

Non-Technical Summary

PIEKŁO WIND FARM PROJECT, POLAND



Introduction

The POLENERGIA consortium (further referred to as the Company or developer), one of the leading national wind farm operators is developing a wind farm investment (further referred to as Piekło WF Project) – Piekło wind farm in western Poland, wielkopolskie voivodeship (further referred to as Piekło WF). The Piekło WF will comprise 4 to 6 wind turbine generators (WTGs). The Project is developed by GRUPA PEP – Farma Wiatrowa Piekło Sp. z.o.o. The development will be located in the Międzychód commune (smaller part) and Kwilcz commune (larger part) at the land belonging to villages of Tuczepy, Mnichy, Kamionna in Międzychód commune and Mechnacz in Kwilcz commune (międzychodzki county, wielkopolskie Voivodship).

The aim of this non-technical summary is to ensure that a cumulative assessment of the planned wind farm developments in the region is presented to enable meaningful public and stakeholder's engagement process.

Attached to this document are non-technical resumes which are an integral part of the Environmental Impact Assessment reports which are presented separately. In line with the Polish environmental regulations relevant Environmental Impact Assessments were completed for the projects by competent authorities.

General presentation

The POLENERGIA has been active on the Polish market, designing, constructing and managing wind farms for a long period and it has completed numerous projects of this nature.

As one of the leading wind farm developers, the company is committed to guide the business activity in accordance with sustainable development principles, including among others:

- Efficient use of resources, including the development of cleaner and more efficient energy technology and development of energy generation means based on renewable sources;
- Environmental protection with minimization of the environmental impact of all business activities and participation in initiatives that contribute to the conservation of the environment;
- Support social development.

Piekło WF

POLENERGIA (the developer) intends to construct Piekło WF, which is planned to be located at the area of międzychodzki county, Międzychód and Kwilcz communes.

Completion of a typical wind farm includes construction of the following:

- Wind turbines generators (WTGs) and relevant technical infrastructure;
- Internal roads and maneuvering areas;
- Assembly and storage yards.

Details regarding structure of the Piekło WF are given below:

Piekło WF is under development. Its total capacity will be 12 MW maximum, and it will include 4 to 6 WTGs, along with medium-voltage underground power transmission lines, a transformer station,

telecommunication lines connecting the WTGs with the transformer station, and internal roads with maneuvering yards. Initially 14 WTGs were planned; however, currently two development options are under consideration: six WTGs, each unit with 2 MW of maximum capacity or four WTGs, each unit with 3 MW of maximum capacity.

The development of the wind farm is conducted by GRUPA PEP – Farma Wiatrowa Piekło Sp. z o.o.

Maximum capacity of an individual wind turbine will be either 2 MW or 3 MW with a maximum hub height of the turbines reaching 119 m and maximum rotor diameter of 112 m (depending on the chosen variant and wind turbine type). Acoustic capacity of an individual turbine will not exceed 106.5 dB. The overall area of the project is 2.96 ha.

Wind turbine description

A typical wind turbine consists of a tower and a nacelle comprising a rotor and measurement apparatus. The rotor is composed of the blades and an axle, attached to each other by a bearing. The blades are moved by the wind and transmit this force to the bearing, which is connected to a multiplier that increases the axle speed. Mechanical energy is transferred from the multiplier to an electricity generator, which transforms it into electricity for subsequent injection into the grid.



Source: www.vestas.com

In case of Piekło WF, the investor has still not decided on the model of wind turbine generator, which will be installed. It is known that each of the turbines can generate up to 3 MW of power. Currently several variants of the WTG model are under consideration, comprising a maximum of 6 wind turbines for the whole Piekło WF Project.

Piekło WF Location

The Piekło WF Project is situated within Międzychód and Kwilcz communes, Międzychodzki County, which is located in western portion of wielkopolskie voivodeship. From the geomorphologic point of view, Międzychodzki County lies within the Pojezierze Poznańskie (Poznań Lake District), a mesoregion in western Poland, belonging to the Pojezierze Wielkopolskie region (Wielkopolskie Lake District). Piekło WF will be located in two communes: maximum of four WTGs will be present in Kwilcz commune, while a maximum of two WTGs will be situated in Międzychód commune. The project's location is in compliance with two Commune Development Master Plans and two Local Zoning Plans for Międzychód and Kwilcz communes. Currently the area is mainly used for agricultural

purposes and it is surrounded by arable fields, forested areas or meadows. In the vicinity there are also developed areas, including mainly local villages' buildings and structures.

The areas of the investment are located outside major and dense forest complexes, marshy areas, areas identified as valuable for scientific interest. During the inventoring and observation works completed to date, the areas have not been found to be important for birds (attractive feeding grounds, routes of regular migration passages, routes of regular passages to feeding grounds or roosting places).

Below you will find maps with the layout comprising locations of WTGs belonging to the Piekło WF Project.

Piekło WF site location map



Scale: refer to scale bar

Rationale for this Project

In line with European Climate Change Program, many European countries, including Poland, have adopted national programmes aimed at reducing emissions. These cover various policies, adopted at the European level as well as national levels, includes among others:

- Planned increase in renewable energy usage (wind, solar, biomass)
- Improvements in energy efficiency in e.g. buildings, industry, household appliances;

The main regulations of EU countries to reduce emissions is the cost-effectively Emission Trading Scheme of carbon dioxide and legislation tackling with emissions of fluorinated greenhouse gases.

In March 2007, the EU approved an ambitious climate change and energy plan to limit greenhouse gas emissions by at least 20 % by 2020 (comparing to 1990 levels) and achieve, by 2020 a target of 20 % of total EU primary energy use through renewable energy. In January 2008, the European Commission proposed an energy and climate package to achieve objectives of reducing greenhouse gas emissions and boosting renewable energies by 2020. Currently, the UN are attempting to finalise a legally binding global climate treaty to succeed the Kyoto Protocol in 2013.

Poland, currently is finalizing formal approval of its energetic policy until 2030 'Polityka energetyczna Polski do 2030 roku'. Based on this draft document Poland plans to increase the fraction of renewable sources in total energy consumption by at least 15 % by 2020 with its further growth. Currently the percentage of energy produced through renewable energy is significantly smaller, although it is in line with the "road map" for achieving the goal.

The development of wind energy is one of the measures to be implemented, which leads to the limitations of air emissions and increase of energy production from renewable sources. The main benefit is that wind turbines convert the wind's kinetic energy to electricity, while producing none of the emissions to the air. Conventional energy sources, mainly based on various types of coal incineration, when producing energy generate emissions of greenhouse gases, SO₂, dust and others.

According to the information obtained from the developer, the expected annual energy production from Piekłó WF Project will amount approximately 26,300 MWh (50% probability) or 24,400 MWh (75% probability). Therefore the environmental benefit of the project will be to reduce greenhouse gas emissions in an amount of 16,779.4 tons per year (50% probability) or 15,567.2 tons per year (75% probability) (calculated based on an emission factor, representative for projects supplying additional electricity to the grid, as of 0.638 tCO₂/MWh, produced for Poland in 2012).

Apart from reducing the greenhouse gases emission, Piekłó WF Project will also result in significant 'avoidance' of post – combustion emissions. As an example, the equivalent production of electricity by the largest Polish hard-coal power plant in Kozienice would result with the following emissions (estimations based on Elektrownia Kozienice emission factors for 2011). The estimated emissions related to the Piekłó WF Project are given below:

Piekłó WF Project (50% probability):

- PM: approx. 2.3 tons/year;
- SO₂: approx. 69.2 tons/year;
- NO_x: approx. 45.1 tons/year

Piekłó WF Project (75% probability):

- PM: approx. 2.1 tons/year;
- SO₂: approx. 64.2 tons/year;
- NO_x: approx. 41.8 tons/year

Exploitation of the subject wind farms is therefore a measure to avoid the emissions to the atmosphere of the comparable amounts of pollutants. Future activation of the wind farm project will increase those advantages.

The issues which are in favor for location of the wind farm in this region include among others, approving attitude of the local Authorities, lack of sensitive protected areas in the neighborhood and favorable wind conditions; additionally successful realization of such investment is connected with benefits for the local communities, including reconstruction of power supply installations, new occupation and improvement of the local road infrastructure.

Legislative Context and Public Consultations

According to environmental regulations *on disclosure on environmental information, public participation in environment protection and on environmental impact assessments*, an Environmental Impact Assessment (EIA) procedure must be performed for projects which can always significantly impact the environment (group I projects) or may be conducted upon discretion of the authorities in charge for particular ones which can potentially impact the environment (group II projects), or may impact area of 'Natura 2000' protected land. An EIA is carried out to obtain a decision on Environmental Conditions (environmental decision) for group I and group II projects.

In the administrative procedure for the Piekło WF, the Authorities, including environmental and sanitary Authorities, obligated the Investor to prepare EIA reports for the planned project. An EIA was prepared for the Piekło WF Project in July 2011.

Information on the planned investment together with EIA Reports were made available for comments to the public, including local communities and potential interested parties, such as nature protection bodies and ecological organizations. Announcements on the Piekło Project were presented to the public in all villages where the project would be conducted, as it is routine and accepted practice in the region. As required, environmental and sanitary Authorities were informed about the investment to come up with any potential issues. In addition, the society of the communes has been notified on the planned investment through notifications published on the communes notice boards as well as articles printed in the local press, including:

- 'Tydzień Międzychodzko-Sierakowski' – weekly magazine popular in the Kwilcz and Międzychód communes.

Following the environmental procedure and preparation of the EIA reports the investor has been granted the relevant decision on environmental conditions for Piekło WF:

- The decision on environmental conditions of the Piekło WF no. GKRW 7624/19/09, issued on May 15th, 2012 by the Head of Międzychód commune.

The key environmental conditions for the Piekło Project have been set forth:

- to guarantee that the project will be implemented on all stages (construction, start-up, operating period and liquidation) in a manner guaranteeing protection of the environment, direct vicinity, human health and well-being;

- construction should be conducted in a manner limiting nuisances and waste generation to a minimum;
- to use light sources of the lowest permissible intensity in colors other than white for WTG marking lights;
- to construct building areas, auxiliary structures, storage yards or roads outside bird habitats;
- to secure and regularly inspecting all excavation works regarding the presence of small mammals, reptiles and amphibians.
- to survey noise levels after project completion/start-up;
- to conduct post-development bats and birds monitoring in three annual sessions within 5 years after project set-up;
- to comply with the ban on noisy works at night and to conduct noisy works during the daytime (between 6 am and 10 pm);
- to conduct waste management using designated containers, collect waste under proper roofing and to sign contracts with certified waste management and disposal companies. Waste streams should be recycled if possible;
- in case of project liquidation the primary goals should be terrain reclamation.

As part of the pre-development procedure, apart from the required public consultations including EIA disclosure, the developer organized additional meetings for any party interested in the project development. During the public consultation, stakeholders were informed on potential impacts associated with the investment, in particular impacts on landscape, acoustic environment, shadow flicker phenomena and infrasound. There were no complaints or protests against the planned investments.

What is the current condition of the existing environment?

The planned Piekło WF is not situated within borders of any nature or landscape protected areas.

The nearest area of protected environment is Miedzichodzki Obszar Chronionego Krajobrazu (Obszar „H” Miedzichodzki). In former development variants some of the projected WTGs were placed within the area of protected environment however the current development option (4 to 6 WTGs) is planned entirely on terrains not covered by any forms of environment protection. The Miedzichodzki Obszar Chronionego Krajobrazu is placed approximately 80 m West from the closest planned WTG. Additional natural protected areas in the investment's vicinity comprise:

- Landscape Park – “Pszczewski Park Krajobrazowy” – located approximately 950 m west;
- Nature Reserve – “Dolina Kamionki” – located approximately 1.1 km west;
- Landscape Park – “Sierakowski Park Krajobrazowy” – located approximately 1.6 km north;
- “Puszcza Notecka” Natura 2000 area PLB300015, located approximately 1.6 km north;
- “Ostoja Miedzichodzko – Sierakowska” Nature 2000 area PLH300032 located approximately 2.1 km north;
- “Dolina Kamionki” Nature 2000 area PLH300031, located approximately 1.1 km west;
- “Zamorze Pniewskie” Nature 2000 area PLH300036, located approximately 11 km east.

As a part of the pre-investment process, including preparation of the EIA report a comprehensive ornithological survey was conducted for the project.

Birds monitoring comprised a full year of activities including 42 control sessions between July 2007 and July 2008 at the future Piekło WF area including the monitoring of bats. Further, supplementary monitoring of bats was conducted between September and November of 2010 in order to establish the potential impact during autumn migrations.

Birds monitoring was conducted at the future Piekło WF area and directly adjacent terrains comprising 9 km² between the cities of Mnichy, Tuczepy, Prusim and Mechnacz. It should be noted however that the investigation was conducted for the abandoned option of 14 WTGs. In case of the final 4 to 6 WTGs the area in question and related monitoring results would be lower than the below quoted values.

At the area of Piekło wind farm and the surrounding terrains (total area of 9 km²), 64 bird species were identified, including 9 species listed in the so-called Birds Directive, and including 53 protected ones and 4 partially protected. These included White stork (*Ciconia ciconia*), Red kite (*Milvus milvus*), or the Ortolan bunting (*Emberiza hortulana*). It was additionally established that the highest bird specimen concentrations were usually associated with the area of a landfill present north from the projected WTG placement. Due to this fact an area where WTG placement is not advisable was established adjacent the landfill. Under the current Piekło WF Project (4 to 6 WTGs) no WTGs will be placed within the designated area nor in its direct vicinity.

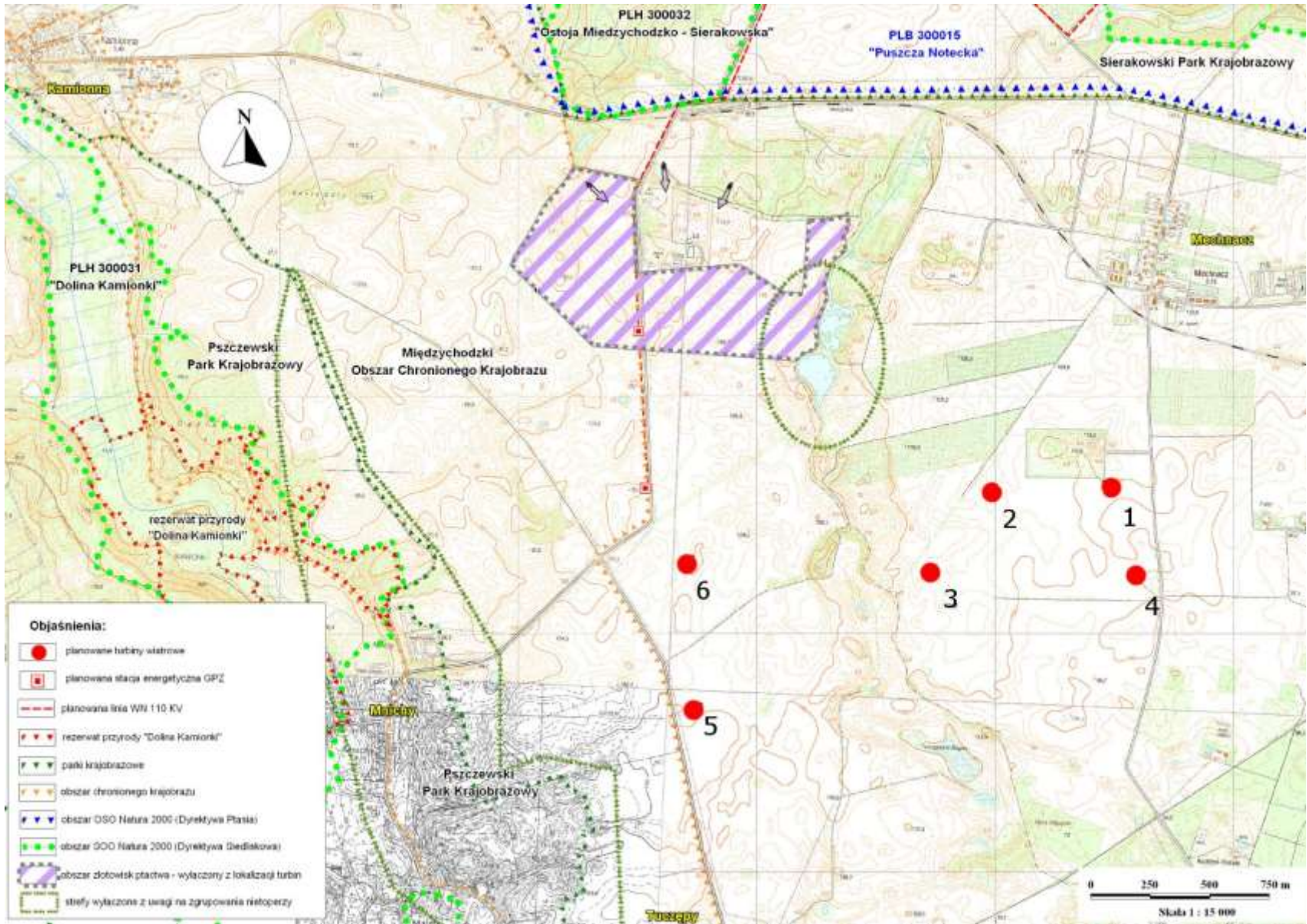
According to the EIA the subject area is of average significance from the ornithological point of view and the wind farm development should not affect any local avifauna.

There were also bats observations within the area of Piekło WF, conducted along bird monitoring between July 2007 and July 2008 with additional sessions between September and November of 2010 in order to establish the potential impact during autumn migrations. During these observations, bats belonging to 9 species, depending on the season, were identified. It was established that the investigated area is characterized by low activity of bats, serving only as a secondary feeding grounds to more attractive terrains located in proximity. Bats were only recorded in the far northern and far south-western parts of the investigated area where no WTG will be placed.

Both surveys concluded that the Piekło WF should not have a noticeable effect on bat population or activities.

The Environmental Impact Assessments conducted for the Piekło WF showed that the proposed WTG locations should not have influence on the migration of birds or bats.

Below you will find a map presenting distances of the Piekło WF area to the nearest nature protection areas as well as the area excluded from WTG placement due to augmented bird concentration. Red circles indicate the approximate location of the wind turbine generators (*source: Environmental Impact Assessments prepared for Piekło WF investments by Pro Digital company*).



Social impacts

Development of the Project has not required any displacement of people or business - no physical or economical resettlement had taken or will need to take place. The land for the Project purposes was achieved based on lease contracts signed with the land owners.

The Project has direct socio-economic impacts on development of all relevant communes and local inhabitants. The following direct impacts have been identified:

- increase of the commune tax income;
- increase of the annual income of land leasers for each;
- improvement of the local communication routes.

The negative impact is related to decrease of the land area used for agricultural purposes; however, this is compensated by the land lease fees.

The Company is going to implement measures to compensate any damages that could result from the construction works undertaken. In general, any works-related damages reported by the land owners will be immediately verified on-site by the Company representative assisted by the land owner. Then the range of damages and a compensation level will be evaluated by the expert (appraiser). Agreed compensation will be paid to the victim.

What impacts during construction will there be?

The main impacts of the projects associated with the wind farm development relate to earth works (primarily during setting of foundations for the towers), construction works and increased transport traffic and include intrusion and disturbance within soils strata, temporary change of groundwater level (when groundwater draining is required during the construction), increased noise and vibration.

The Company is going to implement the best practice to limit the nuisance of the construction works. To limit the impact the investor is going to apply such measures as:

- to use construction equipment complying with noise and exhaust fumes abatement levels while excavating for foundations and building provisional access roads;
- to plan transport routes for cars and heavy machinery in such way that local citizens are least disrupted; in addition, to reduce noise emissions during the investment delivery stage, construction works which could cause excessive noise emissions should be reserved for daytime and organized in such a manner to reduce the noise-related nuisance to a minimum;
- to provide protection of trees within the access roads construction site with protective bands which should be removed immediately upon completion of construction works;
- to prevent contamination of construction site with polluting substances, e.g. by well-sealed fuel distribution to equipment and vehicles operated during construction and maintenance;

- to conduct waste management in line with the provisions of Waste Act, local commune regulations and Best Management Practices,
- to secure and regularly inspecting all excavation works regarding the presence of small mammals, reptiles and amphibians.

What will be the impacts during operation?

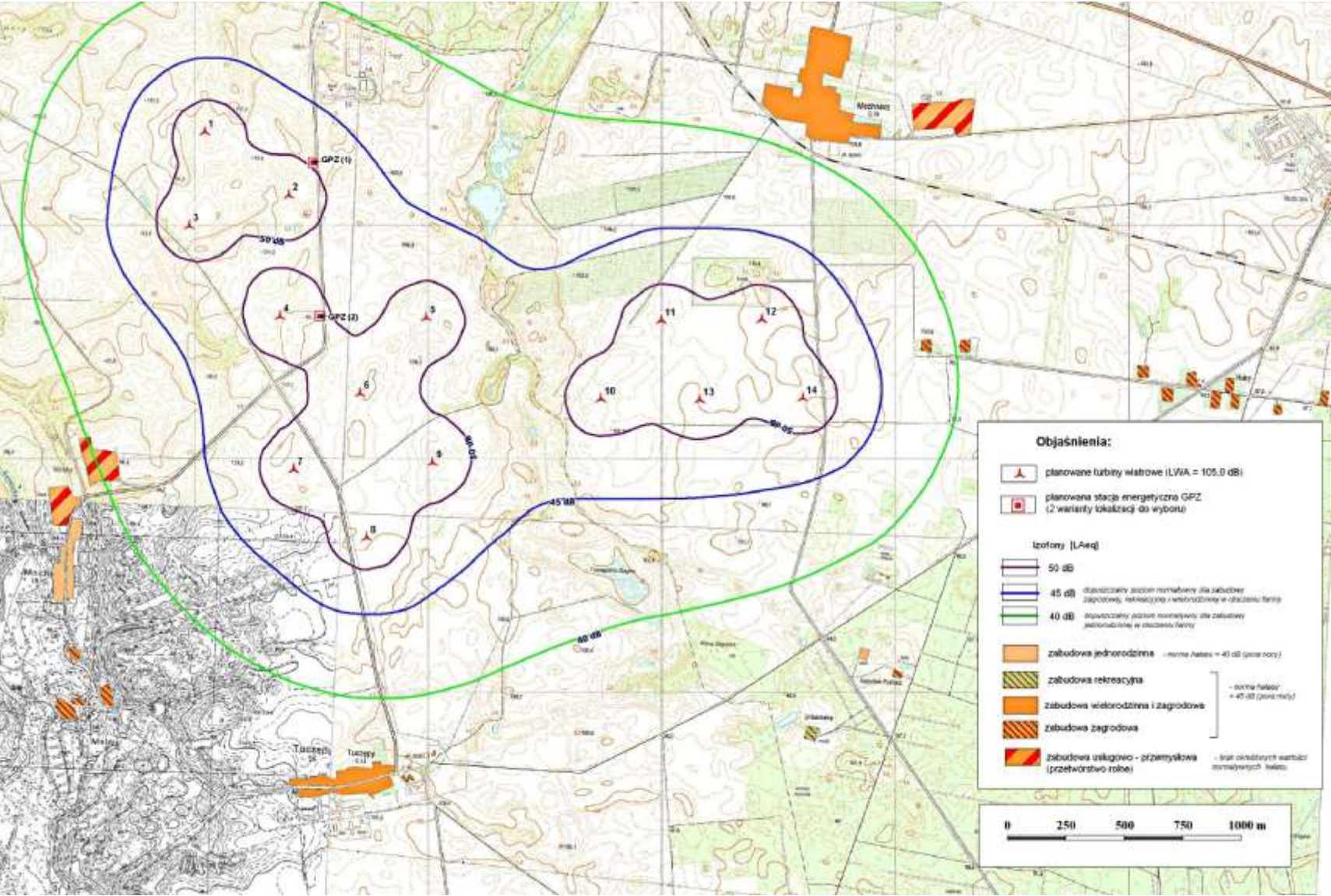
Completed investigations and public consultations conducted primarily as part of the environmental impact assessments procedure identified that main environmental impacts associated with the operation of the wind farm refer to increased noise levels, change in the landscape and influence on avifauna and bats. In addition, issues connected with shadow flickers and electromagnetic fields are presented in this summary.

Noise generation

Due to the predicted impact on the acoustic climate of the neighboring areas the developer has completed noise level analyses. The purpose of such impact analysis of the planned investment was to define conditional circumstances it should comply with, in order to guarantee that its impact on acoustic climate will not exceed binding environmental quality standards, as set for homestead housing - amounting to 55 dB for daytime and 45 dB for nighttime.

Based on planned technical solutions and site development project for the investment, range and level of the acoustic impact on the environment was defined. The values of noise emissions obtained showed that the noise levels will not exceed the amounts allowed for homestead housing for daytime in the area where the housing is situated. In the nighttime all wind turbines can be operated without any limitations. According to the analysis a more rigorous level of 40 dB during nighttime will be met. It should be underlined that the analysis was conducted basing on the former option of 14 WTGs development and the actual noise levels from the currently projected 4 to 6 WTGs will be even lower. A map illustrating acoustic climate with reference to more restrictive nighttime requirements for Piekło WF is given below – analysis conducted for 14 WTGs against the current development scope of 4 to 6 WTGs (*source: Environmental Impact Assessments prepared for Piekło WF investments by Pro Digital company*). The green line denotes the level of noise equal to 40 dB and the light yellow areas represent the potentially most sensitive homestead housing.

Piekło WF - acoustic climate



Birds and bats

The location of the Piekło WF, which comprises 4 to 6 WTGs, will create a threat to birds and bats. Nevertheless, it should be pointed that number of observations and reports on active wind farms and its impact on birds' populations indicates that birds avoid collisions with wind farms. The number of deaths within bird population resulting from collisions with wind turbines is significantly smaller than those caused by collisions with e.g. cars, power lines and houses.

To recognize the local birds' populations and undertake applicable measures during the planning stage the investor has conducted a number of ornithological observations on the areas of the planned wind farm. In view of the pre-investments monitoring results the identified avifauna was classified as typical for the Wielkopolski region, characterized as with average numbers of observed bird species and insignificant records of rare and infrequent species. The areas included in this project have not been identified as valuable or of special interest concerning wildlife and nature protection needs.

Collisions of birds with the new objects may occur, especially at night, with weather conditions resulting in limited visibility. However observations from existing wind farms show that those would be very isolated incidents and would not have a significant effect on local bird populations. Since the wind farm is not on a migration route and is not an important breeding ground for protected species. It is therefore expected that collisions may only occur incidentally and will not have a significant effect on the populations. Nevertheless post-construction bird monitoring has been required.

In line with EUROBATS guidelines (dealing with impact of wind farms on bats) only one of the identified species of bats belongs to a group with risk of collision with wind turbines. Taking into account the spatial distribution of wind turbines and areas where bats were observed it was concluded that the already low risk may be further reduced by not placing WTGs in the far north and south-west parts of the analyzed terrain – as it was in this case. Due to the need of bats conservation the location of the wind farm has been approved by the reports on bats population. Nevertheless post-construction bats monitoring has been required.

Taking into account the characteristics of the investment, it has been concluded that the undertaking will have no negative impact on the species and habitats protected under 'Natura 2000'. Nevertheless post-construction monitoring has been required.

Visual impacts

The development of the Piekło WF, encompassing 4 to 6 wind turbines with the maximal level above the ground outlined by the blade of less than 175 m (tower plus blade) will influence the landscape of the subject communes. The turbines which are currently regarded as visually intrusive to current rural landscape will form architectonic dominant objects in the environment. Nevertheless, it should be stressed that the evaluation of the influence of the wind farm on the landscape is difficult and always subjective and depends on the individual approach. It may be assumed that the projects will gain supporters and critics taking into account the influence on landscape.

The picture below presents the rural landscape for the sites under development.



It must be pointed that the influence on the landscape is not permanent, given the expected “lifetime of the product” i.e. 25 years. After this period the disassembly of the wind farms is planned, reconstruction is also possible.

The Piekło WF development apart from the stable visually intrusive might also create the so called shadow flicker, caused by rotating turbine blades. This affects residents living in a close proximity to the rotating shadow source. A detailed assessment of such impacts has not been conducted in the EIA report.

In case of modern WTG units, like the ones to be used during construction of the Piekło WF, the maximum blade frequency is much lower than the threshold frequency required for shadow flicker effect to occur. In case of Piekło WF the shadow flicker effect and general light reflections will be further minimized by placing WTGs in a large distance from the closest residential areas. It should be also stressed, that there are no regulations in Poland and other EU countries that normalize acceptable duration and frequency of this effect.

Electric and magnetic fields

The main sources of electromagnetic fields directly linked to the Piekło WF Project, are ancillary installations in form of underground medium voltage power supply wires (SN 10 – 45 kV) and main electrical substation (MES) – high voltage (WN 110 kV).

The power supply wires of medium voltage (SN 10 – 45 kV) are classified according to the relevant EIA report as not causing significant exposure to electromagnetic fields. In accordance with the applicable standards, all cables will be placed in trenches with a depth of at least 1 m and a width of about 1 m. Medium voltage cable networks generate an electromagnetic field which level is low enough that it does not threaten the environment.

Another potential source of the electromagnetic fields is the construction of a medium to high voltage power switching station (GPZ). The investment will involve the implementation of underground cable connections. In the case of modern power stations over normative radiation of the electric and magnetic fields does not occur in practice, outside of the unmanned power station. Based on the information included in the Piekło WF EIA report and according to the already existing similar investments, it is assumed that the maximum intensity of the electromagnetic fields should not exceed 10 kV/m (in the areas available for personnel). Moreover, the electromagnetic fields will not exceed the permissible value of 60 A/m (at maximum load). The area of GPZ will not be available for public. Based on that, Piekło WF will not generate a negative impact on humans and animals in that regard.

Based on the information presented in the EIA reports related to the Piekło WF Project and review of existing Regulations, it can be summarized that:

- Piekło WF Project is not a source of the electromagnetic fields with a frequency of 50 Hz or electromagnetic radiation in the range of medium wave with values higher than acceptable. All notable electromagnetic field emissions are limited to the plot (prohibited access) on which the station is projected;
- Implementation of Piekło WF does not affect the quality of the received broadcast radio - television, radio relay transmission will not interfere and will not cause interference with electronic equipment;
- In accordance with Environmental Protection Act [Dz.U.2001.62.627], Art. 122a states that investor has an obligation to make measurements of the levels of electromagnetic fields in the surroundings of the environment if the voltage is not lower than 110 kV; the measurements should be undertaken immediately after the investment becomes operational or each time there is a change in operating conditions or equipment; the results of the measurements shall be forwarded to the voivodeship Environmental Protection Inspector and to the voivodeship Sanitary Inspector;
- In accordance with the Regulation of the Minister of Environment dated 2.07.2010, regarding types of installations, which exploitation requires special notification [Dz.U.2010.130.10844, Poz.880] and the Regulation of the Minister of Environment dated 2.07.2010, regarding special notification about installations generating electromagnetic fields [Dz.U.2010.130.10840, Poz.879] investor has an obligation to notify a designated environmental authorities.

Based on the information obtained from POLENERGIA, all of the abovementioned requirements are fulfilled by the investor.

Measures Aiming at Limitation of the Impact

The main measure which may be used to prevent significant environmental impact of a wind farm is a good choice of the location. Thus, during the project preparation a number of possibilities of different locations of wind turbines have been analyzed. Preparation of the variants of the investment, apart from technological and economic issues such as winds characteristics and costs of land purchase and use, have taken into account the following issues, important from the perspective of environmental protection:

- existing state and way of land development and use of areas, which includes distribution of residential housing, forests, farming land,
- mutual impact on individual objects on each other, including also possible adding up of sound waves,

- necessity of protecting the objects of residential housing against noise,
- location from the perspective of birds and bats protection.

The second aspect of choice, very important from the point of view of environmental protection, was the choice of a producer and a supplier of equipment. The investor is in course of choosing modern installations of well-known producers with minimum level of emitted noise.

Works consisting of placement of WTGs and successive preparation of variants of individual WTGs' location took several months. After many analyses of the preliminary lay-out of wind turbines, considering noise restrictions, avifauna protection, soil's characteristic, adjustment to lay-out have been implemented. In summary it may be stated, the layout of wind turbines has been planned in that way to achieve the following goals:

- not to exceed the binding environmental noise quality standards, set in Executive Order of the Ministry of Environment;
- to be located out of birds migration routes, birds concentrations, feeding or nesting areas;
- to be located out of valuable plants habitats, wetlands or forest areas
- to be located out of nature and landscape protected areas
- not to disturb the continuity of ecological corridors

In case of Piekło WF Project the layout has been changed and number of WTGs significantly reduced in order to exclude from the investment the most valuable areas of the biggest concentration of birds and bats recognized within the pre-investment monitoring. In conclusion the process lead to a limitation of WTG number from 14 units to between 4 and 6.

Post construction monitoring

Noise

According to the Environmental Protection Act and based on recommendations included in the EIA report and the requirements of the Decision on Environmental Conditions (GKRW-7624/19/09), post construction noise level surveys will be conducted for the Piekło WF Project. The measurements are recommended to be performed directly after the project start-up, during the most inconvenient conditions. If the measurements indicate that permissible noise levels are exceeded, noise reducing action will be promptly completed (i.e. reduction of the acoustic power of the subject wind turbine(s)). Further measurements will be performed to confirm that the abatement measures were effective. All the results including a description of noise reduction measures will be forwarded to the Environmental Protection Inspectorate in Poznań.

Birds

Birds monitoring has been required by the local authorities under the conditions set in the Decision on Environmental Conditions (GKRW-7624/19/09). The monitoring activities will be undertaken in annual sessions at least three times during a five year period after the wind farm start-up.

The scope of monitoring should encompass the following areas:

- Birds present in the Piekło WF area and surrounding terrains under potential influence by the project during their breeding period. The research should concentrate on the species listed in the so-called Birds Directive, within the Polish and European Red Lists of

Endangered and Threatened Species as well as some species present in the Polish Red Book of Animals;

- Birds migrating during spring and autumn as well as wintering species;
- Bird mortality rates including efficiency assessment of finding the fallen specimens and the time they remain on the subject terrains.

Bats

Bats monitoring has been also recommended for the wind farm under the conditions set in the Decision on Environmental Conditions (GKRW-7624/19/09). It will be conducted in line with good practice guidelines of EUROBATS 2006 together with bird monitoring in annual sessions at least three times during a five year period after the wind farm start-up. The scope of the monitoring should include:

- bat species present on the area of wind farm's potential influence during their breeding and migration periods;
- mortality rates including efficiency assessment of finding the fallen specimens and the time they remain on the subject terrains.

In case of both bird and bat monitoring activities the results of the research will be interpreted and assessed, potential abatement measures will be derived. All the resulting documentation and reports will be periodically forwarded to the Regional Directorate of Environment Protection.

Additional information and grievance procedure

The mechanism for the claim procedure will be implemented by the company as part of the project management system. The procedure assigns a coordinator of the integrated system, who will be responsible for reacting in case of complaints.

All requests for additional information related to the Piekło WF Project should be addressed to the Environmental Specialist/EHS of the POLENERGIA:

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