. This is the area around a nuclear facility in which the necessary emergency actions are planned and prepared to be taken, in the event of an accident at that facility causing or likely to cause a radiation hazard outside the nuclear facility, in order to avoid or significantly reduce the radiological consequences of the accident on the health of persons in the general population. This is the area for which a detailed emergency response plan is developed. The safety measures envisaged include ways of notifying the public of the emergency, preparing emergency personnel, assessing the scale of the emergency and how it can be reduced, as well as protection against contamination and dosimetric monitoring. In contrast, the report should indicate whether the planned project is it is necessary to establish a limited use area, as described in the earlier part of the ruling.

In addition, the Affected Parties requested, inter alia, the conduct of radiation monitoring, indication of the monitoring methodology and the manner of informing the neighbouring states about emergency situations. It should be pointed out that the obligation to present a proposal for monitoring the impact of the planned project at the stage of its execution and exploitation results from Article 66(1)(16) of the EIA Act, therefore there is no need to enter such an obligation in the operative part of the ruling. However, as regards informing neighbouring states about emergency situations, it should be indicated that the procedure in the case of a radiological emergency in Poland has been regulated in Article 84d(1) of the Atomic Law, according to which the PAA President makes a preliminary assessment of a radiological emergency, and in the case of an emergency which may cause effects beyond the borders of the Republic of Poland, he notifies IAEA and the states on whose territory the effects of this emergency may occur. In the event of a change in the assessment of the radiological event, the PAA President shall update the notification. Pursuant to Art. 84d(2), in case it is necessary to take actions aimed at limiting exposure of the population, the PAA President notifies the European Commission and the European Union Member States likely to be affected of the radiological emergency and of the intention to introduce such actions, providing information specifying the reasons for introducing these actions and data relevant for limiting the expected radiological consequences of the radiological emergency for these states. The PAA President shall update the notification as the situation develops.

Due to the existence of legal procedures governing the information of the Affected Parties about radiation events, the GDEP did not take into account the comments made in the transboundary proceedings in this regard. Moreover, it should be emphasised that such procedures are beyond the scope of the environmental impact assessment of a NPP.

The project will generate, among other things, radioactive waste (low-, intermediate- and high-level radioactive waste) as well as spent nuclear fuel. According to the information contained in the Project Information Sheet, after treatment, the waste will be stored in a radioactive waste storage facility and then collected by the state-owned utility company, the Radioactive Waste Disposal Facility, hereinafter ZUOP. The ZUOP, according to the Atomic Law, was set up to carry out activities in the field of radioactive waste and spent fuel management and, above all, to provide permanent storage capacity for waste and spent fuel. According to the Project Information Sheet, the nuclear fuel will be stored in a pool at the reactor for approximately eight years, after which it will be transferred to the spent fuel storage facility, where it will be stored until it is transferred for disposal in a deep repository for radioactive waste.

Contrary to the claims of the Affected Parties, the implementation of radioactive waste

repositories does not fall within the scope of the proposal under consideration and is a separate project (§ 2(1)(41) EIA Regulation), for which construction plans and guidelines are set out in the National Plan for Radioactive Waste and Spent Nuclear Fuel Management. The current National Plan for Radioactive Waste and Spent Nuclear Fuel Management was adopted by Resolution No. 195 of the Council of Ministers of 16 October 2015 r. on "National Plan for Management of Radioactive Waste and Spent Nuclear Fuel" (M.P. item 1092) and by Resolution No. 154 of Council of Ministers of 21 October 2020 on updating the "National Plan for Management of Radioactive Waste and Spent Nuclear Fuel" (M.P. item 1070), hereinafter referred to as the Plan. In the Plan, Section 4.4.3 entitled 'Resolution on final management of high-level waste and spent nuclear fuel' indicates that: *'The storage of spent fuel is the responsibility of the NPP operator, who must ensure that the spent fuel from the entire lifetime of the nuclear power plant can be stored. After several decades of storage and once the SGOP [Deep Repository for Radioactive Waste] is operational, this fuel will be able to be transferred for storage.* Thus, the need for many years of interim storage of spent fuel at the nuclear power plant site, which will be deposited in the deep repository for radioactive waste after its construction, must be assumed.

As stated in the Plan, work is underway to select the location, construction and operation of a new surface repository for low- and intermediate-level radioactive waste and work is underway to identify the optimum location for a deep repository. The process this is the responsibility of the Ministry of Climate and Environment, ZUOP and the National Geological Institute - National Research Institute.

Among the comments from the Affected Parties, the need to present in the report the amount of radioactive waste generated, including spent fuel, and how the waste is managed was also indicated. These obligations arise directly from Article 66(1) of the EIA Act. Thus, the GDEP in the operative part of the ruling did not indicate issues in the field of waste management requiring special analysis. On the other hand, the issue of possible transport of these wastes across the territory of other countries is beyond the scope of the proceedings.

In accordance with Art. 66(1)(1)(c) of the EIA Act, the report should contain predicted types and amounts of emissions, including waste, resulting from the execution and exploitation or use phase of the planned project, while in accordance with Art. 66(1)(6) of the EIA Act, the predicted environmental impact of analysed variants should be specified in the report. In turn, in accordance with Art. 66(1)(9) of the EIA Act, it results from the obligation to describe in the report the predicted actions aimed at avoiding, preventing, limiting or compensating for the natural negative impact on the environment. Article 66(1b)(2) of the EIA Act, stipulates that the environmental impact in relation to waste management shall be taken into account when comparing the alternatives. The cited provisions refer to issues related to radioactive waste and spent fuel management - some of them directly, others indirectly.

It should also be pointed out that the management of radioactive waste and spent nuclear fuel is regulated by the Atomic Law and its implementing regulations, inter alia, the Regulation of the Council of Ministers of 14 December 2015 on radioactive waste and spent nuclear fuel (Journal of Laws of 2022, item 1320), Regulation on Radioactive Waste. The Atomic Law regulates, inter alia definitions of radioactive waste, categories of radioactive waste, principles of radioactive waste management (activities related to treatment, shipment, storage or disposal of radioactive waste), responsibility for generated radioactive waste, management of spent fuel, as well as transport of radioactive waste and spent fuel.

Regarding the postulates to indicate how the transport of radioactive materials will be

carried out, including transport routes outside Poland, it should be clarified that the transport of dangerous goods and cargo is strictly defined in legal regulations. In the Polish legal system, the transport of dangerous goods in terms of domestic and international transport by road, rail and inland waterways is regulated by the Act of 19 August 2011 on the Transport of Dangerous Goods (Journal of Laws of 2024, item 643), and in matters not regulated by this Act, the transport of dangerous goods, including means of transport and transport equipment, shall apply accordingly: The European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), done at Geneva on 30 September 1957; the Regulations for the International Carriage of Dangerous Goods by Rail (RID), constituting Appendix C to the Convention concerning International Carriage by Rail (COTIF), done at Bern on 9 May 1980 and the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN), concluded in Geneva on 26 May 2000. On the other hand, with regard to transport by air, the Act of 5 August 2022 on the Transport of Dangerous Goods by Air (Journal of Laws of 2022, item 1715) and the Regulations on the Transport of Dangerous Goods in International Air Transport (IATA-DGR) apply. In turn, regulations for the safe transport of dangerous goods by sea are governed by the IMDG Code issued by the International Maritime Organisation. Requirements for the transport of nuclear materials, sources of ionising radiation, radioactive waste and spent nuclear fuel are also formulated in Chapter 8 of the Atomic Law.

Detailed prerequisites for the qualification of radioactive waste into categories and subcategories and specific conditions for the storage of radioactive waste or spent fuel are indicated in the Regulation on Radioactive Waste.

With regard to the suggestions of the Affected Parties concerning the fund for the management of radioactive waste, the General Director for Environmental Protection explains that, in accordance with Article 38d of the Environmental Protection Act and the Regulation of the Council of Ministers of October 10, 2012 on the amount of the payment to cover the costs of the final processing of spent nuclear fuel and radioactive waste and to cover the costs of decommissioning the nuclear power plant made by the organizational unit that has been granted a license to operate the nuclear power plant (Journal of Laws, item 1213), the organizational unit which has received a license to operate a nuclear power plant, is obliged to make payments (for each MWh of electricity produced) to a special fund intended to cover the costs associated with financing the final disposal of spent nuclear fuel and radioactive waste, as well as the costs of decommissioning the nuclear power plant.

In their positions, the Affected Parties indicated the need to assess the risks to the operation of the nuclear power plant associated with seismic and tectonic conditions and the risks arising from the project's location near a lignite deposit in the event that mining of this resource begins.

In the operative part of the ruling, the GDEP did not indicate issues in the field of geological conditions requiring special analysis, as the obligation to describe all components of the environment, including abiotic ones, such as raw material deposits, seismic and tectonic conditions (Art. 66(1)(2) of the EIA Act), the description of the impact on them (Art. 66 (1) (6) of the EIA Act), as well as the determination of the predicted actions aimed at avoiding, preventing, limiting or nature compensation of the identified negative impacts (Art. 66(1)(9) of the EIA Act) are imposed by the provisions of the EIA Act.

Regardless of the above, the GDEP explains that, pursuant to Article 35b(2)(1) of the Atomic Law, prior to selecting the location of a nuclear facility, the investor shall carry out surveys

and measurements of the site and, on the basis thereof, an assessment of the area intended for the location of the nuclear facility. This assessment concerns, inter alia, seismic, tectonic and geological-engineering conditions. Pursuant to Article 35b(3) of the Atomic Law, on the basis of the evaluation of the area intended for the location of a nuclear facility, the investor prepares a location report and submits it to the PAA President.

The requirements for the location of a nuclear facility are regulated in r.t.l.o.j. Section 2(1) of the cited regulation indicates the detailed scope of the evaluation of the site intended for the location of a nuclear facility in the field of seismics and tectonics.

The location report is subject to assessment by the PAA President in the course of the nuclear facility construction licence procedure. Thus, the detailed analysis of the evaluation of the site for a nuclear facility will take place at the stage of obtaining the licence for the construction of a nuclear facility.

Due to the fact that the Ośła watercourse is located in the area of the planned nuclear power plant and is disappearing, point II.2.2.3.(b) of the ruling indicates the need to analyze the reasons for the disappearance of this watercourse, as this may affect the safety of the facility's foundation, especially the reactors. The operation of the Wieniec medicinal water deposit may also affect the safety of the nuclear facilities, therefore point II.2.2.3.(c) indicates the need to analyze this risk, as well as the requirement to take into account the possible impact of the power plant on this deposit in point II.2.3.2.(e) of the ruling. The necessity to analyze issues related to the medicinal water deposit was indicated by one of the Affected Parties, so it is in line with the comments of that country.

The ruling does not impose an obligation to analyze in detail the impact of possible lignite mining on the safety of the power plant, as it is not in operation and is not planned to be. If necessary, the impact of mineral extraction will be analyzed in the location report submitted to the PAA President.

The provision of Art. 66(1)(2)(b) of the EIA Act imposes on the investor the obligation to describe the natural elements of the environment covered by the scope of the predicted impact of the planned project on the environment, including the hydromorphological, physicochemical, biological and chemical properties of waters, and Art. 66(1)(1)(a) of this Act orders to take into account in the description of the project the conditions of using the area at the stage of execution and exploitation or use, including with respect to the conditions resulting from the location of the investment in floodplains and the resulting flood hazard. On the other hand, it follows from Art. 66(1)(1), Art. 66(6) and Art. 66(6a) of the EIA Act that it is necessary to determine in the report the anticipated impact of the planned project on the aquatic environment.

However, taking into account the fact that surface waters and groundwaters will be a component of the environment subject to particularly significant impacts of the planned project, inter alia due to the necessity to provide a significant amount of water for cooling of the power plant, the GDEP in point II.2.2.(b-c) and point II.2.3.2.(d) of the found it justified to indicate as an element requiring a detailed analysis surface waters and groundwater, including water bodies, and the possibility to achieve the environmental objectives referred to in Art. 56, Art. 57, Art. 59 and 61 the Water Law. With regard to the location of the investment project in floodplains and the impact of the project on groundwater, the analysed location options of the project will be relevant.

An issue of great concern to Affected Parties and very important to the operation of a nuclear power plant is the cooling water requirements, with very large volumes of water

estimated to be around 50 000 - 90 000 m³/h for an open cooling system. Thus, one of the key issues affecting the project will be to demonstrate that sufficient water resources will be available to operate the proposed power plant. The report should contain a detailed analysis in this respect, therefore in point II.2.1.4. of the ruling GDEP, obliged the investor to analyze the availability of water resources, which will be the basis for the planned investment's water supply, taking into account various meteorological conditions, forecasted changes in the volume of these water resources, and progressive climate change. Furthermore, in point II.2.2.2. letter a, the provisions, as stated in the opinion of the Director of the Regional Water Management Authority in Gdańsk, include the obligation to present current bathymetric data of the Vistula River riverbed at the place of cooling water discharge. The opinion of the Director of the Regional Water Management Authority shows that he considered it necessary to carry out a detailed analysis and presentation of water and wastewater management issues. For this purpose, it is necessary to obtain up-to-date data on the quantitative characteristics (current available hydrological data from many years) and qualitative characteristics of surface water (current available monitoring data, literature data and own research carried out in accordance with current methodologies) as well as bathymetric data of the riverbed at the water intake and discharge points.

In his opinion, the Director of the Regional Water Management Authority in Gdańsk indicated that the preferred source of water for the cooling circuit, regardless of the power plant's chosen cooling system (open or closed), is the Vistula River, located about 3 km northeast of the planned power plant. After the construction of a surface water intake, the cooling water will be pumped from the Vistula River into the power plant via pumps and pipelines. The number of pipelines and their diameter will be determined by the final power output of the power plant and the amount of water, as well as the type of cooling selected. The pipelines will be located in a designated infrastructure corridor approximately 1.5 km wide. The cooling water pipeline infrastructure corridor will mostly run within the Anwil S.A. premises. At the current stage of the investment preparation, the use or expansion of the existing water intake infrastructure of Anwil S.A. is also being considered.

Due to the anticipated significant impact of the planned nuclear power plant on the Vistula River resulting from the discharge of cooling water from the power plant elements into the river, the GDEP in para. II.2.3.2.(a-c) of the ruling required a description of measures planned to be taken to reduce the temperature of cooling waters before discharging them into the Vistula River and an analysis of the impact of the heated water discharge on water quality in the Vistula River, taking into account low water levels, as well as a determination of the extent of the impact of these waters. These requirements were recorded in the opinion of the Director of the Regional Water Management Authority in Gdańsk, who justified them as follows: *The report should also analyze the impact of discharging heated cooling water on the quality of the receiving water in summer and winter. The report should also take into account the way in which this water spreads during the worst weather conditions, i.e. low water levels, and graphically present the range of the plume of warm water entering the receiving body of water from the power plant. It is also important to determine the range of impact of the discharged water by establishing the mixing zone of the introduced sewage (cooling water) with the waters of the Vistula River, together with a graphical representation of this process.*

The requirements indicated in the operative part of the decision are consistent with the demands of the Affected Parties in terms of impact on the aquatic environment.

In the case of investments in the energy industry, it is particularly important to include

in the report the impact of the project on climate and climate change. This obligation results directly from Art. 66(1)(1)(g) and Art. 66(1)(6) of the EIA Act, according to which the report should specify the predicted impact of analysed variants on the environment, including in the case of a serious industrial accident and natural and construction disaster, on the climate, including greenhouse gas emissions and impacts significant from the point of view of adaptation to climate change, as well as possible transboundary impact on the environment. Within the scope of the point indicated are the issues raised by the Affected Parties regarding climate change. When presenting an analysis of impact project on climate change, it is necessary to provide the assumed scenarios of climate change in the perspective of the period of operation of the power plant (about 60 years), as basic data for this long-term analysis (point II.2.3.4. of the ruling).

In point II.2.2.1. of the ruling, the GDEP formulated requirements concerning the information which should be included in the description of natural components of the environment covered by the scope of the predicted impact of the planned project on the environment, and also determined the degree of their detail. Also in relation to the natural component, the location of the project is crucial. The location variant may significantly reduce the impact on nature or intensify it, therefore special attention should be paid to the natural environment when locating variants. The report on the environmental impact of the project is to include a detailed analysis of the occurrence of natural habitats and plant communities, as well as species of animals, plants, macroscopic fungi and lichens protected under European law (Directive 92/43/EEC and Directive 2009/147/EC), as well as those protected nationally under the Nature Conservation Act. In addition, rare and endangered species listed in the *Polish Red Book of Plants* and the *Polish Red Book of Animals* (Institute of Nature Conservation of the Polish Academy of Sciences) and species included in the national and regional "red lists". The inventory should enable to make a list of natural habitats and other plant communities, as well as species of plants, macrofungi and lichens, the stands of which are located in the area of the planned project and in the range of its impact. It should be emphasised that the description of natural conditions is the starting point for the analyses of the impact of the project on particular components of the environment, must therefore be reliable and drawn up according to the guidelines set out in the operative part of the ruling. These analyses should take into account the current surface and condition of natural habitats and the status of populations and habitats of fauna and flora species. It is advisable, when assessing the condition of preservation of natural habitats and populations of plant and animal species referred to in Directive 92/43/EEC, to take into account the parameters set out in the Regulation of the Minister of the Environment of 17 February 2010 on drawing up a draft plan of protection tasks for the Natura 2000 area and the indicators used within the framework of state environmental monitoring carried out by the Chief Inspectorate for Environmental Protection (point II.3.3. of the ruling). The condition of preservation of the populations of the remaining animal species as well as plants and fungi should be determined by comparing the obtained indicators with the data available for other areas where the species occur on the territory of the country, their habitat requirements, on the basis of literature data and unpublished data. In addition, it is justified to identify the most valuable habitat patches in the inventory area. As regards fauna, as part of the nature inventory it is necessary to know its species composition and abundance and to collect data on the distribution and density of animals. In addition, in order to properly assess the impact of the project on the natural environment, it is necessary to examine the value of the impacted areas for a given species/group of species by determining, among others, the intensity and manner of their use of

the inventoried space (resting, breeding, wintering, feeding, roosting sites). Investigating the characteristics of local and regional movement patterns of animals will allow identification of their migration corridors. In the ruling, the GDEP also imposed an obligation to include the different developmental stages of animals in the report, which is important due to their use of different types of environments (e.g. amphibians undergo their initial developmental stages in aquatic environments, and after larval development and transformation, most species have a terrestrial lifestyle).

In accordance with point II.3.1. of the ruling, the source of information concerning natural conditions should be current data obtained during the field research. As additional sources of information on the initial state of the environment may be used, among others, literature data and data obtained from competent offices, with the reservation that they should be verified in terms of their topicality and adequacy. The aim of the nature inventory carried out for the purposes of the project in question should be to determine the current species composition and locations of representatives of individual species, and to determine the functions which the areas within the range of its impact fulfil for the given species.

Pursuant to point II.3.2.(a) of the ruling, the nature inventory should also cover the areas where cumulation of impacts with other projects may occur, first of all the accompanying investments referred to in Art. 2 item 1 of the Nuclear Special Act. In this point, the GDEP also drew attention to the necessity of conducting the inventory of natural habitats and species of plants, macroscopic fungi and lichens at optimal dates, i.e. covering such a period of the growing season when finding and identifying these elements in the field will be possible and most effective. In the case of fauna, the GDEP imposed an obligation to conduct research for a period of not less than 12 months, with the assumption of adapting the inventory methodology to the biology and ecology of the studied species/group of species, taking into account the varied activity of animals in subsequent phenological periods. Surveys should cover the full cycle of activity of individual species or groups of animals, which will allow the nature of the occurrence of a given species in the analysed area, its abundance, etc. to be determined.

The field survey methodology should be developed on the basis of good practices, methodological guides, guidelines and standards (including methodological guides and guidelines issued by the Chief Inspectorate for Environmental Protection). In order to obtain reliable data and enable their verification, it is necessary to provide in the report detailed information on the applied methods of the environmental inventory. Surveys of the aquatic environment and laboratory analyses should be conducted in accordance with the methodologies applied in water monitoring carried out on the basis of the Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (OJ EU L 327 of 22.12.2000, p. 1), hereinafter referred to as the Water Framework Directive. The application of the above methodologies will ensure the quality of the measurements and studies and the reliability of the resulting data.

In the Project Information Sheet, section 4.2.2 shows the approximate location of the corridor where the water intake and process effluent discharge facilities are planned. The applicant is considering both open and closed cooling systems as part of the alternatives. Regardless of which variant is considered, the preferred water source is the Vistula River, approximately 3 km to the northeast of the planned project. The cooling system options differ in their water requirements. The water demand for the open system is estimated to be approximately 50,000 - 90,000 m³/h, and for the fan-cooler cooling system for one reactor it is a maximum of 1,200 m³/h (average 800 m³/h).

The information presented in the Project Information Sheet (chapter 4.2.4) also shows that during the preparatory works it will be necessary to reconstruct the Ośła riverbed, which flows through the project site. The reconstruction will be carried out by regulating the riverbed and redirecting the water outside the project area or channeling a section of the river located within the boundaries of the area.

As regards the impact on the aquatic environment, it should also be borne in mind that if an open cooling system is selected, the cooling waters together with chemical pollutants will be discharged into the Vistula River, causing, among other things, an increase in water temperature. Negative consequences of changes in thermal conditions of the river may include disturbances in the development cycle of fish (e.g. postponement of spawning, egg incubation and growth periods), negative changes in the food base (vegetation and invertebrates), increased mortality and withdrawal of native species, characterised by high sensitivity to changes in water quality, and expansion of alien invasive species. In addition, increases in chemical and thermal pollution can interfere with fish migration. The report should therefore describe and evaluate the risks to the aquatic environment associated with the construction and operation of cooling water intake and discharge facilities. In particular, it is necessary to analyse the impacts resulting from an increase in the temperature of the receiving water, emissions of substances and changes in water quality caused by the discharge of water from the technological process (including chemical treatment of these waters with anti-scaling agents, anti-corrosive agents, biocides, etc.), as well as wastewater and rainwater and snowmelt. Data on the taxonomic composition, abundance and biomass of phytoplankton, the taxonomic composition and abundance of macrophytes and phytobenthos and benthic macroinvertebrates obtained during field surveys should be used in the above analyses. In addition, it is necessary to consider the taxonomic composition, abundance and age structure of ichthyofauna. The status of the abovementioned water quality elements as a biological indicator is taken into account when assessing the ecological status and potential of waters as required by the Water Framework Directive. It is important to present in the report an analysis of possible changes in species composition, range of occurrence, abundance and biomass of biota of the receiver, resulting from the implementation of the project. The risk of fish and other organisms entering the cooling system should also be addressed. In addition, the report should consider the impact of the power plant on the receiver's ecosystem, both during normal operation and when emergencies occur. In particular, the impact of the power plant cumulated with the occurrence of adverse environmental conditions (low water levels during summer periods combined with high water temperatures, etc.) should be considered. During the analysis of the impact of the power plant on the aquatic ecosystem, the threat of algal blooms, including the "golden alga" *Prymnesium parvum*, should also be addressed; among other things, it should be assessed whether the planned project will contribute to the occurrence of favourable environmental conditions for the growth and bloom of these organisms.

The issue of impact on water resources is particularly important due to the fact that part of the cooling water canal infrastructure corridor is located within the boundaries of the Natura 2000 special area of conservation of the Włocławek Vistula Valley PLH040039. This area was designated to protect natural habitats (including riparian forests) characteristic of the valley of a large lowland river and the associated fauna, including fish species from Annex II of Directive 92/43/EEC. The conservation objects of the aforementioned area are the natural habitats: lowland and mountainous fresh extensively used meadows *Arrhenatherion elatioris* (code 6510), Central European and subcontinental oak-hornbeam forests *Galio-Carpinetum*, *Tilio-Carpinetum* (code 9170), willow, poplar, alder, ash and poplar forests *Salicetum albofragilis*,

Populetum albae, *Alnenion glutinoso-incanae*, alder forests on percolating mires (code 91EO) and thermophilic oak forests *Quercetalia pubescenti petraeae* (code 91IO). The protected species also include two mammal species: the beaver *Castor fiber* and the otter *Lutra lutra*, one species of lamprey (river lamprey *Lampetra fluviatilis*) and 5 species of fish: asp *Aspius aspius*, spined loach *Cobitis taenia*, European bitterling *Rhodeus amarus*, white-finned gudgeon *Romanogobio albpinnatus* and Atlantic salmon *Salmo salar*. As mentioned above, the fish fauna is particularly vulnerable to the impact of changes in the water quality of the Vistula river ecosystem. The protected species in this area include migratory species such as the Atlantic salmon *Salmo salar* and the river lamprey *Lampetra fluviatilis*, which are most vulnerable to changes in water temperature because they are cold-water species. The discharge of heated water and the resulting increase in water temperature in the vicinity of the discharge site can cause these species to avoid the area and force them to move in search of cooler waters, which can result in disruption of spawning migration. On the other hand, the additional thermal load can have a negative impact on the development of eggs, not only in the case of species with a low thermal tolerance range, but also in less sensitive species, due to the fact that the early stages of development are generally a sensitive period in all fish and lamprey species.

The issue of impact on the fauna and flora associated with the aquatic environment is also important because the Vistula river valley is also an important refuge for waterfowl, both during migration and wintering, as well as during the breeding season. It not only offers a resting place for many migrating species and convenient nesting sites, but also provides a rich feeding ground. Fish and other small aquatic animals, such as molluscs and crustaceans, are food for birds, therefore the condition of these elements has a direct impact on the birds and the quality of their habitats. These issues should be taken into account in the impact analyses related to the construction and operation of the planned nuclear power plant. In particular, it should be analyzed whether the project in question may negatively affect species such as: the common reed *Acrocephalus arundinaceus*, the common sandpiper *Actitis hypoleucos*, the common kingfisher *Alcedo atthis*, the mallard *Anas platyrhynchos*, the taiga bean goose *Anser fabalis*, the common goldeneye *Bucephala clangula*, the carpodacus *erythrinus*, little ringed plover *Charadrius dubius*, white-throated tern *Chlidonias hybridus*, black tern *Chlidonias niger*, western marsh harrier *Circus aeruginosus*, corn crake *Crex crex*, mute swan *Cygnus olor*, crane *Grus grus*, oystercatcher *Haematopus ostralegus*, white-tailed eagle *Haliaeetus albicilla*, herring gull *Larus argentatus*, common gull *Larus canus*, goosander *Mergus merganser*, Eurasian curlew *Numenius arquata*, European golden plover *Pluvialis apricaria*, penduline tit *Remiz pendulinus*, common reed bunting *Riparia riparia*, little tern *Sterna albifrons*, common tern *Sterna hirundo*, sedge warbler *Sylvia nisoria*, shelduck *Tadorna tadorna* and lapwing *Vanellus vanellus*. These species are protected by the Natura 2000 Lower Vistula Valley Special Protection Area PLB040003, which has been designated for the analyzed section of the Vistula River. From the point of view of avifauna, the presence of people, artificial lighting and noise generated by machinery and vehicles used during construction works will also be significant factors affecting the project. They can cause birds to be frightened, which, in the case of individuals stopping in the Vistula River valley during migration, contributes to the breaking up of migrating flocks. On the other hand, scaring birds during the breeding season can lead to the loss of broods. Part of the area affected by noise can be avoided by birds, which will temporarily reduce the area available to avifauna habitats. The felling of trees (especially hollow trees) and bushes will reduce potential nesting sites. The analysis of the impact of the project in question on avifauna should also take into account the cumulative impact of accompanying investments, such as power lines carrying

power from power plants.

The necessity to examine the impact of the project in question on Natura 2000 areas and other forms of nature conservation referred to in Article 6 of the Nature Protection Act (also taking into account the issue of species protection) was emphasised in point II.2.3.1.(b) of the ruling. The GDEP indicated that during the analyses attention should be paid to the integrity and coherence of the Natura 2000 network, as well as the continuity of ecological corridors. The analyses should be conducted taking into account the provisions found in the protection plans or plans of protection tasks of these areas. In addition to the Natura 2000 areas mentioned above, there are other protected areas in the vicinity of the site where the project is to be carried out. The closest are: the Natura 2000 Cyprianka special area of conservation PLH040013 (approx. 10 km away), The Ciechocińska Lowland Protected Landscape Area (approx. 3 km away), the Gostynińsko-Włocławski Landscape Park and its buffer zone (approx. 13 km away), and the “Kulin” (approx. 10 km away) and “Dębice” (approx. 12 km away) nature reserves.

In addition, there are two ecological sites at the edge of the project site. According to § 2 of Resolution No. LIII/491/2023 of the Brześć Kujawski City Council of May 30, 2023 on the establishment of ecological grasslands (Dz. Urz. Woj. Kujaw. of 2023, item 4125), these grasslands include flat terrain with poor drainage, overgrown with marsh vegetation and low-growing trees, and are a breeding and living place for numerous animal species, in particular ornithofauna. The report must present the results of analyses of the impact of the construction and operation of the planned nuclear power plant on the groundwater level in and around the aforementioned ecological sites. Lowering the groundwater level in the long term can lead to the dehydration and drying out of wetlands, and consequently to a transformation of the plant cover and the withdrawal of species associated with wetlands.

Taking into account the specificity of the project, in point II.2.3.1.(a) and (d) of the ruling GDEP indicated possible factors of impact on the natural environment, to which particular attention should be paid in the report. It is necessary to examine all impacts on fauna, flora, as well as on ecological structures and processes which condition proper functioning of natural habitats and plant and animal populations. The above-mentioned analyses should take into account the physical (removal of vegetation cover, soil, transformation or destruction of habitats, creation of a barrier to migration and dispersal of organisms, etc.), chemical and biological (e.g. increased pressure from invasive alien species, changes in population size - such as reduction in numbers, change in density, etc.) effects of the construction of the planned power plant. It is particularly important to examine the impact on sites of key importance for the functioning of animal populations, such as breeding, resting, foraging and migration routes. When determining the significance of the impact on individual components of the environment, it is necessary to take into account the trends of changes in the environment, the sensitivity of a given species/habitat to negative impacts, as well as the trends of changes in the population size of species that may be affected by the planned power plant. In the ruling, the GDEP also included the requirement to present an assessment of the impact of the project on biodiversity and to include in the analyses the factor of increased anthropopressure, as well as light pollution (point II.2.3.1.(a)).

In point II.2.3.1.(c) of the ruling, the GDEP noted the necessity to refer to the threat related to the appearance and spread of invasive alien species of fauna and flora within the meaning of the Act of 11 August 2021 on alien species (Journal of Laws of 2023, item 1589, as amended). The description of the environment should therefore also include information on the

abundance and distribution of invasive alien species obtained during field surveys. On the basis of these data and the data collected as part of environmental monitoring, it should be analysed whether the planned investment will contribute to an increase in the pressure associated with the presence of the aforementioned species.

The results of the nature inventory (e.g. the location of habitat patches, species stands, migration routes) and the description of the impact of the planned project on the environment should be presented in the cartographic annexes in an appropriate scale enabling the proper presentation of the collected data. The location of individual variants of the project and the accompanying infrastructure should also be visible in the annexes.

The cumulative impact of the planned nuclear power plant and the industrial facilities located in its vicinity during normal operation and in emergency situations was of great interest to the Affected Parties in the transboundary procedure.

In accordance with Art. 66(1) (3b) and (8) of the EIA Act, the report should contain, among others, the description of anticipated significant cumulative impacts of the planned project on the environment and information on the connections with other projects, in particular the accumulation of impacts of projects executed, completed or planned, for which the decision on environmental conditions was issued, located in the area where the project is planned to be executed and in the area of impact of the project or whose impacts fall within the area of impact of the planned project - to the extent in which their impacts may lead to the accumulation of impacts with the planned project.

The GDEP did not indicate in the operative part of the ruling the issues requiring detailed analyses in terms of cumulative impact, as the cited provision satisfies the expectations raised in the transboundary proceedings.

At the same time, the GDOŚ indicates that the demand to present in the report scenarios of further development of the industrial area in the vicinity of the planned project, any changes in the scope of economic activity in its vicinity, and an assessment of potential future threats to the nuclear power plant resulting from these changes is unjustified. In the report, the cumulation of impacts can only be assessed by taking into account projects that have been completed and are being implemented or planned, provided that information is available. The analysis of potential future economic and spatial development of the area goes beyond the scope of the environmental impact assessment.

The implementation of the project will significantly alter local and regional socio-economic conditions. Point II.2.2.4 of the ruling requires the applicant to present the current conditions, including the number of inhabitants, their health status, the projected changes in status and distribution, the projected number of employees and the distribution of industrial and public facilities.

Experience with nuclear power plants around the world has shown that a project of this nature and the large number of workers required for its implementation justifies the need to show in the report how the population, population status and land use of the areas surrounding the proposed power plant will be affected, among other things. The expected changes in the infrastructure and service sector (e.g. accommodation, services including healthcare, culture, leisure, trade, transportation, education, etc.) due to the influx of a large number of workers must be presented.

When analysing changes in socio-economic conditions, it is also necessary to take into account the impact of the project on the quality and living conditions of people (including

changes and restrictions in the use of property, traffic volume and safety, tourism and recreation) and on the social and living conditions of workers and their families.

The distribution of industrial facilities is also an important aspect of the analysis and public facilities relevant to evacuation.

The description of the current socio-economic conditions is to analyse the impact of the planned project on the change of the socio-economic structure, i.e. the analysis of the impact of the project on the quality and living conditions of people (point II.2.3.5. of the ruling).

The GDEP indicates that, in accordance with the EIA Act, the report is to constitute a set of information specifying all aspects related to the environmental effects of the execution of the project and the impact on the health and living conditions of people, material assets, historic monuments and the interaction between these elements, taking into account the location solutions, design solutions, technological solutions, technical and organisational solutions adopted by the investor, as indicated in Article 66(1)(6) and (8) of the EIA Act. The report should take into account the direct, indirect, secondary, cumulative, short-, medium- and long-term, permanent and momentary impacts occurring at the stages of project implementation, exploitation and decommissioning. These provisions oblige the investor to refer to all potential threats connected with the execution of the project, as well as to indicate what environmental protection standards apply in this respect and whether the planned project falls within their framework. In turn, Art. 66 par. 1 sec. 9 of the EIA Act imposes on the investor the obligation to describe in the report the predicted actions aiming at avoiding, preventing, limiting or natural compensation of the identified negative impacts on the environment.

If the project may affect the environment in a transboundary manner, all the key elements of the report should also take into account the impact of the planned project outside the territory of the Republic of Poland, as explicitly indicated in Article 66(3) of the EIA Act.

With regard to the procedural issues raised by the Affected Parties regarding the licensing of the nuclear power plant and the participation of the administrative bodies, the GDEP provides the following explanations.

In the Polish legal order, the investment process for the construction and operation of a nuclear power plant requires a number of permits and approvals that condition the possibility of operating the plant, these are:

- decision in principle (issued by the Ministry Climate and Environment),
- decision on environmental conditions (issued by GDEP),
- decision on the determination of location (issued by the locally competent voivode),
- preparatory work permit (issued by the locally competent voivode),
- construction permit (issued by the PAA President),
- start-up authorisation (issued by the PAA President),
- occupancy permit (issued by the locally competent provincial building inspector),
- building permit (issued by the locally competent voivode),
- operating permit (issued by the PAA President),
- a power generation licence (issued by the President of the Energy Regulatory Authority).

Pursuant to Article 86 of the EIA Act., the decision on environmental conditions is

binding on the body issuing decisions determining the conditions of use of the environment to the extent that the environmental decision is to be taken into account when issuing them, and on the bodies issuing a decision to authorise the realisation of the investment, including the decision to determine the location of the investment for the construction of a nuclear power facility and accompanying investments and the authorisation to build a nuclear facility.

The legal consequence of this solution is that the authorities issuing decisions, before the issuance of which it is necessary to obtain a decision on environmental conditions, are fully bound by the provisions arising from the decision on environmental conditions. This means that the authority issuing such a decision cannot disregard any obligations and rights arising from the decision on environmental conditions, as it has the nature of a preliminary decision with respect to a future permit for the implementation of a specific project.

Referring to the request of the Affected Parties, the GDEP explains that the authorities responsible for the implementation and execution of the Seveso Directive are the Environmental Protection Inspectorate. The EIA Act literally indicates which opinion-giving and approving authorities participate in the proceedings for issuing a decision on environmental conditions, and these do not include the Environmental Protection Inspectorate. In the proceedings in question, it is required to obtain the positions of: The PAA President in the field of nuclear safety and radiation protection, the Director of the Regional Water Management Authority in Gdańsk – the authority competent to issue a water law assessment, the Kuyavian-Pomeranian National Provincial Sanitary Inspector - the competent authority in the field of radiation hygiene and the Ministry of the Environment - the competent authority to issue an integrated permit, if required.

Information on the opinions and arrangements obtained is presented in the earlier part of this ruling. After submitting the environmental impact report, the GDEP will again ask the aforementioned authorities for opinions and arrangements within the scope of their competence before issuing a decision on environmental conditions.

As regards Austria's request to indicate in the report all the documents not submitted, which will only be submitted as part of the issuing of the operating permit for the facility under the Atomic Law, it should be pointed out that describing the procedure for obtaining subsequent permits and the documents to be submitted with them does not fall within the scope of the report and does not contribute to the transparency and readability of such a document. Therefore, it should be considered that this comment is unfounded.

In accordance with Art. 69(1) of the EIA Act, the applicant may, when submitting the application for the issuance of the decision on environmental conditions for projects which may always significantly affect the environment, instead of the environmental impact report, submit the Project Information Sheet together with the application for determination of the scope of the report. In turn, in accordance with Art. 69(3) of the EIA Act, the authority determines the scope of the report by way of a ruling. In this case the provisions of Article 68 of this Act apply. In accordance with Art. 68(2) of the EIA Act the authority, when determining the scope of the report, it may - guided by the location, nature and scale of the environmental impact of the project - depart from the requirements regarding the content of the report, referred to in Art. 66(1) points (4) (13)(15) and (16); indicate types of alternative variants requiring examination, the scope and depth of data required to characterise the project, types of impacts and elements of the environment requiring detailed analysis and the scope and methods of research.

Having analysed the Project Information Sheet, opinions of co-operating authorities, at the same time taking into account the location, nature and scale of the predicted impact of the project, the GDEP imposed on BWRX-300 Włocławek sp. z o.o. the obligation to prepare the

report in full scope, i.e. in accordance with Article 66 of the EIA Act, indicating at the same time, pursuant to Article 68(2)(2)(a), (b) and (c) of the EIA Act, the scope and detail of the required data allowing to characterise the project, types of impacts and elements of the environment requiring detailed analysis, as well as the scope and methods of research. The GDEP did not consider it appropriate to deviate from any of the requirements set out in Art. 66(1) of the EIA Act with respect to the planned project.

In view of the above, the GDEP ruled as in the operative part.

Instruction

No complaint or appeal to the provincial administrative court may be lodged against this ruling. Pursuant to Article 142 in connection with Article 127 § 3 of the Act of 14 June 1960 - Code of Administrative Proceedings (Journal of Laws of 2024, item 572), hereinafter referred to as the Code of Administrative Proceedings, this ruling may be appealed against in an application for reconsideration of a case completed with a decision on environmental conditions.

PIOTR OTAWSKI

The General Director for Environmental Protection

/electronic signature/

Receive:

1. BWRX-300 Włocławek sp. z o.o. with registered office in Warsaw, Al. Jana Pawła II 22, 00-133 Warsaw
2. the other parties to the proceedings pursuant to Article 49 § 1 of the Code of Administrative Procedure in conjunction with Article 74(3) of the EIA Act and Article 15(1) of the Act of July 13, 2023, amending the Act on providing information about the environment and its protection, public participation in environmental protection, and environmental impact assessments, as well as certain other acts (Journal of Laws, item 1890).

For information:

1. Regional Director for Environmental Protection in Bydgoszcz
2. Minister for Climate and Environment
3. President of the National Atomic Energy Agency
4. Director of the Regional Water Management Authority in Gdańsk State Water Management Company Wody Polskie
5. Kuyavian-Pomeranian State Provincial Sanitary Inspector