Part 3

DOCUMENTATION FOR THE PURPOSES OF THE TRANSBOUNDARY IMPACT ASSESSMENT PROCEDURE

for the Project involving the construction and operation of the First Nuclear Power Plant in Poland with a capacity of up to 3,750 MWe, in the territory of the following communes: Choczewo, or Gniewino and Krokowa

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Polskie Elektrownie Jądrowe sp. z o.o.

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Glossary

Term / Abbreviation	Definition
ASA	Administrative Site Area - an area the extent of which is determined by the boundaries of the communes situated within the Site Area
ASR	Administrative Site Region - an area the extent of which is determined by the boundaries of the communes situated within the Site Region
BWR	Boiling Water Reactor
Technical Advisor	Jacobs Clean Energy Limited - Technical Advisor to the Investor
DUM	Director of the Maritime Office in Gdynia
NPP / Nuclear Power Plant	The First Nuclear Power Plant in Poland comprising three nuclear power units with AP1000 reactors with the capacity of up to 3,750 MWe, on the territory of the following communes: Choczewo, or Gniewino and Krokowa
Nuclear power plant	A nuclear facility within the meaning of the Atomic Law Act of 29 November 2000
FBR	Fast Breeder Reactor
GDOŚ	General Director for Environmental Protection
GIS	Geographical Information System
HTGR	High-temperature gas-cooled reactor
IPCC	Intergovernmental Panel on Climate Change
ESR	Environmental Scoping Report
NPS	National Power System
LIC	Local Information Centre
LWGR	Light water graphite reactor
IAEA	International Atomic Energy Agency
MOLF	Marine Off-Loading Facility
NRC	US Nuclear Regulatory Commission
Site Area	The area within a 5-kilometre distance from the boundaries of the planned nuclear facility site, and, in justified cases related to the ground structure of crucial importance for its stability during the construction of the facility and after, the area extended insofar as needed to obtain sufficient data and to assess ground stability
Project Area	An area within which the construction and subsequent operation of the NPP are planned
OECD	Organisation for Economic Co-operation and Development
OFREJ	Functional Area of Nuclear Power Development - Resolution no. 318/XXX/16 of the *Sejmik* (regional assembly) of the Pomorskie Voivodeship of 29 December 2016 regarding the passing of a new spatial development plan of the Pomorskie Voivodeship including the spatial development plan of the Tricity metropolitan area which constitutes a part thereof
UN	United Nations
RES	Renewable Energy Sources
PAA	President of the National Atomic Energy Agency / National Atomic Energy Agency
PEP2040	Energy Policy of Poland until 2040 - the Announcement of 2 March 2021 by the Minister of Climate and Environment on the energy policy of the State until 2040
PHWR	Pressurized Heavy Water Reactor

Term / Abbreviation	Definition
Decision / GDOŚ Decision	Decision of the General Director for Environmental Protection of 25 May 2016 (DOOŚ-OA.4205.1.2015.23) determining the scope of the environmental impact assessment report regarding the Project involving the construction and operation of the First Nuclear Power Plant in Poland with a capacity of up to 3,750MWe, in the territory of the following communes: Choczewo, or Gniewino and Krokowa
PNPP	The Polish Nuclear Power Programme - Resolution No. 141 of the Council of Ministers of 2 October 2020 on updating the multi-annual program called “The Polish Nuclear Power Programme"
Project	Construction and operation of the First Nuclear Power Plant in Poland with the capacity of up to 3,750 MWe, on the territory of the following communes: Choczewo or Gniewino and Krokowa
PWIS	National Sanitary Inspector for the Voivodeship
PWR	Pressurized Water Reactor
EIA Report	The Environmental Impact Assessment Report regarding the Project involving the construction and operation of the First Nuclear Power Plant in Poland with a capacity of up to 3,750MWe, in the territory of the following communes: Choczewo or Gniewino and Krokowa
Site Region	The area within a 30-kilometre distance from the boundaries of the planned location of a nuclear facility
EIA Regulation	Regulation of the Council of Ministers of 9 November 2010 on projects likely to have a significant impact on the environment
SBO	Station black-out
SWS	Service Water System
TEN-E	The Trans-European Networks for Energy
TEN-T	Trans-European Transport Networks
EU	European Union
EIA Act	Act of 3 October 2008 on providing access to information about the environment and its protection, participation of the public in the environment protection and assessments of the environmental impact (consolidated text, Journal of Laws of 2018, item 2018, as amended)
EPL Act	Environmental Protection Law Act of 27 April 2001
Applicant / Investor	Polskie Elektrownie Jądrowe sp. z o.o. with its registered office in Warsaw (PEJ sp. z o.o.)
Assumed Project Area	Assumed Project Area was determined under the preparation of preliminary siting criteria for the NPP construction, to conduct the environmental and site investigation survey programme

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Introduction

This document constitutes the environmental impact assessment report that is required in the procedure regarding the issuance of a decision on environmental conditions for the following project: *"Construction and operation of the First Nuclear Power Plant in Poland with the capacity of up to 3,750MWe, on the territory of the following communes: Choczewo or Gniewino and Krokowa"* (EIA Report).

The project's Investor is PEJ sp. z o.o. with its registered office in Warsaw.

The Investor plans to implement a project involving the construction of a nuclear power plant, including three nuclear units with AP1000 reactors with a total capacity of up to 3,750MWe (the Project), together with the infrastructure supporting their operation, in the area of the commune of Choczewo.

The Project consisting in the construction and operation of a nuclear power plant is a strategic project aimed at the development of a new, safe, stable and zero emission electric power generation source, and subsequently, its safe and reliable operation. It is also assumed that the nuclear power plant, once built, will operate in the National Power System (NPS) and thus ensure a reliable supply of electricity to recipients and contribute to the stabilisation of the transmission system. Additionally, the new source of electricity generated in the nuclear power plant will increase the diversification of the electricity generation facilities, ensure a greater competitiveness on the electricity market, and strengthen the national market of power generators. At the same time, as a zero emission source, it will directly contribute to the achievement of climate goals with respect to the reduction of the carbon dioxide emission. Furthermore, the Project in question falls in line with the activities undertaken by the EU and Poland to ensure a general and undisturbed access to electricity.

The purpose of this EIA Report is to determine the environmental effects of the Project. The Report present the results of the assessment of the Project's environmental impact conducted in accordance with the Decision of the General Director for Environmental Protection of 25 May 2016 (ref. No.: DOOŚ-OA.4205.1.2015.23), regarding the determination of the scope of the environmental impact assessment report (GDOŚ Decision, Decision).

The site investigation and environmental survey programme was developed in line with the requirements of the above Decision. The results gathered during the surveys were used to perform the necessary modelling and analyses which were subsequently presented in the EIA Report. The data provided in the EIA Report were determined in accordance with the scope of the said Decision, to describe the Project site variants and sub-variants considered, as well as the associated infrastructure the impact of which can add to the Project's impact. The Investor was supported on an ongoing basis by a dedicated team of the Investor's Technical Advisor, Jacobs Clean Energy Limited, composed of experienced specialists and experts who participated in development of similar documentation for other nuclear power plants.

The Environmental Impact Assessment Report constitutes key evidence in the administrative procedure of the assessment of the project's environmental impact, which is part of the proceedings regarding the issuance of the decision on environmental conditions, and one of the crucial elements of the proceedings which is to facilitate the identification of all potential hazards related to the implementation of the planned Project.

The decision on environmental conditions is issued at the end of the proceedings and it reflects all stages of the proceedings, from filing the application, through arrangements and analysis of the documentation attached to the application, to public consultations. The primary aim of the decision on environmental conditions is to determine the conditions for Project execution with respect to environmental protection.

The Investor is obliged to obtain the above decision prior to receiving the decision on determination of the site for the investment involving the construction of a nuclear power facility, issued under the Act of 29 June 2011 on preparing and implementing investments in a nuclear power facility and associated investments.

I.1 Details of the Applicant (Investor)

Polskie Elektrownie Jądrowe sp. z o.o., with its registered office in Warsaw

Address: Mokotowska 49 street, 00-542 Warsaw

KRS No.: 0000347416

I.2 Project classification

The obligation to develop this EIA Report, as well as its scope are laid down in 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 [75] (EIA Act).

The Project for which this documentation has been prepared, consists in the construction and operation of a nuclear power plant with a capacity of up to 3,750MWe. It covers all the activities implemented in the NPP Site Area, including works related to the preparation of the construction site, building the NPP internal infrastructure, as well as the construction and operation of all elements of a nuclear power generation facility that is a nuclear power plant. They cover all the technologically interconnected operations and projects which, at the particular stages of preparation, construction, commissioning, and operation of the nuclear power plant, ensure the technological integrity and functionality of the project. When understood in this way, the Project allows for the generation of electricity in the process of transforming thermal energy generated as a result of nuclear fission (in the nuclear reactor) into mechanical energy (by means of a steam turbine), and then into electrical energy (produced by a generator driven by the turbine shaft).

As a result of the delimitation of the power plant as an installation and the related obligation to jointly consider stationary technical devices that are technologically interconnected (Article 3(1)(13) of the abovementioned EIA Act, according to which technologically interconnected projects are classified as one project, also when they are executed by various entities), planned constructions that are part of the power plant construction are classified into the following category:

"nuclear power plants and other nuclear reactors, including their decommissioning, excluding research installations used to generate or process fissionable or fertile materials with a nominal capacity of up to 1 kW at the continuous thermal load,"

and therefore have the status of a **project that is always likely to have a significant impact on the environment [group I]**, within the meaning of Article 59 of the EIA Act, in connection with Article 2(1)(4) of the Regulation of the Council of Ministers of 9 November 2010 on projects likely to have a significant impact on the environment [54] (EIA Regulation). Although the above EIA Regulation ceased to be effective in 2019, the Project is subject to the provisions of the EIA Regulation (under Article 4 Regulation of the Council of Ministers of 9 November 2010 regarding projects likely to have a significant impact on the environment [52]).

In this study, a general principle is applied according to which if the planned Project entails execution of elements that can be classified as projects that belong to categories specified in Articles 2 and 3 of the EIA Regulation [52], then these projects should not be considered separately but as projects that are always likely to exert a significant impact on the environment. Furthermore, if the project planned also contains other elements that are not included in the EIA Regulation [54], it is justified to assess the environmental impact of the entire project planned, that is, taking such elements into account. In the light of the above, the environmental impact assessment covers all the elements referred to in Volume II [Chapter II.2] as a set of elements and tasks comprising the planned Project.

I.3 The administrative procedure and the current status of the Project

The environmental impact assessment which constitutes part of the proceedings aimed at the issuance of the decision on environmental conditions, is carried out by the authority competent for issuing this decision. According to Article 75(1)(1a) of the EIA Act [75], the competent authority to issue the decision on environmental conditions with regard to the construction of a nuclear power facility is the General Director for Environmental Protection (GDOŚ).

On 5 August 2015, the Investor submitted an application for the decision on environmental conditions with regard to the Project involving the construction and operation of the First Nuclear Power Plant in Poland with a capacity of up to 3,750MWe, in the territory of the following communes: Choczewo, or Gniewino and Krokowa, together with an application for the determination of the scope of the environmental impact assessment report.

Due to the fact that nuclear power plants are classified as projects for which a transboundary environmental impact assessment should be obligatorily conducted, on 22 September 2015, GDOŚ issued a decision on the need to carry out a procedure regarding the assessment of the transboundary environmental impact of the Project involving the construction and operation of the First Nuclear Power Plant in Poland with a capacity of up to 3,750MWe, in the territory of the following communes: Choczewo, or Gniewino and Krokowa in the Pomorskie voivodeship. On 2 December 2015, the relevant notice was sent to the following countries: Germany, Czechia, Slovakia, Ukraine, Belarus, Lithuania, Russia, Latvia, Estonia, Finland, Sweden, Denmark, and Austria. Furthermore, information on the commencement of the proceedings was sent electronically to all states located within 1,000 km of the potential power plant site, i.e. to Norway, Moldova, Romania, Serbia, Croatia, Slovenia, Hungary, Italy, Switzerland, France, Luxembourg, Belgium, and the Netherlands. Standpoints and comments were presented by 12 states. Altogether, 15 states (all the states officially notified, as well as the Netherlands and Hungary) confirmed their participation in the transboundary procedure, that is, they joined the proceedings as affected parties. Comments and suggestions regarding the Environmental Scoping Report, submitted by the State participating in the proceedings regarding the transboundary impact on the environment, are considered when issuing the decision regarding the determination of the scope of the environmental impact assessment report, which happened in the case in question. By way of the letter dated 10 June 2016 (file no.: DOOŚ-tos.440.8.2015.JA.dts. GDOŚ), GDOŚ provided the Investor with copies of standpoints with comments of the affected states while indicating that they constituted the basis for issuance of the decision on the scope of the EIA Report. At the same time, GDOŚ requested that the comments and remarks submitted should be considered in the development of the EIA Report.

Under the letter dated 11 January 2016, the Investor modified its application for the issuance of the decision, excluding the Choczewo site variant from it, while leaving two remaining variants: Variant 1 - Lubiatowo - Kopalino site, and Variant 2 - Żarnowiec site. Parties to the proceedings were notified thereof by the notice of 20 January 2016. Moreover, the above information was provided to the States participating in the transboundary proceedings by way of the letter dated 27 January 2016.

On 25 May 2016, the General Director for Environmental Protection issued a decision whereby they determined that the scope of the EIA Report should be consistent with Article 66 of the EIA Act and take into account the issues presented in the decision. The decision was issued upon consulting the National Sanitary Inspector for the Pomorskie Voivodeship (PWIS) and the Director of the Maritime Office in Gdynia (DUM).

By way of the decision dated 4 June 2016 (file no.: DOOŚ-OA.4205.1.2015.26), GDOŚ suspended the proceedings in question on the basis of Article 69(4) of the EIA Act until the submission of the EIA Report by the Applicant.

GDOŚ issues the decision on environmental conditions taking into account: the results of arrangements and opinions of competent authorities, according to Article 77 of the EIA Act; arrangements contained in the EIA Report; results of the proceedings with the participation of the general public; and the results of the proceedings regarding the transboundary environmental impact assessment.

It is the duty of the relevant authority responsible for the issuance of the decision on environmental conditions to ensure that the general public can participate in the proceedings. Public participation is ensured by the release of public information on the proceedings, public consultations related thereto and possibility to have the relevant body organise an administrative session that is open to the public.

As part of the transboundary procedure, GDOŚ obligations include providing the State which is the affected party, with the environmental impact assessment report. The comments and suggestions reported by the State participating in the procedure for the transboundary impact on the environment, including the results of the consultations regarding measures to eliminate or limit the transboundary environmental impact, are considered and taken into account when issuing the decision on environmental conditions.

Before the decision on environmental conditions is issued, GDOŚ agrees the requirements for the project execution with Director of the Regional Water Authority Wody Polskie, while for a project implemented in the marine area, before the decision on environmental conditions is issued, GDOŚ agrees the requirements for the project execution with Director of Maritime Office (DUM).

For a project implemented in the marine area, before the decision on environmental conditions is issued, GDOŚ agrees on the requirements for the project execution with DUM. GDOŚ also consults the National Sanitary Inspector for the Voivodeship as well as the President of the National Atomic Agency (PAA) by sending them the draft decision and application for the issuance of the decision along with documents attached thereto.

The issuance of the decision on environmental conditions is made public by GDOŚ, which specifies how to get acquainted with the content of the decision and the documentation of the proceedings. The entire procedure of obtaining the decision on environmental conditions for the project is presented in the diagram attached [Figure I.- 1].

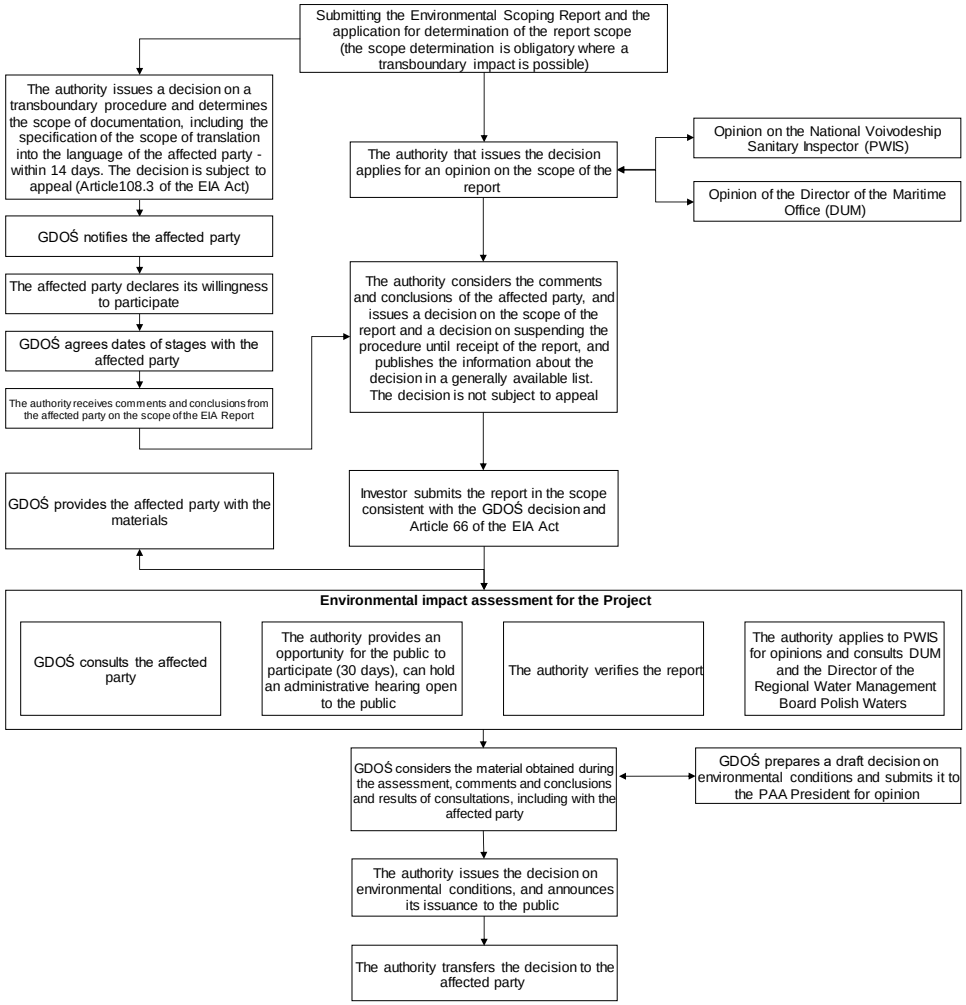


Figure I.- 1 A diagram of the procedure aimed at obtaining the decision on the environmental conditions for the project
Source: In-house study

I.4 Project stages

The Investor does not plan to implement the Project in stages within the meaning of the provisions of the EIA Act [75].

The proceedings under which this EIA Report is submitted, cover the Project with parameters that include a scenario of the full implementation of the investment.

I.5 Associated infrastructure necessary for the Project to operate

The Project requires the designing and implementation of a number of separate investment projects that are crucial for both the construction of the nuclear power plant and its subsequent operation.

The planned associated investments will be executed as separate projects, independent of the main Project and under separate administrative decisions. Article 2(1) of the Act on development and execution of investments in nuclear power facilities and associated investments [73] defines associated investment as an investment related to the construction or development of transmission grids within the meaning of Article 3(11a) of the Energy Law Act of 10 April 1997 [65] needed for the evacuation of power from a nuclear power plant, or another investment project necessary for the construction or proper operation of a nuclear power facility. In turn, under Article 52(1) of the above Act [73], the minister in charge of economy decides on awarding the status of an associated investment to the investment related to the construction of a nuclear power facility, upon the request of the investor of the associated investment project. It should be emphasised that according to Article 3(1) of the above Act [73], both nuclear power facilities and associated investments are public utility investments within the meaning of the provisions on real estate management. Under Article 61(1)(3b) of the EIA Act [75], the environmental impact assessment, which is part of the proceedings regarding the issuance of the decision on the building permit for an associated investment, is carried out by the regional director for environmental protection.

Associated infrastructure to be developed for the purpose of the construction and operation of the NPP will include the following:

- Marine transport infrastructure - Marine Off-Loading Facility (MOLF);
- Road transport infrastructure - construction of new road sections and redevelopment of the existing ones (pertains to roads beyond the NPP fencing);
- Road transport infrastructure – service road, connecting the MOLF structure to the NPP site;
- Railway transport infrastructure - modernisation and restoration of the existing section and construction of a new railway line to the NPP – electrified railway line (pertains to sections of tracks beyond the NPP fencing);
- Accommodation facilities for the NPP employees, including securing the area and connecting the utilities (water, sewage, power, gas, telecommunication, etc.);
- High and medium voltage power grids – powering the construction site with a 2x110 kV target line (also as a reserve in the operational phase), and a 15 kV temporary line at the development stage;
- Extra high voltage power grids – power evacuation from the NPP to the National Power System with the use of 400 kV power lines, including a 400 kV connection station for the NPP;
- Water supply and wastewater infrastructure;
    - Wastewater system – removal and treatment of wastewater from the construction site (construction of a new wastewater treatment plant including a wastewater system and a system for discharging treated wastewater);
    - Waterworks network – supplying the construction site with water (the construction of new deep-well water intakes and a water treatment station with waterworks system);
- Telecommunications and IT networks;
- Local Information Centre (LIC), which will also serve the function of a hotel and conference centre, along with the NPP simulator to train operators;

- Dredge spoil placement site (deposit site) for depositing the spoil from dredging works performed in connection with the construction of the cooling systems and other NPP infrastructure.

Apart from the above-mentioned planned investments, the associated infrastructure for the NPP will also include the already existing investments, which will be used during the construction phase and operational phase of the Project, which do not require modernisation or rebuilding. These investments have been taken into account within the analyses related to the adopted maritime and air transport strategies. These include the following:

- Seaports in Gdańsk and Gdynia;
- Gdańsk Lech Wałęsa Airport.

A more detailed description of specific associated investments for both site variants, along with their implementation schedules, is presented in Volume II of this EIA Report [Chapter II.12].

I.6 Justification for the implementation of the Project

I.6.1 Justification for and benefits of the introduction of nuclear power in Poland – Energy Policy of Poland until 2040

According to international organisations, including in particular advisory bodies to the United Nations (UN) and the Organisation for Economic Co-operation and Development (OECD), the development of nuclear power is a precondition for the achievement of climate goals. According to the Intergovernmental Panel on Climate Change (IPCC), a scientific and intergovernmental advisory body established within the UN, the share of nuclear power in the total installed capacity worldwide is growing in all four scenarios developed for the period between 2030 and 2050 [23].

The effective Polish Energy Policy until 2040 (PEP2040) [44] fits into the objectives of the climate and energy policy of the European Union (EU), also into the long-term aspiration to climate neutral EU by 2050. PEP2040 assumes that a deep energy transformation will be carried out, while approximately 80% of expenditures forecast under PEP2040 in the electricity generation sector will be earmarked for zero emission capacity, that is, renewable energy sources (RES) and nuclear power. According to PEP20240, the document "*contains strategic decision regarding the selection of technologies used to establish a low-emission energy system*."

One of three pillars of PEP2040 is the "*Zero-emission energy system"*, and eight specific objectives include, alongside the development of renewable energy sources with the implementation of offshore wind energy, the implementation of nuclear power and the implementation of the Polish Nuclear Power Programme. The conclusion is that at the level of the strategic document which defines directions of the energy transformation in Poland until 2040, the implementation of nuclear power and implementation of offshore wind power are considered actions of the same rank which are to achieve the same strategic goal (it was assumed that in 2040, nuclear power plants and offshore wind power will have a similar share in the electricity generation in Poland, that is, 16% and 19%, respectively - PEP2040, Appendix 2 – "Conclusions from forecast analyses for the energy sector" [44]). Thus the two objectives cannot be considered competitive and should not be put in opposition to each other. In PEP2040, it was specified that "*Nuclear power plants ensure stable power generation with zero air pollutant emissions. At the same time, it is possible to diversify the energy generation structure at a reasonable cost. The technologies currently in use (of 3rd and 3rd+ generation) and stringent worldwide nuclear safety standards ensure high safety standards for nuclear power plant operation (...)".* At the same time, PEP2040 indicates that the planned commissioning dates for subsequent nuclear units result from the forecast capacity losses in the national power system, and also from the increase in demand for electricity. According to PEP2040, the entire nuclear programme assumes that 6 nuclear power units will be constructed until 2043. It was noted that a considerable part of the nuclear programme could be implemented with the participation of Polish companies.

PEP2040 specifies a number of benefits associated with the utilisation of nuclear power in Poland:

- fulfilment of climate and energy policy commitments,
- reduction of dust and gas emissions from the power generation sector,
- diversification of supply directions for primary energy carriers,
- replacement of ageing generation units operating in the system baseload,
- reliable and stable energy supply and low costs of electricity for consumers,
- economic boost for regional development,
- development of many domestic industries (reindustrialisation) and new specialisations and technologies in the whole supply chain of components and products,
- creation and retention of new, sustainable and well-paid jobs.

In the territorial aspect, in addition to an increased number of jobs both in the nuclear power plant and in its vicinity, such benefits were also specified as additional revenues from local taxes, as well as the development of communication infrastructure, which would result in the economic attractiveness of the surrounding areas and the improvement of local living conditions.

I.6.2 Economic aspects – the Polish Nuclear Power Programme

In the rationale for the Polish Nuclear Power Programme (PNPP) [46], adopted by the Council of Ministers in 2014 and updated in 2020, three key aspects of the implementation of nuclear power in Poland were referred to, that is, energy security, climate and the environment, and economy.

I.6.2.1 Energy security

With respect to the energy security, it was indicated in the PNPP that the construction and operation of nuclear power plants would result in a diversification of both the fuel base in the Polish energy sector, and of the directions of supply of primary energy carriers. According to PNPP: *"Nuclear fuel will (...) allow the diversification of the directions of supply of primary energy carriers by purchasing it from NATO member states or from other politically stable countries with a well-established market economy with which Poland has good relations. In addition, as a member of the EU and European Atomic Energy Community, Poland will benefit from the support and security of fuel supply within EU purchase coordination mechanisms."*

In the near future, the Polish energy sector will face challenges resulting predominantly from the following:

- the need to replace decapitalised units that are practically not eligible for refurbishment; it concerns in particular the units of 200MWe capacity,
- covering the forecast increase in the electricity consumption in Poland; in total, the future demand for electricity will exceed 200 TWh per year (the current consumption oscillates at around 170 TWh per year),
- change in the production structure, first of all due to the need to decarbonise the power industry, but also due to the development of new techniques, including decentralised energy generation, in principle based predominantly on sources characterised by low availability and by the stability of operation (non-dispatchable units).

The problem lies in the development of such a future power mix that can not only meet the decarbonisation requirements but also ensure stable operation at the significantly, as compared to the present status, increased capacity of the decentralised sources, including ones that are non-dispatchable to a large extent. One should also take into account not only the conditions of the Polish power system, but also the greater role of the Polish transmission system within the European Union and trans-European grids. Polish conditions are also important, namely the depletion of the national deposits of available fossil fuels.

I.6.2.2 Environment and climate - carbon footprint in the lifecycle of a nuclear power plant

According to the PNPP, "*environmental advantages of nuclear power mainly include: no direct CO2 emissions during operation (...) as well as no emissions of other substances harmful for the environment and human health: NOx, SO2, CO, particulate matter (PM), mercury and other heavy metals, and polycyclic aromatic hydrocarbons (PAHs)."* Nuclear power is also characterised by very small consumption of concrete and steel per unit of electricity generated, saving of precious raw materials: rare earth elements and silver, or the smallest surface area used per unit of the electricity generated. The PNPP states that "*Nuclear power is also an important element of biodiversity protection (…) [and] may in the future be an important factor limiting negative impacts of some projects on birds of prey, bats, insects etc., through the possibility of resignation from implementation of energy generation projects showing negative impact on nature, in favor of building new nuclear power plants."*

The results of a comparative analysis of the carbon footprint in the life cycle of a nuclear power plant and in alternative power generation technologies, presented in the table below [Table I.- 1], indicate that the utilisation

of the nuclear technology is a low-emission variant for Poland with the greenhouse gas emissions at a level comparable to the renewable energy sector, even considering the conservative nature of the assumptions of carbon footprint analysis for nuclear technology. Greenhouse gas emissions in the Project's life cycle are lower by two orders of magnitude than the emissions in the life cycle of a similar project that utilises gas or coal. The significance of stable, low-carbon electricity in the context of deep decarbonisation is discussed in Volume IV [Chapter IV.3]. In that analysis, the only stable source of electricity with greenhouse gas emissions comparable to those associated with nuclear energy is hydropower, but for reasons presented in Volume IV [Chapter IV.3] it cannot be developed in Poland on a greater scale.

Table I.- 1 Results of the comparative analysis of the carbon footprint of nuclear technology and alternative technologies

Power generation technology	CO_2 emissions during the production of electricity (g CO_2e/kWh)
Biomass	106.0
Hydropower	4.49
Wind	28.5
Solar power	81.7
Natural gas	402.0
Coal	764.0
NPP Variant 1 — Lubiatowo - Kopalino site, sub-variant 1A — open cooling system	6.01
NPP Variant 1 – Lubiatowo - Kopalino site, sub-variant 1B – closed cooling system using seawater and NPP Variant 2 - Żarnowiec site, sub-variant 2A – closed cooling system using seawater	6.46
NPP Variant 1 – Lubiatowo - Kopalino site, sub-variant 1C – closed cooling system using desalinated seawater and NPP Variant 2 – Żarnowiec site, sub-variant 2B, closed cooling system using desalinated seawater	6.60

Source: [79]

The nuclear power plant construction variants presented in the table are described in chapter [Chapter I.9] and in Volume II. Detailed information on the carbon footprint analysis methodology is provided in the climate impact assessment which is presented in Volume IV.

I.6.2.3 Economy – stability of electricity prices and improvement of the economic competitiveness

In the PNPP [46], similarly as in PEP2040 [44], it is noted that "*The cost of electricity for consumers is of key significance for the economy and society owing to its impact on the prices of services, competitiveness of the national industry and population welfare."* The implementation of nuclear power can contribute to stopping the increase of energy costs for end users. It is due to the fact that nuclear power plants are the cheapest sources of energy considering the full cost account (investor, system, grid, environmental, health, and other external costs) and the factor related to their long operation following the depreciation period. It refers to both individual customers for whom the costs of using electricity constitute a material item of their household budgets, and industrial customers. For the industrial customers, stable and moderate energy prices enable planning long-term development and building competitive position on the market. In particular, they secure development of energy-consuming enterprises (e.g. metallurgical and chemical industries). As noted in the PNPP [46], "*the implementation of nuclear power will have a stabilising effect on electricity prices levels in the domestic market over a timeframe of at least 60 years"*.

I.6.3 Technological aspects

I.6.3.1 Nuclear fission reaction and nuclear reactors

The source of energy generated in all the modern nuclear power plants is a self-sustaining, controlled fission reaction of heavy nuclei of elements (in the vast majority of cases, uranium and plutonium), which takes place in nuclear reactors. The vast majority (more than 95%) of energy released during fission can be received in the form of heat. During the fission of a single nucleus of uranium U-235, approximately 207MeV of energy is released. It is a huge amount in comparison to the energy that can be generated in even the most energy efficient (exothermic) chemical reactions, and which does not exceed over a dozen eV. Therefore nuclear power plants need incommensurately less fuel than conventional, thermal power plants that rely on fossil fuels. One uranium pellet (weighing about 7g) produces as much energy as 477 litres of crude oil or 500m^3 of natural gas or 1 tonne of hard coal (www.polskiatom.gov.pl, according to FORATOM).

The most popular nuclear power technologies in the world include Light Water Reactors (LWR). They are thermal reactors where light (fresh) water is the moderator and coolant. Light water reactors include Pressurised Water Reactors (PWR) and Boiling Water Reactors (BWR). When it comes to light water reactors, pressurised water reactors have definitely become predominant. A detailed description of the preferred technology to be built within the Project is presented in Volume II [Chapter II.2].

I.6.3.2 Current status of nuclear power worldwide

At present, more than 440 nuclear power units with an installed capacity of nearly 400GWe are operated in over 30 countries worldwide. They generate over 2,500TWh of electricity which accounts for more than 10% of the overall worldwide production. Construction of more than 50 nuclear units is currently underway in 19 countries. Over 100 units with a total capacity of around 120GWe are being prepared for construction or are planned. Most nuclear units are currently being built in China and India, where the demand for new sources of electricity has continued to grow and the reduction of harmful emissions that stem from the power industry is necessary due to high air pollution in those countries.

Table I.- 2 Nuclear reactors in operation (as at August 2021)

Reactor type	Descriptive name of the reactor type	Number of units	Total net capacity [MWe]
PWR	Pressurised light-water cooled and moderated reactor	303	283,170
BWR	Boiling light-water cooled and moderated reactor	62	65,101
PHWR	Pressurised heavy-water cooled and moderated reactor	49	23,867
GCR	Gas cooled, graphite moderated reactor	14	7,725
LWGR	Light-water cooled, graphite moderated reactor	12	9,283
FBR	Fast breeder reactor	3	1,400

Source: In-house study based on [21]

Table I.- 3 Nuclear power units under construction (as at August 2021)

Reactor type	Descriptive name of the reactor type	Number of units	Total net capacity [MWe]
PWR	Pressurised light-water cooled and moderated reactor	43	47,882
BWR	Boiling light-water cooled and moderated reactor	2	5,253
PHWR	Pressurised heavy-water cooled and moderated reactor	3	2,520
HTGR	High-temperature gas cooled reactor	1	200
FBR	Fast breeder reactor	2	470

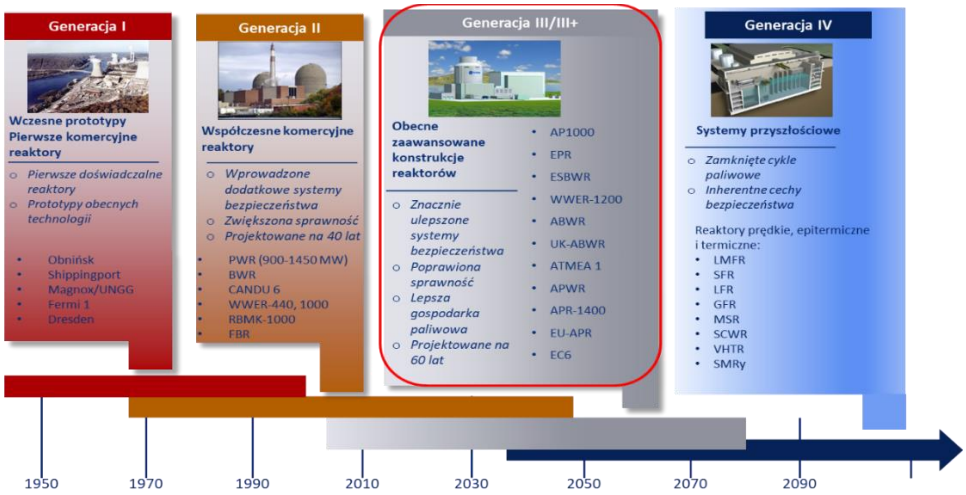
Source: In-house study based on [21]

The above data are derived from official statistics of the International Atomic Energy Agency (IAEA). Irrespective of the source of information on reactor statistics, it is clear that PWR units definitely prevail in the worldwide nuclear power industry. Furthermore, it is a growing trend with reference to units both under construction and planned, as compared to the units already in operation.

I.6.3.3 History of nuclear power in the world and in Poland

I.6.3.3.1 Evolution of nuclear power reactors and units

The history of using nuclear power to generate electricity dates back to the early 1950s. The following decades provided the public with increasingly modern and improved technical and technological solutions, which are today termed as the subsequent generations. The classification of reactors by generation thus reflects the nuclear power history and evolution of the safety systems used in nuclear power plants. Figure [Figure I.- 2] below presents a diagram with generations of nuclear power plants. The red frame marks the generation of nuclear power plants (III/III+) that the nuclear reactor technology selected for construction in Poland belongs to.



Generation I	Generation II	Generation III/III+		Generation IV
Early prototypes **First commercial reactors**	**Contemporary commercial reactors**	**Present advanced reactor designs**		**Systems of the future**
◦ *First experimental reactors* ◦ *Prototypes of the present technologies* • Obninsk • Shippingport • Magnox/UNGG • Fermi 1 • Dresden	◦ *Additional Safety systems introduced* ◦ *Increased efficiency* ◦ *Designed for 40 years* • PWR (900-1,450MW) • BWR • CANDU 6 • WWER-440, 1000 • RMBK-1000 • FBR	◦ *Significantly improved safety systems* ◦ *Improved efficiency* ◦ *Better fuel management* ◦ *Designed for 60 years*	• AP1000 • EPR • ESBWR • WWER-1200 • ABWR • UK-ABWR • ATMEA 1 • APWR • APR-1400 • EU-APR • EC6	◦ *Closed fuel cycles* ◦ *Inherent safety features* Fast, epithermal and thermal reactors: • LMFR • SFR • LFR • GFR • MSR • SCWR • VHTR • SMRs

Figure I.- 2 Generations of nuclear power plants

Source: In-house study

Generation III/III+

In the aftermath of two severe accidents at nuclear power plants – the Three Mile Island NPP (USA-Pennsylvania, 28 March 1979) and the Chornobyl NPP (former USSR-Ukraine, 26 April 1986), based on the conclusions from these accidents, designers and leading energy companies decided to design a new generation of NPPs with significantly improved nuclear safety features. These new NPP designs are based in particular on requirements of the European (EUR – European Utility Requirements for LWR Nuclear Power Plants [20]) and American (URD EPRI – Advanced LWR Utility Requirements Document [22]) power companies that have been developed since the early 1990s and are continuously improved in subsequent revisions. Recent editions of EUR documents (Revision E) and URD EPRI (Revision 13) also comprehensively take into account the lessons learned from the

severe accident caused by an earthquake and the subsequent tsunami, in the Japanese Fukushima Daichi NPP. It should be noted that the requirements included in these documents are usually much more detailed and sometimes also much more strict than those of nuclear regulators.

NPPs with Generation III/III+ reactors are characterised by a significantly wider use of passive solutions (i.e. automation – no power supply or external control required) than Generation II reactors, especially in safety systems designed to contain and mitigate the consequences of severe accidents involving core melt. Innovative NPP designs (such as the AP1000 reactor) with completely passive safety systems have also been developed. Reactors
equipped with extended passive safety systems (such as AP1000, EPR, EU-APR, HPR-1000, AES-2006) are defined as Generation III+.

Generation III/III+ reactors – in comparison with Generation II reactors – have the following characteristics:

- standard design solutions – which speed up the licensing process, reduce capital expenditure and shorten the construction period,
- simplified and stronger design, making them easier to operate and less prone to interference or failure,
- higher availability and longer design life (typically 60 years),
- much higher safety: probability of core meltdown reduced by about 100 times,
- minimised environmental impact,
- much greater degree of fuel burnup, thus reducing nuclear fuel consumption and the amount of high level waste.

Generation III+ reactors constitute a significant improvement on generation III reactor designs. The most recognisable features of generation III+ include the use of inherent and passive safety features, application of additional safety systems to contain and mitigate the impact of severe accidents that involve a core meltdown, as well as an increased resilience to extreme external hazards (in particular human induced events, including large aircraft crash), and ensuring safety in the event of a station black-out (SBO).

I.6.3.3.2 History of the use of nuclear power in Poland

The development of the first plans to introduce nuclear power in Poland started already in 1956 [17]. The decision to build the first nuclear power plant by Lake Żarnowieckie ("Żarnowiec" NPP) was made by the Government of the People's Republic of Poland in 1982. The "Żarnowiec" nuclear power plant was to have a gross capacity of 1,860MWe and consist of four nuclear power units with WWER-400 reactors (model W-213), each with a gross capacity of 465MWe. However, the construction started in times of a severe economic crisis and social unrest in the country, which resulted in significant delays. In 1990, the Polish Government decided to abandon the construction of the "Żarnowiec" NPP (at a point where the progress of work was estimated at about 40%) [16], [27], [28].

Although the first attempt at the construction of a nuclear power plant in Poland was not successful, the development of scientific, research and educational activities has continued since the mid-1950s. The beginning of the utilisation of nuclear power in Poland is related to the establishment of the Nuclear Research Institute (IBJ) in 1955, with its main office in Świerk near Warsaw. EWA, the first research reactor in Poland was built and commissioned in IBJ in 1958 (it was imported from the USSR and assembled in Świerk). Then in 1974, MARIA reactor which was built from scratch in Poland, was commissioned and has been operational till now. Thanks to the MARIA reactor, Poland has become one of the world's major producers of radiopharmaceuticals. At present, there are over a dozen scientific and research units in Poland which conduct their activity in areas directly or indirectly related to nuclear power, and in the past ten years, a number of Polish higher education institutions have pursued programmes aimed at the development of human resources for the nuclear power industry.

I.6.3.4 Technological solution adopted in the PNPP

According to the information provided in the Polish Nuclear Power Programme [46], "*One of the main factors that affect the amount of capital expenditure and the level of risk involved in construction is the maturity of technology and experience in the construction and operation of units of a particular type. Since the adoption of the PNPP Programme by the Council of Ministers in 2014, a significant progress has been made in implementing certain types (models) of reactors, and additionally extensive experience has been obtained as regards the selection of the site for the first nuclear power plant."* In the light of the information provided in [Chapter I.6.2.3], in order to mitigate the risks related to the construction of Polish nuclear power plants, when passing a resolution on the revision of the PNPP, the Council of Ministers of the Republic of Poland recommended selection of the PWR technology. It was considered the safest technology in terms of efficiency of the administrative procedure related to the issuance of a permit for the construction of a nuclear power plant, and also one that would minimise the costs of any action related to the construction process, including in respect of public expenditure.

I.7 The Project in the context of strategic documents

The Project is an investment project which has not yet been accomplished in Poland. It is a demanding investment challenge in terms of organisation, technology and finance. At the same time, it is an investment that supports the implementation of environmental targets assumed by Poland and required by the European Union, regarding primarily the reduction of greenhouse gas emissions. The targets were reflected in numerous strategic and planning documents. In this chapter, strategic documents and other material documents of the European Union and Poland, the provisions of which have an impact on the Project planned and will be implemented through the Project, are discussed and analysed. Additionally, this chapter describes, accordingly, strategic documents adopted by the European Union, national and regional documents which were considered material in terms of their significance for the Project, as well as the ones which the Investor was obliged to discuss in the EIA Report under the GDOŚ Decision. The documents the time horizon of which is shorter than the expected date of the EIA Report development for the Project, have been omitted from the discussion.

In chapter [Chapter I.7.4], documents regarding spatial planning at the regional level which were considered crucial by the Investor due to their importance for the Project, were also discussed.

This chapter was developed on the basis of the study entitled "The Spatial Planning Analysis. The Present Status for the EIA Report in the Lubiatowo - Kopalino Site, Part I" [24].

I.7.1 Strategic documents at the international level

1. Green Paper. A 2030 Framework for Climate and Energy Policies

Information on the document: *Communication from the Commission, 27 March 2013, COM(2013) 169 final [81]*

Time horizon: *until 2030*

Targets adopted in the above document refer to limitation of the increase in the average global temperatures to maximum 2°C as compared to the levels recorded before the industrial era. To reach the "2°C target" and be able to reduce the share of the EU economy in the emission of carbon compounds by 2050, already by 2030 the greenhouse gas emission need to be reduced by at least 40 percent as compared to 1990, so that the reduction by 80-95 percent is possible by 2050, and the share of renewable source energy in the total energy consumption must increase. Irrespective of the process of limiting the share of the EU economy in the emission of carbon compounds, the need to modernise the power system will also affect the energy price increase by 2030.

The European Union climate and energy policy is to lead to the achievement of the following policy objectives:

- reduction of the greenhouse gas emissions ("GHG emissions"),
- securing energy supply,
- supporting economic growth, competitiveness and jobs through "*a high technology, cost effective and resource efficient approach."*

The implementation of the Project planned will fulfil the objectives adopted in the document, chiefly because of the most important feature of the nuclear power plant, that is, the minimum greenhouse gas emission. An additional property of the Project which is consistent with the targets adopted in the above document, is the guarantee of electricity supply from a stable source while ensuring an option of operating the nuclear power plant in the load following mode, with the aim to ensure safety of the power system which uses renewable energy sources.

2. European Green Deal

Information on the document: *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee, and the Committee of the Regions, the European Green Deal, Brussels, 11 December 2019, COM(2019) 640 final [19]*

Time horizon: *until 2050*

The European Green Deal contains the obligation of the European Union to become climate neutral by 2050. To achieve that goal, a social and economic transformation in Europe will be needed: cost-effective and just, and socially sustainable. The document is an integral part of a strategy prepared by the European Commission to implement the United Nations 2030 Agenda for Sustainable Development and sustainable development goals.

Under the European Green Deal, the European Climate Law is developed, the effects of which will include the following:

- reduction of the greenhouse gas emissions by 2050;
- assurance that the transition to climate neutrality is irreversible,
- providing predictable business environment for the industry and investors, indicating what should be done and how quickly.

In the above document, detailed elements of the Green Deal are described, which include:

- more ambitious EU climate goals for 2030 and 2050,
- supply of clean, affordable and secure energy,
- mobilisation of the industry sector for the clean circular economy,
- construction and repairs conducted in a manner that saves energy and resources,
- zero pollution emission for a non-toxic environment.

The goals indicated in the European Green Deal are definitely convergent with the objectives related to the construction of nuclear power plants. In the above document, there is no direct reference to nuclear power (the document emphasizes in particular renewable resources), nevertheless when analysing the document framework it can be stated that the Project fits that framework predominantly in terms of the following environmental objectives: pollution emission, achievement of climate goals, clean and secure energy, and even the protection and recovery of ecosystems.

3. <u>Energy Roadmap 2050</u>

Information on the document: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions, Brussels, 15 December 2011, COM(2011) 885 final [39]*

Time horizon: *until 2050*

The objective of the Energy Roadmap 2050 is to accomplish the goals with respect to low emissions of carbon dioxide by 2050, taking into consideration the improvement of competitiveness and security of supplies in Europe. The EU Member States should, when planning the national energy policy, join forces with regard to coordination of actions in a broader context. In the Energy Roadmap 2050, a manner of achieving the above goal without disruptions in energy supply or deterioration of competitiveness, was presented. The analysis of various scenarios constituted the basis for a description of consequences of the zero-emission energy system and the strategic framework necessary to implement this goal.

The above-mentioned document specified ten structural changes necessary to transform the power system, including the share of nuclear energy as a material contribution into the process of the energy system transformation in the Member States.

According to the document, the nuclear energy is the energy production source which has the highest share in the entire energy generation process using low emission technologies. The document states that "*nuclear energy contributes to lower system costs and electricity prices. As a large-scale low-carbon option, nuclear energy will remain in the EU power generation mix. The Commission will continue to further the nuclear safety and security framework, helping to set a level playing field for investments in Member States willing to keep the nuclear option*

in their energy mix. The highest safety and security standards need to be further ensured in the EU and globally, which can only happen if competence and technology leadership is maintained within the EU. Furthermore, on a 2050 perspective, it will become clearer which role fusion power will be able to play."

The analysis of the above document shows that the Project is consistent with the objectives of the said document, which refer to the issues related with the natural environment and methods of its protection, and also it constitutes a response to the need voiced in the document to develop modern nuclear power as one of the sources of reaching the strategic/power generation targets.

4. A policy framework for climate and energy in the period from 2020 to 2030

Information on the document: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions, Brussels, 4 February 2014, COM(2014) 15 final/2 [48]*

Time horizon: *for the years 2020-2030*

The document defines a framework for future EU energy and climate policies and launches a process to arrive at a shared approach to its implementation in the future. The main objectives presented in the document include the following:

- achievement of the GHG emission reduction by 40% until 2030, compared to the level recorded in 1990. The target will be the centre piece of the EU's energy and climate policy until 2030 to be shared between the EU emissions trading system (ETS) sectors and non-ETS sectors. The target for the non-ETS sectors will be allocated among Member States,
- increase in the share of renewable energy to 27% in the total balance of energy consumption in the EU until 2030, with flexibility for Member States to set national objectives.

According to the announcements of the European Union, the proposals presented in the communication are to increase flexibility of decisions taken by Member States while strengthening the management of the EU objectives with respect to renewable energy and energy saving. The proposals include also the ones related to nuclear energy. The nuclear fuel utilisation is to improve energy security. Each Member State should have a national plan in place regarding a competitive, secure and sustainable energy, to include planning of new governance system activities as well as a description of actions referring to the national energy mix, for example new generation capacity related to nuclear energy.

Considering that the Project is characterised by a low emission of greenhouse gases, it will ensure further reduction of GHG emissions in line with the main objective of the document discussed.

5. European Energy Security Strategy

Information on the document: *Communication from the Commission to the European Parliament and the Council, Brussels, 28 May 2014, COM(2014) 330 final [18]*

Time horizon: *for the years 2020-2030*

The document defines eight key pillars to provide energy in a secure, competitive and low-emission manner (the main EU targets), through promoting a close cooperation among Member States. The document was focused mainly on primary energy sources, market structure and infrastructure and the related perspectives.

One of the major aspects discussed in the European Energy Security Strategy is the increase in the energy production in the European Union using the nuclear energy, along with the necessary development of the relevant infrastructure. The document points out that "*Electricity produced from nuclear power plants constitutes a low in emissions, reliable base-load electricity supply and plays an important role in energy security. The relative value of the nuclear fuel is marginal in relation to the total production cost of electricity by gas or coal fired plants, and uranium is only a small part of the total cost of the nuclear fuel. The worldwide uranium supply market is stable and well-diversified but the EU is nonetheless completely dependent on external supplies. There are only*

a few entities in the world that are able to transform uranium into fuel for the nuclear reactors, but EU industry has technological leadership on the whole chain, including enrichment and reprocessing."

The Project is consistent with the accomplishment of the target specified in the above document, by ensuring the secure, competitive and low-emission electricity supply.

6. Energy Efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy

Information on the document: *Communication from the Commission to the European Parliament and the Council, Brussels, 23 July 2014, COM(2014) 520 final [14]*

Time horizon: *until 2030*

The main target described/indicated in the document is to guarantee that energy efficiency contributes to the development of a competitive, sustainable and secure energy system in the European Union. On that basis, specific objectives were determined as follows:

- reaching an agreement as to the actions required to achieve the energy efficiency target of 20% in 2020, which means that the relevant entities should receive information about activities needed to be undertaken in the near future,
- reaching an agreement as to the level of ambition of the policy regarding the energy efficiency in the long-term perspective, which will provide a greater predictability and certainty to Member States and investors.

The Project will be based on the technology which ensures a significant energy efficiency at the simultaneous low greenhouse emission which means that it does not jeopardize the achievement of targets indicated in this document, and quite the opposite, it enhances their accomplishment.

7. Conclusions of the European Council of 24 October 2015 on 2030 Climate and Energy Policy Framework

Information on the document: *Conclusions of the European Council of 24 October 2015 on 2030 Climate and Energy Policy Framework, Brussels, 24 October 2014 (OR. en), EUCO 169/14 [30]*

Time horizon: *until 2030 (Climate and Energy Policy Framework)*

In the above document, it was confirmed that the European Council agreed on the climate and energy policy framework of the European Union until 2030, and approved the binding EU target that assumed the reduction of internal greenhouse gas emissions until 2030 by at least 40% as compared to the 1990 level.

The said document refers to the achievement of the target regarding the reduction of greenhouse gas emissions, renewable energy sources and energy efficiency, accomplishment of the fully operating and internally combined energy market, energy security, the manner of climate and energy policy management.

The main feature of the Project is little emission of greenhouse gases and, as a consequence, contribution to the reduction of their emission by replacing generation units that produce significant quantities of greenhouse gases, which is thus consistent with the targets assumed in the above document.

8. A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy

Information on the document: *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, Brussels, 25 February 2015, COM(2015) 80 final [58]*

Time horizon: *not specified (indirectly by 2030, in connection with other EU strategic documents)*

The document determines principles governing development of an energy union (understood as national energy markets integrated into one common market), the basic goal of which is to provide consumers with secure, competitive, and sustainable (in terms of sources) energy at affordable prices. The union is to be based on five

interrelated dimensions, namely energy security, integration of the European energy market, energy efficiency that contributes to the demand reduction, economy decarbonisation, and scientific research and innovation.

With respect to nuclear energy, the document indicates that this source constitutes a very important component of the EU energy mix, while Member States depend on the import of nuclear fuel. Development of nuclear energy and the related technologies will be the basis for the transformation of the energy union into a driver of economic growth, employment and competitiveness. Therefore, the European Union should also ensure retaining the leading position in the nuclear technology.

The Project falls in line with the objectives specified in the document, due to the fact that it will ensure stable and secure electricity and will have a positive impact on the environment by reducing the emission of greenhouse gases.

I.7.2 Strategic documents at the national level

1. <u>Polish Nuclear Power Programme [Program polskiej energetyki jądrowej]</u>

Information on the document: *Resolution No 15/2014 of the Council of Ministers of 8 January 2014 on a long-term programme entitled 'Polish Nuclear Power Programme'; Resolution No. 141 of the Council of Ministers of 2 October 2020 on updating the multi-annual programme entitled "Polish Nuclear Power Programme" [46]*

Time horizon: *for the years 2020-2023 (with prospect until 2040)*

The Polish Nuclear Power Programme is a strategic government document that constitutes the basis for and the plan of activities for the construction of the first Polish Nuclear Power Plant. It was first published in 2014, and then updated in 2020. The general objective of the PNPP is consistent with "Energy Policy of Poland until 2040" and the National Plan for Energy and Climate for the years 2021-2030: ensuring energy security for the society and economy, with competitive prices of energy, while also meeting the environmental requirements.

The PNPP establishes the tasks that will be carried out by state administration, the investor, the nuclear regulator, and other entities involved in the Project, in the following areas:

- implementation of nuclear power in Poland,
- ensuring safe and effective operation of the nuclear power plant and associated facilities,
- ensuring proper decommissioning of nuclear power facilities after the end of the operational period,
- ensuring safety in spent fuel and radioactive waste management.

The objective of the implementation of the Polish Nuclear Power Programme is to construct 6 – 9 GWe of installed nuclear power capacity in the form of large, proven PWR reactors.

The PNPP also specifies the costs associated with the implementation of the document until 2033, i.e. until the end of the execution of stage I involving the start-up of the first nuclear power plant. Moreover, the PNPP presents not only the material scope of the preparation of the Project, but also the human resources development plan and the plan for the execution of the associated infrastructure.

The environmental aspect, which is important from the perspective of the execution of the Project, is one of key issues raised in the Polish Nuclear Power Programme. Nuclear energy is an important element of counteracting climate change. Together with RES, nuclear energy sets the direction for the energy transformation and is meant to help achieve the objective of climate neutrality. These power sources contribute to an effective, efficient, and deep decarbonisation of power generation. At the same time, one should note that special emphasis on the safety of operation and management of radioactive waste and spent nuclear fuel is required to ensure that the entire process of execution and operation of this type of investment has no adverse impacts on the environment,
.

The issues connected with the spatial analyses are presented in section 1.4 of the PNPP, which specifies the sites that were originally analysed. They included Żarnowiec and Lubiatowo - Kopalino, which were considered the

most favourable. The works included in the scope of the environmental surveys and site investigations are the most advanced in the case of the Żarnowiec and Lubiatowo – Kopalino sites. The considerations that underpin their selection include i.a.: significant electricity demand and the lack of available large generation sources in the region, access to cooling water, possibility to transport large-sized cargo by sea. In view of the progress of the works and other considerations, the location in which the first nuclear power plant will be constructed will be selected from among the coastal sites.

Section 2.2.1 of the PNPP points to the need to realise power engineering investments, meant to evacuate power to the NPS. The power plant will be connected to the NPS consisting of new 400 and 220kV power lines and power stations. The power plant's home load supply will be supported by 110kV networks that also need to be constructed. The execution of such an investment should take into account the considerations associated with the location of elements of infrastructure for other investments (e.g. associated with the development of offshore energy).

The scope of section 2.2.2. of the PNPP "Transport Infrastructure" includes the designation of the priorities associated with the development of a communication network, especially with regard to roads, railways, marine transport, air transport.

A strategic environmental impact assessment was carried out, including an assessment of the effects of the implementation of the "Polish Nuclear Power Programme" . They include recommendations in the document that indirectly and directly translate to the Project implementation:

- minimisation of the negative impacts currently associated with the operation of the power sector, especially by reducing the social cost associated with power generation, as well as reducing the greenhouse gas emissions,
- in selecting a site, one should consider and analyse the technical possibilities and economic efficiency of cogeneration of heat and electricity in the power plant,
- the development of nuclear power should be carried out in a way that prevents the escalation of potential social conflicts, with all the activities being fully transparent and all the interested parties being involved in a dialogue.

It should be emphasised that the Project is meant to fulfill the assumptions adopted in the PNPP.

2. <u>Energy Policy of Poland until 2040</u>

Information on the document: *Attachment to the Announcement of 2 March 2021 by the Minister of Climate and Environment on the energy policy of the State until 2040 [44]*

Time horizon: *until 2040*

The objective assumed in PEP2040 is to ensure the country's energy security, improve the competitiveness of the economy and its energy efficiency, as well as to protect the environment. The Energy Policy of Poland is based on three pillars:

- just transformation
- zero-emission energy system
- good air quality.

The realisation of an investment in the field of nuclear power is one of the 8 specific objectives of Energy Policy of Poland until 2040 (arising from the three pillars mentioned above). From the perspective of the Project, the most important ones include: objective 5: *"Implementation of nuclear power"* which will result in the reduction of the emission performance of the power sector, and the operational safety of the system within which tasks are set, including:

- the commissioning of the first nuclear power unit with a capacity of 1.0-1.5GW by 2033, and five more units by 2043 (a total of around 6.0-9.0 GW),

- development of a formal, legal and economic framework for the construction and operation of nuclear power,
- qualified personnel,
- development of the nuclear regulator,
- provision of a disposal facility for low level and intermediate level radioactive waste.

PEP2040 describes in detail the process of implementation of the project of the first Polish Nuclear Power Plant. According to PEP2040: *"The first unit (with a capacity of around 1.0-1.5GW) of the first nuclear power plant is scheduled to be commissioned in 2033, with five more units planned to be commissioned at intervals of 2-3 years over the following years. These time frames result from the power balance in the national power system. Without additional investment in new energy sources, there will be further shortfalls in meeting the increase in power demand at that time due to the wear of existing generating units, especially coal-fired ones. At the same time, it will allow for the reduction of national emissions of greenhouse gases and air pollutants (both CO_2, and others, e.g. NOX, SOX, particulates) from the energy sector. (...) Generating the first unit of energy in a nuclear power plant in Poland requires a number of actions. First, a model for financing the investment will be developed, followed by the selection of technology and the general contractor for the project. The choice of the location is determined by the access to cooling water, but also by the possibility of grid connection and decommissioning of other units in various parts of the country. For this reason, the main locations for nuclear power plant construction being considered are first the coast (Lubiatowo-Kopalino site and Żarnowiec), and then the central part of Poland (around Bełchatów or Pątnów). A number of changes in legal regulations will also be necessary, as the current regulations do not ensure efficient implementation of this type of investment."*

One of the actions specified in the document is the designation of the site for the first nuclear power plant – Kopalino / Żarnowiec (and then selection of sites for the subsequent nuclear power plants) – until 2021 (2028) as well as the *"construction and commissioning of nuclear units – 2024-2043, the first nuclear unit by 2033, another five nuclear units (every 2-3 years) – by 2043".*

The next objective that falls into the aspects associated with environmental protection and those important from the perspective of Project implementation is specific objective 8: *"Improvement of energy efficiency"* that will involve i.a. improving the energy savings with regard to primary energy (by 23% until 2030, as compared to the 2007 forecasts). The improvement in energy efficiency of the economy will thus not only allow for a reduction in the so-called energy poverty, but also for the more widespread use of electricity in heating (provision of effective and ecological access to heat).

Given the above, it is worth noting that PEP2040 clearly states that nuclear power should serve a vital role and allow for the fulfillment of the objectives set out in PEP2040 and especially ensure energy security.

3. <u>National Energy and Climate Plan for the years 2021-2030</u>

Information on the document: *Document developed by the Minister of State Assets [36]*

Time horizon: *until 2030*

The document presents the national assumptions and goals that translate to policies and activities in individual areas. They will result in increasing the broadly understood energy security of the country while respecting the environmental protection principles, including the protection of climate.

The policies and activities serve to elaborate the assumptions and pertain to the same issues, as shown above.

The document directly and indirectly pertains to aspects important from the perspective of the Project and proposes solutions that give direction to the development of the nuclear energy system: "*to cover the growing demand for electricity, it will be necessary to increase electricity generation capacity. The implementation of nuclear energy in Poland is indicated in the national plan as important from the perspective of ensuring stable electricity supply and diversifying energy sources. The commissioning of the first nuclear power unit (with a capacity of around 1.0-1.5GW) of the first nuclear power plant is planned for 2033 (introduction into the energy*

balance). In the years following, the commissioning of five more such units is planned every 2-3 years (with a total capacity of around 6.0-9.0GW)."

The implementation of nuclear energy is one of the elements of the climate and energy policy (for instance with regard to the reduction of pollutant emissions, reduction of CO_2 emissions), and is also consistent with the objectives of the establishment of an Energy Union between the EU Member States.

In view of the above, it should be noted that the Project is not only consistent with the objectives laid down in the "National Energy and Climate Plan for the years 2021-2030", but that it will also ensure their successful fulfillment.

4. Strategic adaptation plan for sectors and areas sensitive to climate change until 2020, with a perspective until 2030

Information on the document: *Document adopted on 29 October 2013 by the Council of Ministers [60]*

Time horizon: *until 2030*

It is the first strategic document that directly pertains to the issue of adapting to the ongoing climate change.

The main objective of the "Strategic adaptation plan for sectors and areas sensitive to climate changes until 2020, with a perspective until 2030" is to ensure sustainable development and effective functioning of the economy and society in a changing climate. The document indicates the directions of intervention that aim to adapt to climate change until 2020. These objectives correspond to the areas that are most sensitive to climate change, including those related to: water management, agriculture and forestry, biodiversity, health and quality of life, construction industry, technical and communication infrastructure, spatial management.

The document recalls priority action 1.3 (within the scope of the line of action - adjusting the power sector to the climate changes) involving preparation of the *"energy system for the changed conditions taking into account the summer and winter peak energy demand"* included in the Energy Security and the Environment strategy. One of the adaptive actions in this regard is Action 2.4. "Modernisation of the sector of professional power engineering, including preparations for the implementation of nuclear energy" is one of the adaptive actions in this regard.

The above document recognises the need to implement nuclear energy as an element that is necessary to adapt the energy sector to climate change, confirming the consistency of the Project with the above document.

5. The 2030 National Environmental Policy – the Development Strategy in the Area of the Environment and Water Management

Information on the document: *Resolution No. 67 of the Council of Ministers of 16 July 2019 on adopting "The 2030 National Environmental Policy - the Development Strategy in the Area of the Environment and Water Management" [43]*

Time horizon: *until 2030*

"The 2030 National Environmental Policy – the Development Strategy in the Area of the Environment and Water Management" is one of the new sectorial strategies set for implementation in the *"Strategy for Responsible Development for the period up to 2020 (including the perspective up to 2030)".*

The main objective of "*The 2030 National Environmental Policy – the Development Strategy in the Area of the Environment and Water Management*" is to *"develop the environmental potential for citizens and undertakings".* To this end, the document lists the specific objectives as well as activities and tasks. The specific objectives are:

- Environment and health. Improving the quality of the environment and environmental safety,
- Environment and economy. Sustainable management of environmental resources;
- Environment and climate. Climate change mitigation and adaptation along with managing the risk of natural disasters.

The specific objectives include: *"Environment and health. Improving the quality of the environment and environmental safety" along with a defined direction of intervention: Tackling threats to the environment and ensuring biological security, nuclear safety, and radiological protection".* In turn, the activities in the field of nuclear energy (of a very general nature) are defined in the so-called strategic action No. 35 "Ensuring nuclear safety and radiological protection" (with a time horizon up to 2035), where 6 tasks were specified, including: task 2 - supervising safety of the environment and society by performing safety assessment, issuing licences and decisions, as well as inspecting the construction, commissioning, and decommissioning of nuclear facilities and other activities related to radiation exposure.

The analysis of "*The 2030 National Environmental Policy – the Development Strategy in the Area of the Environment and Water Management"* points to the fact that the document contains references to aspects important from the perspective of the Project. The issues included in the analysed document and pertaining to the questions related to the natural environment in the context of nuclear energy are included in practically all of the strategic objectives and directions of intervention (both directly and indirectly).

6. 2030 Productivity Strategy

Information about the document: *draft of the document (version of 29 September 2020) published on the websites of the Ministry of Development, Labour, and Technology, subjected to public consultations [57]*

Time horizon: *until 2030*

The *"2030 Productivity Strategy"* will be one of nine integrated strategies elaborating on the provisions of the Strategy for Responsible Development. The document sets the directions of interventions and support instruments that are meant to stimulate the increase in the level of investments and productivity of companies. The draft Strategy identifies seven areas that are key for the transformation towards an economy of the future. Energy industry is one of the most important branches of the national economy and was included as an element supporting the implementation of the policy of transformation towards climate neutrality in the context of the country's industrial policy. The "2030 Productivity Strategy" stresses the need to develop zero carbon energy sources and technologies that also include nuclear energy - carried out within task I "Natural resources (land and resources)".

7. Assumptions for the National Programme for Development of Low-Carbon Economy

Information on the document: *Document adopted by the Council of Ministers on 16 August 2011 [80]*

Time horizon: *until 2050*

The justification of the document states that nuclear power may not only contribute to the increase in the security of energy supply, diversification of the sources and methods of power generation, but it may also support economic growth i.a. by improving the effectiveness of the management of natural resources and energy, as well as through technological innovations. One of the 6 specific objectives of the "Assumptions for the National Programme for Development of Low-Carbon Economy" is to develop low-carbon energy sources, which also includes the development of nuclear energy. The development of this area will allow for meeting the main objective ("Development of low-carbon economy while ensuring sustainable development of the country") and specific objectives listed in the above document will bring about positive changes in the country's economy. At the same time, the document points to the fact that some of the European countries decided to abandon this form of power generation, a fact that may result in a shift in the structure of the energy mix towards fossil fuels.

The above document does not directly mention the site of the Project, nor does it provide any detailed assumptions associated with the planned Project. However, with regard to the natural environment and references important from the perspective of the planned Project, the above document states that "*transforming the economy to a low-carbon economy, and thus reducing the emissions of greenhouse gases and other substances is not only considered to be a key step towards ensuring a stable environment, but also an element of long-term sustainable development."*

A draft of the National Programme for Development of Low-Carbon Economy was developed for the assumptions (draft: version of 4 August 2015). The document states that nuclear energy will be an important element of the transformation of Polish economy, which will contribute to the protection of natural environment. The main element of the "Assumptions for the National Programme for Development of Low-Carbon Economy", and especially of the "National Programme for Development of Low-Carbon Economy" developed on its basis is to secure economic, social, and environmental benefits that stem from activities that reduce emissions.

8. National Plan of Management of Radioactive Waste and Spent Nuclear Fuel

Information on the document: *Resolution No. 154 of the Council of Ministers of 21 October 2020 on updating the "National Plan of Management of Radioactive Waste and Spent Nuclear Fuel" [37]*

Time horizon: *until 2050*

The document is intended to ensure development and implementation of a nationwide, coherent, integrated and sustainable management system, covering all the categories of radioactive waste produced in the country. The activities stipulated by the document will provide for a responsible, safe, and sustainable management of radioactive waste and spent nuclear fuel.

The entire document deals with nuclear energy; it lays down the tasks necessary for the proper management of radioactive waste not only in the context of the protection of natural resources, but also the protection of human life and health. The above document also points to:

- the need to develop a new national radioactive waste disposal facility,
- the need to establish a research laboratory,
- the rules for the management of radioactive waste and spent nuclear fuel and for the decommissioning of the nuclear power plant,
- the need to create a research programme regarding the management of radioactive waste,
- the need to prepare appropriate personnel for business entities involved in the management of radioactive waste.

The environmental issues, important from the perspective of the Project, are mentioned in almost every task and objective of the document. Ensuring a maximum level of safety for people and the environment will involve suitable protection and isolation of waste on the Project site, in transport, and on the disposal site.

9. Strategy for Responsible Development for the period up to 2020 (including the perspective up to 2030)

Information on the document: *Resolution No. 8 of the Council of Ministers of 14 February 2017 on adopting the Strategy for Responsible Development for the period up to 2020 (including the perspective up to 2030) [56]*

Time horizon: *until 2020, with a prospect until 2030*

Energy generation, including nuclear power, is one of the areas that have an impact on the fulfillment of the specific objectives laid down in the *"Strategy for Responsible Development for the period up to 2020 (including the perspective up to 2030)"*. Common access to energy from various sources will be ensured i.a. by the implementation of nuclear power. The document lists two NPP site variants - Lubiatowo-Kopalino and Żarnowiec. Moreover, the direction of intervention titled "Improvement of the country's energy security" specifies that one of the tasks that will help achieve this objective involves supporting the generation and use of energy from new sources, including the development of nuclear power (as an investment in low-carbon generation capacity) and, in general, ensuring diversity of the sources of electricity generation. The Polish Nuclear Power Programme will be one of the strategic projects supporting this activity.

The *"Strategy for Responsible Development for the period up to 2020 (including the perspective up to 2030)"* contains indirect references to aspects important from the perspective of the Project, i.a. with regard to energy efficiency, innovation aimed at further reducing the negative impact on the natural environment due to

production processes. The removal of the sources of air pollution emissions or significant reduction of their impact that the Project would certainly result in, is another direction of intervention that indirectly falls within the reference framework for the analysed Project with regard to the environment.

10. National Strategy of Regional Development 2030

Information on the document: *Resolution No. 102 of the Council of Ministers of 17 September 2019 on adopting the "National Strategy of Regional Development 2030" [35]*

Time horizon: *until 2030*

The above document only refers to the information on the need to modernise the transmission and distribution infrastructure and the power units in power plants. Attention was drawn to the need to invest in new generation capacity, including 6 nuclear power plant units, without any sites being designated and without any other spatial references.

The above document indirectly refers to the implementation of the Project, pointing to the fact that one of the challenges for regional policies is to *"adapt to climate change and mitigate threats to the environment"* , an objective the fulfillment of which the Project may certainly facilitate.

11. National Security Strategy of the Republic of Poland 2020

Information on the document: *Decision of the President of the Republic of Poland of 12 May 2020 on the adoption of the "National Security Strategy of the Republic of Poland" [55]*

Time horizon: *undefined*

The document states that the broadly understood national security relies on 4 pillars:

- security of the state and its citizens,
- Poland in the international security system,
- identity and national heritage,
- social and economic development; environmental protection.

The analysis of "National Security Strategy of the Republic of Poland 2020" shows that it contains direct references to aspects important from the perspective of the implementation of the Project, associated with protection of the environment by ensuring the energy security of the state, based on traditional energy sources, by creating conditions for the development of alternatives, but it does not directly state that nuclear energy is an example of such an alternative.

With regard to the protection of the environment in the context of the planned Project, the above document points to the need to ensure the ecological security of the state, and one of the suggested directions of action is *support for the development of energy industry based on the use of zero-emission energy sources*, and nuclear energy is certainly one of such sources. In this context, the implementation of the Project is consistent with the objectives laid down in the above document.

I.8 Assumptions for and the way of developing the EIA Report

I.8.1 Entity developing the EIA Report

The commencement of preparations for the construction of nuclear power plants in Poland was validated by the resolution of the Council of Ministers of 13 January 2009 on activities undertaken with regard to the development of nuclear power, which included a provision that designated PGE Polska Grupa Energetyczna S.A. as the entity responsible for the cooperation in preparing and implementing the Polish Nuclear Power Programme. The next step involved the development of a "Framework time schedule for nuclear power activities" by the Government Plenipotentiary for Polish Nuclear Power (established by the regulation of the Council of Ministers of 12 May 2009 [53]), which was submitted to the Council of Ministers on 11 August 2009. In order to implement the project in keeping with the adopted schedule, PGE S.A. PGE Polska Grupa Energetyczna S.A. established a special purpose vehicle, PGE EJ 1 sp. z o.o. (currently Polskie Elektrownie Jądrowe sp. z o.o) to construct the first Polish Nuclear Power Plant. Polskie Elektrownie Jądrowe sp. z o.o Pursuant to the contract concluded with the previous shareholders, 100% of the shares in PEJ sp. z o.o. was then acquired by the State Treasury on 31 March 2021.

The progress and complexity of the project design was affected by the fact that the concept for the implementation of the PNPP was developed concurrently with the works that were ultimately meant to support environmental impact assessment. The process of the development of design assumptions, which was prolonged for various reasons, often beyond the investor's control, allowed the investor to properly prepare from the organisational perspective, as proven by the fact that a competent team of environmental impact assessment experts, consisting of specialists in many areas, was built. This made it possible to independently begin to develop the necessary documentation - with the use of own resources, in accordance with the requirements of the EIA Act [75] and of the GDOŚ decision regarding the determination of the scope of the environmental impact assessment report [45].

The present EIA Report is the first document of this type developed in Poland for a nuclear power plant, thus during the entire process of its development, the Applicant was continually supported by a dedicated team of the Technical Advisor, composed of experienced specialists who participated in the development of similar documentation for other nuclear power plants. The very development of individual chapters of the EIA Report was subjected to periodic reviews and validation activities carried out by independent teams of both the Technical Advisor and the Investor. At the same time, apart from the Technical Advisor, the entities involved in the process of development of the EIA report included a number of Polish scientific bodies and a variety of specialists experienced in developing EIA Reports for major infrastructure investments.

I.8.2 General concept for the development of the EIA Report

The general concept for the development of the EIA Report takes into account both the formal and legal requirements resulting from the provisions of the Polish law and the Community law, and the methodological requirements resulting from best practice, and especially the requirements laid down in the GDOŚ decision [45]. The concept is based on the general assumption that due to the specificity of the Project, special attention should be paid to the identification of the impacts that may result in changes in the environment, especially with regard to its most valuable or sensitive elements. Such an approach results in the need to identify the causal factors that may result in changes in the environment - resulting from the characteristics of the Project and the environmental characteristics with regard to the possibility of these changes occurring.

The development of the present EIA Report was a complex and time-consuming process, as it required prior conduct of a comprehensive survey programme (unique with regard to all the investments executed in Poland to this date) for the selected site variants, and then a thorough analysis of the collected data.

The examination of the environmental value, and thus the accuracy and way of describing the biotic and abiotic environment, has to address both the question of how the environment will affect the investment, and how the implementation of the investment will affect the environment. This also applies to the economic, social, as well as formal and legal aspects.

The development of the present EIA Report consisted of the following 8 stages:

Stage 1: Developing a programme of surveys of the existing environmental status and commencing its implementation

The stage involved the development of a detailed programme of site investigations and environmental surveys required for the development of the Site Evaluation Report [51] as well as the EIA Report, while taking into account the requirements of the Decision, the EIA Act [75], and international guidelines, including especially the IAEA guidelines [25]. At the same time, the assumptions for the conduct of works allowed for their results to be further analysed separately for each of the site variants and their sub-variants.

The development of the scope of the survey programme was preceded by collecting all the information regarding the Project available at that time, and then the development and designation of the territorial scope of the surveys on their basis, as well as the scope of surveys for the individual elements of the environment.

Given the differing specificity and scope of surveys of individual elements of the environment, as well as the differing formal and legal requirements, areas in which surveys at various levels of detail were conducted had been distinguished. The individual areas are described in detail in Volume III [Chapter III.1]. This approach made it possible to conduct a comprehensive programme of environmental surveys in the area that will ultimately cover both the Project Area and the area in which the potential impacts resulting from the implementation of the Project may arise for each of the considered site variants and their sub-variants.

This stage ended with the commencement of the programme of surveys of the existing environmental status. At the same time, it should be noted that before the programme commenced, its scope was confirmed with respect to the requirements laid down in the GDOŚ Decision [45].

Stage 2: Examination of the existing environmental status

This stage of the development of the EIA Report involved surveys of the existing status of the individual elements of the environment. The surveys were carried out at the same time, and at the same level of detail for the two considered site variants:

- **Variant 1 – Lubiatowo – Kopalino site;**
- **Variant 2 – Żarnowiec site.**

The scope of the research covered the following topics:

1. **Biota** (natural inventory, land and marine part) - Volume III [Chapter III.2];
2. **Climate and meteorological conditions** - Volume III [Chapter III.3.2];
3. **Geology** (including geomorphology, seabed geology, as well as seismic and tectonic conditions) - Volume III [Chapter III.3.3];
4. **Soil quality** - Volume III [Chapter III.3.4];
5. **Hydrogeology** (quantitative and qualitative assessment) - Volume III [Chapter III.3.5];
6. **Hydrology** (land and marine parts, quantitative and qualitative assessment) - Volume III [Chapter III.3.6 and III.3.7];
7. **Ambient air quality** - Volume III [Chapter III.3.8];
8. **Acoustic environment** - Volume III [Chapter III.3.9];
9. **Electromagnetic field** - Volume III [Chapter III.3.10];

10. Ionising radiation background - Volume III [Chapter III.3.11];

11. Landscape - Volume III [Chapter III.3.12];

12. Location of archaeological sites and monuments - Volume III [Chapter III.3.13];

13. Socio-economic conditions (including the current spatial development plan) - Volume III [Chapter III.4].

The largest survey area was adopted for the surveys associated with the assessment of the area with regard to the seismic and tectonic conditions. The surveys were carried out in accordance with recommendations of the International Atomic Energy Agency [26] in the area within 300km of the considered site variant, i.e. in the Macroregion. The site area was the basis for designating the survey areas for the purpose of the natural inventory and surveys of the acoustic climate, for soil quality surveys it was the Assumed Project Site, and for remaining surveys - the Site Region. The exceptions included surveys that could not be carried out within the designated boundaries of the Site Region or Site Area due to the specificity of the surveyed element. Examples of such surveys include hydrological monitoring or hydrological charting – in both cases, the surveys were carried out within the area of river catchments, or socio-economic conditions, for which surveys were carried out within the administrative boundaries of the communes located (entirely or partly) in the Site Area or in the Site Region, which resulted in the designation of the Administrative Site Area (ASA) and the Administrative Site Region (ASR) respectively. The individual areas are described in detail in Volume III [Chapter III.1].

The description of the existing status of the individual elements of the environment with respect to the site variants, developed on the basis of the environmental surveys and supplemented with available data from written sources, is presented in Volume III of the present EIA Report.

Stage 3: Particularisation of the information on the Project with regard to technical data and technological solutions

At this stage, the knowledge about the Project, regarding the technical data and adopted technological solutions, was broadened and systematised. The description is included in Volume II of the present EIA Report.

It made it possible to develop a detailed description of the Project, taking into account the phases and stages of its implementation, such as:

- **Construction phase:**
  - **Development stage;**
  - **Construction stage**;
  - **Commissioning stage;**
- **Operational phase;**
- **Decommissioning phase.**

The said stage (Stage 3) also involved the updating of the site general arrangements of the NPP which were then used to designate the Project Area for each of the considered site variants [Figure I.- 3], which, in turn, served as a point of reference in the designation of the types and ranges of impacts presented in Volume IV of the present EIA Report.

The boundaries of the Project Area of each of the site variants cover the area surveyed in terms of the existing environmental status.

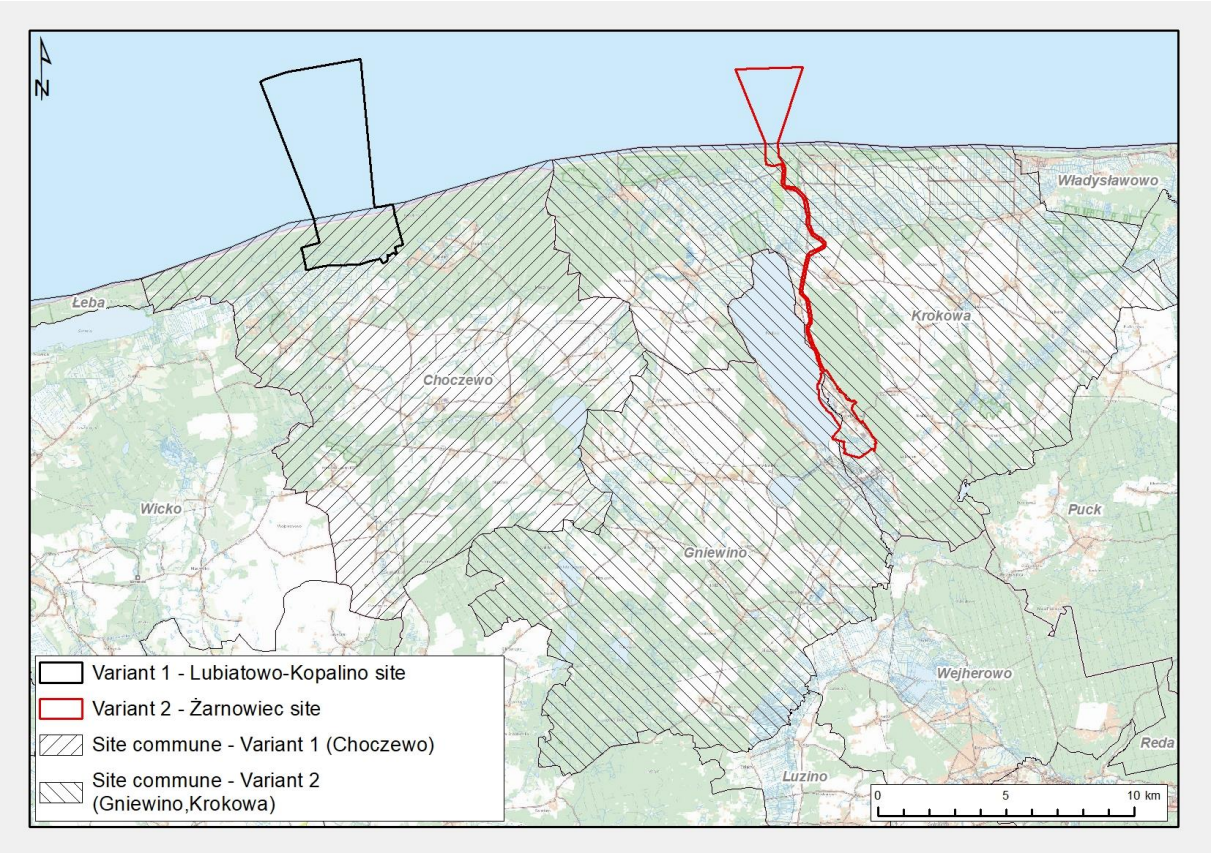


Figure I.- 3 Project Area in the considered site variants
Source: In-house study

Stage 4: Identification and assessment of the environmental impacts of the Project

At this stage, the impacts stipulated in article 66 of the EIA Act [75], i.e. the anticipated significant environmental impacts of the planned Project, including the direct, indirect, secondary, cumulative, short-, medium-, long-term, permanent, and momentary environmental impacts, as well as accumulated impacts. At the same time, transboundary impacts were taken into account.

The assessment of the environmental impact of the Project was carried out for the individual phases and stages of its implementation, for both of the considered site variants, taking into account the sub-variants:

- Variant 1 - Lubiatowo - Kopalino site:
  - **Sub-variant 1A** - open cooling system using seawater
  - **Sub-variant 1B** – closed cooling system using seawater
  - **Sub-variant 1C – closed cooling system using desalinated seawater**
- Variant 2 – Żarnowiec site:
  - **Sub-variant 2A** – closed cooling system using seawater
  - **Sub-variant 2B – Closed cooling system using desalinated seawater**

The environmental impact assessment was carried out for the Project that will be constructed and operated within the boundaries of the Project Area designated on the basis of the updated site general arrangements for the nuclear power plant.

Stage 5: Analysis of the results of the assessment of the Project's environmental impact

At this stage, the results of the assessment of the Project's impact on individual elements of the environment were analysed and prepared for presentation in the EIA Report. The impacts of the individual elements of the

environment and their classification are presented in a tabular form, in accordance with the breakdown of areas presented above. The results of the assessment were presented by phases and stages of Project implementation in both site variants, also taking into account the sub-variants where necessary. The said results are presented in Volume IV.

Stage 6: Multi-criteria analysis with regard to the designation of the variant proposed by the Applicant, the rational alternative variant and a rational variant most favourable for the environment

The selection of the variant proposed by the Investor, presented in the present EIA Report is a complex process of assessment that first involved site comparison, and then the conduct of the multi-criteria analysis. Site comparison concentrated on specific characteristics of the two potential sites for the construction of the first Polish Nuclear Power Plant, i.e. the Lubiatowo - Kopalino and Żarnowiec site variants. Each of the sites was set against over 100 different criteria, especially exclusion criteria, so that the preferred site could be selected in accordance with the requirements laid down in the GDOŚ Decision [45]. The analysis consisted of stages in which the assessment criteria for the individual sites were identified and defined; each of the sites was then assessed against the defined criteria. The adopted criteria and their scoring are based on the international and national guidelines, including the current provisions of the law, taking into account exemplary similar projects. The criteria adopted in site assessment include, inter alia, exclusion criteria - resulting directly from the regulation of the Council of Ministers of 10 August 2012 on detailed scope of assessment with regard to land intended for the location of a nuclear facility, cases excluding land to be considered eligible for the location of a nuclear facility and on requirements concerning location report for a nuclear facility [51], in the case of which failure to meet even a single one would result in a given site being excluded. The final stage involved the assessment of the environmental impact of the NPP that was intended to identify the potential impacts and to apply the possible remedial measures that would minimise the environmental impact of each considered site. These works resulted in the designation of the site preferred from the technical perspective. Multi-criteria analysis of the considered site variants and their sub-variants (three sub-variants in Variant 1 – Lubiatowo - Kopalino site and two in Variant 2 – Żarnowiec site) was then performed. The analysis was meant to identify the variant that the Applicant proposed for implementation, a rational alternative variant, and a rational variant most favourable for the environment. The multi-criteria analysis took into account the technical differences between the sub-variants, resulting i.a. from the site conditions, and also considered differences in the environmental and socio-economic impacts resulting from the implementation of each sub-variant at every considered site.

The multi-criteria analysis took into account the results of the technical comparison of the considered sites, along with all the considered sub-variants:

- Variant 1 - Lubiatowo - Kopalino Site, sub-variant 1A - open cooling system using seawater; sub-variant 1B - closed cooling system using seawater and sub-variant 1C - closed cooling system using desalinated seawater.
- Variant 2 - Żarnowiec site: Sub-variant 2A - closed cooling system using seawater and Sub-variant 2B - closed cooling system using desalinated seawater.

Each of the sub-variants was assessed against specific criteria. The significance of each criterion was determined with the use of the analytical hierarchy process. The analysis was performed with the use of a specialised tool meant to be used for this purpose - DecisionVue. DecisionVue is used in large-scale investment projects. Both the weights and the scoring were subjected to an extended sensitivity analysis and validation with the use of the DecisionVue tool. The multi-criteria analysis resulted in the development of a ranking of the site variants, also taking into account their sub-variants. This made it possible to select and present the variant that the Applicant proposed for implementation, the rational alternative variant, and the rational variant most favourable for the environment in the present EIA Report.

Stage 7: Determination of the activities intended to prevent, reduce, or compensate the negative environmental impacts, and identification of the scope of environmental monitoring

At this stage, the activities intended to prevent or reduce the potential negative environmental impacts of the Project were identified, and the validity of compensating actions was assessed. Moreover, a scope was proposed for the necessary monitoring of the Project's impact on the elements of the environment at individual phases of its implementation.

Stage 8: Identification of the difficulties encountered during the development of the EIA Report and preparation of a non-technical summary of the Report

At this stage, the difficulties resulting from the technical deficiencies or gaps in current knowledge encountered in the process of the development of the EIA Report were summarised. Moreover, a non-technical summary of the information included in the present report was prepared. It should also be noted that given the fact that the thematic scope of the EIA Report covers highly specialised topics that are not familiar to a large portion of the society, significant effort was made to ensure that the summary of the contents of the individual Volumes of the EIA Report was written in an accessible way.

I.8.3 Structure of the EIA Report

Given the scope and multifaceted nature of the issues presented in the present EIA Report, the Report was divided into six volumes:

VOLUME I – Preliminary information;

VOLUME II – Project characteristics and emissions;

VOLUME III – Environmental characteristics;

VOLUME IV – Environmental impact assessment;

VOLUME V – Summary – assessment results and conclusions;

VOLUME VI – Non-technical summary

Each of the above Volumes exhaustively characterises an individual topic.

In order to maintain a clear structure and consistency of the present EIA Report, the above Volumes were additionally divided into Chapters (which were further divided into Subchapters). In turn, the results of the analyses, the mathematical modelling, data sets, expert judgments, and graphic compilations are presented in Appendices to the individual Volumes. Moreover, each Volume contains a glossary that explains the most important terms and abbreviations (that are also of relevance for the Appendices to the individual Volumes) used in the text, as well as a list of references.

Information on the contents of the individual Volumes of the EIA Report is presented below:

VOLUME I contains general information on the Project (along with a description of the analysed site variants), provides the justification for the need to implement it, discusses the Project in the context of other strategic documents, and presents the general legal framework. Moreover, the Volume describes the assumptions for and the way of developing the EIA Report and presents tables containing the required information laid down in article 66 of the EIA Act [75] and in the GDOŚ Decision [45], along with references to the Chapters of the EIA Report that present the said information.

VOLUME II presents information on the NPP site as well as the Project characteristics (with regard to the applied technical and technological solutions, demand for resources, the types and volume of emissions, implementation schedule, associated infrastructure, and the projected number of employees involved), taking into account all the phases and stages of its implementation. The Volume also discusses issues related to the factors that may pose a threat to the nuclear power plant, as well as the types of severe accidents resulting in contamination of

the environment and their probability of occurrence, and it also considers the issue of probabilistic safety analyses.

VOLUME III describes the existing environmental status, taking into account the division into the biotic and abiotic parts. The chapter devoted to the biotic elements of the environment describes the areas protected pursuant to special regulations, forms of nature conservation, and ecological corridors located in the Site Region and Site Area, as well as the individual systemic groups (fungi, plants, and animals) occurring in both the land part and in the marine part. The abiotic part describes the existing status in relation to elements such as: the physicogeographical location, climate, soil, groundwater and surface water (inland and marine), ambient air, acoustic environment, electromagnetic field, landscape, monuments and archaeological sites, and socio-economic conditions.

VOLUME IV presents the assessment of the Project's environmental impact on the individual elements of the environment, carried out for both site variants and their respective subvariants with the use of the division into phases and stages of Project implementation adopted in the characteristics. Moreover, the Volume describes the potential cumulative impacts. For the purpose of the impact assessment, a number of analyses were carried out with the use of dedicated tools, including software for modelling physical phenomena that uses advanced mathematical models and computational algorithms. The geographic information system (GIS) that makes it possible to analyse spatial data and present the results in the form of maps was also used for this purpose.

VOLUME V mainly consists of chapters that present a summary of the results of analysis of the Project's impact on the individual elements of the environment. The Volume also contains information on the employed methods of forecasting, as well as a proposed scope of environmental monitoring and of the activities that prevent or minimise the negative environmental impacts of the Project, information on the possible transboundary impact and the need to establish a restricted use area, as well as a description of the difficulties resulting from technical deficiencies or gaps in current knowledge encountered during the development of the Report.

Furthermore, Volume V comprises multi-criteria analysis results on the basis of which the variant proposed by the Applicant, a rational alternative variant and a rational variant most favourable for the environment were indicated.

Volume VI - constitutes a summary of the information contained in the a-m. Volumes in a non-technical language.

I.8.4 Fulfilment of the requirements of Article 66 of the EIA Act

On 5 August 2015 the Investor submitted to the General Director for Environmental Protection (GDOŚ) an application for issuing a decision on environmental conditions and on establishing the scope of the environmental impact assessment report. In terms of preparation of the EIA Report, 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 are applicable, in force on the day of application submittal.

When preparing the EIA Report, the Investor also addressed the legal regulations in force on the day of its submission, including those set out in Article 66 of the EIA Act, relating to preparing EIA Report.

The table below [Table I.- 4] presents Volumes and Chapters containing legally required information pursuant to the legal regulations in force on the day of the EIA Report submittal.

Table I.- 4 Matrix of EIA Report requirements – Article 66, item 1 of the EIA

Art. 66, item 1 of the EIA Act		Volume/Chapter of the EIA Report
1)	Description of the project, and in particular:	
a)	the characteristics of the entire project and the land use conditions at the implementation stage and operation phase (or occupancy), including in relation to the special flood hazard areas within the meaning of Article 16 item 34 of the Water Law Act of 20 July 2017,	II III.3
b)	the main characteristic features of production processes,	II.2

Art. 66, item 1 of the EIA Act		Volume/Chapter of the EIA Report
c)	predicted type and volume of emissions, including waste resulting from implementation and operation of the planned Project,	II.10
d)	information on biodiversity, use of natural resources, including soil, water and land surface,	II.9 III.2
e)	information on power needs and consumption,	II.9
f)	information on demolition works related to projects which may have a significant impact on the environment,	II.4
g)	evaluated risk based on scientific knowledge of a severe accident or natural disaster or a construction disaster with due account to the materials and technologies used, including hazard in connection with climate change;	II.11 IV.17
2)	description of the natural elements of the environment exposed to the envisaged environmental impact of the planned project on the environment, including:	III.2
a)	elements of the environment protected by the Act of 16 April 2004 on environmental protection, as well as ecological corridors within the meaning of the said act,	III.2 IV.1
b)	hydromorphological, physicochemical, biological and chemical properties of waters;	III.3
2 a)	wildlife inventory results which is understood as a set of field surveys carried out for the purpose of characterising natural environment components, if completed, along with description of methodology applied; wildlife inventory results along with description of methodology constitute an appendix to the Report;	III.2 - Appendices
2 b)	other data on the basis of which natural environment components were described;	III.2 – Appendices
3)	description of cultural monuments, protected pursuant to the regulations on monuments protection and care, existing in the vicinity or within the immediate range of impact of the planned project;	III.3
3 a)	description of landscape where a given project is to be located;	III.3
3 b)	information on connections with other projects, in particular cumulative impact of currently implemented, completed or planned projects, for which a decision on environmental conditions was issued, located in the area where the project implementation is planned, and within the project's impact area – to the extent in which their impacts can lead to the cumulative impact with the planned project;	IV.19
4)	description of the anticipated effects on the environment in the case the project is not undertaken, taking into account available information on the environment and scientific knowledge;	I.9
5)	variant description accounting for specific features of the project or its impact, including:	
a)	variant proposed by the applicant and a reasonable alternative variant,	II IV V.2
b)	reasonable variant which is most favourable for the environment, along with reasoning for their choice;	II IV V.2
6)	the determination of the expected environmental impacts of the variants analysed, also including the impact in the event of a major industrial accident, natural or construction disaster on the climate, including greenhouse gases emissions and impacts significant from the point of view of adjustment to climate changes as well as the possible transboundary impact on the environment, and in the case of trans-European road network, also impact of the planned road on traffic safety;	IV V.4
6 a)	comparison of the analysed variants' impacts on:	
a)	humans, flora, fauna, fungi, natural habitats, water and air,	IV.2 IV.6-9 IV.15 IV.18
b)	land surface, including land mass movements and landscape,	IV.4 IV.6 IV.12
c)	material assets,	IV.18
d)	the cultural heritage sites and landscapes covered by the existing documentation, in particular those included in the register or records of cultural heritage sites,	IV.11
e)	forms of nature protection, referred to in Article 6.1 of the Nature Conservation Act of 16 April 2004, including the aims and object of protection of Natura 2000 sites, and the continuity of wildlife corridors connecting them,	IV.1

Art. 66, item 1 of the EIA Act		Volume/Chapter of the EIA Report
f)	items set out in Article 68.2.2.b, if included in the environmental impact report or if required by the relevant authority,	II-IV
g)	the interactions between the elements referred to in letters a-f;	IV
7)	justification of the variant proposed by the applicant, including information referred to in point 6 and 6a);	I.6
8)	description of the forecast methods applied by the applicant and description of the anticipated significant environmental impacts of the planned project, including direct, indirect, secondary, cumulative, short-, medium-, and long-term, permanent and momentary environmental impacts, resulting from:	
a)	the existence of the project,	IV V.1
b)	the use of environmental resources,	IV V.1
c)	emissions;	IV V.1
9)	description of the measures anticipated to prevent, reduce or offset in terms of nature conservation the adverse effects on the environment, in particular on the forms of nature protection referred to in Article 6.1 of the Nature Conservation Act of 16 April 2004, including for the purpose and object of protection of Natura 2000 sites, and the continuity of wildlife corridors connecting them, along with the assessment of their efficiency at project's implementation, operation or decommissioning stage, respectively;	V.3
10 and 10a)	*Not applicable*	
11)	if the proposed project involves the use of an installation, a comparison of the proposed technology with a technology which meets the requirements referred to in Article 143 of the Environmental Protection Act of 27 April 2001;	II.3
11 a)	reference to the environmental objectives under strategic documents significant from the point of view of the implementation of the Project;	IV.1 IV.7-8
11 b)	justification of the compliance with requirements set out in Article 68, items 1, 3 and 4 of the Water Law Act of 20 July 2017, if the project impacts the possibility of attainment of environmental objectives, referred to in Article 56, Article 57, Article 59 and Article 61.1 of the said Act;	III.3 IV.7-8
12)	an indication as to whether the project requires the designation of a restricted use area within the meaning of the Environmental Protection Act of 27 April 2001, and the delineation of the boundaries of such an area, the imposition of restrictions on the scope of the use of the area and the technical requirements for building structures and their uses; this shall not apply to projects consisting of construction or modification of a road as well as projects consisting on construction or modification of a railway line, or a public airport;	V.6
13)	presentation of issues in graphic form;	II-V
14)	presentation of issues in cartographic form at a scale corresponding to the subject matter and level of detail of the issues analysed in the report and allowing for a comprehensive presentation of the environmental impact analyses carried out for the project;	II-V
15)	analysis of potential social conflicts in connection with the planned project;	V.5
16)	presentation of the proposed monitoring of the impact of the planned project at the implementation stage and operation (or occupancy) phase, and in particular on the forms of nature protection, referred to in Article 6.1 of the Nature Conservation Act of 16 April 2004, including for the aims and object of protection of Natura 2000 sites, and the continuity of wildlife corridors connecting them, and information on other monitoring available which may be relevant for establishing obligations in this scope;	V.7
17)	indication of difficulties resulting from technical deficiencies or gaps in current knowledge as encountered in preparing the report;	V.8
18)	summary of the information contained in the report in a non-technical language for each component of the report;	VI
19)	Report preparation date, author's name, surname and signature, and if prepared by a team of authors - name, surname and signature of head of the team, and names, surnames and signatures of members of the team of authors;	I

Art. 66, item 1 of the EIA Act		Volume/Chapter of the EIA Report
19 a)	author's statement, and if prepared by a team of authors - head of the team's statement, on the fulfilment of requirements set out in Article 74a, item 2, constituting an appendix to the report;	I
20)	sources of information providing the basis for the report.	s I-VI

Source: EIA Act [66]

I.8.5 Fulfilment of GDOŚ decision requirements

This EIA Report takes into account all requirements related to the report's scope set out in GDOŚ Decision [42], which also includes comments and remarks signalled by the affected countries as part of the transboundary procedure, which is also confirmed in the table below [Table I.- 5].

Table I.- 5 Matrix of EIA Report requirements – GDOŚ Decision

No.	EIA Report's scope	Chapter of the EIA Report
I.	Justification of project execution in the context of potential energy generation options available in Poland (including from renewable sources), taking account of alternative energy generation methods and energy efficiency improvement	I.6
II	Description of the project	II
II.1.	Characterisation of the entire project and terms of land use in all phases of execution (construction site development, construction, commissioning, operation, shutdown, decommissioning);	II
II.1.1.	Site – to present:	
a)	detailed location of each planned variant of the project, including the rationale for its selection,	II.2
b)	the perimeter of location variants, including land plot listing and a drawing against a cadastral map,	II.2 - Appendices
c)	total land area occupied by specific location variants (including a rationale for the assumptions), together with land area occupied by the individual components of the project (including the Baltic Sea area occupied by the cooling water intake and discharge structures, the cooling system and construction site facilities),	II
d)	general layout of the site of the nuclear power plant for each of the location variants (presented as graphics) - arrangement of the basic installations within the plant and indicating their connection with specific elements of the associated infrastructure (technical and transportation) required for its operation,	II.2 - Appendices
e)	location and area of the construction site facilities and transportation yards (within, as well as outside of the NPP site);	II.2 - Appendices
II.1.2.	Scope overview:	
a)	for the project, covering each of its (implementation) phases, including characteristics of the following tasks and components: – demolition of existing structures and installations (including in particular the structures located at the Żarnowiec site), including areas designated for the construction site facilities and transportation yards, – construction of roads (including access roads connecting existing roads with the plant), internal roads and parking lots, railways and sidetracks - together with the scope and limits of road and railway infrastructure covered by the application, – construction of land infrastructure – including presentation of the type of planned works and of the infrastructure (including installation and assembly of underground networks, erection of process pipelines and related facilities and structures, including cooling water channels), – excavation drainage system and groundwater drainage installation – together with a diagram, technical parameters and technology of the system and indication of maximum depth of excavations, – water intake points for the nuclear power plant - including description of water use,	II.4 II.4 II.12 II.4 II.12 II.4

No.	EIA Report's scope	Chapter of the EIA Report
	– wastewater treatment facility for the nuclear power plant – including the type of wastewater treated and the stage during which it will be in use (construction or operation of the facility),	II.2 and II.4 II.12
	– temporary storage and lay-off area for construction materials and process equipment, area for storage of topsoil – including explanation of the scope of activities, location, type of surface planned for the yard (e.g. paved surface, sealed surface),	II.2 and II.4 II.12
	– distribution stations for liquid and gas fuels,	II.2 II.4 II.12
	– office, welfare and warehouse facilities – also indicating the location and the occupied area,	II.2, II.4 and II.9
	– concrete batching plants – including their number and location,	II.2 and II.4 II.12
	– power unit (nuclear and conventional island) together with balance of plant,	II.2 and II.4
	– spent nuclear fuel storage – including its type and location,	II.2 and II.4
	– cooling water intake and discharge structures – including their parameters and detailed location,	II.2 and II.4
	– construction of marine infrastructure – including specification of infrastructure components and types of planned works (including hydro-technical works, dredging and other works related to preparation of the marine coast for the construction of flood protection and erosion protection structures),	II.2 and II.4
	– start-up of facilities, systems, equipment and infrastructure;	II.2, II.4 II.12 II.2 and II.4
b)	investment plans not covered by the application: – to indicate all such plans (including associated investments), their chronology and assumed schedule of completion, in relation to the individual phases of project execution,	II.12
	– to indicate the conditions for evacuation of power from the plant to the National Power System (number of lines, voltage, alternative location of corridors, location and manner of connection to the system),	II.2, II.4, II.5 and II.12
	– for transport infrastructure – to present assumptions for the location and adjustments of transport routes (including a map), forecast of daily schedules for passenger and cargo traffic (passenger vehicles, trucks, buses, trains, ships),	II.2 and II.4 II.12
	– to characterise planned activities related to on-site processing of nuclear waste generated during NPP operations and "other activities related to radioactive waste management", identified in the environmental scoping report as associated investments (external infrastructure associated with radioactive waste management);	II.10 IV.16
II.1.3.	stages and duration of project execution – to indicate:	
a)	whether the investment is to be executed in stages – and if so, to characterise the scope of actions planned for each stage,	II
b)	estimated time frames for each phase of project implementation	II.7

No.	EIA Report's scope	Chapter of the EIA Report
	(accounting for possible division of the project into stages), including presentation of the schedule of all works in a table;	
II.2.	Types of technology, including operation description or diagram	
a)	basic technological processes,	II.2
b)	types of nuclear reactors under consideration (including differences between them), their number and capacity,	I.6 II.1
c)	cooling systems for each NPP location variant (indicating also the sources of cooling water, cooling water discharge basin, or methods for evacuation of residual heat), including: – for an open cooling system (OCS) – present the course of the cooling water channels (e.g. underground, surface, open, pipeline), method of crossing the existing water courses, – for a closed cooling system (CCS) – present technical parameters and principles of operation of the types of cooling towers under consideration, – reactor cooling system, associated systems and devices, containment structure and spent fuel pool, ensuring the evacuation of residual heat to the heat sink, in operating conditions and emergency conditions – for both active and passive safety systems, – other emergency systems (including systems associated with reactor core meltdown), – maximum temperatures of discharged cooling water, depending on the type of the cooling system used (OCS, CCS), broken down by operation mode (nominal capacity, minimum capacity, start-up, shut-down) and accounting for maximum temperature of the receiving waters,	II.2 and II.4 II.2, II.5 and II.11 II.10 IV.8
d)	operational parameters of the plant: generated thermal power (minimum and nominal capacity, during start-up and shut-down – accounting for the drop in residual heat) and evacuated via cooling water, electric power capacity (net and gross), planned annual electric power output, power generation efficiency and plant consumption on site, terms for planning plant operation (accounting for refuelling or maintenance outages),	II.2, II.4 and II.5
e)	back-up electric power supply, including presentation of infrastructure corridors supplying electric power via HV and MV lines,	II.2, II.5 and II.12
f)	nuclear fuel cycle and properties, and annual demand for nuclear fuel;	II.5 and II.9
II.3.	Forecast types and volumes of pollution for all phases of the planned project, resulting from:	
a)	project execution – to provide: – methodology used to establish the bounding conditions envelope *Bounding Condition Envelope* (BCE), together with the justification of the assumed parameters and parameters characteristic for the types of reactors under consideration, including uncertainties resulting from the assumptions, – types and volumes of pollution not accounted for in the BCE, related to the technologies under consideration for a given location variant,	II.2 and II.10
b)	other activities directly or indirectly related to project execution, included in the scope of the project's life-cycle analysis;	II
II.4.	Project variants or no-build scenario – to provide:	
a)	a description of rational project variants, accounting for the location and types of cooling systems, together with variants of technical solutions of associated investments (e.g. number and routing of power evacuation lines from the plant),	I.9 II
b)	description of anticipated environmental impacts in the case where the project is not undertaken, including the impacts resulting from the necessity to generate energy from other conventional or unconventional sources;	I.9
III.	Determination of anticipated environmental impacts for variants analysed (including transboundary impacts) and for each phase of the project, with account taken of project execution in stages, and a rationale supporting the variant proposed by the applicant.	IV V.4

No.	EIA Report's scope	Chapter of the EIA Report
III.1.	Modifications to land surface and changes in use and development of the area – to present:	
a)	analysis of the changes in land use and development, and modifications to infrastructure and settlement grid,	IV.6 and IV.18
b)	influence of the project execution on land development in local communes and in the plant's surroundings,	IV.18
c)	analysis of changes to development of marine and coastal areas,	IV.18
d)	analysis of modifications to land surface and the associated earth moving balance,	IV.6
e)	effect of project execution on soil conditions (including protected soil classes);	IV.6
III.2.	Landscape (including cultural elements) and monuments – to present:	
a)	inventory of landscapes (land and off-shore) within the project's impact area, their characteristics (e.g. natural, historic and cultural, landscape degradation) and their valuation,	III.12
b)	inventory of monuments and archaeological sites within the impact area,	III.13
c)	evaluation of landscape impact, accounting for, i.a. analysis of active exposure from vantage points, from public spaces and landscape view areas, and appreciation of visual valuation of landscapes, evaluation of visual impact,	IV.12
d)	analysis of project impact on protected areas (e.g. landscape protection areas and natural landscape parks), including impact from lights at the site, accounting for active and passive exposure,	IV.1
e)	evaluation of impact on historical monuments and of visual impact on historical value of cultural landscape,	IV.11 and IV.12
f)	results of the analyses in the form of graphic and photographic documentation (including edited photographs from vantage points and landscape view areas);	III.12 IV.12
III.3.	Climate and climate change – to present:	
a)	climate conditions and meteorological conditions within the project's impact area,	III.3
b)	climate change scenarios for the period of operation of the plant (approx. 70 years) that were adopted for analysis,	IV.3
c)	analysis and evaluation of substance and energy emissions (including greenhouse gases) related to project execution and their impact on the climate and climate change, including: – direct emission, – indirect emission outside the project execution area (carbon footprint analysis), resulting from the operation of installations and infrastructure related to implementation of the project,	IV.3
d)	comparative analysis of the planned project impact on the climate and climate change as related to generation of power from other conventional sources (with account taken of greenhouse gas emissions – including carbon footprint analysis),	IV.3
e)	climate change effect on biological diversity of ecosystems within the project impact area, resulting from project implementation,	IV.3
f)	analysis of project impact on the microclimate,	IV.3
g)	analysis of project resilience to primary and secondary effects of climate change, taking into account, i.a.: droughts and heat waves, extreme precipitation and flooding (including coastal flooding), hurricanes and tornados, changes to sea level, storms, retreating coastline (erosion, abrasion), periods of extreme cold (frost) and snowfall;	II.11
III.4.	Emissions to atmosphere – to present:	
a)	the current air quality level within the planned project's impact range,	III.3
b)	All types of organised and fugitive emissions into the air and their sources, divided into emissions from: – The project implementation, including, among others, emissions characteristic for a technological process, from electrical power generators and backup and emergency power supply sources, from a boiler room, the reactor ventilation stack, from off-road mobile machinery, and other vehicles used for the project implementation, – Marine, road and railway traffic related to the construction of the nuclear power plant,	II.10 IV.9
c)	Forecast volumes of specific emissions into the air,	II.10 and IV.9

No.	EIA Report's scope	Chapter of the EIA Report
d)	analysis of project impact on atmospheric air quality, including dispersion of substances from the a-m. sources (including contour lines of atmospheric concentrations), together with graphic rendering of the above issues and an electronic database of input and output modelling data,	IV.9
III.5.	Noise, vibration and electromagnetic field (EMF) emissions:	
III.5.1.	Noise – to present:	
a)	current quality of acoustic environment in the project impact area,	III.3
b)	detailed qualification of areas (including their delimitation in graphic appendices) located within the project impact area and subject to acoustic protection, based on: – land plot allocation set out in land development plans or – in their absence – actual development as established by relevant authorities,	III.3 IV.10
c)	all sources of noise, with specification of acoustic power levels, hours of their operation and changes in the level of noise during daytime and at night, divided into groups by source of emission generated by: – project execution, including emissions from equipment and installations that are part of the technological process, light and heavy vehicles, machinery and construction equipment, power generators and back-up and emergency power sources, – Marine, road and railway traffic related to the construction of the nuclear power plant,	II.10 IV.10
d)	analysis of project's acoustic impact on the environment, taking into account types of areas subject to acoustic protection, range of noise-level contour-lines (before and after application of any potential mitigation measures), during daytime and at night, together with graphic rendering of the a-m. issues and electronic database of input and output modelling data;	IV.10
III.5.2.	Vibrations – to present:	
a)	all sources of generated vibrations (including construction works, road and railroad traffic),	II.10 IV.19
b)	analysis of vibration impact on population, structures, together with graphic interpretation of results;	IV.5
III.5.3.	Electromagnetic radiation – to present an analysis of impact, taking into consideration the existing background and all EM emission sources generated by the project;	IV.13
III.6.	Radioactive waste and spent nuclear fuel	
III.6.1.	Waste (other than radioactive) – to present:	
a)	types, codes, sources and maximum forecast volumes of hazardous and other waste materials generated,	II.10 IV.16
b)	methods of handling the above types of waste, i.e. all actions related to waste management (recycling, neutralisation, storage and planned disposal) and transport,	II.10 IV.16
c)	environmental impacts of waste management methods;	IV.16
III.6.2.	Radioactive waste and spent fuel – to present:	
a)	radioactive waste categories and maximum forecast volumes of such waste, including the spent nuclear fuel, before and after processing,	II.10 IV.16
b)	planned radioactive waste management methods (low-, intermediate-, and high-level) radioactive waste and spent nuclear fuel (including their handling, transport, processing, storage and other planned methods of management), together with the planned schedule,	II.10 IV.16
c)	environmental impacts of radioactive waste and spent nuclear fuel management methods;	IV.16
III.7.	Geological conditions, surface and ground waters – to present:	
a)	description of geological conditions in the project execution and impact area,	III.3
b)	description of water environment in the project execution and impact area, accounting for surface waters (including coastal and marine waters) and ground waters, including: – volumes and quality of the waters, – hydrological and hydrogeological conditions, including aquifer levels (including water supply aquifers), depth of the first level of ground waters, flow directions of ground waters, possible migration of pollutants and	III.3

No.	EIA Report's scope	Chapter of the EIA Report
	hydraulic contact between the above waters, volume of the transition zone (interface zone of underground land freshwater and intruding saline water) – to present the information also in the form of graphic appendices, such as maps and hydrogeological cross-sections, – information regarding the location of the project in relation to surface and ground water bodies, open sea waters, main ground water basins and water extraction points with protection zones that surround them, – quality characteristics of bottom sediments (lithology, chemical composition, including heavy metals) – in particular at the site of the planned cooling water intake and discharge structures, and of the planned flood and erosion protection structures, as well as the method of handling any potential dredged material, – information on shore morphology and dynamics;	
c)	description of planned water and wastewater management, including: – sources, volumes and planned use of water required for project execution, specifying the processes for which water will be used, – purpose, types and technology of planned installations (related to water treatment, demineralisation, desalination and chlorination of water, wastewater treatment), – sources, types and volumes of emissions of pollutants or energy to water or to the ground, including all installations and processes comprising the project, – sewage types, volumes, parameters, methods and technology of management (treatment), and receivers, including in particular: household and industrial wastewater, heated cooling water, water from drainage systems, rainwater and thawing water,	II.9, II.10 and II.12 IV.8
d)	analysis of project impact on water environment and morphological phenomena and processes, including: – earth works during construction stage of the plant, along with indicating the risks to soils and waters (e.g. excavations, foundation works for structures, setting up of construction site office/facilities, construction of cooling water system channels/ducts – including impacts on the seabed morphology, works related to construction of marine and coastal infrastructure, and protection against coast erosion and flooding, activities related to marine transport and unloading of materials in the vicinity of dune habitats and submerged bars), – impact of wastewater (including from construction site, cooling water contaminated with chemicals used for treatment, rain and thawing) on quality of the receiving waters and on hydrological and hydrogeological conditions, – anticipated modification of water conditions (resulting from drainage, clearing of trees and shrubs, levelling of the area), including the volume and dynamics of water flow and taking into account the impact of freshwater consumption on the water balance of the drained bodies of water and watercourses, as well as the forecast radius of the depression cone, – impact on the ecological continuity of watercourses and migration of aquatic organisms, – impact of heated cooling water discharge in summer and winter on quality of the receiving waters and its eutrophication, accounting for the least advantageous conditions as well as ice cover and sea currents, including graphic rendering of the heat plume range produced by discharge waters from the power plant, – disturbance of bed load transport along the coastline caused by the project and resulting from siting the NPP infrastructure in the coastline zone, – impact on the instability of submerged bars, – impact on the dynamics of changes to the seabed, coast line and dunes (e.g. breaking the continuity of dunes and dune-forming processes),	IV.2 IV.7 IV.8

No.	EIA Report's scope	Chapter of the EIA Report
e)	analysis of the project's impact on attainment of environmental objectives set for SWBs (surface water bodies), GWBs (ground water bodies) and marine waters within its impact range;	IV.7 IV.8
III.8.	Socio-economic conditions – to present:	
a)	current socio-economic conditions within the project's impact range, including: – population (temporary and permanent residents) and its distribution, demographic structure, distance from the nearest building(s) to the plant, job market (employment structure, unemployment level), – real estate market, industry, agriculture, tourism, public and private services, – uses of water resources (e.g. water supply to population and industry, agriculture, fisheries, tourism, recreation, shipping etc.),	III.4
b)	forecast number of permanent and temporary personnel employed for the duration of the project (including specifying its fluctuation over time),	II.8 and II.12
c)	analysis of project's socio-economic impact in each of its phases, including in particular its impact on quality of life and standards of living;	IV.18
III.9.	Natural environment	
III.9.1.	Description and distribution of the elements of natural environment – to present (including on maps):	
a)	elements of land, marine and freshwater environment: – flora (bryophytes, vascular plants), – macroscopic fungi and lichens, – fauna (invertebrates, ichthyofauna, herpetofauna, avifauna, mammals), – plankton, – benthos, including macrophytes, – natural habitats and other plant communities, with particular focus on natural habitats, fauna and flora species listed in the Council Directive on the conservation of natural habitats and of wild flora and fauna (the Habitats Directive), Birds listed in the Directive of the European Parliament and of the Council on the conservation of wild birds (the Birds Directive), plants, animals and fungi protected under national legislation as well as rare or endangered species (listed in the "red books" and national or regional "red lists"),	III.2
b)	forms of nature protection,	III.2 IV.1
c)	wildlife corridors of local, regional, national and international importance,	III.2 IV.1
d)	protection areas of plants, animals and fungi,	III.2 – Appendices
e)	information on the species composition, population size, and distribution sites of animals in all phenological periods and stages of development, including identification of functional habitats (places of breeding, spawning, feeding, winter hibernation, shelter [nocturnal shelter] and migration corridors) and information on the manner and intensity of use of given areas by animals,	III.2
f)	identification of habitat patches and plant communities they comprise on the basis of phytosociological photography indicating dominant and outstanding species,	III.2
g)	surface area and condition of habitats (including marine habitats) and other plant communities, and the distribution of the seabed biotopes,	III.2
h)	condition of the population and habitats of plants and animals (divided into species listed under the Habitats Directive and the Birds Directive, and other species),	III.2
i)	information regarding the taxonomic composition, volume, and biomass of phyto- and zooplankton, phyto- and zoobenthos (also accounting for seasonal changes to phytoplankton and zooplankton),	III.2
j)	information regarding ichthyofauna: – composition, size, biomass, distribution and density of ichthyofauna (including ichthyoplankton), – age composition, composition length (total length [Lt]),	III.2
k)	information regarding marine avifauna - species composition, distribution, population size, including density indicator (number of specimen per 1 km2), including total number of specimen per species per 1 ship cruise hour,	III.2
l)	information regarding marine mammals, including:	III.2

No.	EIA Report's scope	Chapter of the EIA Report
	– activity of porpoises (Phocoena), (continuous monitoring via hydro-acoustic detectors, including comparative data of earlier results from similar research), including the days when porpoise presence was registered, – number of seal (living and dead) observation sessions, number of specimen sighted, – key distribution areas and migration corridors of mammals, – results of acoustic background monitoring by season,	
m)	information regarding the coastline zone biocoenosis, including: – taxonomic composition and spatial distribution of wrack, – distribution and count of sand hopper (*Talitrus saltator*),	III.2
n)	information regarding invasive species (distribution and count),	III.2
o)	evaluation of biodiversity with reference to species, habitats and ecosystems,	III.2
p)	natural valuation of area under environmental studies, based on the nature inventory lists;	III.2
III.9.2.	Requirements regarding environmental surveys:	
a)	description of natural elements of the environment should be developed based on current data obtained from field surveys,	III.2 – Appendices
b)	range covered by the nature inventory should include project impact area, including areas where cumulative impacts from other investment projects may occur,	III.2 – Appendices
c)	field survey should be carried out at optimal times for a given type of natural habitats, as well as plant and fungi species,	III.2 – Appendices
d)	fauna inventory should be carried out over a period not shorter than 12 months, while its duration, frequency and times of surveys/inspections should be adjusted to biology and ecology of a given species/group of species, while also taking into account changes in activity of animals in subsequent phenological periods,	III.2 – Appendices
e)	indicate an investigated area of the marine environment located outside the impact area of the variant proposed by the applicant, constituting a potential reference area for monitoring NPP impact on the marine ecosystem;	V.7
III.9.3.	Anticipated NPP impact on the natural environment, including:	
a)	impact on the inventoried biotic environment components, taking into account changes to hydro-geological and hydro-morphological conditions, – physical consequences of project implementation, including clearing, damage, transformation, fragmentation or isolation of natural, and animal and plant habitats, – impact on ecological structures and processes that are essential for the sustainability, and proper functioning of natural habitats as well as plant and animal populations, – forecast changes to the population of recorded species of fauna (e.g. impact on population size through increased mortality, changes to population density and structure), – introducing barriers to migration and dispersion of organisms, restricting their range, impact on breeding areas, feeding areas, resting places and migration routes (continuity of local, regional, national and international migration corridors), – impact on biodiversity, – impact from increased anthropopressure,	IV.2
b)	impacts on forms of environmental protection located within the project impact area, in particular on Natura 2000 sites and on the continuity of ecological corridors connecting them, taking into account the provisions under protection plans for such areas,	IV.1
c)	analysis of threats associated with the arrival and spread of invasive species,	IV.2
d)	assessment of project impact on commercial fish resources (fish species important to fishing industry),	IV.2
e)	impact on the ecosystem of the receiving water body, resulting from: – excavation and disruption of benthic sediments, increased concentration of solids suspended in water, – noise (with the use of underwater noise propagation modelling) and vibrations,	IV.8

No.	EIA Report's scope	Chapter of the EIA Report
	– emissions to receiving waters and changes to water quality caused by discharge of heated and chemically treated cooling waters (scale preventing additives, anti-corrosive additives, biocides etc.), – occurrence of accident conditions (including uncontrolled radioactive material leak), – penetration of fish and other organisms into the cooling system, – changes to species composition, ranges, abundance and overall biomass of fauna and flora of the receiving waters, – erecting structures which may serve as artificial habitats colonised by water organisms;	
III.10.	Ionizing radiation and nuclear safety – to present:	
a)	description of radiation environment (background) for the site region, based on a minimum of 12-month pre-implementation monitoring, including: – concentrations of radioactive isotopes in atmospheric aerosols, – total alpha and beta radiation levels in the atmosphere, – ambient dose rate equivalent H*(10) in the atmosphere at 1m above ground, – concentrations of radioactive isotopes (including of anthropogenic origin) in components of the environment sampled in and representative of the region of the site (including in bioindicators), and in particular: in soil, ground waters, inland surface waters and surface waters on the Baltic Sea coast, – health of inhabitants, including spatial distribution of the occurrence of major diseases which may result from exposure to ionizing radiation (neoplastic diseases in particular), – concentrations of radioactive isotopes in foodstuffs produced, sampled and representative of the region of the site, including in particular: plant products (fruits and vegetables) and cereals, animal products (meat, eggs), milk, potable water, grass (fresh fodder),	III.3
b)	analysis of the radiological impact of the project during normal operation, accounting for anticipated levels of radioactive isotope emissions to the atmosphere (including in particular: H-3, C-14, I-131 equivalent halogens, noble gases and aerosols) as well as waters (in particular: H-3), including: – assessment of total annual effective doses from individual paths of exposure, for various age groups, resulting from the projected annual volumes of radioactive isotopes' releases, – assessment of the annual thyroid dose for various age groups resulting from the projected annual releases of iodine isotopes into the environment, – analysis of possible buildup of radioactive substances in components of the environment, including flora, fauna and human organisms,	IV.14
c)	analysis of the radiological impact of the project under accident conditions, accounting for anticipated levels of radioactive isotope emissions to the atmosphere and waters, including in particular: H-3, Cs-134, Cs-137, Sr-90, I-131 (particle fractions, aerosols, gases), together with the evaluation of radioactive contamination and doses to general population, accounting for the regulations regarding intervention thresholds for various types of intervention measures and criteria for cancelling such measures, including: – impact on humans and the environment (radiological effects) in the event of accident conditions for a design basis accident (DBA) and a severe accident, as specified in the design extension conditions (DEC), as well as for an accident postulated for the purpose of achieving accident preparedness – as specified in relevant Polish regulations, as well as in relevant international requirements and recommendations, together with radionuclides dispersion in water and atmosphere, and stating the assumed probability of occurrence of each type of accident conditions, – assumed area where intervention measures are postulated in the event of failure in the category of design extension conditions,	IV.17
d)	with reference to item III.10 b and c, the methods and codes used in the calculations, input parameters employed in calculating the dispersion of	V.1

No.	EIA Report's scope	Chapter of the EIA Report
	contaminants (volume and composition of released radionuclides, level and duration of the release, meteorological data), along with justification for their selection,	
e)	anticipated range of the planned restricted use area outline, accounting for maximum permissible effective annual doses from all pathways of exposure (accounting for the designed operating conditions and accident conditions without reactor meltdown),	V.6
f)	results of Probabilistic Safety Assessments for the types of reactors analysed in BCE – Core Damage Frequency data (CDF), and Large Release Frequency data (LRF or Large Early Release Frequency - LERF)	II.11
g)	description of external natural and anthropogenic events, together with the methodology of identifying events that my pose a threat to NPP safety, and in particular: – seismic events, including results of current surveys and observations, – extreme weather conditions and their consequences (e.g. freezing, drought and other obstacles to cooling water intake, storms, hurricanes, blizzards), – terrorist attacks and sabotage, – any potential explosions in neighbouring industrial or military facilities, or transport-related explosions,	II.11
h)	description of analysed combination of external events (hazards),	II.11
i)	description of internal events (hazards) relevant to NPP safety,	II.11
j)	calculated probabilities of occurrence of the specified NPP conditions, including postulated initiating events (PIE) which may contribute to the conditions, as per types of nuclear reactors analysed under the bounding conditions envelope (BCE),	II.11
k)	analysis of possible effects for critical accident sequences,	IV.17
l)	information regarding actions undertaken in order to limit and mitigate the consequences of severe accidents,	II.11 IV.17
m)	information regarding the legal requirements related to the development of internal and external contingency plans and procedures, as well as early notification of neighbouring countries in case of an accident	IV.17
n)	information regarding legal and procedural requirements related to effective management of the life-cycle of facilities in the context of long-term operation of the nuclear power plant as a key aspect of nuclear safety;	II.5
IV.	Description of anticipated environmental impacts of the project, cumulative with other existing and planned investment projects and emission sources, including in particular:	
a)	associated investments,	IV.19
b)	transportation and communication in the vicinity of the project,	IV.19
c)	power infrastructure,	IV.19
d)	pump-storage power plant in Żarnowiec,	IV.19
e)	extraction of raw materials (e.g. oil, natural gas, shale gas),	IV.19
f)	activities undertaken in the marine area;	IV.19
V.	Anticipated activities aimed at preventing, mitigating and compensating the negative environmental impact of the project, including in particular:	
a)	nuisance to people during construction and operation,	V.3
b)	impact on surface and ground waters, including: – the manner of organisation of the construction site, construction site facilities, transportation yards, storage of materials, fuel distribution sites, waste management (especially radioactive and hazardous waste), – volumes, types, technical parameters and location of the designed wastewater treatment facilities, – measures restricting the depression cone, in connection with the planned drainage,	V.3
c)	impact on air quality, including identification and parameters of equipment used.	V.3
d)	ability to undertake actions aimed at reducing volume of heat released into the atmosphere or into the receiving waters (e.g. through co-generation of heat and electricity),	Volume V.3

No.	EIA Report's scope	Chapter of the EIA Report
e)	impact on acoustic environment and vibrations (including measures minimising excessive noise levels and indicating parameters of proposed protective measures and their locations),	V.3
f)	impact on climate change and related influence on infrastructure (adaptation to climate change),	V.3
g)	impacts related to spent fuel and radioactive waste management,	V.3
h)	activities aimed at limiting the volume of generated waste, especially radioactive waste,	V.3
i)	activities and measures related to ecological compensation and mitigation,	V.3
j)	protective measures against penetration of the melted core into the environment,	II.2 and II.11
k)	protective measures against releases of radioactive substances into the environment caused by pressure drop in primary cooling system and in containment structure under the anticipated operating conditions and accident conditions,	II.2 and II.11
l)	actions undertaken aimed at limiting and mitigating the consequences of severe accidents,	II.2 IV.17
m)	protective and control measures against release of radioactive substances into the environment from the OCS/CCS and process ventilation systems under operating conditions and accident conditions;	II.10 IV.17
VI.	a description of impact forecast methods employed by the applicant – to present the assumptions and methodology of analyses presented in the report, regarding in particular: climate and climate changes, release of substances and energy into the environment, natural environment, including literature/sources.	V.1

Source: GDOŚ Decision [45]

I.8.6 Organising supervision and oversight of EIA Report preparation

Specifying the Project's environmental impacts was a long (time-consuming) process, requiring processing a large number of data bases for each of the location variants under consideration. The interdisciplinary nature of the research, combined with a large area and scope of research as well as dispersed research teams (surveys/works were carried out in Poland and abroad) preparing the reports from surveys/research and other expert opinions constituting the basis for preparing EIA Report documentation, required systematisation and organisation of the process at all stages of its development, including in the area of document management, management of source data of research and analysis (also in native formats), supervision over supply chain (outsourced researchers and experts), ensuring cohesiveness of research and analysis results.

At the same time, in order to achieve the required works results, the implementation of an adequate supervision and oversight process was needed, in order to allow monitoring of the entire process from the time of launching site investigations and environmental assessment programme, and subsequently implementing corrective or remedial measures with adequate anticipation in the case the need for such actions was discovered.

Prior to initiating works on preparing the EIA Report, an independent review of methodologies and research results of the site investigations and environmental assessment programme was made, regarding the site characteristics and environment condition assessment for, inter alia, preparing the said EIA Report (experts involved in methodologies and research results review did not execute the investigations). The site investigations and environmental assessment programme was prepared in accordance with requirements under GDOŚ Decision.

The aforementioned review was commissioned to the Technical Advisor given its vast experience (including nuclear installations) and technical expertise in the field of newly built nuclear facilities, including implementation of numerous projects both in Great Britain and other countries.

The aim of the detailed review of methodologies and research results of the site investigations and environmental assessments was the evaluation of the degree of compliance with relevant legal regulations and requirements under GDOŚ Decision, special requirements regarding the construction of nuclear power plants and relevant best international and national practices. A team of adequately qualified and experienced technical

specialists was assigned for each scientific discipline. For all shortcomings/deficiencies identified, mainly with regard to nuclear power plants requirements, measures were developed and implemented, allowing ultimately to fulfil all formal and legal requirements for a given set of documentation.

In addition, in order to ensure proper supervision and oversight over EIA Report preparation, in cooperation with the Technical Advisor, the oversight and supervision processes [Figure I.- 4] were adopted under which at a given level of works advancement their review was carried out and such actions were separate and denoted:

- Supervision - agreeing methodologies, detailed content check and review (modelling results, technical data, chapters and sub-chapters etc.) and verification of chapter that will be incorporated into the EIA Report, including activities related to ensuring technical support during data compilation, checking and review;
- Oversight - identifying relevant risks, gaps, weak spots in the EIA Report, including activities related to data compilation, confirmation of compliance with Polish legal regulations and international guidelines, management of configuration, coherence, verification and approval, and proposing solutions for identified risks, gaps, weak spots and monitoring of the implementation of such solutions.

In the process of preparing individual chapters of the EIA Report, and in the case of Supervision and Oversight, it was important to maintain the separation of the roles assigned, i.e. between authors, persons carrying out actions as part of review of works, Supervision and persons carrying out actions as part of Oversight.

The above also concerned the process of verifying and approving individual chapters of the EIA Report as well as the final version of the entire EIA Report.

Supervision

For the supervision process experts from a given field, working independently from the EIA Report's authors were assigned. The supervisors performed a detailed review of individual EIA Report chapters along with associated technical documentation.

The supervisors were selected from among the Investor's and the Technical Advisor's employees. The inspection carried out by them covered all of the works carried out by the Investor and its subcontractors as part of the EIA Report preparation.

The supervisors were involved along with the progress of relevant scopes of works and their tasks included presenting detailed comments with regard to specification, proposed methodology and end products. The supervisors also presented their opinions and advice on the issues planned for latter stages on an ongoing basis.

The supervising technical advisors and team managers were meeting on regular basis (usually, every two weeks) with the authors of individual EIA Report chapters and relevant technical documentation, in order to verify the agreed work progress and confirming the proper quality of end products.

Oversight Panel

In line with the best international practice the Investor, with the Technical Advisor's supports, appointed an Oversight Panel whose task was to ensure the independent and objective review of work results aimed at development of the EIA Report.

Among the Oversight Panel's tasks was above all, the following tasks: advising on the adequateness, number (volume) and availability of resources required for the implementation of works on the EIA Report in accordance with the adopted schedule, advising on the need to carry out external technical assessment for a given scope of the EIA Report as well as indicating whether at the stage of specification and implementation of works on EIA Report adequate attention was paid to the interdisciplinary issues and their interactions.

The Oversight Panel was composed by Polish and international experts in environmental impact assessment, nuclear installations siting and Polish legal requirements. Its members were selected from among the Investor's

and the Technical Advisor's employees. The combination of international experience and detailed (in-depth) understanding of the local context thus achieved was the key for effective implementation of the Panel's tasks.

The Panel would meet from the commencement of the works on the EIA Report. During that time it carried out a review of the selected scopes of the EIA Report in order to ensure the internal coherence of the document and its compliance with Polish requirements and the relevant international best practice.

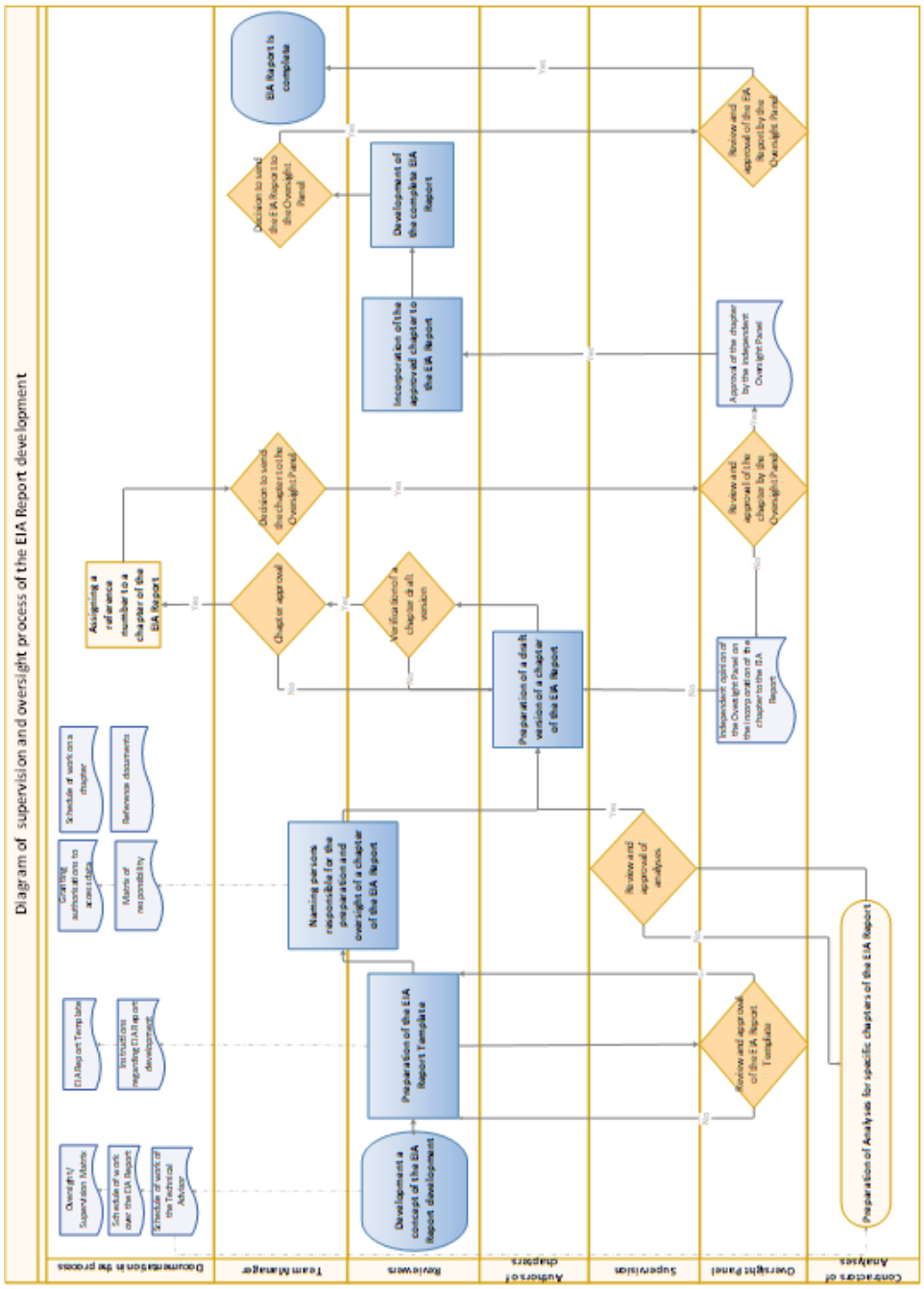


Figure I.- 4 Diagram of supervision and oversight process of the EIA Report development
Source: In-house study

I.9 Project variants under consideration

I.9.1 Selection of candidate sites - Process description

The process of constructing every building, including a nuclear power plant, involves the need to obtain a variety of administrative decisions, including in particular: a decision on environmental conditions [75], a location decision [73] and a construction permit [7667]. In addition, in the case of a nuclear power facility, prior to obtaining a construction permit issued by the competent voivode (in this case, the head of the Pomorskie voivodeship), it is necessary to obtain a nuclear facility construction license from the President of the National Atomic Energy Agency on the basis of the Atomic Law Act of 29 November 2000 [74].

Although each of such decisions has its characteristic rationale set out in separate regulations, they are bound by a shared goal, namely the completion of a safe investment project in compliance with construction, environmental, siting and nuclear safety restraints.

Nuclear facilities differ from conventional structures in terms of safety. In the case of nuclear facilities, safety is understood in two ways, namely, in terms of the possible impact of the facility on the environment and the impact of the environment on the nuclear facility itself. This constitutes the main difference between a nuclear facility and other investment projects (pursuant to the provisions of the Environmental Protection Law Act (EPL Act) of 27 April 2001 [72], the facilities that pose a greater/great risk of a severe industrial accident are subject to additional arrangement under the said act), as the interaction between the environment and the investment itself cannot be treated in isolation, given that the site considered for the construction and operation of a nuclear power plant will only be regarded as safe and socially acceptable when both of these components are fully addressed through a series of studies and analyses, and the verification in terms of compliance with legal and technical requirements, is satisfactory.

The site selection process of a nuclear power plant comprises a series of activities to be executed “step-by-step” to enable the selection of a site from less to more detailed criteria - covering first the geographical region and then the specific aspects of a particular location, including availability of water sources, distance from high risk facilities and other criteria characteristic for the site to provide evidence that the location is safe for the operation of the unit. Where more than one site is considered, such approach allows for the reduction of risks involved in the costly and time-consuming process of site evaluation in terms of nuclear safety being conducted for variants other than the final location.

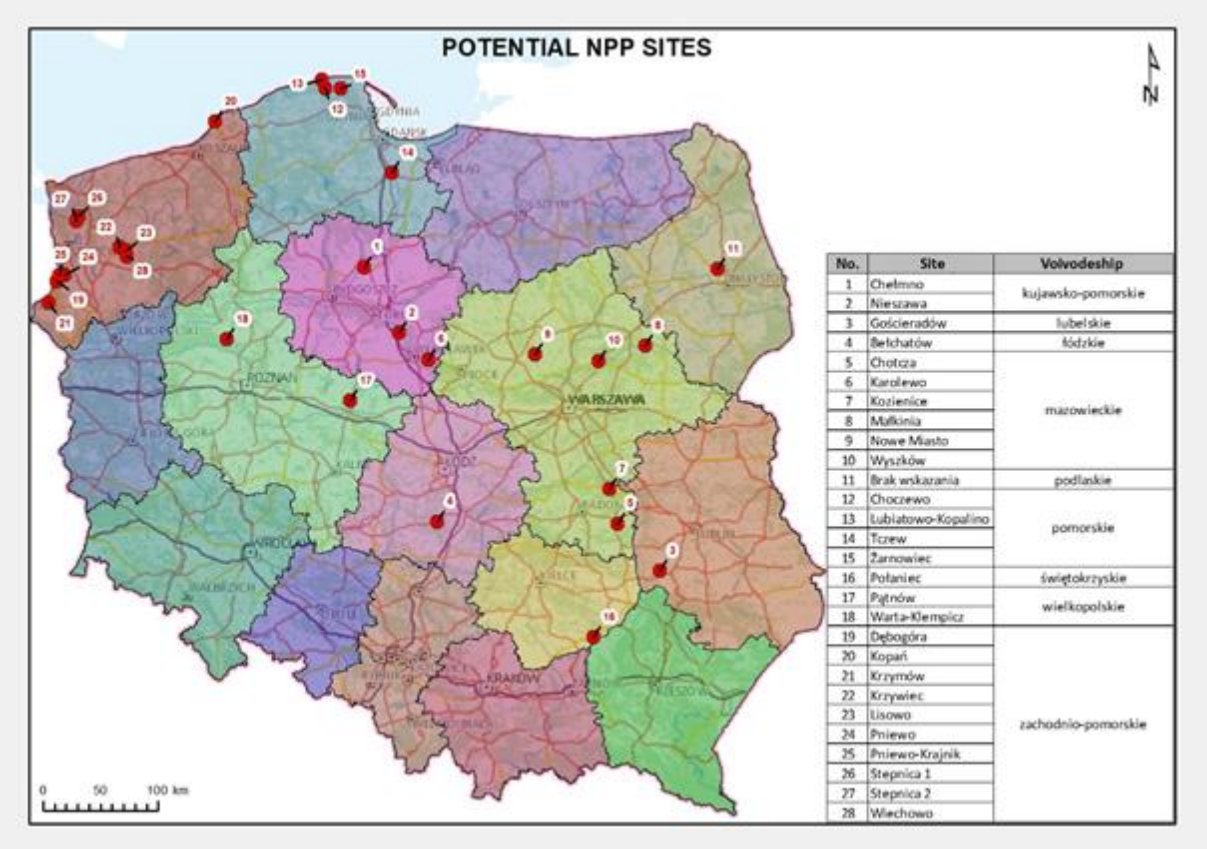
A selection process for the shortlist of potential nuclear power plant construction sites, including Żarnowiec, Choczewo, and Lubiatowo - Kopalino, for which, pursuant to the EIA law regulations, a strategic environmental impact assessment was carried out, prioritised macro-spatial and safety criteria (e.g. Karst and seismic impact, economic activity qualified as facilities with increased/high risk of a severe industrial accident). Other considerations included transport, geography and spatial (ecophysiographic analyses included in studies of trends and conditions in area development, local land development plans), regional conditions and technical and technological requirements in terms of water access for the plant operation, as well as possible connections to the national power grid. Special attention was also given to issues related to the integration with the National Power System, local infrastructure, hydrology and hydrogeology (flooding, depression cone etc.), availability of cooling water and the distance to intake and discharge points from the facility as well as geological engineering and seismicity.

The criteria applied enabled, through the use of a ranking procedure, to indicate the potential locations, for which subsequently a full scope, multi-year site investigation and environmental impact assessment programme was launched in compliance with legal requirements (Polish and EU), and industry guidelines (IAEA, US Nuclear Regulatory Commission - NRC, Eurocode).

Environmental and siting surveys aim at (apart from compliance with legal requirements) answering the basic question: whether the characteristics of the site being assessed, with regard to the environmental and siting

requirements, while fulfilling the overriding requirement related to the nuclear safety, allow for a nuclear facility to be sited there.

The Polish Nuclear Power Programme [46] adopted by the Council of Ministers in January 2014 presented potential sites of the nuclear power plant in Poland [Figure I.- 5]. They included Lubiatowo - Kopalino, Żarnowiec and Choczewo.



No.	Site	Voivodeship
1	Chełmno	kujawsko-pomorskie
2	Nieszawa	
3	Gościeradów	lubelskie
4	Bełchatów	łódzkie
5	Chotcza	mazowieckie
6	Karolewo	
7	Kozienice	
8	Mańkinia	
9	Nowe Miasto	
10	Wyszków	
11	Brak wskazania	podlaskie
12	Choczewo	pomorskie
13	Lubiatowo-Kopalino	
14	Tczew	
15	Żarnowiec	
16	Połaniec	świętokrzyskie
17	Piątnów	wielkopolskie
18	Warta-Klempicz	
19	Dębogóra	zachodnio-pomorskie
20	Kopań	
21	Krzymów	
22	Krzywiec	
23	Lisowo	
24	Pniewo	
25	Pniewo-Krajnik	
26	Stępnica 1	
27	Stępnica 2	
28	Wiechowo	

Figure I.- 5 Potential NPP sites presented in the Polish Nuclear Power Programme in 2014.
Source: In-house study based on: [46]

In the years 2011-2015, the first phase of site investigations and environmental impact assessments was carried out, in particular for Żarnowiec, Choczewo and Lubiatowo - Kopalino sites, and a verification of the preliminary results was performed in terms of a "fatal flaw". The results of the surveys carried out pointed out to the natural environment value of the Choczewo site. However, given the lack of analysis in terms of a potential impact on the Natura 2000 sites, there was no basis for abandoning this location. Additional analyses carried out at the beginning of 2015 pointed out to the risk of significant impacts on the Białogóra PLH220003 Natura 2000 site, therefore in 2015 the Investor initiated actions aimed at a reliable and independent verification of this risk. At the same time, expecting a possible loss of the Choczewo site, the Investor commenced the analysis of a possible change to the coastal site location. An internal analysis was conducted, covering the vicinity of the Choczewo site. The result of the internal analysis was the selection of the present Variant 1 – Lubiatowo - Kopalino site.

The Investor also commenced the following activities:

- on 5 August 2015, the Investor submitted an application with GDOŚ for the decision on environmental conditions with regard to the construction and operation of a nuclear power plant of 3750 MWe capacity together with an application for the decision on the scope of the environmental impact assessment report, indicating three site variants: Choczewo, Żarnowiec, and Lubiatowo - Kopalino,
- being aware of (a) confirmed significant risk of a critical flaw at the Choczewo site and failure to obtain the decision on environmental conditions, (b) high environmental value of the Choczewo site as a factor

potentially reducing the national and international public approval for the construction of the first Polish NPP, (c) the existence of an alternative site (Lubiatowo - Kopalino site) within the same commune, with lower environmental value, (d) high probability of significant impact on a Natura 2000 area, and (e) less favourable infrastructure and organisational conditions of the Choczewo site compared to Lubiatowo - Kopalino;

the Investor decided to (a) abandon the Choczewo site and withdraw from site evaluation and environmental survey on the site, (b) modify the application for the decision on environmental conditions and the decision on the scope of the environmental impact assessment report by limiting the scope of the evaluation to two site variants: Żarnowiec and Lubiatowo - Kopalino, (c) execution of the site evaluation and environmental survey for two site variants: Żarnowiec and Lubiatowo - Kopalino, and conducting full environmental impact assessment for the two sites,

- on 11 January 2016, the Investor submitted an application with GDOŚ for a modification to the application for the decision on environmental conditions of the project together with an application for the decision on the scope of the environmental impact assessment report, to result in the deletion of the Choczewo variant.

The site investigation and environmental survey programme launched by the Investor was developed in line with the requirements of the GDOŚ decision [45] for two site variants, Variant 1 - Lubiatowo - Kopalino, and Variant 2 - Żarnowiec.

I.9.2 Description of sub-variants accepted for analysis

The Project under analysis comprises two site variants, that is, Variant 1 - Lubiatowo - Kopalino site and Variant 2 – Żarnowiec site, with sub-variants of the cooling system:

a) open cooling system (only for Variant 1 - Lubiatowo - Kopalino site - sub-variant 1A),

b) closed cooling system (for both sites) in two options:

- a natural draft evaporative cooling tower using sea water, and an evaporation cooling tower using fresh water (desalinated sea water) for the service water system (SWS) - sub-variants 1B and 2A,
- a natural draft evaporative cooling tower using fresh water (desalinated sea water), and an evaporation cooling tower using also fresh water (desalinated sea water) for the service water system - sub-variants 1C and 2B.

Presented below is the key information regarding the site variants and sub-variants. Detailed information is provided in Volume II [Chapter II.3.2].

An open cooling system was eliminated from the analysis for Variant 2 - Żarnowiec site in the course of a study submitted as “Water Study, volume 2” [61]. The study comprised an evaluation of a variety of cooling arrangements, with a focus on: economy of construction and operation of cooling systems, technical aspects of the construction of cooling systems, environmental aspects of the construction and operation of cooling systems. One of the key findings of the study is that a power plant situated around 10km from the coast is not a coastal site, in terms of challenges associated with the construction and operation of an open cooling system. A maximum distance from the coast, at which the construction of an open cooling system remains rational in economic and environmental terms was established at 1 km.

I.9.2.1 Variant 1 - Lubiatowo - Kopalino site

I.9.2.1.1 Open cooling system - sub-variant 1A

In an open cooling system the turbine condensers and heat exchangers of the cooling systems are cooled with sea water.

The sea water will be obtained through three channels/pipelines laid on the seabed. Each channel/pipeline will start with a minimum of 2 intake heads, located at a distance of 6.7km (from the intake head to the intake basin).

Movement of sea water to the intake basins located on the power plant site will be gravitational. The basins will be fitted with purification devices (including screens and rotating drums). From the basins the water will flow to the pump systems feeding it to the turbine condensers and the component cooling water heat exchangers.

Water returning from the condensers and the heat exchangers will reach the discharge basins, from which it will flow gravitationally to the sea in a single channel/pipeline servicing the entire plant. The end of the channel/pipeline will be fitted with a minimum of 3 discharge heads/diffusors, at a distance of 4.5km (from the discharge basins to the discharge heads).

An open cooling system will include solutions regarding the fish recovery and return to the sea. The fish will be contained by rotating drums. They will be returned to the sea via a separate pipeline reaching around 1km from the coast.

I.9.2.1.2 Closed cooling system using sea water - sub-variant 1B

In a closed cooling system, the turbine condensers and heat exchangers of the cooling systems are cooled with water circulating in closed circuits of evaporative cooling towers.

The turbine condensers and the component cooling water heat exchangers will be serviced with one cooling tower per unit. The cooling tower will be fed by sea water (that is, sea water will be used as the make-up water).

In the case of component cooling water system heat exchangers, an evaporative cooling tower with an induced draft will be used. The cooling tower will be fed by fresh water (that is, sea water desalinated in the desalination plant).

Make-up water for the cooling tower (as well as all water required for the NPP) will be drawn from the sea through three channels/pipelines laid under the seabed. Each pipeline will end with a minimum one intake head. The intake heads will be located at a distance of approximately 3.5km (from the intake head to the intake basin). A portion of the sea water will be desalinated in the desalination plant. After preliminary treatment and processing, the sea water which is not desalinated will be used as make-up water for the cooling towers.

Blowdown from the cooling towers will be discharged to the sea through a shared NPP treated wastewater discharge system. This will be a single, shared pipeline laid under the seabed, ending with a system of discharge heads/diffusors, situated at a distance of around 2.5km (from the discharge basins to the directional discharge heads/nozzles).

The sea water intake system will also include solutions regarding fish recovery and return to the sea. The fish will be contained by rotating drums, and returned to the sea via a separate channel/pipeline exiting around 1km from the coast.

I.9.2.1.3 Closed cooling system using desalinated sea water - sub-variant 1C

In a closed cooling system the turbine condensers and component cooling water heat exchangers are cooled with water circulating in closed circuits of evaporative cooling towers.

The turbine condensers and the component cooling water heat exchangers will be serviced with one cooling tower per unit. The cooling tower will be fed by a desalinated sea water (that is, the sea water desalinated in the desalination plant will be used as the make-up water).

In the case of component cooling water system heat exchangers, an evaporative cooling tower with an induced draft will be used. The cooling tower will be fed by fresh water (that is, sea water desalinated in the desalination plant).

Make-up water for the cooling tower (as well as all water required for the NPP) will be drawn from the sea through three channels/pipelines laid under the seabed. Each pipeline will end with a minimum one intake head.

The intake heads will be located at a distance of approximately 3.5km (from the intake head to the intake basin). Seawater will be processed in a desalination plant and then used as the make-up water for the cooling towers.

Blowdown from the cooling towers will be discharged to the sea through a shared NPP treated wastewater discharge system. This will be a single, shared pipeline laid under the seabed, ending with a system of discharge heads/diffusors, situated at a distance of around 2.5km (from the discharge basins to the directional discharge heads/nozzles).

The sea water intake system will also include solutions regarding fish recovery and return to the sea. The fish will be contained by rotating drums, and returned to the sea via a separate channel/pipeline exiting around 1.0 km from the coast.

I.9.2.2 Variant 2 – Żarnowiec site

I.9.2.2.1 Closed cooling system using sea water – sub-variant 2A

In a closed cooling system the turbine condensers and component cooling water heat exchangers are cooled with water circulating in closed circuits of evaporative cooling towers.

The turbine condensers and the component cooling water heat exchangers will be serviced with one cooling tower per unit. The cooling tower will be fed by sea water (that is, sea water will be used as the make-up water).

In the case of component cooling water system heat exchangers, an evaporative cooling tower with induced draft will be used. The cooling tower will be fed by fresh water (that is, sea water desalinated in the desalination plant).

Make-up water for the cooling tower (as well as all water required for the NPP) will be drawn from the sea through three channels/pipelines laid under the seabed. Each pipeline will end with a minimum one intake head. The intake heads will be located at a distance of 2.0km (from the intake head to the intake basin). A portion of the sea water will be desalinated in the desalination plant. After preliminary treatment and processing, the sea water which is not desalinated will be used as make-up water for the cooling towers.

Blowdown from the cooling towers will be discharged to the sea through a shared NPP treated wastewater discharge system. This will be a single, shared channel/pipeline laid under the seabed, ending with a discharge head or heads/diffusers, situated at a distance of around 1.5km (from the discharge basins to the discharge heads/diffusers).

The sea water intake system will also include solutions regarding fish recovery and return to the sea. The fish will be contained by rotating drums, and returned to the sea via a separate channel/pipeline exiting around 1.0 km from the coast.

For Variant 2 - Żarnowiec site, an additional element will be constructed, in the form of a seawater pump station situated on the coast. Seawater from the pump station will flow to the NPP site via 2x100% twin pipelines running along the technical access road from the coast to the NPP. Treated wastewater from the NPP (including blowdown from the cooling towers) will be delivered to the pump station via similar 2x100% twin pipelines along the same technical access road. The pump station will include a discharge basin.

I.9.2.2.2 Closed cooling system using desalinated sea water - sub-variant 2B

In a closed cooling system the turbine condensers and component cooling water heat exchangers are cooled with water circulating in closed circuits of evaporative cooling towers.

The turbine condensers and the component cooling water heat exchangers will be serviced with one cooling tower per unit. The cooling tower will be fed by a desalinated sea water (that is, the sea water desalinated in the desalination plant will be used as the make-up water).

In the case of component cooling water system heat exchangers, an evaporative cooling tower with an induced draft will be used. The cooling tower will be fed by fresh water (that is, sea water desalinated in the desalination plant).

Make-up water for the cooling tower (as well as all water required for the NPP) will be drawn from the sea through three channels/pipelines laid under the seabed. Each pipeline will end with a minimum one intake head. The intake heads will be located at a distance of 2.0km (from the intake head to the intake basin). Seawater will be processed in a desalination plant and then used as the make-up water for the cooling towers.

Blowdown from the cooling towers will be discharged to the sea through a shared NPP treated wastewater discharge system. This will be a single, shared channel/pipeline laid under the seabed, ending with a discharge head or heads/diffusers, situated at a distance of around 1.5km (from the discharge basins to the discharge heads/diffusers).

The sea water intake system will also include solutions regarding fish recovery and return to the sea. The fish will be contained by rotating drums, and returned to the sea via a separate channel/pipeline exiting around 1km from the coast.

For Variant 2 - Żarnowiec site, an additional element will be constructed, in the form of a seawater pump station situated on the coast. Seawater from the pump station will flow to the NPP site via 2x100% twin pipelines running along the technical access road from the coast to the NPP. Treated wastewater from the NPP (including blowdown from the cooling towers) will be delivered to the pump station via similar 2x100% twin pipelines along the same technical access road. The pump station will include a discharge basin.

I.9.3 Variant proposed by the Applicant, a rational alternative variant and a rational variant most favourable for the environment

When preparing the EIA Report, and willing to comply with the terms of the EIA Act [75] and the GDOŚ Decision specifying the scope of the Environmental Impact Assessment Report [45], the Applicant carried out a comparative analysis and a multi-criteria analysis to designate the proposed variant. To perform this, sub-variants described above [Chapter I.9.2] were evaluated. In the course of the comparative and multi-criteria analysis of the variants in question, the highest notes were given to sub-variants 1A and 1B of Variant 1 - Lubiatowo - Kopalino site.

On the basis of the analyses it is now possible to state that:

- **the variant proposed by the Investor for execution is sub-variant 1A.** The sub-variant received the highest notes with simultaneous application of environmental as well as other criteria,
- **the rational variant with highest environmental note is sub-variant 1B.** The notes for the sub-variant were equal to or higher than sub-variant 1A. The difference between sub-variants 1B and 1A is minimal, and both have a similar environmental impact,
- **the rational alternative variant is sub-variant 1B.** Sub-variant 1B was selected due to its lower environmental impact, established in the course of the multi-criteria analysis in comparison to the remaining sub-variants, that is, 1C, 2A, and 2B.

The analysis shows that sub-variants 1C, 2A and 2B can be executed, however the notes they received are lower than for sub-variants 1A and 1B. Sub-variant 1B receives the highest note, if only the environmental criteria are applied, with sub-variant 1A being ranked second. When environmental criteria are applied together with the remaining criteria, the highest note is assigned to sub-variant 1A, with sub-variant 1B scored as second.

Sub-variant 1B received the highest note for environmental aspects, however the sensitivity analysis indicated that sub-variant 1A performs better against a number of environment-related criteria in connection to the most direct impacts of the Project on the environment (for example, the impact on landscape, impact from vehicle traffic during construction, and acoustic impact). As a result, should the general public regard these criteria as

important (while in the analysis they received a lower weight), sub-variant 1A would also be more favourable in environmental terms than sub-variant 1B.

Sensitivity analysis also indicated that the financial assessments of sub-variants largely depend on the criteria related to the net electricity generation and the availability coefficient of the nuclear power plant, while reducing the weight of any of these criteria would result in reducing the difference between the scoring of sub-variant 1A and that of the other sub-variants. The results of the analyses clearly point to the fact that an open or closed cooling variant using sea water works far more effectively than the closed cooling system using desalinated sea water, irrespective of the site of the Project. This is strongly related to energy consumption of the large desalination plants, which reduces the net electricity generation and increases the operating expenses. Other environmental factors also contribute to the low efficiency of the closed cooling system using desalinated sea water. The siting of the Project affects the final scoring of the individual sub-variants, albeit to a lesser degree than the technological solutions of the cooling water systems.

I.9.4 Description of the projected environmental impacts in the event that the Project is not implemented

The need to characterise the zero alternative in the Project's Environmental Impact Assessment Report directly stems from the national law, that is, Article 66(1)(4) of the EIA Act [66] which stipulates that the abovementioned report should also contain a *description of the anticipated effects on the environment in the case the project is not executed, taking into account available information on the environment, and scientific knowledge.* This provision does not define how the abovementioned description of effects in the event that the Project considered in the present EIA Report is not implemented should be understood, or, more specifically, what it should cover. In this regard, international regulations and their interpretations may be of help. Annex IV, article 3 of Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending directive 2011/52/EU on the assessment of the effects of certain public and private projects on the environment [7] stipulates that the description of reasonable alternatives studied by the entity developing the report should include *an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge*. In other words, the present chapter has to include an assessment of what will probably happen to the environment if the project is not implemented, that is, what is known as the do-nothing or zero alternative.

At this point it should be stressed that the potential selection of the zero alternative does not entail a complete absence of anthropogenic impacts, as human pressure has long been clearly visible in both sites considered. A striking example of this is the completely transformed, potential site in Żarnowiec - if one only considers the part that covers the unfinished nuclear power plant that was never put into use. Both this area and the areas in the direct vicinity have been greatly transformed as a result of human activity, both from the historical perspective and from the current perspective. The anthropogenic pressure associated both with tourism and intensive forestry activities at the second site analysed in the EIA Report (Variant 1 – the Lubiatowo - Kopalino site) should be seen in a similar context (from the historical and current perspective). When it comes to the future, that is, the zero-alternative and no implementation of the investment, it may at least be assumed that the existing trends or, to put it differently, impacts, will be similar over the next few years, but this is based on the assumption that the entire region will remain in some long-term stable state or even stagnate. This could, of course, be the case in the event of a deep economic recession, or developments of significant geopolitical or climatic consequences, or other events that would be similar in terms of their magnitude or nature. However, there are plenty of indications that these areas will certainly undergo unprecedented changes of a very different nature, including the large-scale plans concerning investments in offshore wind energy (where the significant transformations will affect not only the marine part, but also the land part), the constantly growing marine transport, or the immense pressure associated with tourism - not only in the form of the increasing number of tourists, but also in the form of pressures from the new developments associated with the developing tourist

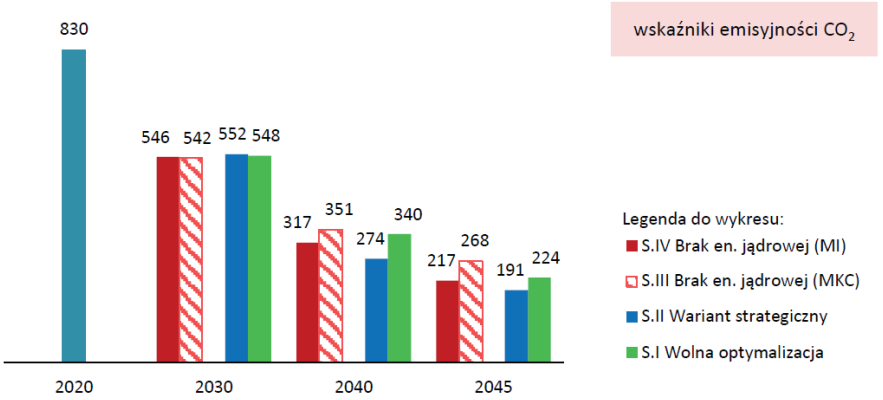
sector (hotels, marinas, etc.) - to mention but a few. One may find many more examples that clearly show that the decision not to implement the project would not prevent the changes that will "affect" the region in the near future.

From a purely pragmatic standpoint, on a local scale, the zero alternative would certainly allow to avoid the degradation of the elements of the environment associated especially with the construction phase, including soils, biologically active areas, and many others. The unfavourable changes in the landscape, visible to a lesser or greater degree during the operational phase (depending on the selected sub-variant), would not happen, either. Locally, the zero alternative will have no significant impact on many elements of the environment, but the conclusion is justified if one considers what is known as the "direct interference". The effects in the local scale, considered from the socio-economic perspective are not as clear; given the large number of lost jobs and workplaces, associated with the construction and operation of the power plant, one may even talk of significantly negative effects of the zero alternative. The impacts will be the same on the regional level, albeit in a wider context. **However, when analysing its impact on the national scale, or taking into account the transboundary aspects, it is the zero alternative that should be considered as the least favourable for the environment due to the Project not being implemented and the far-reaching consequences for the climate and, going even further, our survival in the future.** This, of course, pertains not only to the first Polish Nuclear Power Plant. This is an important, but not critical element of the transformation process, or even of the energy revolution that is currently taking place, in real time, before our eyes. The revolution is not only about profit; although it will certainly bring immense economic benefits to its direct beneficiaries, it is mostly a race against time. Metaphorically, the zero variant may be seen as indifference and lack of concern for future generations, as the lack of the will to introduce change. Finally, it is also the act of stubborn and irrational clinging to the past.

Returning once more to the national context, one may conclude with full confidence that the decision not to implement the Project would result in the need to acquire huge amounts of power that will have to be generated primarily through the combustion of fossil fuels, i.e. bituminous coal or lignite, as well as a significant increase in the use of natural gas. Today, there is no justification for this approach other than the lack of a reasonable alternative that we have clearly had for a long time. At the moment, generation of the amount of energy that Poland requires with the use of other sources (including sources that are informally referred to as renewable) is unrealistic (which does not mean that it should not be gradually implemented), but there is a real and rational alternative in the form of nuclear energy - even despite the opinion that some still express (and which is contradicted by the balance of all the aspects of the extraction and combustion of fossil fuels), namely that the energy generated through the combustion of the abovementioned fuels is a much cheaper, or even one of the cheapest, energy sources. Irrespective of the effects associated with the extraction of coal, the processes of its combustion are considered the basic source of air pollution. Sulphur dioxide, nitrogen oxides, hydrocarbons, carbon monoxide and carbon dioxide, smoke and particulate matter, and even metals created during the combustion contribute among others to a significant deterioration of air quality which in turn translates into illnesses and ailments among humans, especially with regard to the respiratory system. The combustion of coal also results in the creation of solid combustion products, i.e. ash and slag, also known as combustion waste. Emissions of greenhouse gases from the combustion of fossil fuels are considered one of the main causes of global warming. The abovementioned negative impacts associated with the extraction and combustion of fossil fuels certainly do not exhaust the full list of identified hazards that are absent in the case of the construction and operation of nuclear power plants. The benefits associated with the implementation of the Project are described further as part of the discussion on the *investor variant* [Chapter V.2].

The analyses used in the development of the PNPP present the future scenarios of changes in the National Power System and their impact on greenhouse gas emissions. Four simulations presented below have been prepared [Figure I. -6]. Scenario I and Scenario II are future scenarios in which Poland implements the nuclear programme and encourages the development of renewable energy sources and gas energy sector. Scenario I is the optimum approach in terms of costs, which assumes a larger share of gas. In turn, Scenario II assumes a higher degree of market regulation. Scenarios III and IV do not account for nuclear energy, and, instead, assume that the share of

renewable energy sources and fossil fuels will be expanded. In Scenario III, gas is of key importance, while in Scenario IV, gas and coal are of key importance. All the four scenarios forecast a decarbonisation of electricity in Poland, although those based on nuclear energy (S.I and S.II) have a lower carbon intensity. All the scenarios are consistent with the National Energy and Climate Plan [36] which assumes that carbon intensity of electricity will decrease by 20% until 2030 and by 50% until 2040.



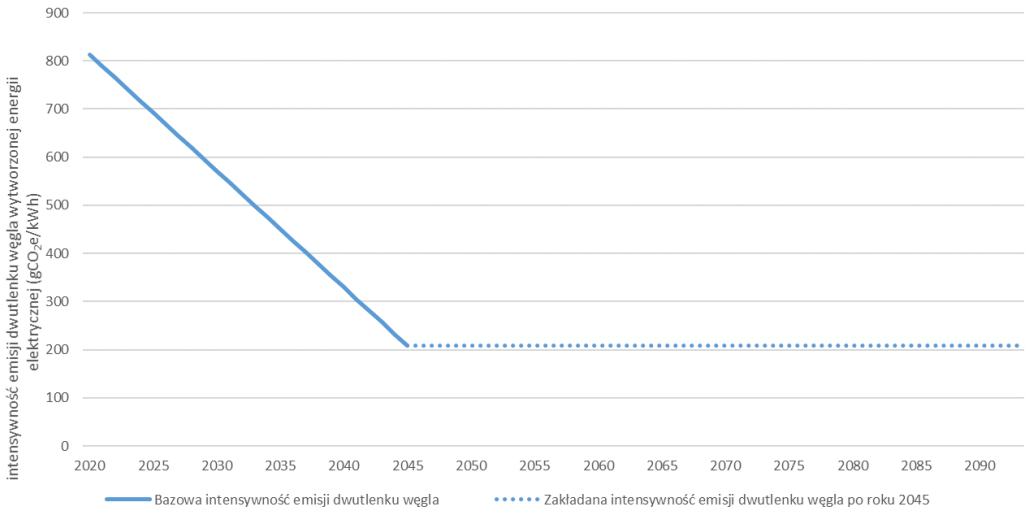
wskaźniki emisyjności CO_2	CO_2 emission factors
S.IV Brak en. jądrowej (MI)	S.IV No nuclear energy (MI)
S.III Brak en. jądrowej (MKC)	S.III No nuclear energy (MKC)
S.IV Wariant strategiczny	S.IV Strategic variant
S.IV Wolna optymalizacja	S.IV Free optimisation

Figure I.- 6 Carbon intensity (g CO_2e/kWh) of the Polish electricity and cogeneration sectors - scenarios S.I through S.IV.

Source: [46]

The largest reduction of CO_2 emissions would be possible if Scenario II was implemented – the final volume of annual emissions would decrease from 134 million tCO_2 in 2020 to 41 million tCO_2 in 2045 (reduction by almost 70%). In the case of Scenario III, which does not take into account nuclear energy and is optimised in the total cost model, 93 million tCO_2 could be avoided for over 25 years.

The zero alternative for the Project was defined by adopting the average carbon intensity of electricity in scenarios S.I through S.IV and by assuming a linear reduction in carbon intensity until the end of the modelling period in 2045, after which a stable volume of CO_2 emissions is assumed due to the lack of strategic documents imposing the obligation to reduce emissions below a given level after 2045 [Figure I.- 7]. Taking into account the "nuclear scenarios" S.I and S.II is consistent with the conservative approach to the analyses conducted, because it decreases the carbon intensity in comparison to the reference level which does not include the nuclear power.



Intensywność emisji dwutlenku węgla wytworzonej energii elektrycznej (gCO_2e/kWh)	Intensity of the carbon dioxide emission of the electricity generated (gCO_2e/kWh)
Bazowa intensywność emisji dwutlenku węgla	Basic intensity of the carbon dioxide emission
Zakładana intensywność emisji dwutlenku węgla po roku 2045	Assumed intensity of the carbon dioxide emission after 2045

Figure I.- 7 Average base carbon intensity of electricity generation (g CO_2e/kWh) in the Polish power and cogeneration sectors

Source: [1]

To sum up, the *zero alternative*, paradoxically, does not have to always be the best variant for the environment. The description of this variant should each time consider its consequences not only on the local scale (usually they seem to be obvious and yes/no outcomes), but, if justified by the project extent - also on the global scale.

I.10 Project's legal framework

The Project is a material construction investment in the field of nuclear power. It is an investment the safe operation of which is extremely important, and its implementation is crucial for the achievement of objectives of the PNPP [46] and PEP2040 [44]. The Project's significance and its complexity are confirmed by the fact that its implementation is governed by numerous legal acts, EU directives and international conventions, and the Project will be compliant with all those legal provisions.

The Polish legal framework regarding security of nuclear facilities has been developed and is applicable in the Polish legislation. The scope of those provisions is sufficient to carry out the investment regarding the nuclear power plant construction and then its operation in a manner that is safe for people and the environment.

Polish regulations on nuclear safety and radiological protection were passed in 1986 under the Atomic Law Act of 10 April 1986, in connection with the execution of the nuclear power development programme concerning the construction of the first Polish nuclear power plant in Żarnowiec and siting of the second nuclear power plant, WARTA - Klempicz. The above programme was suspended and then abandoned, and thus the construction of the nuclear power plant in Żarnowiec was discontinued.

On 29 November 2000, the Atomic Law Act [74] was passed which replaced the Atomic Law Act of 10 April 1986. It was related primarily to the adjustment of Polish law to international standards and harmonisation of the Polish law with the law applicable in the European Union.

I.10.1 Regulations concerning the Project

By joining the European Union, Poland has also become a member of the European Atomic Energy Community (EURATOM) and thus assumed not only the obligations arising from the European Union membership but the EURATOM membership. The legal basis of the EURATOM operation is the Treaty establishing the European Atomic Energy Community of 25 March 1957 [62].

In connection with the fact that Poland is a member of the EU and EURATOM, directives which are to ensure nuclear safety and radiological protection have been transposed into the Polish legislation. They are first of all the following directives:

- Council Directive 2009/71/EURATOM of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations [8]. The Directive establishes a Community framework to maintain continuous improvement and promotion of nuclear safety and its regulation. It also introduces regulations aimed at ensuring that Member States should implement appropriate national arrangements for a high level of nuclear safety to protect employees and the general public against hazards arising from ionising radiation from nuclear facilities. The directive applies to nuclear facilities, including primarily to a nuclear power plant; the Directive was amended under Council Directive 2014/87/EURATOM of 8 July 2014 amending Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations [11];
- Council Directive 2011/70/EURATOM of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste [9]. The Directive establishes a Community framework to ensure responsible and safe management of spent fuel and radioactive waste to avoid imposing undue burdens on future generations;
- Council Directive 2013/59/EURATOM of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom [10]. This Directive establishes uniform basic safety standards for the protection of the health of individuals subject to occupational, medical and public exposures against the hazards arising from ionising radiation.

Poland also implemented provisions of the conventions which it is a party to and which it ratified thus ensuring compliance of the Atomic Law Act [65] with those conventions. They include conventions regarding nuclear safety, civil liability, security of nuclear materials and facilities, nuclear safeguards and non-proliferation.

With respect to nuclear safety and radiological protection, security, protection of nuclear materials, there are numerous guidelines and recommendations developed by international organisations. One of the most important organisations which develops guidelines in the above field is the International Atomic Energy Agency based in Vienna, which was established in 1957 and operates at the United Nations. Poland has been a founding member of the IAEA since 1957. According to the Statute of the IAEA, its main objective is to develop the nuclear energy in favour of human health and prosperity, and to ensure, by the IAEA activities, that assistance provided by it is used only for peaceful purposes. The IAEA publishes numerous guidelines, including primarily the safety standards.

Although the safety standards are not binding, they are nevertheless applied by many countries, including Poland, due to their high substantive value and the fact that they have been prepared on the basis of primarily the existing experience of the countries of developed nuclear power sector. The IAEA safety standards were also taken into account in the development of the EIA Report.

The EIA Report also takes into account the guidelines of the Western European Nuclear Regulators Association (WENRA), an association of the nuclear safety regulatory bodies of the European Union Members States and Switzerland, which have nuclear power plants. Poland has the status of an observer in WENRA. The objective of WENRA is primarily to harmonise the requirements and practice with regard to the design, siting, construction, operation, and decommissioning of nuclear power plants.

Polish regulations related to the Project include first of all the provisions of the Atomic Law Act, due to the fact that the Project concerns the activity connected with exposure to ionising radiation. Under Article 4(1)(2) of the above Act, a permit issued by the PAA President is required for the construction, commissioning, operation and decommissioning of a nuclear facility, that is, including a nuclear power plant. The permit is one of the type of permits issued by the PAA President for the activity related to the exposure to ionising radiation, and such an activity is undoubtedly the construction and operation of the nuclear power plant. It is one of the most important legal acts regarding the Project execution, which, together with its implementing regulations, contains legal norms the fulfilment of which is an extremely important element to ensure safe construction, and first of all, operation of the nuclear power plant in the manner that guarantees that requirements related to nuclear safety and radiological protection have been met.

The Atomic Law Act, as mentioned above, has transposed the EURATOM requirements in the field of nuclear safety and radiation protection included in the relevant directives. Provisions of the above Act also implemented numerous guidelines of international organisations, including predominantly safety standards developed by the IAEA.

Another crucial act from the point of view of the Project is the Act on preparing and implementing investments in nuclear power facilities and associated investments [75]. This Act classifies a nuclear power plant as a nuclear power facility and demands that a decision on determination of a site for the construction of a nuclear power facility should be obtained as an essential element of the preparation of an investment regarding the construction of a nuclear power plant. The decision is issued by the competent head of voivodeship at the investor's request. Decision on determination of a site for an investment regarding the construction of a nuclear power facility is one of appendices to the application for the issuance of a permit for performing an activity related to exposure and consisting in the construction of a nuclear facility. The decision is also one of the appendices attached to the application for the issuance of the decision in principle, the conditions of which are governed by the Act on preparing and implementing investments in nuclear power facilities and associated investments. The decision in principle is issued by the minister in charge of energy after consultations with the Head of the Internal Security Agency regarding the investment's impact on internal security of the State.

Obtaining the decision in principle is the condition for the investor's applying for the permit to construct a nuclear power facility.

The construction permit for the nuclear power plant will be issued in accordance with the provisions of the Building Law Act [76], taking into account the provisions of the act on preparing and implementing investments in nuclear power facilities and associated investments [75]. In this case, it is also the voivode that issues the above decision. Given the fact that the Project is located in the vicinity of maritime areas, the provisions of the Act of 21 March 1991 on maritime areas of the Republic of Poland and marine administration [71] with respect to the erection and use of artificial islands, structures and equipment in Polish maritime areas will also be applicable.

I.10.2 Regulations concerning the environmental requirements

Apart from the provisions directly related to the Project, one should also single out the provisions related to the environmental requirements as well as those that regulate the environmental impact assessment procedure.

With regard to international law, the Convention on Environmental Impact Assessment in a Transboundary Context signed in Espoo on 25 July 1991 [33] (the Espoo Convention) should be specified, which was ratified by Poland on 30 April 1997. The Espoo Convention sets out the obligations of the parties that agreed to be bound by the convention with regard to the environmental impact assessment of the planned activities related to the execution of a project at an early stage, within the territory of the Parties to the Espoo Convention (defined as a "Party of origin") in the event that any potential negative impacts of the project on the territories of other Parties to the convention (defined as "affected Parties"). The Espoo convention defines the impact as a transboundary impact which, according to the convention, "*means any impact, not exclusively of a global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the area under the jurisdiction of another Party".*

The following intergovernmental agreements will also apply to the transboundary procedure: Agreement between the Government of the Republic of Poland and the Government of the Federal Republic of Germany regarding the environmental impact assessments and strategic environmental impact assessments in the transboundary context, made in Neuhardenberg, on 10 October 2018 [63] and the agreement between the Government of the Republic of Poland and the Government of the Republic of Lithuania on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context, made in Warsaw on 27 May 2004 [64]. Both agreements have been concluded in accordance with Article 8 of the Espoo convention and contain a specification of procedures for environmental impact assessment proceedings in a transboundary context between the abovementioned countries.

Another important international agreement is the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, drawn up on 25 June 1998 in Aarhus [32]. It does not contain regulations on the transboundary proceedings, but it refers to providing the public (including both individuals and social organisations) with access to information, allowing public participation in decision-making, and providing access to justice in environmental matters. The provisions of the above convention were implemented in the EIA Act.

In terms of international law, the Convention on the Protection of the Marine Environment of the Baltic Sea Area signed in Helsinki on 9 April 1992 [34] will also apply to the environmental impact assessment procedure. The objective of the convention is to protect the environment of the Baltic Sea. The Baltic Marine Environment Protection Commission - Helcom - was set up under the convention, and its responsibilities include issuing recommendations on measures related to the objectives of the convention. These recommendations were taken into account in the development of the EIA Report. The Parties to the Convention on the Protection of the Marine Environment of the Baltic Sea Area are: Poland, Germany, Denmark, Sweden, Finland, Estonia, Latvia, Lithuania, Russia, and the European Union.

The directives of the European Union that were transposed into 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 as well as to the Water Law Act of 20 July 2017 [70] also apply to the environmental impact assessment procedure.

These are mostly:

- 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 [6] (EIA Directive) - the directive lays down the rules for the environmental impact assessments of projects;
- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora [12] (Habitat Directive) – deals with the impacts of projects on Natura 2000 sites;
- Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy [4] (Marine Strategy Framework Directive) – aims to achieve a good environmental status of marine waters;
- Directive 2000/60/EC of 23 October 2000 of the European Parliament and of the Council establishing a framework for Community action in the field of water policy [3] (Water Framework Directive, WFD) - aims to set a framework for the protection of inland surface waters, transitional waters, coastal waters, and groundwater.
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds [5] (The Birds Directive), concerns, similarly to the Habitats Directive, the impact of projects on Natura 2000 sites and it refers to all the bird species occurring in the wild within the territory of the EU Member States.

With regard to national regulations, the environmental impact assessment procedure was regulated in the Act on the provision of information on the environment and its protection, public participation in environmental protection, and environmental impact assessments [75]. The act includes a number of regulations that serve to study the environmental impact of the investments carried out in Poland. For the Project to be executed, a decision on the environmental conditions has to be acquired, since the Project is included in the list of projects always likely to have significant environmental impacts according to § 2 item 1, point 4 of the Regulation of the Council of Ministers of 9 November 2010 on projects likely to have a significant impact on the environment [54], under which projects related to nuclear power plants and other nuclear reactors, including their decommissioning, are always projects that are likely to have a significant impact on the environment. The decision on the environmental conditions is the first decision that the investor has to obtain as part of the investment process, and its issuance by the competent body of public administration makes it possible to proceed with the process and obtain subsequent decisions. The decision on environmental conditions is obtained before applying to the voivode for a location permit with regard to the construction of a nuclear facility. Without obtaining a decision on environmental conditions one cannot see how the project impacts the environment, and thus its implementation is impossible. Only the authorisation of a competent body for the implementation of the Project makes it possible to apply for subsequent decisions within the investment process with regard to the Project.

Given the above, to proceed with the implementation of the Project it is necessary to obtain a decision on environmental conditions authorising the implementation of the Project. The General Director for Environmental Protection is the public administration authority that is competent to issue a decision on environmental conditions.

In the environmental impact assessment procedure, the relevant acts with substantive law provisions, which areapplicable in the environmental impact assessment, are the following:

- Environmental Protection Law Act of 27 April 2001 [72];

- Nature Conservation Act of 16 April 2004 [68];
- Water Law Act of 20 July 2017 [70];
- Waste Act of 14 December 2012 [67].

According to Article 79 of the EIA Act [75], an important element of the proceedings regarding the issuance of a decision on environmental conditions is to ensure public participation in the proceedings by allowing the public to become acquainted with the relevant documentation, including especially the EIA Report, and to submit comments and file applications, as well as to allow for public participation in judicial proceedings, if any. This right of the public is an extraordinary solution when it comes to the administrative procedure, and it was introduced with a view to ensuring that the public is able to review the proceedings on issuing a decision on environmental conditions in the light of the fact that the environment is a common good. This means that despite that although a given person is not seen as a party to the proceedings, they will still have a chance to participate in the proceedings and that when the person submits comments or files a request, the authority conducting the proceedings shall be bound to consider them.

Given the fact that the Investor submitted an application for the issuance of a decision on environmental conditions and for the determination of the scope of the environmental impact report on 5 August 2015, the provisions of the EIA Act that were effective at the time when the application was filed, were applicable to the proceedings on issuing a decision on environmental conditions for the Project. After that date, the EIA Act was amended multiple times. The amendments were significant, and in particular they substantially amended the requirements regarding the contents of the EIA Report. In order to update requirements in the scope in question, the Act of 13 January 2022 on amending the Water Law Act and other acts [66] was adopted. The provisions related to the proceedings on issuing a decision on environmental conditions for the Project were thereby updated; this should result in streamlining of the proceedings in this regard and prevention of any occurrence of potential interpretation-related problems. According to the above Act, Article 66, Article 66, Article 72, Article 74, Article 74a, Article 77, Article 80, Article 81, Article 84, Article 86d, Article 96, Article 97, Article 108, Article 109, and Article 112 of the EIA Act shall apply to the proceedings on issuing the decision on environmental conditions for the Project in the version resulting from the Act of 19 July 2019 on amending the Act on the provision of information on the environment and its protection, public participation in environmental protection, and environmental impact assessments, and certain other acts [69]. Moreover, under the Act of 13 January 2022 on amending the Water Law Act and other acts [66], the provisions of the Water Law Act of 20 July 2017 [70] shall also apply to the proceedings in question.

It should also be noted that one of the comprehensive amendments to the EIA Act [75] was the amendment introduced by way of the Act of 9 October 2015 on amending the Act on the provision of information on the environment and its protection, public participation in environmental protection, and environmental impact assessments and certain other acts [78], which entered into force on 1 January 2017. Under Article 6 item 2 of the above amending act, the existing provisions shall apply to the matters related to issuing a decision on environmental conditions for which a decision determining the scope of the assessment of the Project's environmental impact was issued.

At the same time, in Article 6, item 4 of the Act of 9 October 2015 on amending the Act on the provision of information on the environment and its protection, public participation in environmental protection, and environmental impact assessments and certain other acts [78], the legislator introduced the possibility of applying the provisions in the version resulting from the above amending act in the event that an entity that plans to embark on project implementation files an application in this regard. The above means that in order for the provisions of the abovementioned amending act to be applicable, an application has to be filed.

In view of the above, it should be noted that with regard to the proceedings on issuing a decision on environmental conditions for the Project, the provisions of the law shall apply in the version as at the day of filing an application for a decision on environmental conditions, albeit taking into account the changes introduced by way of the Act of 13 January 2022 on amending the Water Law Act and certain other acts [66] that entered into

force on 4 February 2022, as well as considering the amendments to the EIA Act [75] that were made between the date on which the Investor filed the application for the decision on environmental conditions (5 August 2015) and the date of submitting the EIA Report, which directly apply to the proceedings in question. At the same time, in the event that the Investor files an application under the Act of 9 October 2015 on amending the act on the provision of information on the environment and its protection, public participation in environmental protection, and environmental impact assessments and certain other acts [78], the provisions shall apply in the wording resulting from the above amending act.

When preparing the EIA Report, the Investor took into account the provisions in the wording applicable as at the time of preparing the EIA Report.

References

Reference list

1. Life Cycle and Carbon Footprint. Task 2 – Effect of the Project on the Climate. Jacobs Clean Energy Limited, 2021.

3. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for the Community action in the field of water policy (OJ L 327, 22.12.2000, p. 1, as amended).

4. Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) (OJ L 164, 25.6.2008, p. 19).

5. Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (OJ L 20, 26.1.2010, p. 7).

6. 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 L 26, 28.01.2012, p. 1).

7. Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/52/EU on the assessment of the effects of certain public and private projects on the environment (OJ L 124, 25.04.2014, p. 1).

8. Council Directive 2009/7/EURATOM of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations (OJ L 172, 2.7.2009, p. 18, as amended).

9. Council Directive 2011/70/EURATOM of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste (OJ L 199, 2.8.2011, p. 48).

10. Council Directive 2013/59/EURATOM of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom (OJ L 13, 17.01.2014, p. 13).

11. Council Directive 2014/87/EURATOM of 8 July 2014 amending Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations (OJ L 219, 26.7.2014, p. 42).

12. Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ L 206, 22.7.1992, p. 7).

14. Energy Efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy, Communication from the Commission, Brussels, 23 July 2014, COM(2014) 520 final, available from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52014DC0520 (date of access: 28 August 2021).

16. EJ Żarnowiec 1982-1990 [The Żarnowiec NPP in the Years 1982-1990]. Available from: http://atom.edu.pl/index.php/program-jadrowy-w-prl/ej-zarnowiec.html (date of access: 8 January 2020).

17. Energetyka jądrowa w Polsce [Nuclear Energy in Poland]. Available from: http://atom.edu.pl/index.php?option=com_content&view=article&id=73 (date of access: 8 January 2020).

18. European Energy Security Strategy, Communication from the Commission to the European Parliament and the Council, Brussels, 28 May 2014, COM(2014) 330 final, available from: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52014DC0330 (date of access: 28 August 2021).

19. European Green Deal, Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee, and the Committee of the Regions, Brussels, 11 December 2019, COM(2019) 640 final, available from: https://ec.europa.eu/transparency/documents-register/detail?ref=COM(2019)640&lang=en (date of access: 28.08.2021).

20. https://europeanutilityrequirements.eu/ (date of access: 31 October 2021).

21. https://pris.iaea.org/pris/ (date of access: 1 August 2021).

22. https://www.epri.com/ (date of access: 30 September 2021).

23. https://www.ipcc.ch/reports/ (date of access: 30 September 2021).

24. INPLUS Energetyka Sp. z o. o., Analiza zagospodarowania przestrzennego. Stan aktualny na potrzeby Raportu OOŚ w lokalizacji Lubiatowo - Kopalino cz. I, 2021 r. [Spatial Development Analysis. Current Status for the EIA Report in the Lubiatowo - Kopalino Site, Part I, 2021].

25. International Atomic Energy Agency, Managing Environmental Impact Assessment for Construction and Operation in New Nuclear Power Programmes, IAEA Nuclear Energy Series No. NG-T-3.11, IAEA, Vienna, 2014.

26. International Atomic Energy Agency, Seismic Hazards in Site Evaluation for Nuclear Installations, IAEA Safety Standards Series No. SSG-9, IAEA, Vienna, 2010.

27. Kiełbasa, W. Jak to z Żarnowcem było – Refleksja 30 lat po wstrzymaniu budowy. Część I: Od początków do wstrzymania budowy [The Żarnowiec NPP History. An Afterthought 30 Years Following the Construction Halt. Part I: From the Beginning to the Construction Halt]. Postępy Techniki Jądrowej, 2019, 62 (2), ISSN 0551-6846. Warsaw: 2019.

28. Kiełbasa, W. Jak to z Żarnowcem było – Refleksja 30 lat po wstrzymaniu budowy. Część II: Jak powstała decyzja rządowa i jej konsekwencje [The Żarnowiec NPP History. An Afterthought 30 Years Following the Construction Halt. Part II: Origins of the Government Decision and Its Consequences]. Postępy Techniki Jądrowej, 2019, 62 (3), ISSN 0551-6846. Warsaw: 2019.

30. Conclusions of the European Council of 24 October 2014 on 2030 Climate and Energy Policy Framework, Brussels, 24 October 2014 (OR. en), EUCO 169/14 https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/145356.pdf (date of access: 28 August 2021).

32. Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, done at Aarhus on 25 June 1998 (Journal of Laws of 2003, No. 78, item 706).

33. Convention on Environmental Impact Assessment in a Transboundary Context drawn up in Espoo on 25 February 1991 (Journal of Laws of 1991, No. 96, item 1110).

34. Convention on the Protection of the Marine Environment of the Baltic Sea Area signed in Helsinki on 9 April 1992 (Journal of Laws of 2000, No. 28, item 346).

36. Krajowy plan na rzecz energii i klimatu na lata 2021-2030 [National Energy and Climate Plan for the years 2021-2030], a document developed by the Minister of State Assets, available from: https://www.gov.pl/web/klimat/national-energy-and-climate-plan-for-the-years-2021-2030 (date of access: 28 August 2021).

37. National Plan of Management of Radioactive Waste and Spent Nuclear Fuel, Resolution no. 154 of the Council of Ministers of 21 October 2020 concerning the update of the “National plan for managing radioactive waste and spent fuel” (Dz.U. of 2020, item 1070)

39. Energy Roadmap 2050, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions, Brussels, 15 December 2011, COM(2011) 885 final, available from: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52011DC0885 (date of access: 28 August 2021).

43. The 2030 National Environmental Policy - the Development Strategy in the Area of the Environment and Water Management, Resolution No. 67 of the Council of Ministers of 16 July 2019 on adopting "The 2030 National Environmental Policy - the Development Strategy in the Area of the Environment and Water Management" [794].

44. Polityka energetyczna Polski do 2040 r., Obwieszczenie Ministra Klimatu i Środowiska z dnia 2 marca 2021 r. w sprawie polityki energetycznej państwa do 2040 r.[Energy Policy of Poland until 2040 - the Announcement of 2 March 2021 by the Minister of Climate and Environment on the energy policy of the State until 2040] (Official Gazette of the Government of the Republic of Poland, item 264)

45. Postanowienie Generalnego Dyrektora Ochrony Środowiska z dnia 25 maja 2016 r. (DOOŚOA.4205.1.2015.23) określające zakres raportu o oddziaływaniu na środowisko dla przedsięwzięcia polegającego na budowie i eksploatacji pierwszej w Polsce Elektrowni Jądrowej o mocy elektrycznej do 3750 MWe na obszarze gmin: Choczewo lub Gniewino i Krokowa [Decision of the General Director for Environmental Protection of 25 May 2016, defining the scope of the Environmental Impact Assessment Report regarding the project consisting in the construction and operation of the First Nuclear Power Plant in Poland with the capacity of up to 3,750MWe, in the territory of the following communes: Choczewo or Gniewino and Krokowa], GDOŚ, 2016.

46. Program polskiej energetyki jądrowej, Uchwała nr 15/2014 Rady Ministrów z dnia 8 stycznia 2014 r. w sprawie programu wieloletniego pod nazwą "Program polskiej energetyki jądrowej" [The Polish Nuclear Power Program, Resolution no 15/2014 of the Council of Ministers of 8 January 2014, regarding the multi-year program named "The Polish Nuclear Power Program"] (Official Gazette of the Government of the Republic of Poland, item 502); Uchwała nr 141 Rady Ministrów z dnia 2 października 2020 r. w sprawie aktualizacji programu wieloletniego pod nazwą „Program polskiej energetyki jądrowej" [Resolution No. 141 of the Council of Ministers of 2 October 2020 on updating the multi-annual programme named "The Polish Nuclear Power Programme"] (Official Gazette of the Government of the Republic of Poland, item 946).

48. A policy framework for climate and energy in the period from 2020 to 2030 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions, Brussels, 4 February 2014, COM(2014) 15 final/2, available from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2014:15:FIN (date of access: 28 August 2021).

51. Rozporządzenie Rady Ministrów z dnia 10 sierpnia 2012 r. w sprawie szczegółowego zakresu przeprowadzania oceny terenu przeznaczonego pod lokalizację obiektu jądrowego, przypadków wykluczających możliwość uznania terenu za spełniający wymogi lokalizacji obiektu jądrowego oraz w sprawie wymagań dotyczących raportu lokalizacyjnego dla obiektu jądrowego [Regulation of the Council of Ministers of 10 August 2012 on detailed scope of assessment with regard to land intended for the location of a nuclear facility, cases excluding land to be considered eligible for the location of a nuclear facility and on requirements concerning location report for a nuclear facility] (Journal of Laws, item 1025).

52. Rozporządzenie Rady Ministrów z dnia 10 września 2019 r. w sprawie przedsięwzięć mogących znacząco oddziaływać na środowisko [Regulation of the Council of Ministers of 10 September 2019 on projects likely to have a significant impact on the environment] (Journal of Laws, item 1839). Rozporządzenie Rady Ministrów z dnia 12 maja 2009 r. w sprawie ustanowienia Pełnomocnika Rządu do spraw Polskiej Energetyki Jądrowej [Regulation of the Council of Ministers of 12 May 2009 on establishing the Government Plenipotentiary for Polish Nuclear Power] (Journal of Laws 72, item 622).

54. Rozporządzenie Rady Ministrów z dnia 9 listopada 2010 r. w sprawie przedsięwzięć mogących znacząco oddziaływać na środowisko [Regulation of the Council of Ministers of 9 November 2010 on projects which may significantly affect the environment] (Journal of Laws No 213, item 1397 as amended).

55. National Security Strategy of the Republic of Poland, Decision of the President of the Republic of Poland of 12 May 2020 on the adoption of the "National Security Strategy of the Republic of Poland" (Dz.U. of 2020, item 413).

57. 2030 Productivity Strategy, draft of the document (version of 29 September 2020) published on the websites of the Ministry of Development subjected to public consultations, available on: https://www.gov.pl/web/rozwoj-technologia/konsultacje-publiczne-projektu-strategii-produktywnosci-2031 (accessed on: 28.08.2021).

58. A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, Brussels, 25 February 2015, COM(2015) 80 final, available on: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52015DC0080 (date of access: 28 August 2021).

60. Strategic adaptation plan for sectors and areas sensitive to climate change until 2020, with a perspective until 2030; Document adopted on 29 October 2013 by the Council of Ministers, https://bip.mos.gov.pl/fileadmin/user_upload/bip/strategie_plany_programy/Strategiczny_plan_adaptacji_2020.pdf (accessed on: 28.08.2021).

61. Water Study. Jacobs Clean Energy Limited, 2021.

62. Treaty on the European Atomic Energy Community (Euratom), signed in Rome on 25 March 1957 (consolidated version OJ C 203, 7.6.2016, p. 1, as amended).

63. Agreement between the Government of the Republic of Poland and the Government of the Federal Republic of Germany regarding the environmental impact assessments and strategic environmental impact assessments in the transboundary context, made in Neuhardenberg, on 10 October 2018 (Journal of Laws of 2021, item 330).

64. Agreement between the Government of the Republic of Poland and the Government of the Republic of Lithuania on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context, made in Warsaw on 27 May 2004 (Official Gazette of the Government of the Republic of Poland of 2005, no. 13, item 238).

65. Ustawa z dnia 10 kwietnia 1997 r. Prawo energetyczne [Energy Law Act of 10 April 1997] (Journal of Laws No. 54, item 348, as amended).

66. Ustawa z dnia 13 stycznia 2022 r. o zmianie ustawy – Prawo wodne oraz niektórych innych ustaw [Act of 13 January 2022 on amending the Water Law Act and certain other acts] (Journal of Laws, item 258).

67. Ustawa z dnia 14 grudnia 2012 r. o odpadach [Waste Act of 14 December 2012] (Journal of Laws item 21, as amended)].

68. Ustawa z dnia 16 kwietnia 2004 r. o ochronie przyrody [Nature Conservation Act of 16 April 2004] (Journal of Laws No. 92, item 880 as amended).

69. Ustawa z dnia 19 października 2019 r. o zmianie ustawy o udostępnianiu informacji o środowisku i jego ochronie, udziale społeczeństwa w ochronie środowiska oraz o ocenach oddziaływania na środowisko oraz niektórych innych ustaw [Act of 9 October 2015 on changing the act on the provision of information on the environment and its protection, public participation in environmental protection, and environmental impact assessments, and certain other acts] (Journal of Laws, item 1712).

70. Ustawa z dnia 20 lipca 2017 r. Prawo wodne [Water Law Act of 20 July 2017] (Journal of Laws item 1566, as amended).

71. Ustawa z dnia 21 marca 1991 r. o obszarach morskich Rzeczypospolitej Polskiej i administracji morskiej [The Act of 21 March 1991 on maritime areas of the Republic of Poland and marine administration] (Journal of Laws No. 32, item 131, as amended).

72. Ustawa z dnia 27 kwietnia 2001 r. Prawo ochrony środowiska [Environmental Protection Law Act of 27 April 2001] (Dz.U. of 2001, No. 62, item 627 as amended).

73. Ustawa z dnia 29 czerwca 2011 r. o przygotowaniu i realizacji inwestycji w zakresie obiektów energetyki jądrowej oraz inwestycji towarzyszących [Act on preparation and implementation of investments in nuclear power facilities and associated investments] (Journal of Laws 2011 no. 135, item 789, as amended).

74. Ustawa dnia 29 listopada 2000 r. Prawo atomowe [Atomic Law Act of 29 November 2000] (Journal of Laws of 2001, No. 3, item 18 as amended).

75. Ustawa z dnia 3 października 2008 r. o udostępnianiu informacji o środowisku i jego ochronie, udziale społeczeństwa w ochronie środowiska oraz o ocenach oddziaływania na środowisko [Act of 3 October 2008 on providing access to information about the environment and its protection, participation of the public in the environment protection and assessments of the environmental impact] (Journal of Laws of 2008, No. 199, item 1227, as amended),

76. Ustawa z dnia 7 lipca 1994 r. Prawo budowlane [Building Law Act of 7 July 1994] (Journal of Laws of 1994, No. 89, item 414 as amended).

78. Ustawa z dnia 9 października 2015 r. o zmianie ustawy o udostępnianiu informacji o środowisku i jego ochronie, udziale społeczeństwa w ochronie środowiska oraz o ocenach oddziaływania na środowisko oraz niektórych innych ustaw [Act of 9 October 2015 on changing the act on the provision of information on the environment and its protection, public participation in environmental protection, and environmental impact assessments, and certain other acts] (Journal of Laws, item 1936).

79. Effect of the Project on Climate - technical note SA. Jacobs Clean Energy Limited, 2021.

80. Assumptions for the National Programme for Development of Low-Carbon Economy (NPRGN), document adopted by the Council of Ministers on 16 August 2011.https://www.cire.pl/pliki/1/2018/nprgn_konsultacje_2.pdf, https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjwc2y_KPwAhVnl4sKHcpWB7MQFjAEegQIAhAD&url=https%3A%2F%2Fwww.snb.org.pl%2Fplik%2F92&usg=AOvVaw01bk0DPaKfR4xP-SkWMCBW (accessed on: 28.08.2021).

81. Green Paper. A 2030 Framework for Climate and Energy Policies, European Commission Communication, Brussels, 27 March 2013, COM(2013) 169 final, available on: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0169&from=EN (date of access: 28 August 2021).

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