Bięcino Wind Farm Project
Non-Technical Summary

Prepared by Ramboll Environ Poland Sp. z o.o.

Potegowo Mashav Sp. z o.o.

Introduction

Potegowo Mashav Sp. z o.o. (further "the Company"), one of the leading national wind farm operators, is developing the Bięcino Wind Farm Project in the Damnica commune, Słupsk county (*powiat*), pomorskie voivodeship (*województwo*), northern Poland. The Bięcino Wind Farm - further referred to as 'Bięcino WF' or 'the Project') is a part of a bigger project called Potęgowo Wind Farm.

The Potęgowo WF Project has been in development since the early 2000's and as regards geographic location it is divided into the western and eastern part. The western part (located in Sławno county, West Pomeranian Voivodship) comprises Przystawy subproject (7 wind turbine generators (WTGs)), Bartolino subproject (7 WTGs), Sulechówko subproject (29 WTGs). The eastern part (located in Słupsk county, Pomeranian Voivodship) comprises Karżcino subproject (7 WTGs), Bięcino subproject (5 WTGs), Wrzeście-Kępno subproject (6 WTGs), Głuszynko-Grapice subproject (20 WTGs). The Potęgowo Project and all of its subprojects are fully permitted. Moreover, this project (with only five WTGs at the Bięcino subproject) was granted financing in 2018 by a group of international financing institutions and in 2019 the five WTGs of the Bięcino WF was constructed. Potęgowo WF project passed an extensive environmental and social due diligence prior financing decision and information allowing for meaning full consultations were available at the Company website and in respective commune offices. The disclosure package comprised:

- Environmental Impact Assessment Report prepared in line with the national requirements;
- Cumulative Environmental and Social Impact Assessment Report for the entire Project;
- Supplementary Report, which summarizes findings of the Project assessment and Cumulative Environmental and Social Impact Assessment;
- Environmental and Social Action Plan;
- Stakeholders Engagement Plan, and
- Non-technical Summary,

In 2019 the Company has taken decision on further development of the Potęgowo project, by adding one more subproject (Wieliszewo WF) and construction of additional eight WTGs at the Bięcino WF. As the entire Potęgowo Project, the Project will be co-financed by various financial institutions with European Bank for Reconstruction and Development (EBRD) as a leading lender. The Project is classified as "Category A" one, following EBRD's Environmental and Social Policy (2014, further "ESP"). Moreover, the Project was subject to review by the independent company (Ramboll Environ Poland Sp. z o.o., a member of Environment and Health global practice of Ramboll, further referred to as "REH"), who assessed the project against the national and EU environmental law and EBRD Performance Requirements, as per ESP. Results of the assessment have been summarized in a report and actions needed to achieve full compliance with the good industry practice and EBRD PRs have been summarized in the Environmental and Social Action Plan (ESAP) and Stakeholder Engagement Plan (SEP). As part of the assessment REH assessed the Project for compliance with the Health and Safety Guidelines for Wind Farms and the Project was found to be developed in respect to this reference document.

This non-technical summary (NTS) is aimed at presentation of the Bięcino WF in its ultimate configuration to allow meaningful consultations with the interested stakeholders. This report, along with the Stakeholders Engagement Plan and Environmental and Social Action Plan constitute the disclosure package for this part of the Potęgowo Project.

General presentation of the Bięcino Project

The Project is being developed by Potegowo Mashav Sp. z o.o. Potegowo Mashav Sp. z o.o is a company, which will manage and coordinate the construction process. The engineering department of Mashav Management consists of former top utility executives utilizing their years of experience and network for the benefit of the Project.

The Bięcino WF is located at the area of Damnica commune, Słupsk county, pomorskie voivodeship, northern Poland. All necessary permits for the project are in place, including: decision on environmental conditions, construction permits and an interconnection agreement.

The scope of the Project includes as following:

- Additional eight WTG, type GE 2.75-120, hub height 110 m, rotor diameter 120 m and relevant technical infrastructure;
- Related underground infrastructure of power transmission and control cables;
- Second main electrical substation (MES);
- Internal roads and maneuvering areas;
- Assembly and storage yards.

The Project is being developed at the land designated by the valid local zoning plan for development of wind farms.

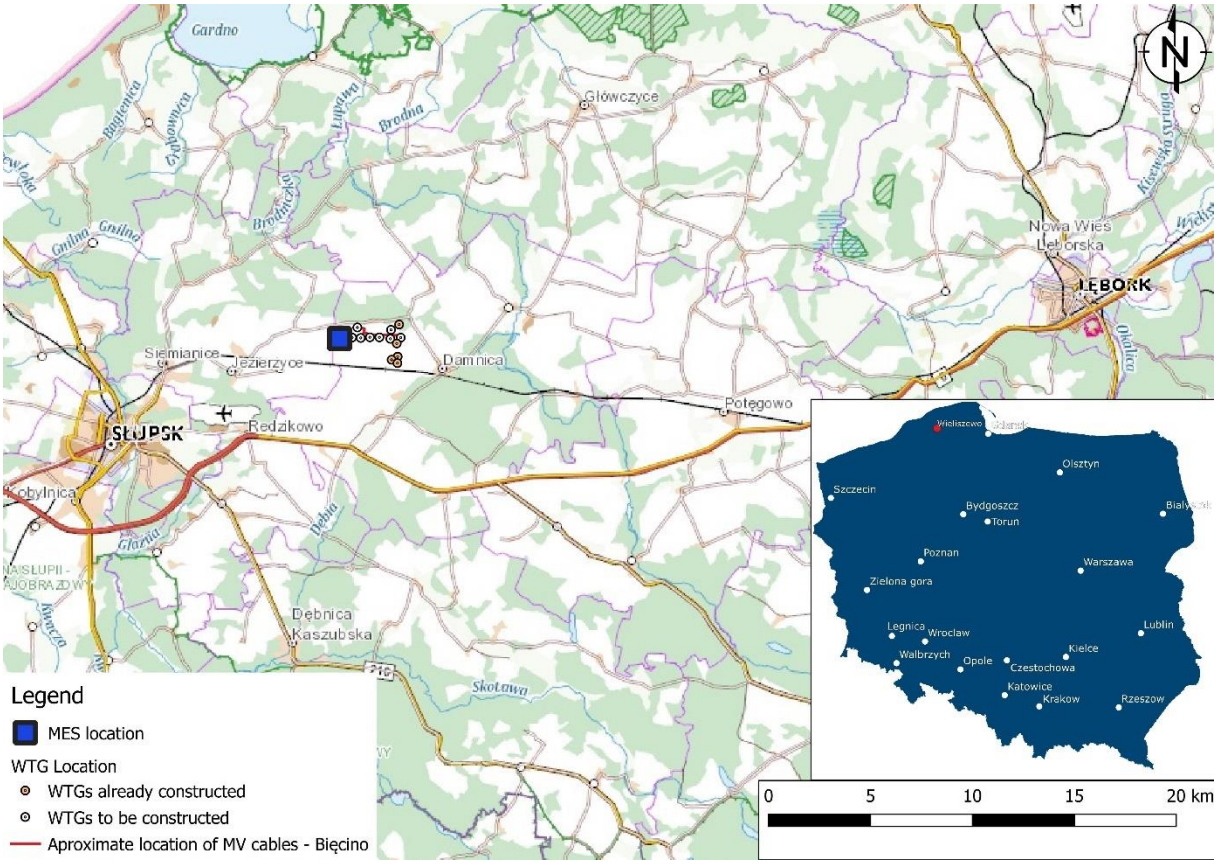

Figure 1 Site location map

The Project passed in 2013 the environmental impact assessment (EIA) procedure managed by the competent authorities – the Head of Damnica commune. During the EIA procedure the State Sanitary Inspector and Regional Director for Environment Protection (RDOS) were consulted, as required by the environmental law, and the procedure allowed interested stakeholders to participate. The procedure was finished with an issue of environmental decision allowing for construction of up to 13 WTGs along with necessary infrastructure. It should be mentioned that environmental decision defines, among others, environmental constraints, which must be taken into account in the construction design, as well as conditions, which must be met during construction and then operation. The Project was also granted in 2016 construction permits for all WTGs and in 2020 for MV cables and access roads. The Company is in the process of obtaining construction permits for MES and underground HV PTL.

Planned capacity of an individual wind turbine will be 2.75 MW, with a hub height of the turbines reaching 110 m and rotor diameter 120 m (assumed wind turbine type: GE 2.75-120). Acoustic capacity of an individual turbine will not exceed 106 dB. The overall area occupied by the WTGs is approx. 5 ha (temporarily, during construction) and 1 ha (permanently, during operation).

The Project as part of the Potęgowo Project is categorized A in line with the EBRD Environmental and Social Policy (2014). The ESDD has been carried out by an independent consultant and concluded that the national EIA process was in compliance with EU EIA Directive and that the project is structured to meet EBRD PRs. The ESDD also confirmed that the Company has been implementing Environmental and Social best practice, implementing the corporate Environmental and Social Action Plan agreed with EBRD in 2018 and has the institutional capacity to fully implement the Bank's Performance Requirements.

As part of ESDD the following subjects not covered by national EIA have been assessed in detail:

- Social impact;
- An ice/blade throw risk;
- Shadow flicker effect.

What is a wind turbine generator?

A typical wind turbine generator 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.

Figure 2. GE Wind Turbine Generator (source: www.ge-energy.com)

The WTG is a combination with the proven single – blade pitch control that includes the latest enhancements in load management control, low acoustic emissions, efficient electrical power conversion and robust performance.

Where the Project will be developed?

The Project is situated within Słupsk county, which is located in northwestern portion of pomorskie voivodeship. Bięcino WF is located in one commune (Damnica commune). The project location is in compliance with the Commune Development Master Plan and with the Local Zoning Plan '*regarding the local spatial development plan of the Damnica Commune – in geodetic regions Bięcino and Karzniczka'*.

The Damnica commune occupies an area of approximately 168 km^2, of which 64,6% is occupied by agricultural land and only 29,4% by forests (as for 2016). As for 2016, the population of the commune counted approximately 6222.

Currently the area is used for agricultural purposes and it is surrounded with arable fields, pastures, meadows and small forested areas. In the vicinity there are also developed areas, including mainly local villages' buildings and structures.

Location of the Project is shown on Figure 1.

The area of the investment is located outside major and dense forest complexes, marshy areas, areas identified as valuable for scientific interest. During the inventorying and observation works completed to date, the area has been found to be in small extent important for birds (as feeding grounds, routes of migration passages, routes of passages to feeding grounds or roosting places). However following conclusions of the EIA report:

- the location of the wind farm is planned outside the largest bird concentration sites identified during monitoring program;
- the area of Bięcino WF was not intensively used as feeding or resting grounds during autumn migration of birds;
- the number of species and abundance of species listed in Annex I of the Birds Directive and in the Polish Red Book of Animals, breeding in the monitored area, is negligible;
- the area of Bięcino WF does not constitute valuable nesting/breeding grounds for birds (arable fields under agricultural use) and the area occupied by WTGs is relatively small;
- The WTGs locations and location of the associated infrastructure will not significantly affect the valuable habitats from the birdlife point of view;
- the design of the project was assessed as a "location" compromise, sufficiently reducing threats to local and migratory birds.

Further, an independent assessment confirmed that the Bięcino WF will not generate substantial impact on particularly important birds listed in the Annex I to Birds Directive.

The Project site was also subject to monitoring of bats. As can be concluded from the bats monitoring campaigns, bats prefer linear elements of the landscape, which are distant from the WTGs location.

Moreover, using measures to minimize the potential negative impact of the planned project, it can be assumed that the implementation of the Bięcino WF Project will not bring high environmental costs.

The site is located in the Basin of Łupawa River, which flows to the Baltic Sea.

The site is located outside Natura 2000 areas or other strictly protected areas.

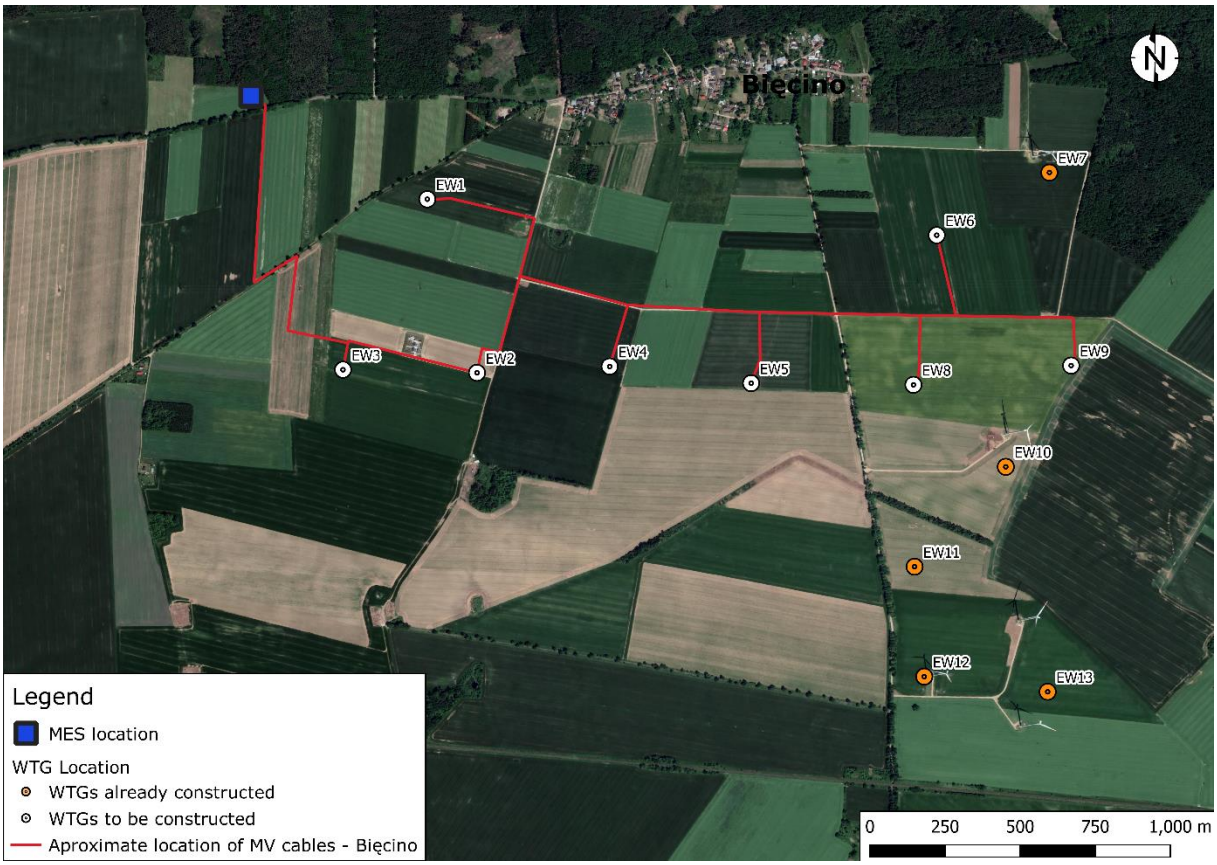

Figure 3. Bięcino WF site layout

What is the rationale of the Project?

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

- Planned increase in use of renewable energy (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 finales a legally binding global climate treaty to succeed the Kyoto Protocol in 2013.

Poland has recently adopted its energetic policy until 2040 ‘Polityka energetyczna Polski do 2040 roku’. Based on this document Poland plans to increase the fraction of renewable sources in total energy consumption by at least 32% by 2030 with its further growth in the following years.

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, SO_2, dust and others.

The Project will help the country to increase the share of renewable energy in the total energy consumption. The national plan assumes achievement of 15% renewable energy use in total energy consumption by 2020.

The expected annual energy production from the additional eight WTGs of the Bięcino WF will increase the total energy production at the wind farm by approximately 78,000 MWh (50% probability) to a total production of 128,500 MWh/a. Based on the emission factors published by the National Emissions Management Center for the year 2017, energy production by the conventional power plant equivalent to production of the additional eight WTGs would lead to the following emissions:

- 56 tons/a of CO2
- 54 tons/a of SO2
- 55 tons/a of NOx
- 20 tons/a of CO, and
- 3 tons/a of PM,
- hence implementation of the Project allows for such emissions avoidance.

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 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 the *Act* of October 3, 2008 *on disclosure on environmental information, public participation in environment protection and on environmental impact assessments*[1], 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's are carried out to obtain a decision on Environmental Conditions (environmental decision) for group I and group II projects. The planned wind farm is, according to the regulations, classified to group II.

In the administrative procedures for the Bięcino WF project, the Authorities, including Sanitary Inspector (Polish abbrev. SANEPID) and Regional Directorate for Environment Protection in Gdańsk, considered EIA report for the planned wind farm to be necessary. Such EIA report was prepared in 2013 by the Proeko company.

Information on the planned investment, together with EIA Report, were made available for comments of the public, including local communities and potential interested parties, such as nature protection bodies and ecological organizations. Announcement on Bięcino project was 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 commune's notice boards.

Following preparation of the EIA report, the investor has been granted with the relevant decision on environmental conditions for Bięcino WF, No. IB.6220.7.2012, issued on October 31, 2013 by the Head of Damnica commune.

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

[1] Ustawa o udostępnianiu informacji o środowisku i jego ochronie, udziale społeczeństwa w ochronie środowiska oraz o ocenach oddziaływania na środowisko

- The construction site and its facilities (including technical base and raw materials storage) to be located with the principle of minimizing land occupation and transformation of the area. The construction site should be located in an even, hardened area, protected by a impermeable layer of the ground;
- To use materials with no adverse impact on the environment;
- For painting wind turbines, use matt colors eliminating the stroboscopic effect;
- All WTGs should have the same height;
- Not to use artificial lightening of any kind, i.a. lamps, turbine and mast lighting (except for as required by law);
- Apply technical WTG's parameters such, that they do not cause noise exceedances on the noise protected areas;
- Excavations for power underground lines should be led in forest areas within road lanes and carried out without disturbing water relations in neighboring areas;
- If excavations are made near trees, the work to be made manually, without damaging the roots;
- Excavations to be secured/fenced against the possibility of small animal's capture (e.g. reptiles and amphibians);
- In the event of encountering animals in the excavation, they should be removed to the surface and moved outside the area of works, in appropriate habitats (in case of protected species, appropriate permission should be obtained, under the provisions of the Nature Conservation Act);
- Removal of excavated material from excavations for foundations and transport of building materials and structural elements of the wind farm- should be carried out as far as possible from residential areas, bypassing built-up areas (acoustically protected areas) and, if possible, outside night-time;
- To survey noise levels after project completion/start-up;
- To reduce acoustic power of particular WTGs, in order to comply with the permissible noise levels- if needed;
- To conduct post-development bats and birds monitoring for 3 years within 5 years after project set-up;
- To conduct waste management using designated containers, collect waste under proper roofing and to sign contracts with certified waste management and disposal companies;
- Underground cables should be used for the connection between individual turbines and MES;
- MES to be equipped with a storm water drainage system with an oil-water separator; and discharged to an infiltration well.

As part of the pre-development procedure, public consultations, including EIA report and other documents disclosure to all interested stakeholders, were arranged by the competent authorities. No complaints or protests against the planned investments were submitted.

On the base of decision on environmental conditions, the Company was granted all necessary building permits for WTGs and supporting infrastructure.

What is the current condition of the existing environment?

The Bięcino WF is not situated within borders of any nature and landscape protected areas. The nearest protected areas, located up to 15 km distant from the planned WTGs locations, are listed below:

1. National Park 'Słowiński Park Narodowy i jego otulina', approx. 7.6 km to the north of the nearest WTG location;
2. Nature Reserve 'Jałowce', approx. 12.7 km to the north-east of the nearest WTG location;
3. Landscape Park 'Park krajobrazowy Dolina Słupi', approx. 6.4 km to the south of the nearest WTG location;
4. Landscape Protection Area 'Pas pobrzeża na wschód od Ustki', approx. 14.3 km to the north-east of the nearest WTG location;
5. Natura 2000 sites:

- 'Dolina Łupawy' PLH220036, approx. 3.2 km to the east of the nearest WTG location;

- 'Dolina Słupi' PLH220052, approx. 9.6 km to the west of the nearest WTG location;
- 'Ostoja Słowińska' PLH220023, approx. 12.4 km to the north of the nearest WTG location;
- 'Pobrzeże Słowińskie' PLB220003, approx. 12.4 km to the north of the nearest WTG location;
- 'Dolina Słupi' PLB220002, approx. 14.5 km to the southwest of the nearest WTG location;

6. Nature monuments – located approx. 2.7 km to the southeast from the site, in the village of Damnica;
7. Ecological lands – the closest located approx. 1.25 km to the east of the nearest WTG location.

Prior to submission of the application for a decision on environmental condition, one-year long bird monitoring campaign was conducted (within the project area and within the radius of 2 km from the Bięcino WF), in the period between the beginning of May 2009 and end of April 2010. This was undertaken in line with guidelines recommended, among others, by the Polish Wind Energy Association and OTOP[2]. The scope of the assessment was later assessed as competent for the subject area by the Competent Authority and RDOS (Regional Director for Environmental Protection).

At the area of Bięcino WF project wind farm 85 bird species were identified, including 12 species listed in the so-called Birds Directive. These included: white stork (*Ciconia Ciconia*), marsh harrier (*Circus aeruginosus*), red-backed shrike (*Lanius collurio*), corn crake *(Crex crex),* common crane *(Grus grus),* whooper swan (*Cygnus cygnus*), tundra swan (*Cygnus columbianus*), golden plover (*Pluvialis apricaria*), red kite (*Milvus milvus*), black woodpecker (*Dryocopus martius*), woodlark (*Lullula arborea*), hen harrier (*Circus cyaneus*).

According to the EIA report[3], the subject area is of low significance from the ornithological point of view, therefore the wind farm development should not affect local avifauna, also due to applied mitigation measures, limiting the potential negative impact of the planned project. Conclusions included in the EIA report were accepted and confirmed by the Competent Authorities.

There were also one-year long bats observations within the area of Bięcino WF site, between June 1, 2009 and May 31, 2010. This monitoring was undertaken in accordance to the national guidelines[4], compliant with these issued by EUROBATS. During these observations, bats belonging to 5 species, depending on the season, were identified: common noctule (*Nyctalus noctula)*, Natterer's bat (*Myotis nattereri)*, nathusius pipistrelle (*Pipistrellus nathusii)*, brown big-eared bat (*Plecotus auratus)*, common pipistrelle (*Pipistrellus pipistrellus).*

Bats were identified mainly in the vicinity of buildings, waters and surrounding trees.

The inventoried chiropterofauna was characterized by the average diversity in Poland and the majority of WTGs are to be located at a considerable distance from the most valuable areas for the chiropterofauna.

The Project was assessed as of low risk to bats and no significant effects on birds were concluded. Monitoring of the impact on birds/bats, required by the environmental decision, should secure implementation of mitigation measures if animals' mortality at the site is high.

Additional birds/bats inventory, to verify the validity of the inventory results 2009-2010, were conducted in the period of September-October 2019. The inventory confirmed findings of the previous environmental survey.

Considering no significant effects of the planned project on bats and birds and planned (obligatory) post-construction monitoring, the real impacts will be examined, and in case of high mortality of flying animals, it is possible to apply additional prevention measures (i.a. excluding operation of certain WTGs in selected season/period or reducing rotor's speed).

Below you will find a map presenting distances of the Bięcino WF site to the nearest nature protection areas (*source: http.geoserwis gdos.gov.pl/mapy/)*.

[2] Wytyczne w zakresie oddziaływania farm wiatrowych na ptaki. Chylarecki, Pasławska. Szczecin 2008. (in Polish)

[3] „Raport o oddziaływaniu na środowisko zespołu elektrowni wiatrowych „Bięcino" z infrastrukturą towarzyszącą, w obrębach Bięcino i Karżniczka, gm. Daminica" (Environmental impact assessment report of the "Bięcino" wind farm complex with accompanying infrastructure, in geodetic regions Bięcino and Karżniczka, Damnica commune), in Polish, Proeko, January 2013

[4] Tymczasowe wytyczne dotyczące oceny oddziaływania elektrowni wiatrowych na nietoperze, 2009 (in Polish)

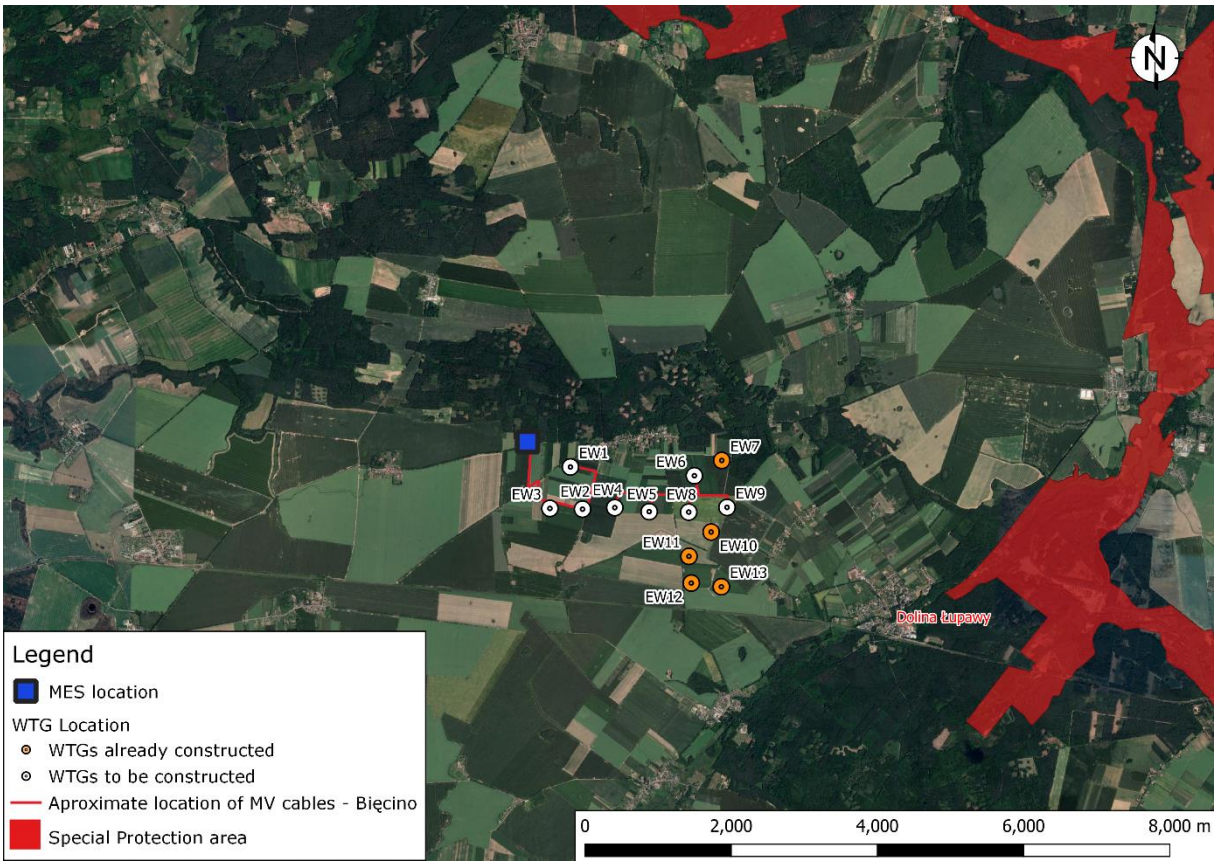

Figure 4. Location of the Bięcino WF (with accompanying infrastructure), in a context of the nearby nature protection areas

Social impacts

Development of the Project does not require any displacement of the people or business - no physical or economical resettlement had taken or will need to take place. The land for the subprojects 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:

- increased income of the commune by taxes paid by the operator for commercial activities in the area;
- increase of the annual income of land leasers for each;
- improvement of the local communication routes;
- creation of working places on local labor market during construction phase of the Project.

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 footprint of the wind farms and infrastructure is limited, and farming can be maintained around the turbines.
Moreover, some negative social impacts can be expected during construction phase of the Bięcino WF, due to increased traffic. These include:

- noise and vibrations generated by heavy trucks to which the citizens will be exposed;
- increased traffic on the local roads;
- increased likelihood of road accidents;
- damages to road's surface and possibly also building structures;
- temporary limitations in the access to the roads due to the needs of oversize cargo transport.

The Company will implement measures regarding compensation to farmers and land users for any damages that could result from the construction works undertaken. This is in line with Polish legislation. 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 be there?

The main impacts of the projects associated with the wind farm development relate to ground 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 will 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 work out a site-specific Traffic Management Plan adopted by the Company, which, among others, 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. Moreover, excavations made near trees will be made manually, without damaging the roots;
- 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 and local commune regulations.

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. Apart from the individual EIA for the Project (where is taken into consideration cumulative impacts of the planned 8 WTGs with 5 existing turbines in Bięcino), also a cumulative impact assessment has been completed for the entire Potęgowo WF Project. Below the general conclusions of the assessment are presented.

Noise

Operation of a WTG causes noise generation as a result of wind interfering with the tower and particular with the blades, as well as by equipment installed in the WTG, such as gear, transformer etc. The noise impact is considered as one of the most obvious impacts generated by the wind farms.

In order to predict an impact on the acoustic climate, the noise dispersion analyses have been completed. The purpose of such analyses was to assess, whether any acoustically protected areas, such as homestead housing, are in risk of noise impact exceeding the binding environmental quality standards. It should be noted here, that the acoustic model commonly used in the EU and used for the analysis predicts the worst-case scenario and the noise levels observed at various existing wind farms are below the predicted levels.

Due to the predicted impact on the acoustic climate of the neighboring areas, the developer has completed noise level analyses (twice: in the EIA Report and later in 2017). Another noise distribution calculation was conducted in 2019. The last study was based on WTG parameters set for the planned type of WTG (model GE 2.75-120). 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. The noise impact has been assessed by a modeling exercise, in line with the standard methodology adopted both in Poland and the EU. The modeling included 8 planned WTGs and 5 existing WTGs, and their noise characteristics as per the manufacturer information. The modeling results indicated that the noise generated by a fully operating wind farm will not cause any breaches of the environmental quality standards, both during the nighttime and daytime. Noise distribution during night (2019) is presented in the following figure.

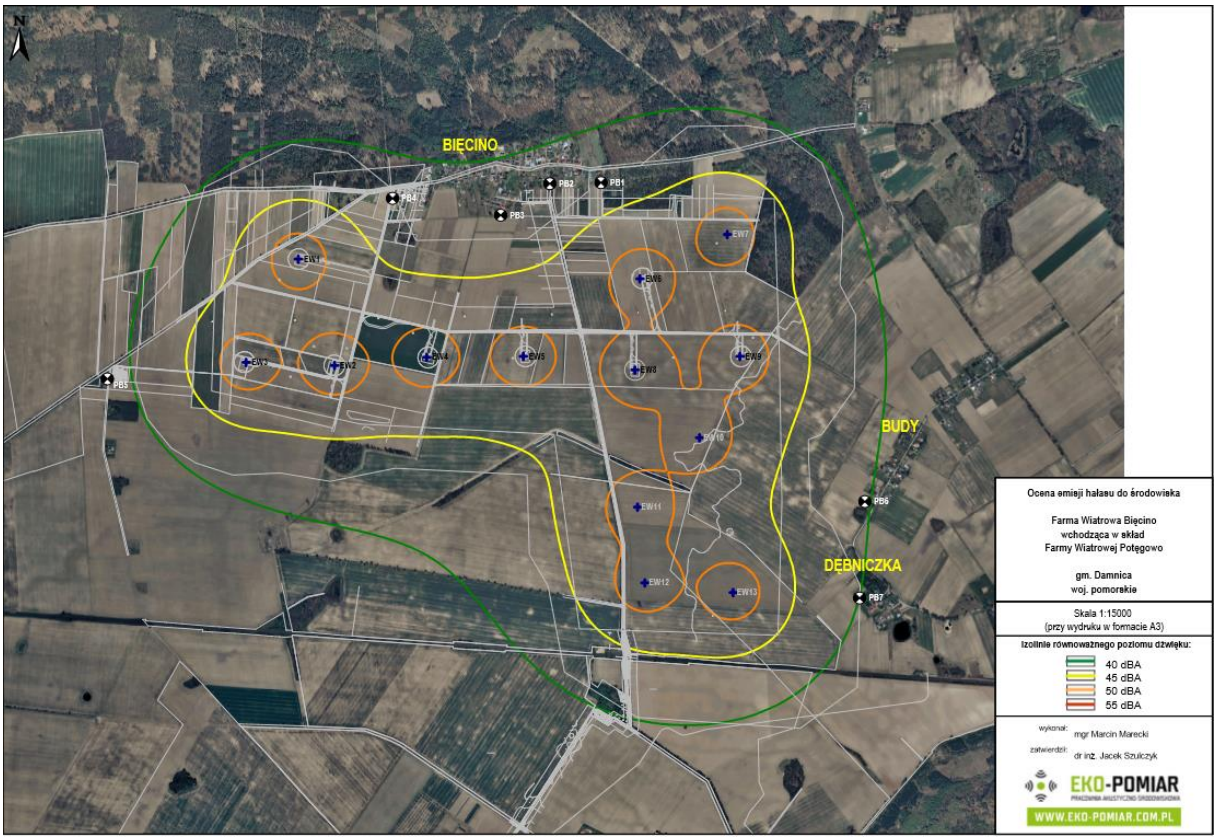

Figure 5. Distribution of noise generated by Bięcino Wind Farm (planned and existing WTGs - cumulative approach):

- **planned WTGs: No. EW-01, EW-02, EW-03, EW-04, EW-05, EW-06, EW-08, EW-09.**
- **existing WTGs (constructed within the Potęgowo WF): No. EW-07, EW-10, EW-11, EW-12, EW-13.**

Please note, that noise modeling gives just an approximation of the possible noise distribution in the worst case scenario. The actual noise impact will be assessed after the wind farm is operational by mean of noise measurements. Should any breaches of the noise standards are observed, the Company will implement certain measures to reduce the noise impact, in line with the provisions of the environmental decision. It should be noted, that the planned WTGs allow for operation with reduced noise emission, however, also with reduced efficiency.

Birds and bats

The operation of the wind farm may potentially 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 bird casualities 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. The obtained results indicate a low attractiveness for birds of the development area, resulting from the typically agricultural nature of the area with a significant predominance of arable land. The larger group of birds was associated only with fragmented vegetation stands, which should be intact as a result of the planned investment.

In general, all bird species belonged to common and non-threatened species, nesting in densities similar to those recorded in other analogous areas in the agricultural landscape of central Pomerania and other regions of Poland. Also species listed in the Birds Directive, nesting on the surface (crane, corncrake, woodlark, red-backed shrike) or nearby (white stork, black woodpecker, marsh harrier), are common and unthreatened species in Pomerania. Therefore the wind farm development should not affect local avifauna, also considering planned mitigation measures (limiting the potential negative impact of the planned project).

Collisions of birds with the new objects, including wind turbines, 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.

During bats monitoring, only limited number of bats were detected at the sites. None of identified bat species is classified as rare nor listed in the Annex II to the Habitats Directive or Polish Red Data Book. Taking into account the status of protection, all these are included in a group with low risk of quantity change and therefore with no needs of undertaking significant conservations measures. As indicated by the bats monitoring reports, the planned investment will not significantly influence the population of bats occurring in the region of Bięcino WF project. Based on inventory results, the number of bat species observed is below the predicted value and below the average number in Central Pomerania region. The area of Bięcino WF project is characterized by a small chiropterological value; it is unlikely that especially valuable bat species listed in Appendix II of the Habitats Directive will find there favorable conditions.

In line with the national[Error! Bookmark not defined.] and EUROBATS guidelines (dealing with impact of wind farms on bats) some of the identified species of bats belong to a group with high risk of collision with wind turbines.

However, taking into account the spatial distribution of wind turbines and areas where bats were observed, it was concluded that the risk may be significantly reduced by location of the turbines in the appropriate distance from forested areas and borders of residential areas – 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 and this has been included within an Environmental and Social Action Plan developed for the Project.

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'.

A cumulative impact assessment completed by REH included also assessment of the impact on birds. The study takes into consideration the Potęgowo WF Project and existing and far advanced in development 3rd parties wind farms distant no more than 10 km from the Potęgowo WF. The cumulative impact on birds of a few windfarms, located close to each other, may occur mainly due to inappropriate location of wind turbines, e.g. at the sites used by birds as valuable breeding areas, nesting areas or, on the major migration routes. In case of the Project and nearby 3rd party windfarms such circumstances do not occur: neither the sites, nor their surroundings, are important or potentially important breeding or nesting areas, nor the wind farms are located on the birds migration routes (these were confirmed by the pre-construction monitoring programs). Hence, the cumulative adverse impact on birds is not expected to occur.

Similar as for birds assessment on cumulative impact on bats was conducted by REH. Based on the assessment results, existence of the groups of wind turbines should not result with a barrier effect or destruction of the breeding sites. Such types of impacts are related to individual wind turbines rather than the wind farms, hence, the cumulative effect is a set of impacts generated by each, individual wind turbine but do not generate any additional impact of the entire group of wind turbines (at least such effect is not known or described in the literature, as it is of birds). Based on the monitoring results, the Project site is not located at the important bats migration routes a cumulative impact on migrating birds is not expected to occur. The impact on breeding bats has been already assessed as low and potential adverse impact is reduced by proper location of the individual wind turbines, sufficiently distant from water bodies, forests and linear element of the landscape preferred by both breeding and migrating bats.

Visual impacts

The visual aspects of the planned wind farm were described in the EIA report and cumulative impact assessment report and no negative impacts were identified. 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 project will gain supporters and critics taking into account the influence on the landscape.
As presented in the EIA report, the visual impact of the wind turbines will be reduced by implementation of the following measures recommended by the European Wind Energy Association:

- use of the same WTG type at the entire wind farm and application of a uniform finishing;
- application of adequate coloring, which causes WFs 'vanishing' in the surrounding landscape;
- placing no advertisements or fences around the WTGs;
- as far as possible, planning necessary access roads along existing ones;
- use of underground cabling.

The picture below presents exemplary visualization of the wind farm.

Figure 6. View on the Bięcino WF from the road close to the Karżniczka village (from a distance of about 1.4 km)

The landscape impact is not permanent, given the expected "lifetime of the product" i.e. 25-30 years, when decommissioning should be undertaken.

The development, apart from the stable visually intrusive change, will create so called shadow flicker caused by rotating turbine blades. This impacts may affect residents living in close proximity to the rotating shadow source. A detailed assessment of such impacts has been conducted in the EIA report.

The undertaken calculations show some exceedances of shading levels, which are treated as safe for the real conditions. The highest forecasted lengths of shadow flicker can exceed 3 hours 30 minutes, per year (this value is below the 30h as prescribed in IFC/EU guidelines), within eastern region of the village of Bięcino. While lack of clouds and barriers between the receptor and wind turbine was assumed, the results showed only the theoretical and maximal impact. Considering that presented analysis does not take into account various types of terrain obstacles (overrides by buildings and trees), therefore it is expected that the real impact's scope will have lesser extent than calculated and should not be a nuisance for nearby residents.

No cumulative impact regarding shading levels is expected, taking into account considerable distance between Bięcino WF and other existing wind farms (9-13 km).

As concluded by the shadow flicker study, the planned investment is likely to be as source of impacts in terms of light phenomena. Implementation of the Project will not be a source of nuisance in terms of stroboscopic effect. In order to eliminate the impact, the blades will be coated with a matt paint of translucent texture.

The results of the shadow flicker modeling are presented on the below map.

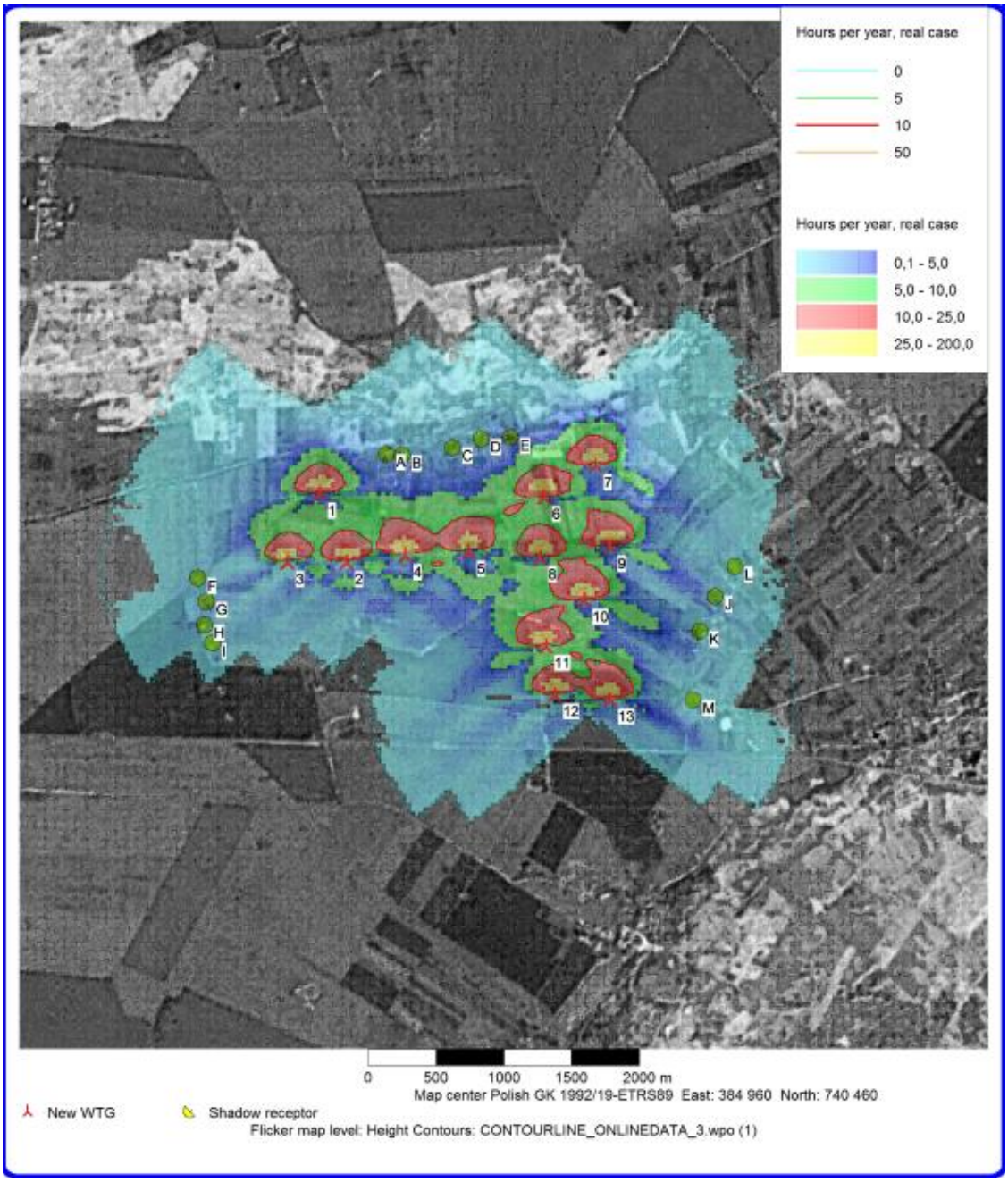

Figure 7 Cumulative shadow flicker effect impact map for the Bięcino WF (planned and existing WTGs):

- **planned WTGs: No. EW-01, EW-02, EW-03, EW-04, EW-05, EW-06, EW-08, EW-09.**
- **existing WTGs (constructed within the Potęgowo WF): No. EW-07, EW-10, EW-11, EW-12, EW-13.**

Electric and magnetic fields

The main sources of electromagnetic fields directly linked to Bięcino WF Project, are WTGs and transformer output. These elements are placed inside the nacelle on top of the tower (at a height of approx. 110 m). According to information included in the EIA report, elements of WF are working with medium voltage and the output of the transformer (Bięcino main electrical substation) is of high voltage, which will be forwarded to the electricity grid (Wierzbięcin main electrical station operated by the Distribution Service Operator). Due to the location of the transformer (fenced area, not accessible to people), the level of the electromagnetic field, generated by the elements of power infrastructure at the ground level, can be generally omitted.

Second potential source of electromagnetic field with a frequency of 50 Hz, associated with the Bięcino WF, are electromagnetic cable lines. 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 force is the planned Main Electrical Substation (MES). The MES will be subject to electric and magnetic measurements after construction Measurements of already constructed transformer station in Bięcino for the purposes of Potegowo WF revealed no breaches of applicable standards. The area of MES is not available for public.

Based on the information presented in the EIA report and review of existing Regulations, and further an independent audit undertaken by Ramboll Environ Poland on behalf of Lender, it can be summarized that:

- Bięcino WF Project is not a source of the electromagnetic field with a frequency of 50 Hz or electromagnetic radiation in the range of medium wave with values higher than acceptable;
- Implementation of the Project 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, 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 regarding types of installations, which exploitation requires special notification and the Regulation of the Minister of Environment dated regarding special notification about installations generating electromagnetic fields, investor has an obligation to notify a designated environmental authorities.

Measure aiming at limitation of the impacts

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. During 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 been 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 using state-of-the-art technology and equipment from well-known producers, which have been designed to limit noise emissions.

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 Minister of Environment[5];
- to be located out of birds migration routes, birds concentrations, feeding or nesting areas, which was later confirmed by the EIA report and competent authorities;
- to be located out of valuable plants habitats, wetlands or forest areas
- to be located out of nature (such as Natura 2000) and landscape protected areas,

[5] Executive order of June 14, 2007 on permissible noise levels in the environment. Unified text in JoL of 2014, item 112

- to be located out of the areas valuable from the cultural landscape point of view,
- not to disturb the continuity of ecological corridors[6].

Post construction monitoring

In order to ensure that the Project meets the highest international standards, national legal obligations and lenders' requirements, a defined monitoring program will be implemented during construction and the operation of the wind farms. The monitoring program will include elements as described below.

Noise

According to the Environmental Protection Act and based on requirements included in the environmental decision, the Company is obliged to conduct post construction noise level surveys for the wind farm. If the measurements indicate that permissible noise levels are exceeded, noise reducing action will be necessary to be completed (i.e. reduction of the acoustic power of the subject wind turbine(s)).

Birds

Birds monitoring has been required by the local authorities (in the environmental decision) for 3 years within the 5-year period after project start-up.

The scope of monitoring should be analogous with the pre-investment monitoring, should be conducted in line with the national guidelines**Error! Bookmark not defined.** and it should include:

- investigation of the birds, including their species and number,
- in reference to flying birds, distribution of birds at 3 flight altitudes should be investigated, including the one at the height of collisions with the turbines, number of birds and use of the airspace,
- evaluation of the birds' mortality caused by collisions with WTGs, including dead birds' investigation in the vicinity of the WTGs.

Bats

Bats monitoring has been also required by the local authorities (in the environmental decision) . In line with good practice guidelines of EUROBATS 2006 implemented in the Polish guidelines**Error! Bookmark not defined.**, the Company was obliged to carry out a 3-year long post-development bats monitoring. The scope of the monitoring should include:

- results of the listening monitoring and comparison with results of the pre-development monitoring,
- assessment of bats colliding with turbines, taking into account local and migrating species and description of the reactions on the presence of wind turbines,
- monitoring of deaths, including information on species, location and inaccuracy of the investigation, resulting e.g. from collection and consumption of death birds by other animals.

Additional information and grievance procedure

The mechanism for the claim procedure is already 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 Bięcino WF Project should be addressed to the Development Department Director of the Potegowo Mashav Company:

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[6] Ecological corridor is an area which makes possible migration of fauna, flora and fungi. The ecological corridors are classified as main (of an international range) and supplementary (of a national, regional and local range).

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