Supplemental Study to local EIA

Banie Phase 3 Wind Farm developed by Energix Group

2 February 2021

Project No.: 0566982

The business of sustainability

ERM

Document details	The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.
Document title	Supplemental Study to local EIA
Document subtitle	Banie Phase 3 Wind Farm developed by Energix Group
Project No.	0566982
Date	2 February 2021
Version	3.0
Author	ERM team
Client Name	Energix

Document history

				ERM approval to issue		
Version	Revision	Author	Reviewed by	Name	Date	Comments
Draft	1.0	Emilia Cojoc, Les Hatton, Magdalena Burlacu, Alexandru Craciun, Agnieszka Rogowiec, Agata Godlewska-Hejduk, Silvia Timu, Bartlomiej Bobik, Ewa Piotrowska, George Chatzigiannidis, Michael Fraser, Jack Smith, Simone Poli, Dana Bratu, Charles Le Quesne	Dana Bratu	Raimund Vogelsberger	13 November 2020	
Draft	2.0	Dana Bratu	Dana Bratu	Raimund Vogelsberger	20 November 2020	Adressing the comments received from Energix on 17 November 2020
Final version for disclosure	3.0	Silvia Timu	Dana Bratu	Raimund Vogelsberger	2 February 2021	Aligning the report with ESAP agreed measures

Signature Page

2 February 2021

Supplemental Study to local EIA

Banie Phase 3 Wind Farm developed by Energix Group

Raimund Vogelsberger	Dana Bratu
Partner, ERM	Project Manager

ERM Polska Sp. z o.o.
ul. Chmielna 132/134
00 – 805 Warsaw, Poland
T: +4822 518 49 73
E: www.erm.com

List of Tables

List of Figures

Acronyms and Abbreviations

Name	Description
ALARP	As Low as Reasonably Possible
BoP	Balance of Plant
CRM	Collision Risk Modelling
EBRD	European Bank for Reconstruction and Development
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
E&S	Environmental and Social
ESAP	Environmental Social Action Plan
ESIA	Environmental and Social Impact Assessment
ESMS	Environmental and Social Management System
FMP	Framework Management Plan
IFC	International Financing Corporation
ILO	International Labour Organisation
kV	kilovolt
OHS	Occupational Health & Safety
MP	Management Plan
MPPL	Common Breeding Bird Survey
MW	MegaWatt
PS	Performance Standard
PV	photovoltaic
SEP	Stakeholder Engagement Plan
SPA	Special Protected Area (Natura 2000)
SPV	Special Purpose Vehicle
VDR	Virtual Data Room
VP	Vantage Point
WF	Wind Farm
WTG	Wind Turbine Generator

1. EXECUTIVE SUMMARY

Corporate environment and social performance

An Environmental and Social Impact Assessment (EIA) Study was developed for the Banie 3 windfarm in May 2019. The study was performed in line with the Polish EIA regulations and was the basis for obtaing the EIA favourable decision from the regulatory bodies.

Based on a high-level gap analysis performed by ERM in August 2020 against international (e.g. EBRD, IFC, EP III) standards, several areas of improvement were identified in order to fully align with lenders' requirements. Consequently, it was agreed that a Supplemental Study to local EIA ("the Study") is to be developed by ERM. This Study, combined with the existing 2019 local EIA and with other documents (e.g. Non-Technical Summary, Stakeholder Engagement Plan), will form the ESIA Disclosure Package and will be supplemented by an Environmental and Social Action Plan (ESAP),which includes a set of measures and recommendations to be further implemented by Energix during the Project construction and operation.

This Study includes a description of the Project in its entirety, establishes an Area of Influence (AoI), and addresses the Project's associated environmental and social risks and impacts. The Study also includes some industry-specific impacts which, according to international standards, require a more extended assessment, e.g. land-take, biodiversity, landscape and visual impacts, noise, shadow-flicker, cultural heritage or socio-economic impacts.

Additionally, as part of the ESAP, ERM recommends Energix to develop and implement a Corporate-level Environmental and Social Management System (ESMS), to be further cascaded down at the level of each windfarm, as appropriate to the nature and scale of the respective project, with the aim of ensuring a coordinated process of implementing environmental and social requirements for each development project, embedding the developer's main operational activities at the same time. As part of this ESMS, an Environmental and Social Policy cascaded to P=project level is to be developed, which would provide the environmental and social objectives and principles that guide the company's performance, and an integrated management system to manage environmental and social risks and performance of each company P=project.

As for Banie 3, Energix is to develop a set of topic-specific Management Plans, accompanied by a Commitments Register, to document how Project-related impacts will be managed during construction and, subsequently, during operation. The requirements set out in these Management Plans will then constitue the basis for the Construction Contractor's own and more detailed Management Plans. The Occupational Health and Safety Management Plan must also address measures to ensure prevention and protection of both direct and contracted workers against COVID-19.

Cumulative impact

Cumulative impacts from the additional wind farms are predicted to be neglijable for most of the biodiversity receptors. A potential for effects to be more significant was identified for birds, particularly for the SPA qualifying species. Therefore, VP methodology and CRM analysis is required to quantify effects on birds, supported by a rigorous carcass searching regime that includes scavenger removal and searcher efficiency calibration, along with the delopment of an ESAP with adaptive management and triggers for intervention.

Biodiversity

The EIA reports dated 2009, 2013 and 2019 were based on three campaigns of field studies. A good baseline for birds and bats has been prepared covering a full year of field investigations in 2018. However, a series of limitations have been indentified, particularly in terms of methods applied to obtain data.

Further VP based surveys are required and the preparation of a collision risk model (CRM) based on the envisaged data. Furthermore, ESAP includes adaptive management actions and triggers for intervention. Post-construction monitoring, including carcass searching should also be adopted, as also required in the Environmental Decision.

Noise

The 2019 local EIA report includes, in its Annex 3, a comprehensive noise modelling report which shows the compliance of the windfarm against the local regulations (45dB(A) during nighttime and 55 dB(A) during daytime). This result was confirmed by ERM in October 2020, based on an independent modelling exercise. As standard procedure for windfarms located close to residential areas, further noise monitoring campaign is recommended to be undertaken during operation, to confirm the modelling results.

Community health and safety

Shadow Flicker Effect

Based on the footprint of the shadow flickering yellow class (values more than 25 hours) and the Google Earth imagery, the initial results show that receptors will not be impacted. However, for a robust assessment, mapping all the receptors within the Area of Influence (i.e. ten times the rotor diameter) can provide an adequate basis for a final assessment.

Rather than re-running the modelling, ERM suggests to overlay the modelling results with receptors layers identified using updated satellite imagery in order to confirm no receptors are located within impacted areas. Receptor layer will also take into consideration the urban expansion occurred in the area, if any. No need at this stage to commit to any specific mitigation measures, however the dissemination and effective implementation of the grievance mechanism needs to be in place toensure any occurance is recorded and dealt with in due course.

Blade/Ice Throw risk

ERM conducted calculations for Banie 3 Project which took into account Vestas110 with a hub height of 120 m will be installed, which resulted in a moderate range: ice throw of approximately 360 m and blade throw of 480 m. In order to mitigate any risks to community health and safety, ERM recommends that warning signs are located at the entrance to the WF's area and periodical checks of each WTG location with focus on safety and warning signs condition is performed. Additionally, appropriate public communication and ongoing engagement with local authorities as well as local inhabitants is recommended, in order to be able to respond to any issues related to ice and blade throw risk immediately.

Social and land related aspects

The social aspects, including land, were not covered in the existing impact assessments. Moreover, no social baseline study was conducted in the affected communities, as no such effort was required by Polish regulations.

The Project will not require physical displacement of people, all land required for the Project being located outside of the Banie and Widuchowa communes, on agricultural plots. The land is secured via voluntary agreements, from private owners. Additionally, public land will be required for the project road network consisting of new or consolidated roads. The available information is not sufficient to exclude economic displacement that may arise during construction or once the project becomes operational.

Given the potential cumulative impacts associated with the other windfarm already operational or to be built in the area, ERM recommends to engage with the local communities as early as possible and start identifying vulnerable groups who may be impacted by the Project and define mitigation measures. Resume the process of sharing information about the Project with all local stakeholders and place an emphasys on swift dissemination of the Project grievance form and mechanism and

consultation of the affected communities, to ensure any land-related impacts during construction and operation phases can be communicated in due course and mitigated effectively.

Furthermore, in order to build community members' trust in the Project and its contribution to local development, the Project Company will elaborate and implement an annual Community Investment Plan, engaging appropriately all relevant parties and, in particular, the neighbouring households affected during construction and/ or operation of the Project.

Cultural heritage

Currently, there is no evidence presented in the documentation made available that an adequate study, in line with EBRD / IFC Performance Requirement / Standard (PR) 8 / PS8 and International Best Practice, has been undertaken for screening the site's potential cultural heritage importance.

In order to align with EBRD requirements, ERM recommends creating a map showing the proposed windfarm infrastructure including, where available, details of access/haul roads and borrow pit location, as well as the location of known heritage assets within 1.5km of the proposed wind turbines should be provided. Secondly, a Chance find procedure needs to be created for the Project, in line with Polish and international standards.

Additionally, any proposed mitigation measures need to be agreed with the regulator. The regional institute for the protection of monuments is to be consulted regarding the location and extent of any buried remains within 250m of the proposed windfarm.

2. INTRODUCTION

ERM was engaged by Energix Group ("the Client") to conduct a Supplemental Study to the local EIA ("the Assignment") of the planned Banie Phase 3 Wind Farm ("the Project"), located in Poland. The Project, to be developed by Energix - Renewable Energies Ltd ("the Company"), is seeking finance from The European Bank for Reconstruction and Development (the "EBRD" or the "Bank"), Santander Bank Polska ("Santander") and EKF – Danmarks Eksportkredit ("EKF") – together with EBRD, the "Lenders".

The Project comprises of Banie Phase 3 wind farm, which includes 37 WTGs of a total capacity of 81.4 MW and the associated infrastructure.

The Project will be located on an arable land, in the area of Banie Commune and Widuchowa Commune , in Gryfino County, West Pomeranian Voievodship in north-western Poland, close to the German border, at 50km south of Szczecin.

As this is a greenfield project that could result in potentially significant adverse future environmental and/or social cumulative impacts, the EBRD has categorised the Project as "A" in terms of its 2019 Environmental and Social (E&S) Policy, which requires a comprehensive assessment of the potential environmental and social risk to be associated with the Project.

The Supplemental Study to local EIA report represents a risk-oriented assessment, which includes:

- key findings following the review of existing Project documentation against the Applicable Standards;
- additional impact assessment conducted within the specific travel and budget limitations of this assignment; and
- a series of additional studies and mitigation measures designed to ensure alingnment with the applicable standards and international best practice.

2.1 Applicable Standards

ERM has undertaken this assignment in line with the requirements of the following 'Applicable Standards':

- Applicable national environmental, health, safety and social laws and regulations and permit requirements of Poland, as well applicable international conventions (i.e. Espoo);
- European Union substantive environmental standards, including (but not limited to) the pertinent requirements of the EIA Directive (as updated in 2014) and Birds and Habitat Directives;
- International Labour Organisation (ILO) conventions covering core labour standards[1] and the basic terms and conditions of employment[2];
- World Bank Group General Environmental, Health and Safety (EHS) Guidelines, April 2007;
- World Bank Group EHS Guidelines for Wind Energy;
- European Bank for Reconstruction and Development (EBRD) Environmental & Social Policy (2019) and associated Performance Requirements (EBRD)[3]
- IFC Performance Standards (2012).

Note: There are no Indigenous People in Poland and therefore EBRD PR 7 has been scoped out of the Assessment. Similarly, EBRD PR 9 refers to the standards to be considered by the financial intermediaries, which is not applicable for this portfolio and Assessment.

2.2 Overview of the approach and methodology for the assignment

The Supplemental Study was conducted through a combination of the following activities:

- desktop review of information and documents provided by the Company;
- site visit conducted at the area of the planned Banie 3 WF as well as at the areas of already existing Banie 1 and Banie 2 WFs;
- virtual interviews with relevant representatives of the Company;
- review of information relevant for the Project and studies available online to supplement existing baseline information.

Desktop review of information provided by the Company

Following the kick-off call for the Assignment, ERM submitted a corporate questionnaire and list of documents necessary for review and they were uploaded by the Company in a Virtual Data Room (VDR).

Documents made available in the VDR were reviewed against the Applicable Requirements (defined under *Section 2.1* above), with particular focus on the following elements:

- review of how potential cumulative impacts were assessed to understand if these have been robustly evaluated in accordance with the requirements of EBRD PR1 / IFC PS1;
- a review of the completeness of project description information (project substation, underground cables, new access roads, grid connection) and coverage of associated facilities (e.g.

[1] The requirements as applicable on child and forced labour, discrimination and freedom of association and collective bargaining, stemming from the ILO Declaration on Fundamental Principles and Rights at Work, adopted in 1998 and covering: (a) freedom of association and the right to collective bargaining, (b) the elimination of forced and compulsory labour, (c) the abolition of child labour, and (d) the elimination of discrimination in the workplace.

[2] The requirements as applicable on wage, working hours, labour contract and occupational health & safety issues, stemming from ILO conventions 26 and 131 (on remuneration), 1 (on working hours), 155 (on health & safety) and recommendations.

[3] Available here https://www.ebrd.com/documents/comms-and-bis/environmental-and-social-policy.pdf

rehabilitation works required in the grid substation) in the scope of the environmental documents developed for permitting the respective projects;

- a critical assessment of the robustness of social and environmental baseline data, as a basis to inform Project design conditions;
- a review of the adequacy of the assessment of impacts on biodiversity and in particular on flora, birds and bats and the mitigation measures proposed in accordance with the requirements of EBRD PR 6 / IFC PS6;
- a review of the land acquisition and potential involuntary resettlement and economic displacement impacts that may occur or may have occurred as a result of the projects and the associated documentation to manage this process in accordance with the requirements of EBRD PR 5 / IFC PS5;
- a review of the information disclosure and stakeholder engagement processes against the requirements of EBRD PR10 / IFC PS1;
- a review of application of the mitigation hierarchy and the development of mitigation measures.

In the course of the assignment, ERM has reviewed the following documents, which are referenced in relevant sections of this study:

- Environmental Impact Assessments from 2008, 2013 and 2019;
- Environmental Decisions;
- Monitoring reports (birds, bats);
- Building Permit for the substation;
- Building Permits for the power lines;
- Building Permits for the wind turbines;
- Questionnaire to determine the socio-economic conditions of Banie and Widuchowa Communes;
- Lease and easement agreements with owners of the plots;
- Energix Polska Organizational Chart and Shareholding Structure;
- Example of a Balance of Plant (BOP) Agreement.

Virtual management interview

ERM held an online interview on the 16th of September 2020 to substantiate the understanding gained from of the review of documents and questionnaire filled by the Company representatives and to better understand related environmental and social issues,. The goal was to obtain a general overview of Company structure, roles and responsibilities with regard to EHS, labour aspects, stakeholder engagement and land acquisition aspects.

The following Company representatives were in attendance:

- *Head of Poland Operation*, Energix Group
- *Head of Construction*, Energix Polska
- *Country Manager Poland*, Energix Polska
- *contracted legal advisor* (WKB)

Additional topic-specific discussions were held as required, during the Asignment.

3. GENERAL INFORMATION ABOUT THE PROJECT

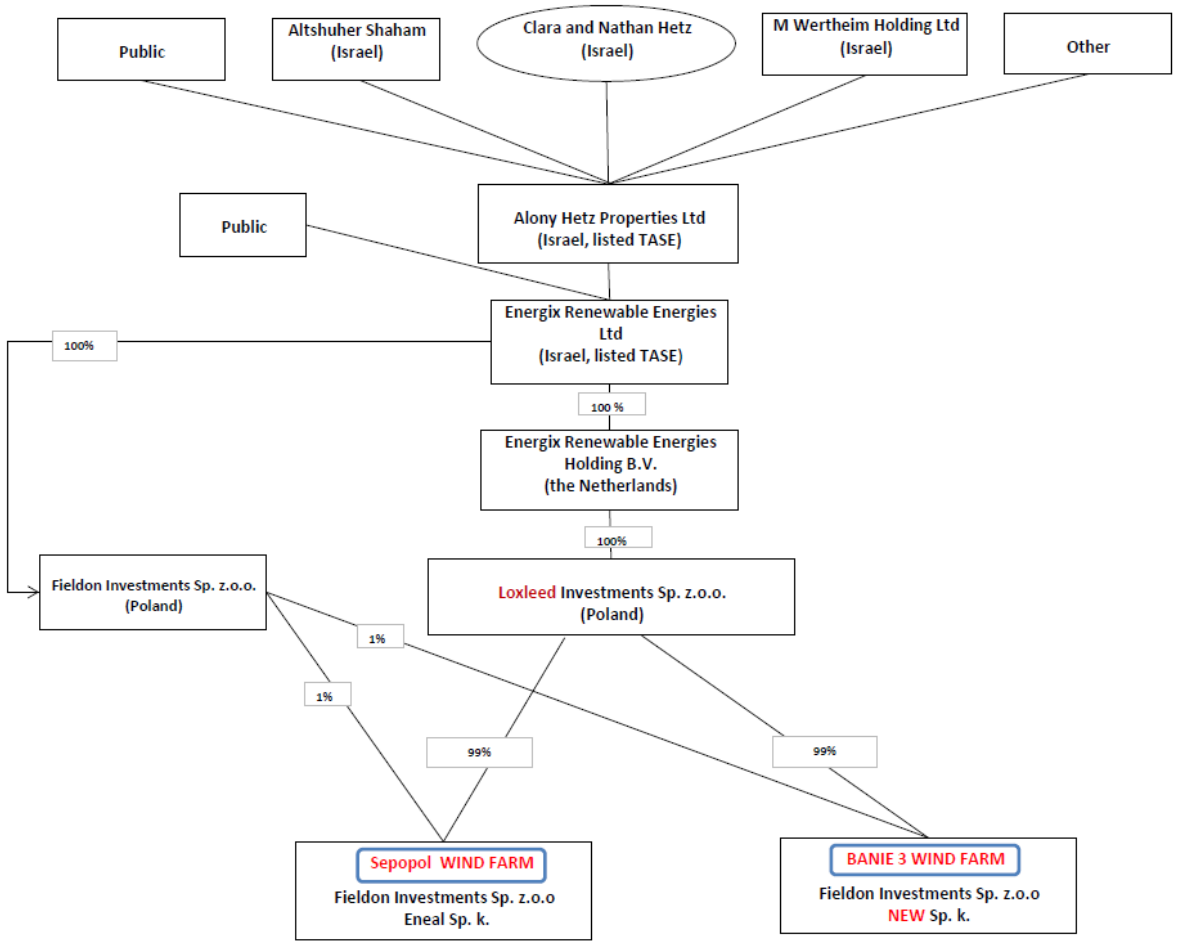
3.1 Overview of the Company structure

Energix Renewable Energies Ltd. (Energix Group) is one of Israel's largest renewable energy companies with a portfolio of more than 1GW of projects under development, 258WMp in commercial operation and market value of over 500$ million, according to their official website[4]. The Group runs 106 MW Banie Windfarm (Banie 1 and 2), aleady operational, the second largerst in Poland, through 100% holding of a Polish subsidiary (Energix Polska or Loxleed Investments Sp. Z.o.o) and a number of special purpose vehicles or SPVs.

Banie wind portfolio, consisting of three separate ready-to-build wind farms, was purchased by Energix in 2015, including Banie 1 and 2 which were constructed as part of the Green Certificate Mechanism in 2016. Banie 3 was managed via a shared ownership structure together with the previous developer until June 2018, when Energix paid the full rights for the wind farm and became the sole owner of the Project, with a focus of preparing Banie 3 for the auction in 2019.

Energix plans to create a dedicted SPV for Banie 3 which will take over the auction certificate and the leases negotiated by Fieldon Investment Wiatromil and Fieldon Investment Gryf, other SPVs 100% owned by the company.

Figure 3-1 Banie 3 shareholding structure



Source: Energix Group, September 2020

[4] Souce. https://www.energix-group.com/Business-Overview/

3.2 Project location

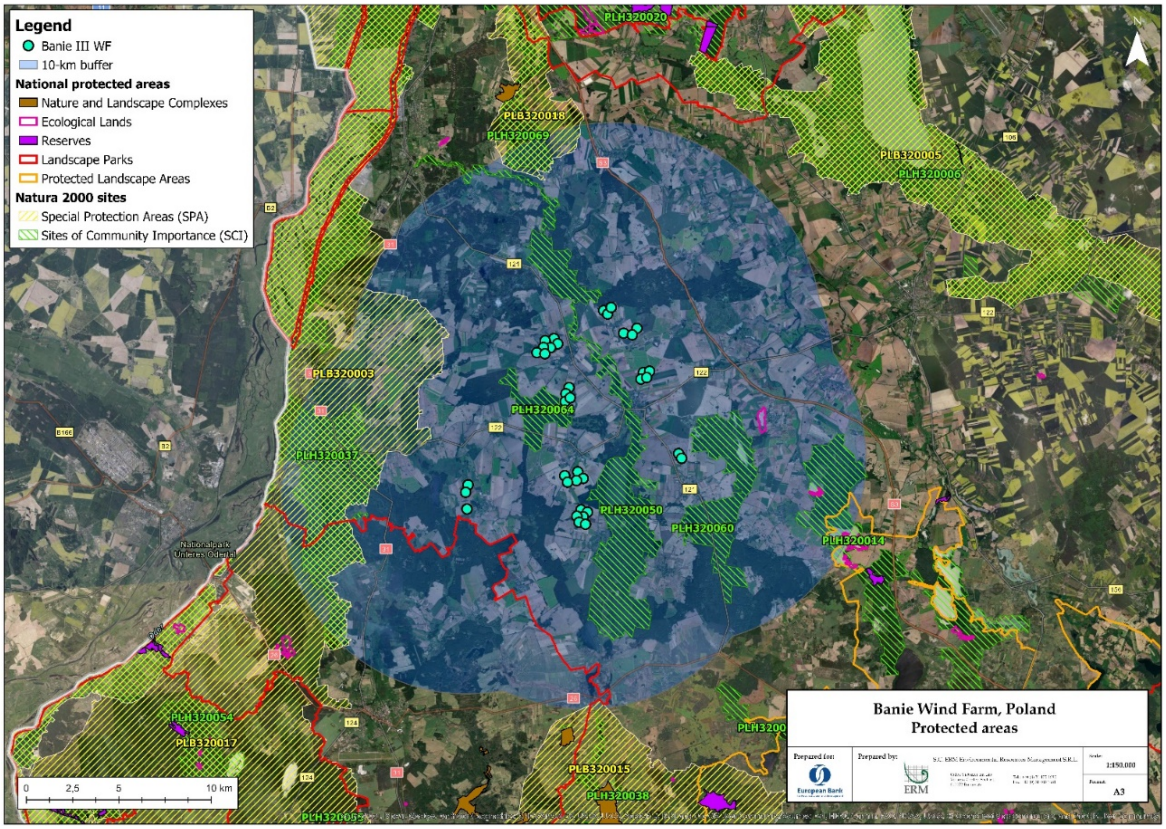
The Project will be located on an arable land, in the area of Banie Comune (Banie, Baniewice, Kunowo, Lubanowo, Piaseczno, Sosnowo, Swobnica and Tywica villages) and Widuchowa Commune (Żelechowo village), in Gryfino County, West Pomeranian Voievodship in north-western Poland.

The nearest house is located at approximately 400 m east of WTG No. 31.

The Project is located outside any natural protected areas – please see Figure 3-1 below for more details. The nearest protected areas are as follows:

- Natura 2000 Las Baniewicki (PLH320064), habitats protection area, located approximately 340 m west of the Project site (WTG No. BEW29);
- Natura 2000 Dolina Tywy (PLH320050), habitats protection area, located approximately 440 m north of the Project site (WTG No.BEW1);
- Natura 2000 Dziczy Las (PLH320060), habitats protection area, located approximately 620 m east of the Project site (WTG No.BEW32);
- Natura 2000 Pojezierze Myśliborskie (PLH320014), habitats protection area, located approximately 6.6km east of the Project site (WTG No.BEW32);
- Natura 2000 Ostoja Wełtyńska (PLH320069), habitats protection area, located approximately 8.2km north of the Project site (WTG No.BEW03);
- Natura 2000 Jeziora Wełtyńskie (PLB320018), birds protection area, located approximately 6.7km north-northeast of the Project site (WTG No.BEW03);
- Natura 2000 Dolina Dolnej Odry (PLB320003), birds protection area, located approximately 4.75km west of the Project site (WTG No.BEW25);
- Natura 2000 Witnicko-Dębniańska (PLB320015) birds protection area, located approximately 9.6km south of the Project site (WTG No.BEW46);
- Landscape Parki Cedyński Park Krajobrazowy, located approximately 570 m south of the Project site (WTG No.WEW6);
- Ecological land Mielno Pyrzyckie, located approximately 4.5 km east-northeast of the Project site (WTG No.BEW31);
- Ecological land Jezioro widno, located approximately 7.1 km east-southeast of the Project site (WTG no. BEW32);
- Protected landscape area located 8.5 km east-southeast of the Project site (WTG no. BEW32);
- Ecological land Dwie wyspy na jeziorze located 9,5 km east-southeast of the Project site (WTG no. BEW32.

Figure 3-2 The nearest protected areas to Banie 3 Project



Source: *ERM (September 2020)*

3.3 Project components

The main Project components will include the 37 WTG, a project substation, the underground MV line and the internal access roads.

Wind turbine generators

- 34 Vestas110 WTG located in Banie Commune, with a 110-m rotor diameter and a hub height of 120 m; each WTG will have a capacity of 2.2 MW, which results in a total Project capacity of 74.8 MW;
- 3 Vestas110 WTG located in Widuchowa commune, with a 110-m rotor diameter and a hub height of 120 m; each WTG will have a capacity of 2.2 MW, which results in a total Project capacity of 6.6 MW.

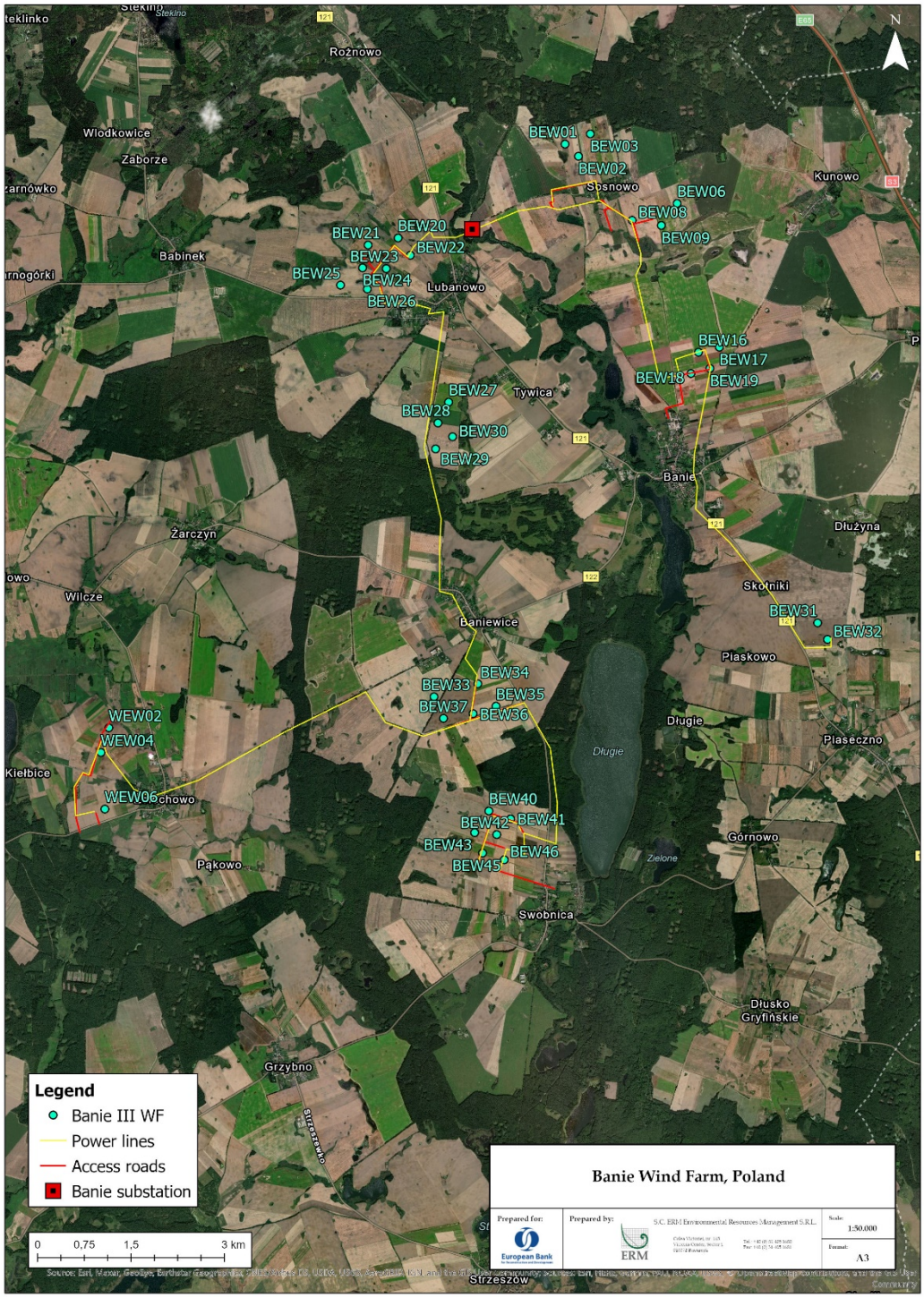
Electrical substation

- one 30/110 kV Project electrical substation covering an area of approximately 4700 m^2 located on the land plot no. 281/3, precinct Lubanowo, Banie commune;
- the 3 WTGs located in the Widuchowa commune will be connected via an underground MV line to BEW 36 WTG located in Baniewice.

Supporting infrastructure

- No detailed information was provided by the client with regard to the total length of the MV line, to be constructed for the Project[5], nor regarding the final design of the roads to be built/ consolidated for the Project.

Figure 3-3 Banie 3 Project layout



Source: *ERM (September 2020)*

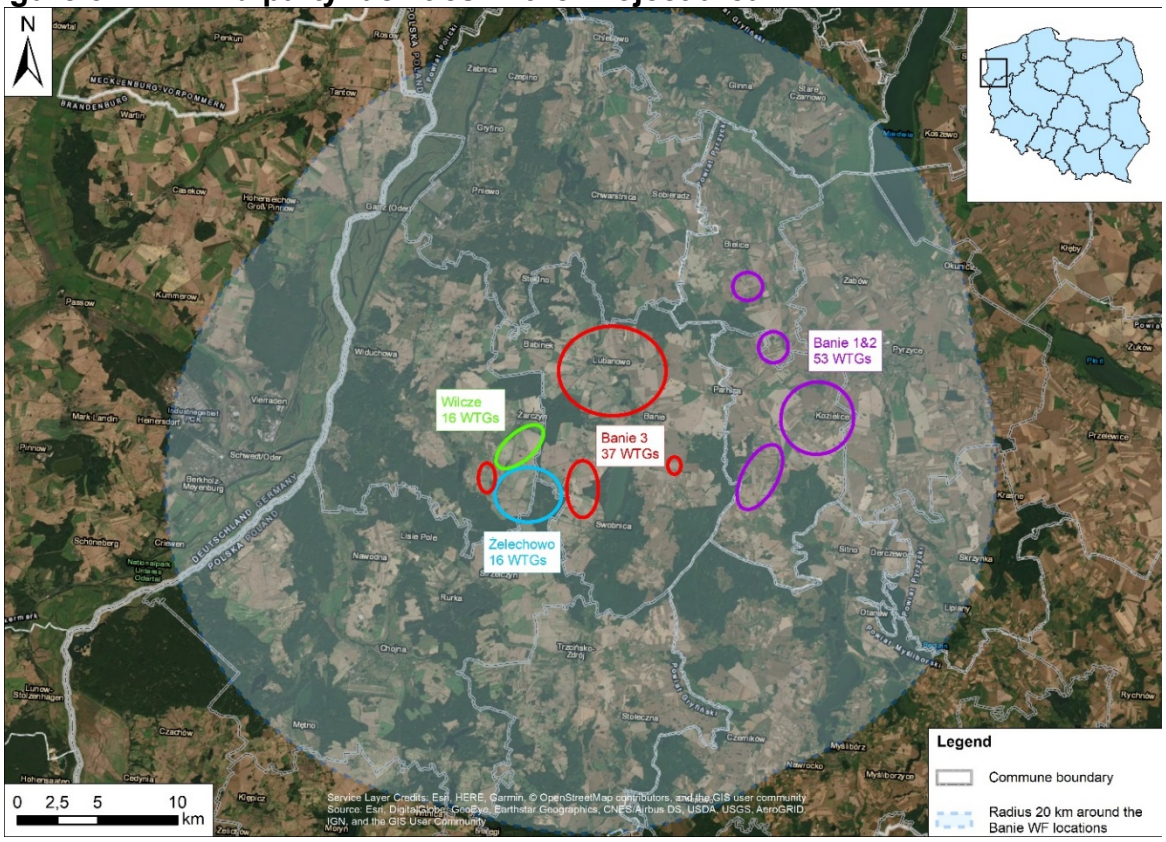
[5] The length of MV line in external connection of WF Banie-Kozienice in national road S3, and province roads 121 and 122 is approximately 3,643 m., according to the construction permit: AP-1.7840.18.255-2.2013.MKB, dated 28th of August 2013.

Third party facilities in the project area

- Banie 1 and Banie 2 wind farms, belonging to the Company, which comprise 53 WTGs located in the area of Linie, Nowe Chrapowo, Rokity, Kozielice, Mielno Pyrzyckie and Trzebórz villages, approximately 4 km and to the west from the nearest WTG belonging to Banie 3 Project (BEW 32, located near Piaskowo village); both WF are operational;
- 16 WTGs, located in the area of Żarczyn and Wilcze villages belonging to the Company, approximately 1 km to the north from the nearest WTG belonging to Banie 3 Project (under development);
- 16 WTGs of a total capacity up to 59.5 MW located in the area of Żelechowo village (under development).

Please see Figure 3-4 for more details regarding these facilities.

Figure 3-4 Third party facilities in the Project area



Source: *ERM (September 2020)*

3.4 Permitting status

The table below presents an overview of the relevant environmental and construction permits obtained for the Banie 3 project.

Asset	SPV	EIA/ PIC	Environmental Decision	Construction Permit
34 WTG in Banie commune, area of Banie, Baniewice, , Kunowo, Lubanowo, Piaseczno, Sosnowo, Swobnica and Tywica villages	Fieldon Investments Sp. z o.o. Wiatromill s.k.	**Environmental Impact Assessment Report for 46 WTGs dated June 2008**	Environmental Decision for 46 WTGs of a total capacity up to 115 MW issued on August 18, 2009.	Construction permit no 115/2013 (AB.6740.1.1.2013.LW, dated 14th of March 2013) for 13 WTGs (2,3 MW each) located in Sosnowo and Banie 3 district. The abovementioned permit was updated by the permit no 2/2015 (AB.6740.1.1.2013.LW, dated 2nd of January 2015) in terms of change of location, capacity of WTGs (2,0 MW each) and scope of works (additional entrance roads and maneuvering yards); and by the permit no 69/2020 (AB.6740.1.3.2019.AM, dated 26th of February 2020) in terms of change of location, number and capacity of WTGs (10 WTGs, 2,5 MW each). Construction permit no 639/2013 (AB.6740.1.41.2013.LW, dated 9th of December 2013) for 2 WTGs (2,3 MW each) and MV line located in Piaseczno district. The abovementioned permit was updated by the permit no 584/2014 (AB.6740.1.21.2014.LW, dated 21st of November 2014) in terms of location and capacity of WTGs (2,0 MW each) and the permit no 54/2020 (AB.6740.1.4.2019.BS, dated 14th of February 2020) in terms of capacity of WTGs (2,5 MW each). Construction permit no 247/2013 (AB.6740.1.11.2013.LW, dated 27th of May 2013) for 24 WTGs (2,3 MW each) located in Lubanowo, Baniewice and Sosnowa district. The abovementioned permit was updated by the permit no 583/2014 (AB.6740.1.19.20134.LW, dated 21st of November 2014) in terms of change of location and capacity of WTGs (2,0 MW); and by the permit no 583/2014 (AB.6740.1.7.2019.AM, dated 26th of February 2020) in terms of change of location, numbers of WTGs (22) and capacity (2,5 MW).
		Updated Environmental Impact Assessment Report for 34 WTGs dated March 2019	Statement on prolongation of the validity of Environmental Decision for 46 WTGs of a total capacity up to 115 MW dated August 18, 2009, issued on August 5, 2013	
			Amended Environmental Decision after reduction of the number of WTGs, issued for 34 WTGs of a total capacity up to 115 MW, total height up to 180 m of each WTG, issued on July 29, 2019.	
		Lack of the need to prepare EIA report	Environmental Decision for electrical substation, which will be located on the land plot no. 281/3, precinct Lubanowo, Banie commune (30/110 kV Banie) issued on December 23, 2013.	
			Statement of the Authorities that the environmental conditions imposed by the Environmental Decision for electrical substation dated December 23, 2013, did not change issued on January 20, 2020	
3 WTG in Widuchowa commune, area of Żelechowo village	Fieldon Investments Sp. z o.o. Wiatromill s.k.	**Environmental Impact Assessment Report for 8 WTGs dated November 2013**	Environmental Decision for 6 WTGs (WTG7 and WTG8 were excluded) issued on September 23, 2014, followed by a transfer decision to Wiatromill Sp. z o.o. on August 21, 2015.	Construction permit no 553/2016 (AB.6740.9.35.2016.MA, dated 15th of December 2016) for 3 WF including auxiliary squares and roads located in Żelechowo district.

The following construction permits have been obtained for the construction of the MV line:

- Construction permit for medium voltage line, an external connection of WF Banie-Kozienice in national road S3, province road 121 and 122, with total length of approximately 3,643 m (no 226/2013; AP-1.7840.18.255-2.2013.MKB, dated 28th of August 2013);
- Construction permit for a medium voltage line, an internal connection of WF Banie 1&2 (no 22/2014; AB.6740.1.40.2013.LW, dated 15th of January 2014); followed by Decision changing construction permit no 22/2014; AB.6740.1.40.2013.LW) for medium voltage line, an internal connection of WF Banie 1&2" due to changed rout of MVL (no 32/2015, AB.6740.1.28.2014.LW, dated 26th of January 2015);
- Construction permit for power connection for 3 WTGs in Widuchowa (no 405/2019; AB.6740.9.9.2019.AS, dated 28th of October, 2019.

4. SUPPLEMENTARY ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

4.1 Methodology for impact assessment

4.1.1 Overview

The Environmental Impact Assessment (EIA) process for the Project to obtain developement consent and the associated permits for construction has been concluded.

In addition to following national law, Energix is seeking funding from international finance institutions To achieve this, Energix has committed to complying with both the Polish EIA process, as well as EBRD requirements and performance standards.

As such, ERM has undertaken a Supplementary E&S impact assessment (ESIA) to address the additional and more comprehensive requirements of the EBRD PRs as compared to the existing Polish EIA.

The key stages for this Supplementary ESIA are highlighted below.

4.1.2 Scoping

During the scoping phase of this assignment, key potential environmental and socio-economic impacts and sensitive receptors were identified and considered in the definition of the impact assessment methodology.

4.1.3 Baseline studies

No primary data has been collected for this assignment. Existing reports developed within the national permitting process have been utilised and additional secondary data sources complemented the baseline sections of each of the topics below.

The baseline highlighted the existing environmental and social issues and formed the background against which impacts were identified and evaluated. In particular, the baseline aims to provide information to enable the following:

- the identification of key conditions and sensitivities within the proposed Area of Influence (AoI) for each topic;
- the prediction and evaluation of possible impacts resulting from the proposed Project;
- the understanding of stakeholder concerns and analysis of perceptions and expectations; and

- the provision of a benchmark from which to assess future changes resulting from the proposed Project and monitor the effectiveness of mitigation measures.

4.1.4 Alternatives and interaction with project planning and design

Throughout the study, ERM interacted with Energix Project Development team. Through this interaction, ERM was able to develop a formal Project description that is included in Section 3 of this report. The Project description was used to inform the impact assessment process and development of appropriate mitigation measures.

4.1.5 Impact assessment

During the impact assessment phase, the ways in which the Project will interact with the physical, biological, cultural and social environments to produce impacts to resources/receptors were assessed. This involved a number of stages, as set out below.

4.1.5.1 Prediction of magnitude

The magnitude of each impact was predicted as falling into one of the following designations: negligible, small, medium or large. The 'magnitude' encompasses various possible dimensions of the predicted impact, such as:

- extent (ie local, regional or international);
- duration (ie temporary, short-term, long-term or permanent);
- scale or size (no fixed designations);
- frequency (no fixed designations); and
- likelihood, for unplanned events only (ie unlikely, possible, likely).

Each topic area (eg noise, biodiversity, social, etc) adopted a different methodology for defining the magnitude of change as appropriate to the discipline, however, the designations used were consistent.

4.1.5.2 Sensitivity of Resources and Receptors

The sensitivity (or vulnerability / importance) of the impacted resource or receptor was also defined using one of the followings designations: low, medium or high. As per the magnitude rating, the definition for each designation varied on a resource/receptor basis. Resouces can be of different types:

- **physical** (for example, a water body). In this case, the quality, sensitivity to change and importance (on a local, national and international scale) are considered.
- **biological or cultural** (for example, a Natura 2000 site). In this case its importance (for example, its local, regional, national or international importance) and its sensitivity to the specific type of impact are considered.
- **human receptors.** In this case, the vulnerability of the individual, community or wider societal group is considered. The sensitivity definition for each resource / receptor is defined in more detail in the individual topic assessment chapters.

4.1.5.3 Evaluation of significance

Once the magnitude of the impact and sensitivity of the resource/receptor has been characterised, the impact significance is assigned using the significance matrix presented in Figure 4-3 below. Note that positive impact to a resource/receptor has no magnitude assigned.
When a resource/receptor (including people) will not be affected in any way by a particular activity or the predicted effect is deemed to be 'imperceptible' or is indistinguishable from natural background

variations, the impact significance is Negligible; these impacts will not be addressed with mitigation measures in the sections below.

Figure 4-1 Impact significance rating

		Sensitivity/Vulnerability/Importance of Resource/Receptor		
		Low	Medium	High
Magnitude of Impact	Negligible	Negligible	Negligible	Negligible
	Small	Negligible	Minor	Moderate
	Medium	Minor	Moderate	Major
	Large	Moderate	Major	Major

4.1.5.4 Identification of mitigation measures

Where impacts with a minor, moderate or major significance rating have been identified, mitigation measures have been developed to find practical ways of addressing negative impacts and enhancing positive impacts. The key objective was to mitigate impacts to a level that is 'as low as reasonably possible' (ALARP).

A hierarchy of mitigation options is considered, with avoidance at the source of the impact as a priority and compensatory measures or offsets to reduce the impact significance as a last resort. The mitigation hierarchy that is utilised in this Study is presented in the figure below.

Figure 4-2 Impact mitigation hierarchy

THE MITIGATION HIERARCHY FOR PLANNED PROJECT ACTIVITIES
Avoid at Source; Reduce at Source Avoiding or reducing at source is designing the project so that a feature causing an impact is designed out (eg, a waste stream is eliminated) or altered (eg, reduced waste volume).
Abate on Site This involves adding something to the design to abate the impact (eg, pollution controls).
Abate at Receptor If an impact cannot be avoided, reduced or abated on-site then measures can be implemented off-site (eg, noise or visual screening at properties).
Repair or Remedy Some impacts involve unavoidable damage to a resource. Repair essentially involves restoration and reinstatement type measures.
Compensate/Offset in Kind Where other mitigation approaches are not possible or fully effective, then compensation, in some measure, for loss or damage might be appropriate.

4.1.5.5 Assessment of residual impact

Following the identification of mitigation measures, impacts are re-assessed to determine their residual impact. This is essentially a repetition of the impact assessment steps discussed above, once the assumed mitigation measures have been considered.

4.1.5.6 Cumulative impact

Assessment of cumulative effects is an integral part of the assessment process and helps ensure that all aspects of potential effects from the Project have been, or will be, addressed. Cumulative effects result from incremental changes caused by other past, present or reasonably foreseeable developments, together with those from the construction and operation of the Project.

4.2 Impact assessment

4.2.1 Biodiversity and cumulative impacts

4.2.1.1 Baseline

ERM has based its assessment on the Environmental Impact Assessment (EIA) Report for Banie 3 dated 2019. Additionally, EIA reports dated 2008 and 2013 for Żelechowo wind farms in the Widuchowa commune, and biodiversity monitoring reports from 2016, 2017, 2018 and 2019 – for Banie 3 project area were available for review.

The EIA Report was based mainly on baseline data gathered from surveys in 2018. The EIA also drew upon data from monitoring performed during 2011-2018, as well as literature research.

Bird surveys covered one full year and consisted of field surveys (transect surveys and fixed point observations), and additionally use of the Common Breeding Bird Survey (MPPL) methodology. The field surveys were supported by a literature review.

The survey area was divided in four areas for the scope of the assessment, in each area transects were used (4 transects with a total length of 14.4 km) and observations from fixed points (9 during winter, 6 during spring migration, 12 during breeding and 9 during autumn migration). The duration of the observation was approximately 1 hour/observation point.

During the survey data concerning bird species, number, direction and height of passages and places of observation were registered.

The survey of the breeding species covered an area with a buffer zone of approximately 2 km in open areas and approximately 0.5 km in forested areas near the proposed project location.

A bats activity survey was carried out from March to September 2018. Data was collected using transects and observations from fixed points. For bats monitoring, 4 transects were used of a total length of 18.7 km. Observations of flying bats and acoustic bat detectors surveys were carried out between 2.5 hours before dusk until approximately 4-5 hours after dusk, and during the full night.

For the analysis of the impact of the wind farm turbines, both for birds and bats, the following three zones were established:

- Zone 1 (safe in terms of collision): below the lower range of the rotor blades (0 - 50 m above ground level);
- Zone 2 (potential collision): within the range of the rotor blades (50 – 160 m) and
- Zone 3 (safe in terms of collision): above the upper range of the rotor blades (> 160 m).

No monitoring was performed for amphibians, reptiles and mammals.

Flora and Habitats

The proposed Project location is in a predominantly agricultural area cultivated with cereals and oilseed rape with associated ruderal communities, including *Chenopodium albium, Consolida regalis, Centaurea cyanus, Capsella bursa pastoris, Chamomile matricaria, Polygonum aviculare, Viola arvensis, Anagalis arvensis, Stellaria media, Agrostis capillaris, Poa pratensis and Dactylis glomerata.* Small areas are occupied by grasslands and wetlands (e.g. in the form of fallow lands, field holes and marshes). The Project area is surrounded by forests in the villages of Sosnowo (northeast) and Swobnica (south). A large lake (i.e. Dlugie) with extensive forest edge lies nearby to the east of the Project.

Protected and Designated Sites

The Project area does not directly overlap with habitats of EU interest (Habitats and Birds Directive), habitats under national legal protection or sites of legally protected species. Nevertheless, a number of relevant sites are located in proximity of the Project area.

Within an area of 10 km, the following Natura 2000 sites were identified:

- Sites of Community Importance (SCI): Las Baniewicki (PLH320064), Dziczy Las (PLH320060), Dolina Tywy (PLH320050), Pojezierze Myśliborskie (PLH320014), Ostoja Wełtyńska (PLH320069) and
- Special Protection Areas (SPA): Jeziora Wełtyńskie (PLB320018), Dolina Dolnej Odry (PLB320003), Witnicko-Dębniańska (PLB320015).

In addition, the following designated sites have been identified within an area of 10 km:

- Landscape Park *Cedyński Park Krajobrazowy;*
- Ecological land *Mielno Pyrzyckie*;
- Ecological land *Jezioro widno*;
- Protected landscape area *Obszary chronionego krajobrazu* and
- Ecological land *Dwie wyspy na jeziorze.*

Birds

During the monitoring year of 2018, a total of 105 species of birds were identified (Table 4-1). Based on the legal protection of the European Birds Directive (2009/147/EC), 11 species identified are listed under Annex I (subject of special conservation measures). Two Polish Red List and Red Book vulnerable species (i.e. *Circus cyaneus and Eurasian curlew)* and one on the risk of extinction (i.e. *Pluvialis apricaria*) were identified during the field surveys.

Table 4-1 Bird species identified in the monitoring area, in 2018

No.	Scientific name	Common name	Protection status			
			Strict protection	Partial protection	Birds Directive Annex I	Polish Red Book/ Polish Red list
1	*Accipiter gentilis*	Goshawk	x			
2	*Accipiter nisus*	Sparrowhawk	x			
3	*Acrocephalus arundinaceus*	Great reed warbler	x			
4	*Acrocephalus palustris*	Marsh warbler	x			

No.	Scientific name	Common name	Protection status			
			Strict protection	Partial protection	Birds Directive Annex I	Polish Red Book/ Polish Red list
5	*Alauda arvensis*	Eurasian skylark	x			
6	*Anas crecca*	Eurasian teal				
7	*Anas platyrhynchos*	Mallard				
8	*Anas strepera*	Gadwall	x			
9	*Anser albifrons*	Gray geese				
10	*Anser anser*	Greylag goose				
11	*Anser fabalis*	Bean goose				
12	*Anthus pratensis*	Meadow pipit	x			
13	*Anthus trivialis*	Tree pipit	x			
14	*Apus apus*	Common swift	x			
15	*Ardea cinerea*	Grey heron		x		
16	*Aythya ferina*	Common pochard				
17	*Bombycilla garrulus*	Bohemian waxwing	x			
18	***Botaurus stellaris***	Eurasian bittern	x		x	
19	*Bucephala clangula*	Common goldeneye	x			
20	*Buteo buteo*	Common buzzard	x			
21	*Buteo lagopus*	Rough-legged buzzard	x			
22	*Carduelis cannabina*	Common linnet	x			
23	*Carduelis carduelis*	European goldfinch	x			
24	*Carduelis chloris*	European greenfinch	x			
25	*Carduelis spinus*	Eurasian siskin	x			
26	*Certhia brachydactyla*	Short-toed treecreeper	x			
27	*Certhia familiaris*	Eurasian treecreeper	x			
28	*Charadrius dubius*	Little ringed plover	x			
29	***Ciconia ciconia***	White stork	x		x	
30	***Circus aeruginosus***	Marsh harrier	x		x	
31	***Circus cyaneus***	Hen harrier	x		x	VU
32	*Coccothraustes coccothraustes*	Hawfinch	x			
33	*Columba palumbus*	Common wood pigeon				
34	*Corvus corax*	Common raven		x		
35	*Corvus cornix*	Hooded crow		x		

No.	Scientific name	Common name	Protection status			
			Strict protection	Partial protection	Birds Directive Annex I	Polish Red Book/ Polish Red list
36	*Corvus frugilegus*	Rook		x		
37	*Corvus monedula*	Western jackdaw	x			
38	*Cuculus canorus*	Common cuckoo	x			
39	*Cyanistes caeruleus*	Eurasian blue tit	x			
40	***Cygnus cygnus***	Whooper swan	x		x	
41	*Cygnus olor*	Mute swan	x			
42	*Delichon urbicum*	Common house martin	x			
43	*Dendrocopos major*	Great spotted woodpecker	x			
44	*Dendrocopos minor*	Lesser spotted woodpecker	x			
45	***Dryocopus martius***	Black woodpecker	x		x	
46	*Emberiza calandra*	Corn bunting	x			
47	*Emberiza citrinella*	Yellowhammer	x			
48	*Emberiza schoeniclus*	Common reed bunting	x			
49	*Erithacus rubecula*	European robin	x			
50	*Falco subbuteo*	Eurasian hobby	x			
51	*Falco tinnunculus*	Common kestrel	x			
52	*Fringilla coelebs*	Common chaffinch	x			
53	*Fulica atra*	Eurasian coot				
54	*Garrulus glandarius*	Eurasian jay	x			
55	*Grus grus*	Common crane	x		x	
56	***Haliaeetus albicilla***	White-tailed eagle	x		x	
57	*Hirundo rustica*	Barn swallow	x			
58	***Lanius collurio***	Red-backed shrike	x		x	
59	*Lanius excubitor*	Great grey shrike	x			
60	*Larus argentatus*	European herring gull		x		
61	*Larus canus*	Common gull	x			
62	*Larus ridibundus*	Black-headed gull	x			
63	*Locustella fluviatilis*	River warbler	x			
64	*Luscinia megarhynchos*	Common nightingale	x			
65	***Milvus milvus***	Red kite	x		x	
66	*Motacilla alba*	White wagtail	x			

No.	Scientific name	Common name	Protection status			
			Strict protection	Partial protection	Birds Directive Annex I	Polish Red Book/ Polish Red list
67	*Motacilla flava*	Western yellow wagtail	x			
68	*Muscicapa striata*	Spotted flycatcher	x			
69	***Numenius arquata***	Eurasian curlew	x			VU
70	*Oenanthe oenanthe*	Northern wheatear	x			
71	*Oriolus oriolus*	Eurasian golden oriole	x			
72	*Parus major*	Great tit	x			
73	*Passer domesticus*	House sparrow	x			
74	*Passer montanus*	Eurasian tree sparrow	x			
75	*Perdix perdix*	Grey partridge				
76	*Phalacrocorax carbo*	Great cormorant		x		
77	*Phasianus colchicus*	Common pheasant				
78	*Phoenicurus ochruros*	Black redstart	x			
79	*Phoenicurus phoenicurus*	Common redstart	x			
80	*Phylloscopus trochilus*	Willow warbler	x			
81	*Pica pica*	Eurasian magpie		x		
82	*Picus viridis*	European green woodpecker	x			
83	***Pluvialis apricaria***	European golden plover	x		x	EXP/ EX
84	*Podiceps cristatus*	Great crested grebe	x			
85	*Poecile montanus*	Willow tit	x			
86	*Poecile palustris*	Marsh tit	x			
87	*Pyrrhula pyrrhula*	Eurasian bullfinch	x			
88	*Saxicola rubetra*	Whinchat	x			
89	*Saxicola rubicola*	European stonechat	x			
90	*Sitta europaea*	Eurasian nuthatch	x			
91	*Streptopelia decaocto*	Eurasian collared dove	x			
92	*Strix aluco*	Tawny owl	x			
93	*Sturnus vulgaris*	Common starling	x			
94	*Sylvia atricapilla*	Eurasian blackcap	x			
95	*Sylvia borin*	Garden warbler	x			

No.	Scientific name	Common name	Protection status			
			Strict protection	Partial protection	Birds Directive Annex I	Polish Red Book/ Polish Red list
96	*Sylvia communis*	Common whitethroat	x			
97	*Sylvia curruca*	Lesser whitethroat	x			
98	*Tringa ochropus*	Green sandpiper	x			
99	*Troglodytes troglodytes*	Eurasian wren	x			
100	*Turdus merula*	Common blackbird	x			
101	*Turdus philomelos*	Song thrush	x			
102	*Turdus pilaris*	Fieldfare	x			
103	*Turdus viscivorus*	Mistle thrush	x			
104	*Tyto alba*	Barn owl	x			
105	*Vanellus vanellus*	Northern lapwing	x			

Note 1: Species marked in bold are subject to special protection and listed under Annex I of Birds Directive and the Polish Red Data Book of Animals.

Note 2: According to the Polish Red Data of Animals, the following acronyms are explained: Red Book - EXP - extinct or probably extinct species, VU - vulnerable species; NT - low risk species; LC – not endangered with extinction; Red List - EX - extinct, VU - exposed; NT - imminent threats; LC - not endangered with extinction. In the table above there are listed VU, EN or CR species status only.

Species diversity was observed to be related to phenology, with the lowest diversity in the winter (34 species) and the highest in the breeding season (84 species).

During the **wintering season** 34 species were found, of which two species were of Community interest (included in Annex I of the Birds Directive): whooper swan and white-tailed eagle. Flights below 50m (zone 1) accounted for 59.3% of the total flights observed according to monitoring data gathered during 2011-2018.

Monitoring during the **spring migration** season identified 58 species, including five Annex I species (whooper swan, white-tailed eagle, marsh harrier, *hen harrier,* and common crane). A high proportion of sightings related to waders (35%). Monitoring data indicates the spring migration of birds took place mainly at low altitudes in zone 1 (74.7%).

- During **breeding and dispersion season** species, nesting in the monitoring area as well as moving from the neighbouring areas for foraging or flying over the monitoring area to the neighbouring areas were observed. 84 species were found, most of which were passerines, and common species associated with the agricultural landscapes. Eight Annex I species were observed in the project area: Eurasian bittern, White stork, Red kite, **White-tailed eagle, Marsh harrier**, Common crane, Black woodpecker, **Red-backed shrike**. Those marked in bold bred within the Project area. Monitoring indicates 89.2% of recorded flight activity was in zone 1.

Surveys during the **autumn migration season** registered 63 species, of which six were Annex I: Whooper swan, Red kite, White-tailed eagle, Hen harrier, Common crane, European golden plover. 88.7% of flights were recorded in zone 1 based on monitoring data.

The area of the Project is a migratory route for birds, and several protected bird species were recorded. Airspace activity is variable and seasonally dependant. In winter, most flights took place in zone 1 due to bad weather conditions and low abundance of species. Zone 3 was used more towards the end of the winter and during the spring migration. Activity in the zone 1 increased during the spring migration, while during the breeding season the usage of air space in zone 1 was the highest in the year (89.2%). The activity in the zone 3 increased during the autumn migration period; however,

most birds occurred in zone 1 (88.7%). Throughout the year, activity in zone 2 was lower and ranged from 6.8% to 11.8%.

The area was assessed as an important breeding site for the White-tailed eagle and recommendations were made to remove two turbine from the original design, undertake additional monitoring and consider turbine shut downs.

The white-tailed eagle presence on the proposed project area was recorded within pre-investment environmental monitoring in 2008 and also during the monitoring carried out in the subsequent years (2011-2018). The largest number of white-tailed eagles was registered in the project area near Swobnica locality.

Results of the monitoring show that the distribution of the birds is associated with agricultural areas, aquatic environments (Lake near Swobnica locality within the SPA Dolina Dolnej Odry (PLB320003) and forests located south of the project area, which represent an ecologically important habitat, although not part of the project footprint.

Table 4-2 provides the number of flights recorded at different height bands during monitoring in the Swobnica area. The sharp increase in 2017-18 is largely driven by additional survey effort during the breeding season in those years.

Table 4-2 Number of vertical flights of White-tailed eagle

Zone	2010	2011	2012	2013	2014	2015	2016	2017	2018	Overall %
1	14	8	15	16	10	15	20	27	29	67.54
2	5	2	3	6	5	4	6	10	11	22.81
3	2	1	3	2	1	2	2	5	4	9.65
Total	**21**	**11**	**21**	**24**	**16**	**21**	**28**	**42**	**44**	**100**

Although all wind turbines are located outside of protected areas / international designated sites, several Natura 2000 Special Protection Areas (SPAs) are in the vicinity of the project: Jeziora Wełtyńskie (PLB320018) at approximately 6.7 km from the nearest turbine, Dolina Dolnej Odry (PLB320003) approximately 4.75 km, and Witnicko-Dębniańska (PLB320015) at 9.6 km. All SPAs contain species that are both migratory and resident species and could be affected by wind farms at this range.

Activity in the proposed wind farm area of the following qualifying bird species of the nearest SPA Dolina Dolnej Odry (PLB320003) were observed during field surveys in 2018: Eurasian teal, Mallard, Gadwall, Gray geese, Graylag goose, Bean goose, Eurasian bittern, Common goldeneye, White stork, Marsh harrier, Hen harrier, Whooper swan, Black woodpecker, Common crane, White-tailed eagle, Red-backed shrike, Red kite, European golden plover, Northern lapwing.

The following qualifying species of SPA Jeziora Wełtyńskie (PLB320018), which is located at approximately 6.7 km to the nearest turbine, were observed on the proposed Project area during 2018 surveys: Gray geese, Graylag goose, Bean goose, Eurasian bittern, White stork, Marsh harrier, Hen harrier, Whooper swan, Black woodpecker, Common crane, White-tailed eagle, Red-backed shrike, Red kite, European golden plover.

From SPA Witnicko-Dębniańska (PLB320015), located at 9.6 km to the nearest turbine, the following qualifying species were registered within the project location*:* Graylag goose, Eurasian bittern, Common goldeneye, White stork, Marsh harrier, Whooper swan, Black woodpecker, Common crane, White-tailed eagle, Red-backed shrike, Red kite and European golden plover.

In terms of distribution across the Project area, most birds moved around the boundaries of the area and were associated with watercourses, mid-field ponds and lakes, or forest complexes. These were the preferred natural routes of migration and areas of foraging. An important migration route was identified to be the sequence of lakes along the Tywa River, running from the north to the south of the wind farm area, a complexes of mid-field marshes in the vicinity of lakes and forest complexes located longitudinally in the vicinity of the boundaries of the planned project.

Bats

Surveys identified six species of bats (Table 4-4). All of the bat species are under legal protection and classified as Least Concern (LC) species under IUCN Red List; however, none of them is included in Annex II of the Habitats Directive.

Table 4-3 Bats identified in the monitoring area

No.	Scientific name	Common name	Protection status	
			Strict protection	IUCN
1	*Myotis daubentonii*	Daubenton's bat	x	LC
2	*Eptesicus serotinus*	Serotine bat	x	LC
3	*Pipistrellus pipistrellus*	Common pipistrelle	x	LC
4	*Pipistrellus pygmaeus*	Soprano pipistrelle	x	LC
5	*Pipistrellus nathusii*	Nathusius's pipistrelle	x	LC
6	*Nyctalus noctula*	Common noctule	x	LC

Transect and static detector surveys found recorded low levels of bat activity. Based on survey data in 2018, it was determined that most of the flights took place at low altitudes of approximately 2 to 15 m, while very few flights were observed up to approximately 30 m.

4.2.1.2 Topic specific criteria for impact assessment

The approach to the Supplementary ESIA assessment is one of identifying whether effects are negative or positive, are they significant, or not significant on each biodiversity feature. The value / sensitivity of the biodiversity features are established during the baseline, and the anticipated magnitude and effect on that feature considered. Account is also taken of the likelihood of an effect occurring and if it does, the likely frequency and duration.

The approach has also taken account of guidance in International Finance Corporation's (IFC) Performance Standard 6 (PS6) (6) including the identification of modified, natural habitats and critical habitats:

- Modified habitats: "areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area's primary ecological functions and species composition. Modified habitats may include areas managed for agriculture, forest plantations, reclaimed coastal zones, and reclaimed wetlands".
- Natural habitats: "defined as areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition".

(6) PS6 Guidance Notes: https://www.ifc.org/wps/wcm/connect/5e0f3c0c-0aa4-4290-a0f8-4490b61de245/GN6_English_June-27-2019.pdf?MOD=AJPERES&CVID=mRQjZva

- Critical habitats: “areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or areas associated with key evolutionary processes”.

The specific criteria to establish the significance of the associated impacts o habitats and species is presented in the Table 4-4 and 4-5 below.

Table 4-4 Significance of effects on habitats

Baseline habitat sensitivity / value		Magnitude of effect on baseline habitats			
		Negligible	**Small**	**Medium**	**Large**
		Effect is within the normal range of natural variation	*Affects only a small area of habitat, such that there is no loss of viability / function of the habitat*	*Affects part of the habitat, but does not threaten the long-term viability / function of the habitat.*	*Affects the entire habitat, or a significant proportion of it, and the long-term viability / function of the habitat is threatened.*
Negligible	Habitats with negligible interest for biodiversity.	Negligible	Negligible	Negligible	Negligible
Low	Habitats with no, or only a local designation / recognition, habitats of significance for species listed as of Least Concern (LC) on IUCN Red List of Threatened Species, habitats which are common and widespread within the region, or with low conservation interest based on expert opinion.	Negligible	Negligible	**Minor**	**Moderate**
Medium	Habitats within nationally designated or recognised areas, habitats of significant importance to globally Vulnerable (VU) Near Threatened (NT), or Data Deficient (DD) species, habitats of significant importance for nationally restricted range species, habitats supporting nationally significant concentrations of migratory species and / or congregatory species, and low value habitats used by species of medium value.	Negligible	**Minor**	**Moderate**	**Major**
High	Habitats within internationally designated or recognised areas; habitats of significant importance to globally Critically Endangered (CR) or Endangered (EN) species, habitats of significant importance to endemic and/or globally restricted-range species, habitats supporting globally significant concentrations of migratory species and / or congregatory species, highly threatened and/or unique ecosystems, areas associated with key evolutionary species, and low or medium value habitats used by high value species.	Negligible	**Moderate**	**Major**	**Major**

Table 4-5 Significance of effects on species

Baseline species sensitivity / value		Magnitude of effect on baseline species			
		Negligible	**Small**	**Medium**	**Large**
		Effect is within the normal range of variation for the population of the species.	*Effect does not cause a substantial change in the population of the species, or other species dependent on it.*	*Effect causes a substantial change in abundance and / or reduction in distribution of a population over one, or more generations, but does not threaten the long-term viability / function of that population, or any population dependent on it.*	*Affects entire population, or a significant part of it causing a substantial decline in abundance and / or change in and recovery of the population (or another dependent on it) is not possible either at all, or within several generations due to natural recruitment (reproduction, immigration from unaffected areas).*
Negligible	Species with no specific value or importance attached to them.	Negligible	Negligible	Negligible	Negligible
Low	Species and sub-species of LC on the IUCN Red List, or not meeting criteria for medium or high value.	Negligible	Negligible	**Minor**	**Moderate**
Medium	Species on IUCN Red List as VU, NT, or DD, species protected under national legislation, nationally restricted range species, nationally important numbers of migratory, or congregatory species, species not meeting criteria for high value, and species vital to the survival of a medium value species.	Negligible	**Minor**	**Moderate**	**Major**
High	Species on IUCN Red List as CR, or EN. Species having a globally restricted range (ie plants endemic to a site, or found globally at fewer than 10 sites, fauna having a distribution range (or globally breeding range for bird species) less than 50,000 km^2), internationally important numbers of migratory, or congregatory species, key evolutionary species, and species vital to the survival of a high value species.	Negligible	**Moderate**	**Major**	**Major**

4.2.1.3 Impact Assessment

Potential impacts from the Project include:

- Permanent loss of habitat or species due to permanent or temporary land take;
- Loss or disturbance of roosts and foraging habitat;
- Collision risk;
- Disturbance and displacement; and
- Introduction of alien species.

The table below represets an overview of potential impacts during construction and operation, proposed mitigation measures and residual impacts.

No.	Impact Description	Impact Assessment	Mitigation Measures	Residual Impact
Construction Impacts				
	Effects on protected and / or designated sites The Project has no presence in any protected area and, therefore, no sites designated for their nature conservation importance will be significantly affected by the Project construction. However, the location of some additional project components (e.g., roads,power lines) were not available during the assessment.	Neglijable		Not Ecologically Significant
	Effects on habitats and plant species The majority of the habitat lost for the construction of the wind farm will be modified habitat, particularly agriculture land with ruderal vegetation that is of *low sensitivity / value.* Data of the total area that will be a permanent loss as a cosequence of Project construction was not available to assess. However, the Project can affect only a small area or a part of the habitats, having *small magnitude* of effect. Therefore, the impacts will result in an effect of only negligible or minor significance.	Neglijable		Not Ecologically Significant
	Effects on fauna species The main habitats supporting birds and other fauna species are agriculture lands. Loss of habitat will still result in permanent, but localised, displacement of birds and other fauna from the Project site. Based on the survey findings to date, the permanent loss of habitat during construction will have a *small magnitude* effect on fauna species of *low and medium sensitivity / value*, resulting in a minor significance.	Minor	■ Removal of all vegetation to be felled or cleared outside of the bird breeding season (March-August) or removal during that period only after a check by an ornithologist to ensure that no nesting birds are present.	Not Ecologically Significant
Operational Impacts				
	Effects on protected and / or designated sites Within an area of 10 km of the Project, five Sites of Community Importance (SCI), three Special Protection Areas (SPA) and five national protected areas have been identified.	Minor / Moderate	■ Measures to minimze the effects on Natura 2000 sites's integrity are addresed through additional VP surveys, CRM, ESAP describing mitigation measures and limits of acceptable	Not Ecologically Significant

No.	Impact Description	Impact Assessment	Mitigation Measures	Residual Impact
	Data suggests that impacts on bats are insignificant and Banie 3 is unlikely to contribute to significant effect on Natura 2000 SCI sites. Nevertheless, effects on the neighbouring SPAs could occur through impacts to mobile qualifying species. Project can produce a small to substantial change in abundance and / or reduction in distribution of the bird population, having *small to medium magnitude* of effect on Natura 2000 bird qualifying species of *low and medium sensitivity / value.*		change and post-construction monitoring, detailed below under „Effects on fauna species, particularly on birds".	
	Effects on habitats and plant species The Project lies outside of any protected areas and its entire associated land take is occurring in areas of agriculture land and ruderal communities. Therefore, no significant impact is expected.	Neglijable		Not Ecologically Significant
	Effects on fauna species, particularly on birds Based on the survey findings to date, 11 Annex I species were observed in the Project area, out of which three are breeding in the area (i.e., White-tailed eagle, Marsh harrier and Red-backed shrike). The Project area was assessed as an important breeding site for the White-tailed eagle *Haliaeetus albicilla* and recommendations were made to and raises the need for additional survey, future monitoring, and the possibility of turbine shutdowns.	Moderate	■ VP based surveys are required to populate a collision risk model (CRM) so that quantified data can be gathered to verify conclusion of no impact on site integrity. Data collection should start in February 2020, if possible, to account for wintering SPA species and further be performed as described in ESAP. ■ ESAP with mitigation options and the limits of acceptable change that trigger intervention should be developed by June 2021; ■ Carcass searching should be implemented, including scavenger removal and searcher efficiency calibration; ■ Post- construction monitoring for at least 5 years. ■ Design of a small number of the turbines with a single black blade (to increase visibility of the WTG to birds and thus avoid strikes) .	Minor
	Cumulative Impacts Within 10 km of the Project, four additional wind farms are constructed / design phase, adding to approx. 122 turbines, of which 53 operating.	Moderate	■ Measures to minimze the cumulative effects are addresed through the proposed measures above.	Not Ecologically Significant

4.2.1.4 Mitigation measures and residual impacts

The EIA identifies a number of concerns regarding the White-tailed eagle activity and raises the need for additional survey, future monitoring, and the possibility of turbine shutdowns. Collision Risk Management (CRM) would be needed to inform appropriate mitigation and assess risk. Analysis of CRM data to include the winter, spring migration and April White-tailed eagle display period can be undertaken to provide an early indication of likely risks and inform adaptive management.

Given the expense associated with turbine shutdown (should that prove to be required), ERM suggest to consider the option of the black blade mitigation. This would involve a proportion of the turbines being fitted with a black-coloured blade, and the rest left as controls. The black blades help increase the visibility of the rotors to birds, so they can more easily avoid them. Should the data indicate a high risk of collision the ability to test whether this mitigation is an effective alternative to turbine shutdown may prove valuable.

4.2.1.5 Biodiversity Cumulative Impact Assessment

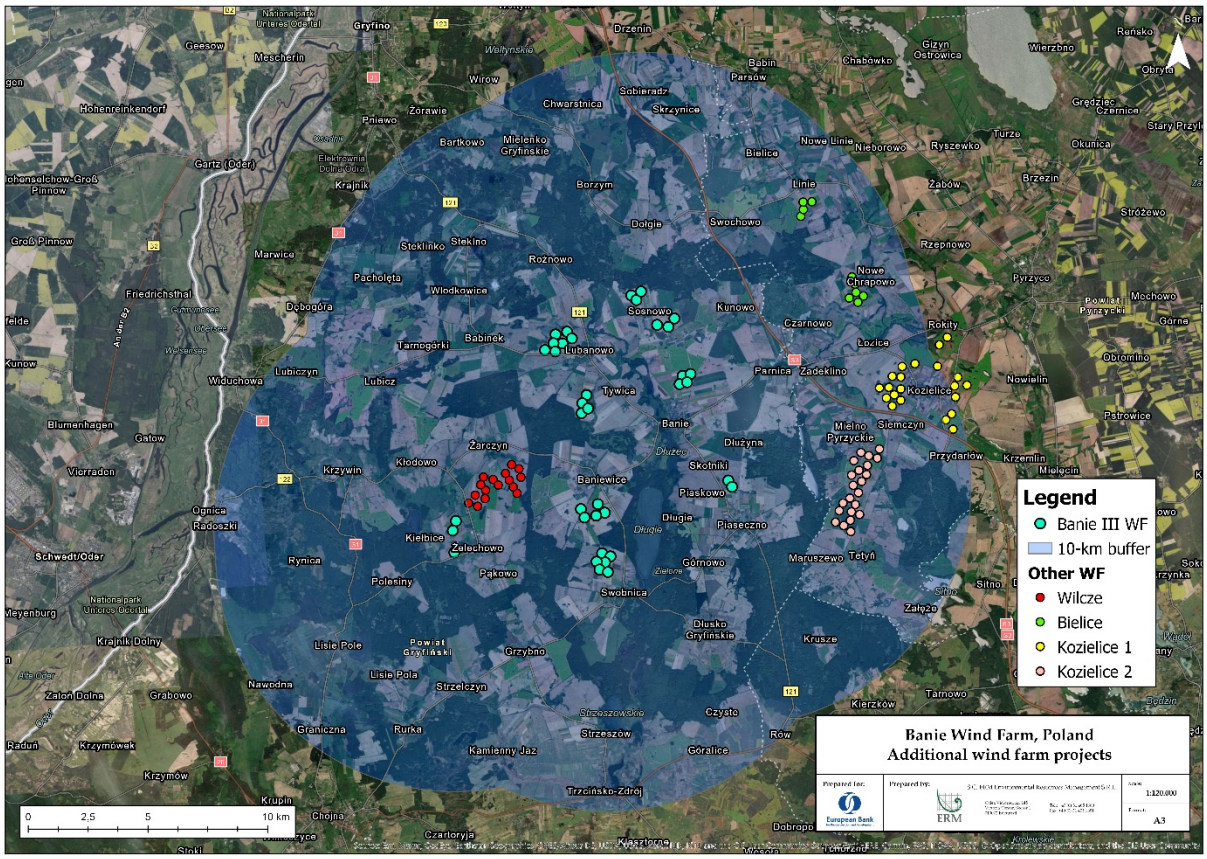
Introduction

EBRD Performance Requirement 1 (para. 9) and Performance Requirement 6 (para. 8) reference the need for the ESIA process to consider the cumulative impacts of the project in combination with impacts from other relevant past, present and reasonably foreseeable developments as well as unplanned but predictable activities enabled by the Project that may occur later or at a different location.

Furthermore, EC Directive (85/337/EEC) requires that in addition to undertaking an Environmental Impact Assessment of the project in isolation, cumulative impacts that may arise directly or indirectly from interaction with other projects must also be considered. Reference to cumulative assessment is also made within the Habitats Directive (92/43/EEC), although this tends to be more strictly associated with appropriate assessment procedures.

To assist the analysis of cumulative effects, the Client provided a list with the locations of Wind Farms Projects within a 10 km radius of the Banie 3 Project (Figure 4-2). All those projects, at the agreement and/or permitting stage, were included for consideration in the cumulative impact assessment .

Figure 4-3 Wind farm Projects within 10 km of the Banie 3 Project



Description of projects considered for the scope of the cumulative assessment

Within 10 km of the Banie 3 Project, there are four additional wind farms listed below:

- Kozielice Wind Farm (subproject of the original Banie Project that was divided into 3 separate phases), consisting of 43 wind turbines , located approx. 6.5 km E of Banie 3
- Bielice Wind Farm (subproject of the original Banie Project that was divided into 3 separate phases), consisting of 10 wind turbines , located approx. 4.5 km NE of Banie 3
- Wind farm located in proximity of Wilcze (subproject of the original Banie), not constructed, foreseen a future phase of Banie Project, consisting of 16 turbines, located approx. 1 km E from Banie 3 and
- Żelechowo Wind Farm, located S of the Banie 3, not constructed, consisting of 16 wind turbines.

Within the 10 km cumulative impact search radius, the additional wind farms will add approx. 85 WTGs to the 37 WTGs of the Banie 3 Project, for a total of 122 WTGs. Of these 85 WTGs, 53 are already operating, while the rest are in pre-construction or in agreement stages.

Cumulative impacts on flora and habitats

As Banie 3 lies outside of any protected areas and its entire associated land take is occurring in areas of agriculture land and ruderal communities, it makes no significant contribution to cumulative impacts on flora or on habitats.

Cumulative impacts on Annex IV species (other than bats)

There is no evidence of significant effects on other Annex IV species, although baseline surveys focused on bats and birds.

Cumulative Impacts on Bats

There has been increasing concern in Europe[7] at the potential impact wind turbines may have on bat populations. Risk factors identified include season (the majority of turbine fatalities occur in August to September), proximity to woodland edge, the susceptibility of bats to sudden changes in air pressure (death by bariotrauma)[8], and fatalities appear to be concentrated amongst a suite of bats adapted to open air foraging (*Nyctalus, Pipistrellus, Vespertilio* and *Eptesicus* spp.).

Various reasons for bats interacting fatally with turbines have been given, including searching out potential mating sites, tall turbines extending into the bat migration flyway, and turbines creating heat that attracts insects. Amongst the most recent theories, combining elements of much of the above, has been that turbines interfere with insect migration and cause a build up of insects that in turn attract bats[9].

Information on bats from other wind farms within the 10 km search area is limited. Additional monitoring data for the wind farms were not available to review. Available data for bats relates only to Banie region from monitoring that was undertaken for the period of 2016-2019. The following species have been recorded in the area:

- *Myotis daubentonii*
- *Eptesicus serotinus*
- *Pipistrellus pipistrellus*
- *Pipistrellus pygmaeus*
- *Pipistrellus nathusii*
- *Nyctalus noctula*

None of the species identified are listed under Annex II of Habitats Directive. The area investigated was assessed as not favourable to sustain important population of bats. Bat activity recorded was low (few number of flights and low diversity). The Sites of Community Importance located within 10 km do not have bat species as qualifying features. Therefore, Banie 3's contribution to cumulative bat mortality would be insignificant given the low numbers recorded, the nature of the site and the lack of bat species as qualifying features of Natura 2000 sites.

Cumulative Impacts on Migratory Birds

The EIA concluded that there was no cumulative impact on migratory birds as the other turbines were too distant to interact with Banie 3, although as noted this is based on a qualitative rather than CRM quantitative based assessment.

In the absence of such data, ERM used published data on average numbers per annum, per turbine to estimate the cumulative impact of the 122 turbines that will be operating within a 10km radius. A Canadian study[10] estimated an average of 8.2 birds killed per turbine per year, although it should be noted the range was 0-26. On this basis, the total cumulative annual bird loss from turbine collisions within 10km would be approximately 1000 birds per annum.

(1) Rodrigues, L., L. Bach, M.-J. Dubourg-Savage, J. Goodwin & C. Harbusch (2008): Guidelines for consideration of bats in wind farm projects. EUROBATS Publication Series No. 3 (English version). UNEP/EUROBATS Secretariat, Bonn, Germany.
(2) Baerwald, E. F., D'Amours, G. H., Klug, B. J. & Barclay, R. M. R. 2008. *Bariotrauma Is A Significant Cause Of Mortality At Wind Farms.* Current Biology 18 (16)
(3) Rydel, J., Bach, L., Doubourg-Savage, M-J., Green, M., Rodrigues, L. & Hedenström, A. 2010. Mortality of bats at wind turbines links to nocturnal insect migration? European Journal of Wildlife Research.

[10] Zimmerling, J. R., A. C. Pomeroy, M. V. d'Entremont, and C. M. Francis. 2013. Canadian estimate of bird mortality due to collisions and direct habitat loss associated with wind turbine developments. Avian Conservation and Ecology 8(2): 10

Population level effects are therefore unlikely, given this very low level of mortality, although it is known that some species are more susceptible than others (e.g. raptors), and that effects can vary between wind farms due to a variety of other factors such as habitat proximity and topography[11]. Equally, where the impact is disproportionately on SPA qualifying species, there is potential for effects to be more significant.

The EIA report recommendation is for monitoring to continue during the construction of the wind farm and for at least 5 years of post-construction monitoring. ERM would support this, but we emphasise the importance of using the VP methodology and CRM analysis to quantify effects, supported by a rigorous carcass-searching regime that includes scavenger removal and searcher efficiency calibration, and an ESAP with adaptive management and triggers for intervention.

Cumulative Impacts on Protected Areas

Banie 3 has no presence in any protected area and as such will not contribute to any direct loss of protected areas. The following Natura 2000 sites are located within 10 km:

- Sites of Community Importance (SCI): *Las Baniewicki* (PLH320064), *Dziczy Las* (PLH320060), *Dolina Tywy* (PLH320050), *Pojezierze Myśliborskie* (PLH320014), *Ostoja Wełtyńska* (PLH320069) and
- Special Protection Areas (SPA): *Jeziora Wełtyńskie* (PLB320018), *Dolina Dolnej Odry* (PLB320003), *Witnicko-Dębniańska* (PLB320015).

The data suggests that impacts on bats are insignificant and Banie 3 is unlikely to contribute to any cumulative losses likely to have a significant effect on Natura 2000 sites.

Nevertheless, effects on the neighbouring SPAs could occur through impacts to mobile qualifying species, which are using the air space and the habitat around the wind farm, several of them subject to Annex I of Birds Directive. All SPAs have the White-tailed eagle as qualifying species (for which mitigation measures were indicated in the EIA). Additional studies would be needed to conclude that the integrity of Natura 2000 sites is not affected by the wind farm activity.

The additional studies would also need to take into account the additional project components (e.g., roads, powerlines) that were not available during the original assessment.

With the exception of White-tailed eagle, where additional survey and assessment is recommended, it is unlikely cumulative effects would be sufficient to have an effect on qualifying species of the SPA's. Additional information to support that conclusion could be generated from existing data, if available and suitable or more likely from further vantage point based surveys during construction and post construction monitoring.

4.2.2 Noise

4.2.2.1 Baseline

No baseline data collection was previously being performed on site and its sensitive receptors.

According to Polish legislation and to IFC noise standards, the following noise limits are relevant:

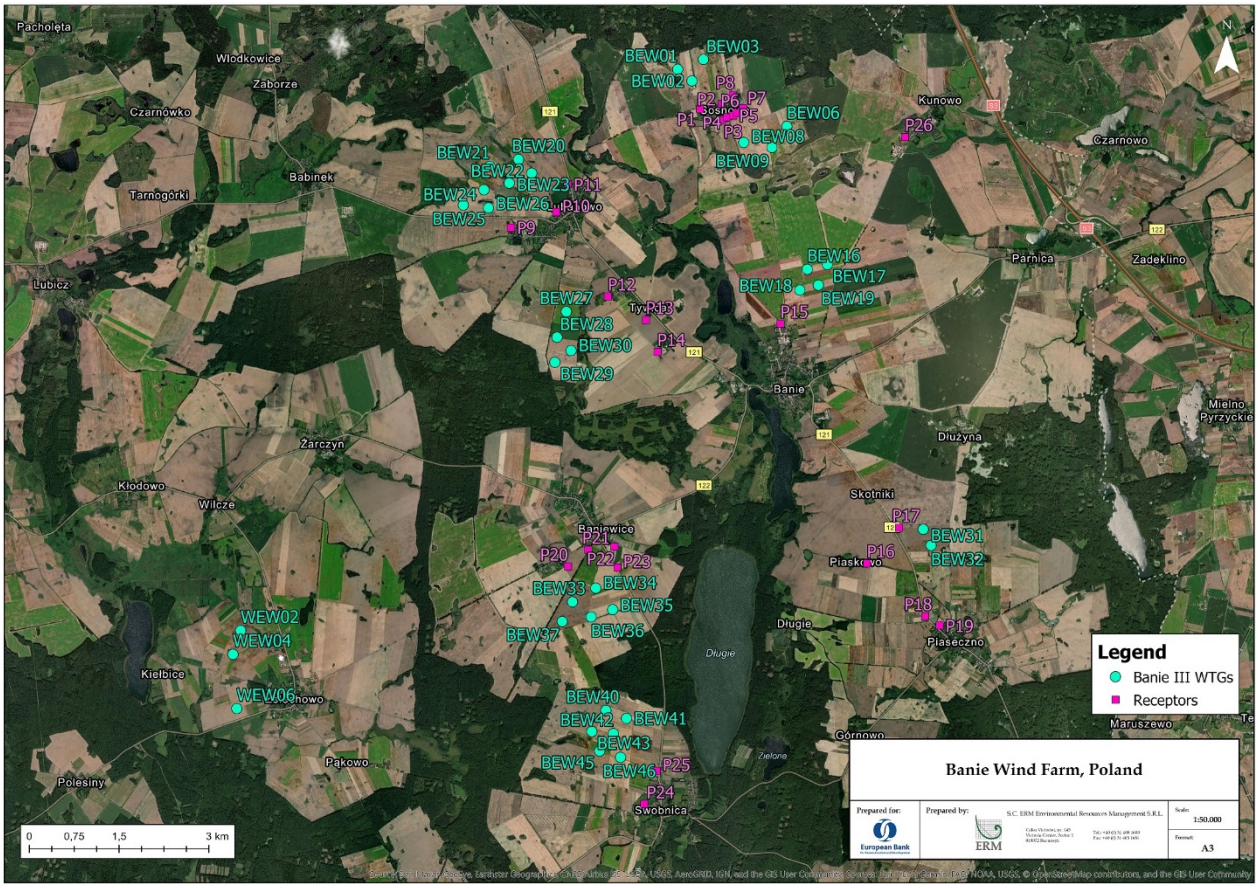
- 45 dB (A) during night time
- 55 dB (A) during daytime.

For the purpose of the noise modelling, the noise emission value near the residential receptors is 45 dBA.

[11] Thaxter CB et al. 2017 Bird and bat species' global vulnerability to collision mortality at wind farms revealed through a trait-based assessment. Proc. R. Soc. B 284:20170829.

The Project will be located on arable land, in the area of Babinek, Banie, Baniewice, Dłużyna, Kunowo, Lubanowo, Piaseczno, Sosnowo, Swobnica and Tywica villages, Banie and Widuchowa Communes, Gryfino County, Zachodniopomorskie Voivodeship, north-western Poland. The nearest house is located approximately 405 m west of WTG No. 31. The sensitive human receptors are presented in the figures below.

Figure 4-4 Sensitive receptors at the proximity of the WTGs



Source: ERM based on input data from Energix, October 2020

4.2.2.2 Impact Assessment

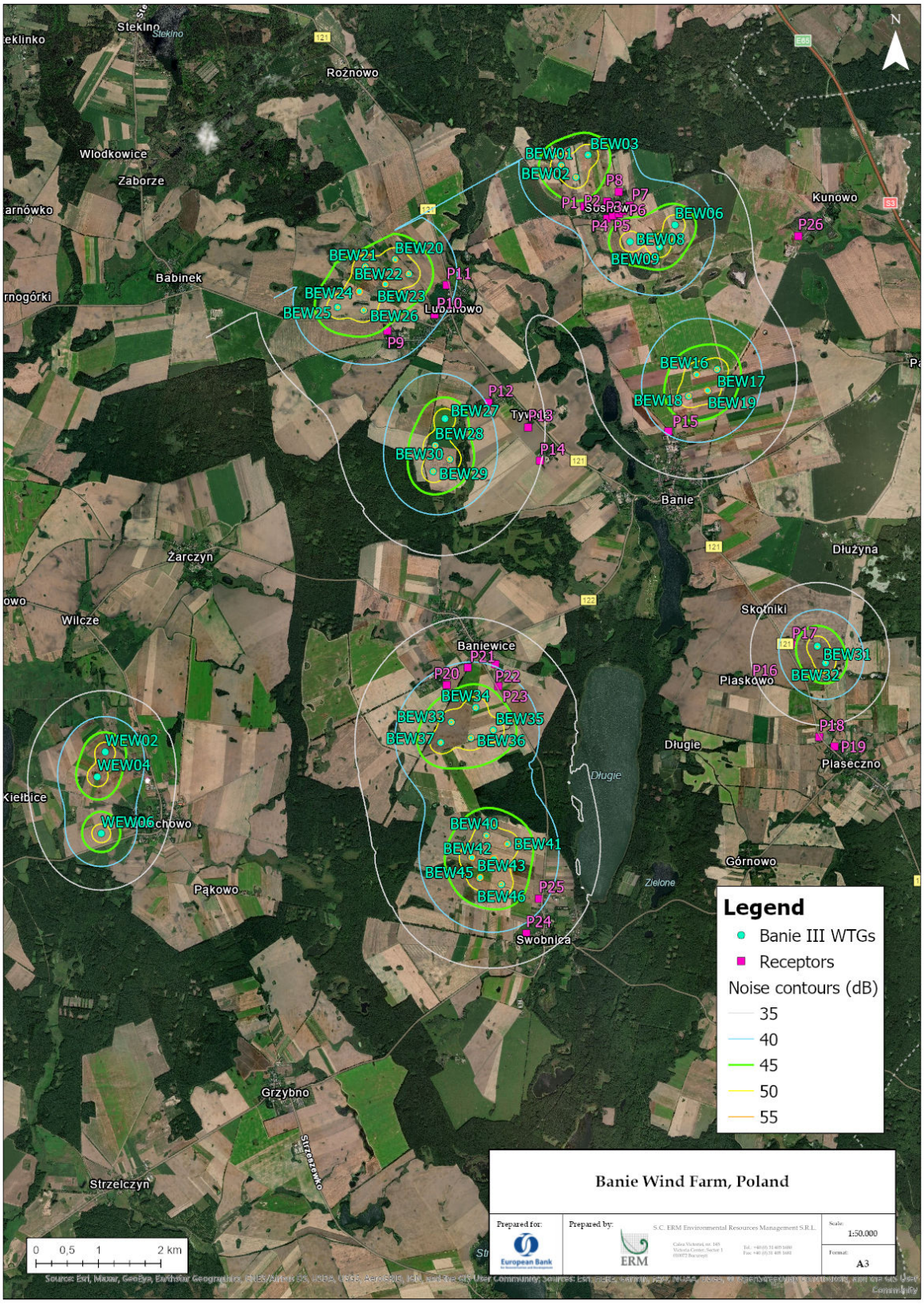
The noise emission model used in ERM's noise modelling report to predict wind farm noise levels at sensitive receptors is based on ISO 9613-2:1996 as implemented in the Prediction V2020 computer noise modelling software. The model predicts noise level through spherical spreading and includes the effect of air absorption (as per ISO 9613), ground attenuation and shielding.

The ground factor value of 0.5 and no meteorological correction were used for the calculations.

It was assumed that all WTGs would be operating in standard mode during day and nighttime, and that they would use the Serrated Trailing Edge.

Based on these specified noise source levels, the modelling documented in the study focused on wind speeds between (and including) 3 m/s to >10 m/s at hub height, to show the variation of noise levels at different wind speeds.

Figure 4-5 Operational Noise Contours (with serrated trailing edge Blades)



Wind farm noise predictions were undertaken at each of the representative receptors and show compliance with IFC and Polish limits.

All predicted noise levels have been rounded to one decimal place in Table 4-6 below.

Table 4-6: Predicted Operational Noise Levels for Highest Source Level

Scenarios	Receptor	Predicted Noise Level dBA	Compliance with criteria (45 dBA night-time)
All WTGs	**P1**	43.4	**Yes**
	P2	42.7	**Yes**
	P3	42.9	**Yes**
	P4	43.2	**Yes**
	P5	43.4	**Yes**
	P6	43.3	**Yes**
	P7	42.8	**Yes**
	P8	42.2	**Yes**
	P9	44.2	**Yes**
	P10	41.1	**Yes**
	P11	41.6	**Yes**
	P12	39.7	**Yes**
	P13	36.2	**Yes**
	P14	35.1	**Yes**
	P15	40.6	**Yes**
	P16	35.2	**Yes**
	P17	43.5	**Yes**
	P18	33.4	**Yes**
	P19	32.1	**Yes**
	P20	43.2	**Yes**
	P21	41.0	**Yes**
	P22	39.6	**Yes**
	P23	43.2	**Yes**
	P24	38.5	**Yes**
	P25	41.4	**Yes**
	P26	31.4	**Yes**

ERM, October 2020

Noise monitoring should be conducted regularly, particularly during the night-time, to check compliance with the noise criteria, and where exceedance are detected, mitigation measures are to be implemented.

The noise impacts are summarised for the operation of the Project in the table below, along with mitigation measures and residual impact.

No.	Impact Description	Impact Assessment	Mitigation Measures	Residual Impact
	Noise-related impacts on neighbouring residential areas	**Minor on local households, within IFC and Polish limits**	■ The company to further undertaken noise measurements campaigns during operation (especially during nighttime) to confirm the modelling results on minor impact. ■ Only in case of exceedances, additional measures to be established and implemented (e.g. double glazzing, limitation of operations during high winds, installing additional noise reduction equipment at turbines etc)	**Minor**

4.2.3 Shadow flicker

4.2.3.1 Baseline

IFC Guidelines report that the definition adopted in the EHS guidelines states that shadow flicker occurs when the sun passes behind the wind turbine and casts a shadow. As the rotor blades rotate, shadows pass over the same point causing an effect termed shadow flicker. Shadow flicker may become a problem when potentially sensitive receptors (e.g., residential properties, workplaces, learning and/or health care spaces/facilities) are located nearby, or have a specific orientation to the wind energy facility.

Key points identified in the IFC guidelines include:

- Potential shadow flicker issues are more likely at higher latitudes where the sun is lower in the sky and therefore are longer shadows that will extend the radius within which potentially significant shadow flicker impact will be experienced.
- If it is not possible to locate the wind turbines where neighbouring receptors experience no shadow flicker effects, it is recommended that the predicted duration of shadow flicker effects experienced at a sensitive receptor should not exceed 30 hours per year and 30 minutes per day on the worst affected days, based on a worst-case scenario.
- Recommended prevention and control measures to avoid significant shadow flicker impacts include siting wind turbines appropriately to avoid shadow flicker being experienced or to meet limits placed on the duration of shadow flicker occurrence or programming turbines to shut down at times when shadow flicker limits are exceeded.

The modelling presented in the 2019 local EIA including the defined criteria and parameters are in line with standard approaches adopted worldwide (sun probability, wind direction input etc). Both worst-case scenario and real-case models were run. Worst-case, as required by IFC, presents some exceedances but real-case scenario seems to reveal that the outcomes of the Worst Case are too conservative, as the values are reducing consistently. Concern is related to the representation of Nearby Receptors. Rather than mapping each single receptor, per each settlement a representative coordinate was identified and consequently results were mapped on such identified coordinates, rather than on each single receptor. This is not an accurate identification of the receptors, as there is no certainty that sparse and scattered single houses/dwellings were included in the model and overlapping with areas where shadow flickering is occurring more than the threshold (yellow areas on the map below, shadow flickering more than 25 hours/year).

4.2.3.2 Impact assessment

The impacts of Shadow Flicker are summarised for the construction and operation of the Project in the table below, along with mitigation measures and residual impact.

According to IFC, at each receptor, shadow flickering should not exceed 30 hours per year and 30 minutes per day on the worst affected days, based on a worst-case scenario. As per such consideration, there are evidences of potentially impacted receptors. The study performed also a real case scenario introducing sun probability and wind direction frequency, leading to confirm lower values and no impacted receptors. This is a reasonable approach, and demonstrate that shadow flickering have been taken into account in the design.

Performing the assessment by mapping all the receptors within the area of influence (i.e. ten times the rotor diameter) can provide more robustness to the study and to the final assessment. However, it should be noted that based on the footprint of the shadow flickering yellow class (values more than 25 hours) and the google earth imagery, it seems that receptors will not be impacted (unfortunately this is not a robust assessment, but only a visual qualitative check).

Due to the distance of the proposed projects, ERM expects no cumulative impacts will occur, unless other windfarm are foreseen or have been built in the area.

No.	Impact Description	Impact Assessment	Mitigation Measures	Residual Impact
1	Shadow flicker may become a problem when potentially sensitive receptors (e.g., residential properties, workplaces, learning and/or health care spaces/facilities) are located nearby, or have a specific orientation to the wind energy facility.	**Moderate impact on human health**	■ Rather than re-run the modelling, ERM suggests to overlay the modelling results with receptor layers identified using updated satellite imagery in order to confirm no receptors are located within impacted areas. Receptor layer will also take into consideration the urban expansion occurred in the area, if any. ■ As shadow flickering is something that can be confirmed only once in operation, ERM recommends to use the external **grievance mechanism** to record potential occurrence of the phenomenon and monitor closely in case of Shadow flickers complains. No need at this stage to commit to any specific mitigation measures.	**Minor**

4.2.4 Ice and blade throw risk

4.2.4.1 Baseline

The blade and ice throw are considered as a potential impact on humans, which can be generated by the operating wind farms. Even if not regulated by Polish law, the calculations of the ice and blade should be conducted in order to verify the ranges of the possible blade and ice throw risk.

The ice throw risk may occur when ice generated on the turbine blades under certain meteorological conditions is thrown away of the blade, driven by centrifugal force. According to the guidelines provided by the Wind Energy Production in Cold Climate (Cavaliere et al., 1997), the formula suggested for calculating the maximum ice throw range is as follows:

1.5 * (hub height + rotor diameter) = the maximum throw range

The blade or part of blade throw risk may occur for example if the blade structure is affected by ice or production error or, if an accident caused e.g. by fire or thunder strike occurs while the blades rotate. Damaged part of the blade or entire blade is then thrown away by centrifugal force. Theoretically, the throw range can be calculated based on the kinematic of angular throw, which, for given WTGs correspond to a maximum range of throw of some 1500 m. However, in real conditions the thrown blade or its part is still subject to aerodynamics forces and air resistance and actual distances of throw are typically shorter, which was proved both numerically and by observations of real accidents. Literature sources[12], a throw range for approximately 100 m tall WTG is approximately equal to WTG overall height for entire blade, and 2.5 times WTG height for part of it.

The calculations conducted for the Banie 3 Project took into account that the planned Vestas110 WTGs have a hub height of 120 m, with the following results:

- Ice throw range will be approximately 360 m;
- Blade throw range will be approximately 480 m.

As a part of this supplementary study, ERM conducted additional calculations for all WTGs and analysed the risk and impact of ice and blade throw against the nearest roads, both dirt and asphalt ones. Table 4-7 below presents the distances to the nearest roads as well as risk classification:

- Green colour stands for no risk – neither dirt nor asphalt road is located within the range of ice and blade throw risk;
- Yellow colour stands for low risk – dirt road between villages or internal dirt road on an agricultural land are located within the range of ice and blade throw risk;
- Orange colour stands for high risk – asphalt road is located within the range of ice and blade throw risk.

It should be noted that based on the site visit observations as well as review of the online maps, **no residential areas are located within the ranges of ice and blade throw risks.**

Table 4-7 Ice and blade throw risk calculation

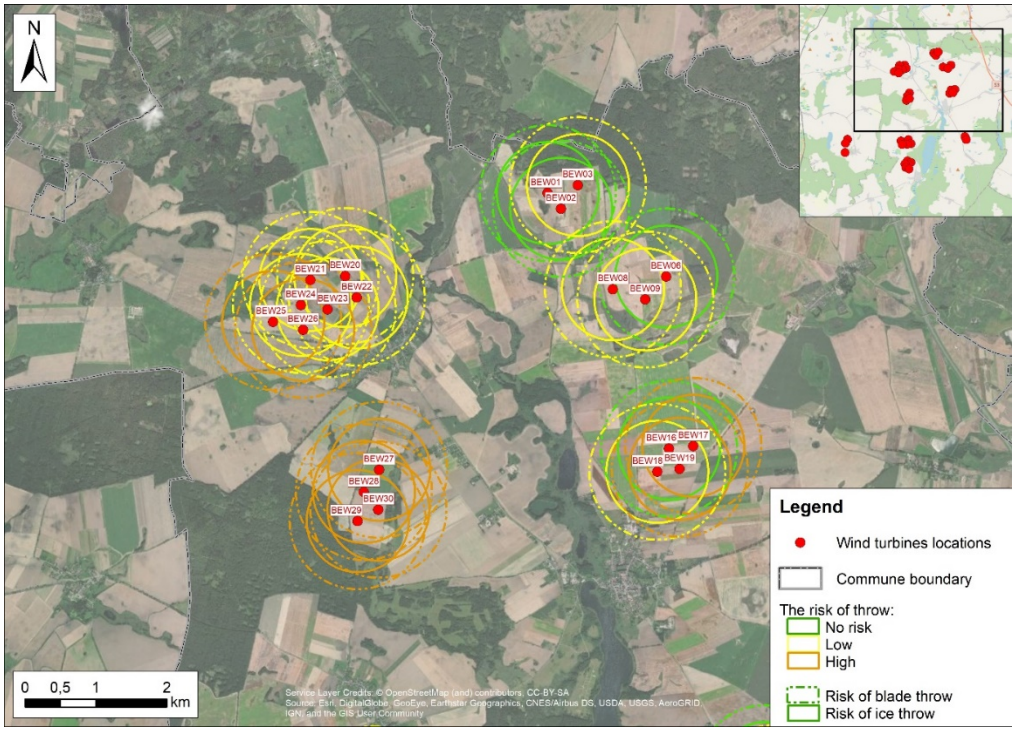
Commune	WTG	Distance to the nearest road [m]	Road	Risk
Banie	BEW01	500	road located to the west of WTG No. 1	no risk
	BEW02	560	road located to the west of WTG No. 2	no risk

[12] Presentation of Mr. Scott Larwood of California Wind Energy Collaborative presentation (2004)

Commune	WTG	Distance to the nearest road [m]	Road	Risk
	BEW03	360	road between Sosnowo and Dołgie and to the east of WTG No. 3	ice and blade
	BEW06	530	road to the south east of Sosnowo village and to the west of WTG No. 6	no risk
	BEW08	380	road to the south east of Sosnowo village and to the east of WTG No. 8	blade
	BEW09	50	road to the south east of Sosnowo village and to the west of WTG No. 9	ice and blade
	BEW16	450	road between Banie and Sosnowo, to the west of WTG No. 16	blade
	BEW17	290	road between Banie and Kunowo, to the east of WTG No. 17	ice and blade
	BEW18	280	road between Banie and Sosnowo, to the west of WTG No. 16	ice and blade
	BEW19	260	road between Banie and Kunowo, to the east of WTG No. 19	ice and blade
	BEW20	50	road to the north east of WTG No. 21	ice and blade
	BEW21	40	road to the west of WTG No. 21	ice and blade
	BEW22	100	road to the east of WTG No. 22	ice and blade
	BEW23	130	internal dirt road on an agricultural land, to the north west of WTG No. 23	ice and blade
	BEW24	22	internal dirt road on an agricultural land, to the north east of WTG No. 24	ice and blade
	BEW25	200	road between Lubanowo and Babinek, to the south of WTG No. 20	ice and blade
	BEW26	150	road between Lubanowo and Babinek, to the south of WTG No. 26	ice and blade
	BEW27	226	road between Lubanowo and Baniewice	ice and blade
	BEW28	121	road between Lubanowo and Baniewice	ice and blade
	BEW29	131	road between Lubanowo and Baniewice	ice and blade
	BEW30	390	road between Lubanowo and Baniewice	blade
	BEW31	454	road between Dłużyna nad Piaseczno	blade
	BEW32	311	road between Dłużyna nad Piaseczno	Ice and blade
	BEW33	118	road between Baniewice and Pniewko	ice and blade
	BEW34	57	road to the west of WTG No. 34	ice and blade

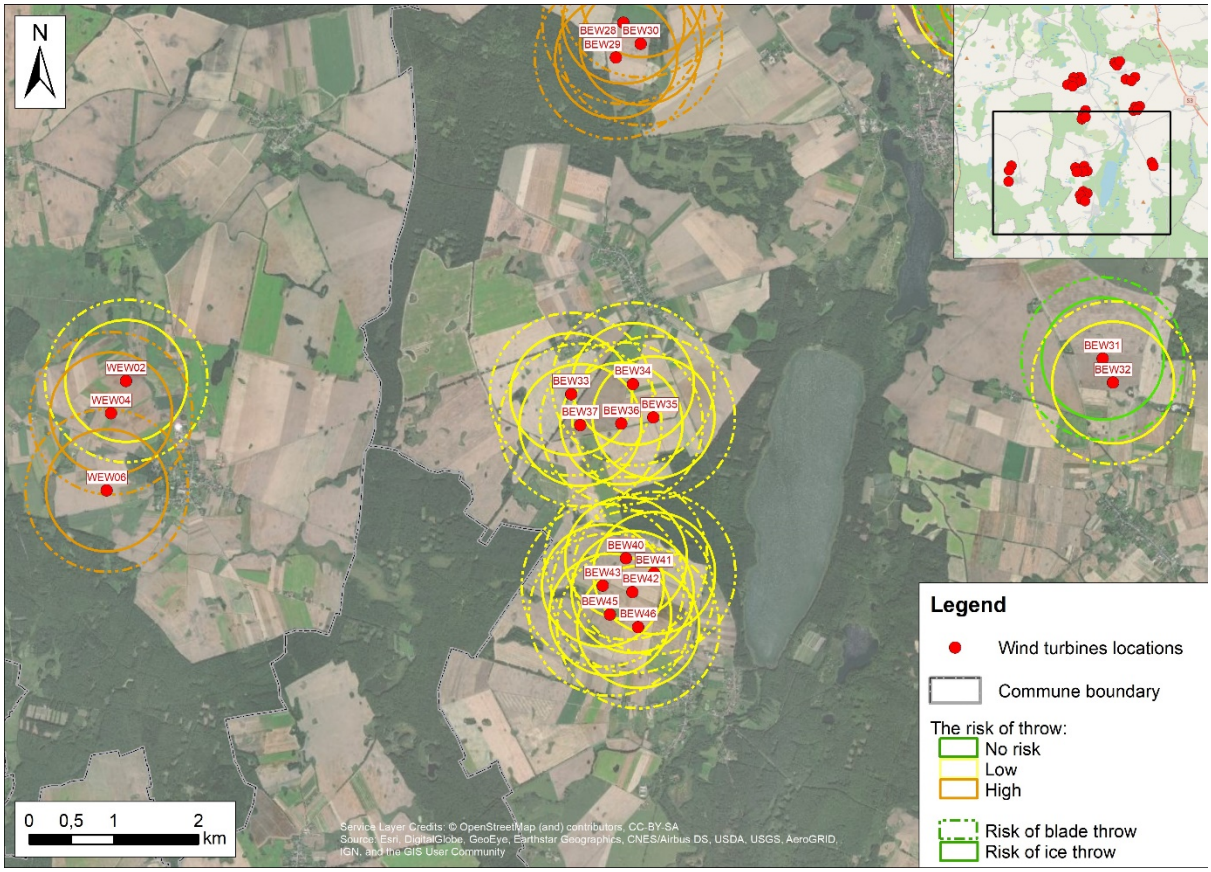
Commune	WTG	Distance to the nearest road [m]	Road	Risk
	BEW35	40	road to the south of WTG No. 36	ice and blade
	BEW36	54	road to the south of WTG No. 36	ice and blade
	BEW37	182	road between Baniewice and Pniewko	ice and blade
	BEW40	46	road to the west of WTG No. 40	ice and blade
	BEW41	137	road to the south east of WTG No. 41	ice and blade
	BEW42	35	road to the south of WTG No. 42	ice and blade
	BEW43	40	road to the south west of WTG No. 43	ice and blade
	BEW45	30	road to the south west of WTG No. 43	ice and blade
	BEW46	25	road to the south of WTG No. 46	ice and blade
Widuchowa	WEW02	157	road to the south west of WTG No. 02	ice and blade
	WEW04	360	road between Żelechowo and Kiełbice	ice and blade
	WEW06	192	road between Żelechowo and Polesiny	ice and blade

Figure 4-6 Banie 3 Ice and Blade throw risk ranges (north)



Source: *ERM (September 2020)*

Figure 4-7 Banie 3 Ice and Blade throw risk ranges (south)



Source: *ERM (September 2020)*

4.2.4.2 Impact assessment

The impacts of potential ice and blade throw are summarised for the operation of the Project in the table below, along with mitigation measures and residual impact.

No.	Impact Description	Impact Assessment	Mitigation Measures	Residual Impact
1	The blade and ice throw are considered as a potential impact on humans, which can be generated by the operating wind farms.	**Moderate impact on human health**	■ Ensure that warning signs are located at the entrance to the WF's area, are all the time in place at the entrance to each WTG; ■ Perform periodical checks of each WTG location with focus on safety and warning signs condition; ■ Ensure appropriate public communication and ongoing engagement with local Authorities as well as local inhabitants in order to be able to respond to any issues related to ice and blade throw risk immediately.	**Minor**

4.2.5 Cultural heritage

4.2.5.1 Baseline

There are numerous protected heritage assets in the vicinity of the proposed wind turbines. The spatial/visual relationship between the development and these monuments is,however, not clearly articulated. In particular, there are no maps showing the proposed development in relation to these protected sites.

The region of the Szczecin Lowlands – well-watered and fertile – Iis rich in archaeological heritage including, for example, large numbers of prehistoric monumental burial sites. There has been very extensive development in Western Pomerania in recent decades, including the construction of the S3 motorway in the 2000's which involved large-scale pre-construction archaeological works. These identified large numbers of buried archaeological sites of all periods – prehistoric, Roman and medieval – throughout the corridor which runs 3.5+ km to the east of the proposed wind turbines. Given that the proposed wind farms are going to be constructed in an equivalent landscape immediately to the west, it is reasonable to conclude that a similar density of archaeological sites exists within the wind farm development area.

The lack of data with regard to both Protected Monuments and buried archaeology within the EIA fails to meet the requirements set out in Paragraph 10 of EBRD PR8.

4.2.5.2 Impact assessment

Significant impacts are summarised for the construction and operation of the Project in the table below, along with mitigation measures and residual impact.

No.	Impact Description	Impact Assessment	Mitigation Measures	Residual Impact
1	There are numerous protected heritage assets in the vicinity of the proposed wind turbines.	**Moderate impact on designated monuments**	■ While the conclusions that there will be no impact on designated monuments appears to be accurate, this should be backed up by a map showing the turbines and all associated wind farm infrastructure and the nearest designated assets. ■ Additionally, a chance find procedure is to be put in place prior starting any construction works.	**Minor**
2	There are large numbers of buried archaeological sites of all periods – prehistoric, Roman and medieval – throughout the corridor which runs 3.5+km to the east of the proposed wind turbines.	**Moderate impact on cultural heritage**	■ Provincial Conservator of Monuments should be consulted to ascertain the presence and likely extent of buried archaeology – as well as the location and extent of any protected archaeological areas - within and close to the proposed windfarm development area. This information should be mapped along with all available spatial details of the windfarm development, including the alignment of access tracks, and supporting infrastructure such as electrical substations and control buildings.	**Minor**

4.2.6 Socio-economic assessment

4.2.6.1 Baseline

The Social Area of Influence (AoI) of the Project that has been defined to include the major communities potentially to be affected by the Project is as follows:

- Banie commune: Banie, Baniewice, Lubanowo, Piaseczno, Sosnowo, Swobnica, Kunowo, Tywica villages affected by land take;
- Widuchowa commune: Żelechewo village, affected by land take.

No socio-economic baseline was conducted for the Project to date. The below data has been collected from public information available online and from data provided by commune authorities, following ERM's request during the site visit informing this assignment. The baseline includes the two communes in their entirety, as information at settlement-level could not be collected, given the resources and time constraints of this assignment.

Banie and Widuchowa are rural administrative districts of Gryfino County, West Pomeranian Voievodship, in north-west Poland next to the German border.

Banie commune covers an area of 206 km^2 and has its seat in the village of Banie, located approximately 21 km south-east of Gryfino and 36 km south of the regional capital Szczecin. It includes 19 settlements, out of which 15 have a village council: Babinek; Baniewice; Dłusko Gryfińskie; Dłużyna; Górnowo; Górny Młyn; Kunowo; Lubanowo; Otoki; Parnica; Piaseczno; Piaskowo; Rożnowo; Skotniki; Sosnowo; Swobnica; Trzaski; Tywica.

Widuchowa commune covers an area of 201 km^2 and has its seat in the village of Widuchowa, located approximately 15 kilometers south west of Gryfino and 35 km south of the regional capital Szczecin. It includes 21 settlements, out of which 14 have a village council: Bolkowice, Czarnówko, Dębogóra, Kiełbice, Kłodowo, Krzywin, Krzywinek, Lubicz, Lubiczyn, Marwice, Ognica, Pacholęta, Pąkowo, Polesiny, Radoszki, Rynica, Tarnogórki, Widuchowa, Widuchówko, Wilcze, Żarczyn and Żelechowo.

Land use in the area presents a similar structure, with 50% or more of the total surface being used for agriculture and benefitting from comparable lenght of road networks – see Table 4-8 below for more details.

Table 4-8 Land use in Banie and Widuchowa communes

Commune	Total area (ha)	Agricultural land area (ha)	Built-up land area (ha)	Total area of watercourses (ha)	Total area of communication roads (ha)
Banie	20,600	12,636	38,0	789	494
Widuchowa	20,945	9,465		1,125	429

Source: ERM 2020, based on information provided by communes

According to the information provided by Widochuwa commune, 80% of the agricultural land is arable, followed by 11% hayfields and a limited amount of pastures, complemented by 6,699 ha of forest. According to data provided by the Szczecin Statistics Office, 26% of total land and Banie and 31% of total land in Widochuwa is covered by forest.

No information was made available regarding the crops cultivated in the two communes, but the field observations reflected the information available voievodship level[13] with regard to main crops: cereals

[13] Source: https://szczecin.stat.gov.pl/publikacje-i-foldery/rolnictwo-lesnictwo/rolnictwo-w-wojewodztwie-zachodniopomorskim-w-2019-r-,2,15.html

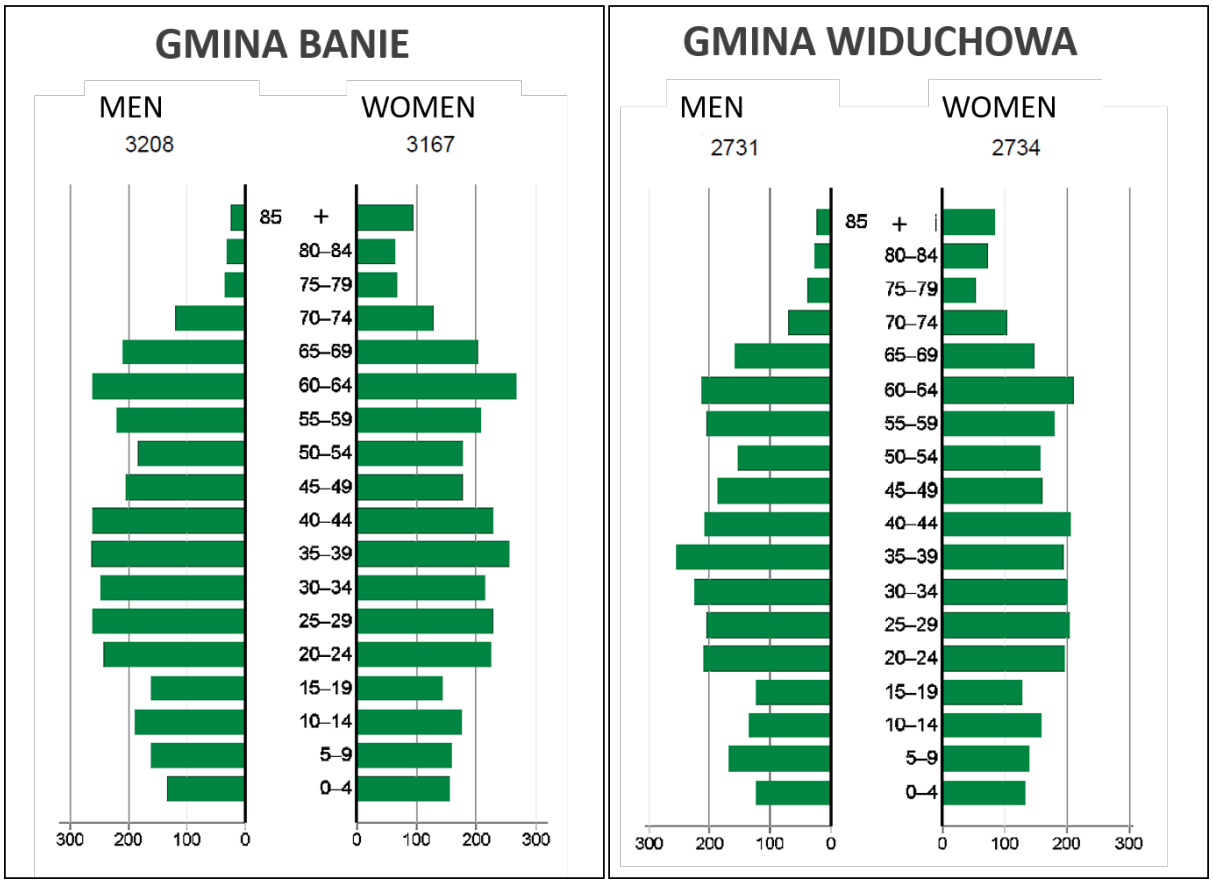
(wheat, rye, barley, buckweat, triticale, millet), vegetables (poteatoes, sugar beets, turnip). Public revenues from agriculture were below the public expenditures in 2018 for both communes[14]. Similarly, a low number of companies are registered in both communes (20 in Widuchowa and 41 in Banie), in the field of agriculture.

In terms of demographics, in 2018 both communes presented a negative migration balance and negative natural increase and a similar age and gender distribution – see Figure 4-8 below.

The percentage of population of working age from the total population is 62% for Banie, respectively 63% for Widuchowa. The unemployment rate has been dropping between 2016 and 2018, according to data made available by Szczecin Statistics Office, reaching 5.1% for Banie, respectively 5.8 % of the active population for Widuchowam slightly higher than the 3.8% national average rate in Poland that year; out of these, more than 70% are women.

290 families from Widuchowa and 351 families from Banie receive childcare benefit.

Figure 4-8 Demographic age and gender distribution (2018)



Source: ERM 2020, adapted from the Szczecin Statistics Office

No details were available at the commune level for ethnicity and language, however it is to be noted that at the 2011 national census, only 1.44% of the 39 million inhabitants of Poland declared to be descendants of another single ancestry than Polish. West Pomeranian Voievodship is not considered a place of residence for the major ethnic minorities groups (Germans, Belorussian, Ukrainian, Lemko, Roma, and the ethnic Jews), thus it can be assumed both communes are inhabited by a largely Polish

[14] In 2018, Banie commune reported revenues from agriculture of 3.4% and an expenditure budget of 11.3%.

population and of Roman-Catholic religion[15]. A church is present in every settlement, according to the information provided by the communes, with no confessions or ethnic or religious conflicts being reported.

In terms of health facilities, no hospital or polyclinics are available, however in each seat of the commune there is a medical dispensary and a pharmacy. Additionally, Widuchowa village benefits from two doctor's offices and two dental practices and Banie has one doctor office and two dental practices.

Both commune benefit from pre-school and primary school units, with secondary schools shutting down in 2017, according to data provided by the Szczecin Statistics Office – see Table 4-9 below for more details.

Table 4-9 Education facilities

Commune	Pre-school facilities, including kindergardens	Primary schools	Secondary schools	High schools
Banie	4	3	None operating since 2017	not applicable
Widuchowa	4	4	None operating since 2017	not applicable

Source: ERM 2020, adapted from the Szczecin Statistics Office

Additionally, 2 public libraries exist in Widuchowa and 3 in Banie commune.

Cultural activities have not been reported in Widuchowa in 2018, according to Szczecin Statistics Office, but they were reported for Banie: 25 parties with 2995 participants and 1 club with 42 members. Additionally, Widuchowa benefits from one sports club hosting 56 members, 3 coaches and 1 sports instructor, whilst Banie has 6 clubs, 252 members, 5 coaches and 4 sports instructors.

Both communes benefit from a road network consisting of national (S3), province (DW122 and DW121), county and communal roads. The national roads is asphalt, as are some portions of county and communal roads. The remaining county and communal roads are paved or dirt roads. According to commune representatives, the national road is in good condition, however most county roads are to be upgraded. In Banie, the communal roads are confirmed to be in good condition, however in Widuchowa they appear to be in a bad condition and undergoing works in 2020.

Drinking water is supplied in both communes, managed by Zachodniopomorskie Water Network, via a steel pipeline. Water treatment stations exist in both communes. In Banie commune there are three wastewater treatment plants: Banie (modernization 2020), Lubanów (year of construction 2015) and in Babinek (year of construction 2017). In Widuchowa, one station was reported by the Statistics Office. Details regarding percentage of the population that is connected to the network vary among our sources, the commune authorities reporting a connection of 100% to water supply, yet the Szczecin Statistics Office reports different numbers for 2018 – please see Table 4-10 below for more details.

Natural gas supply is not available, homes are heated in winter via individual heating stoves.

Table 4-10 Access to utilities

% of total population using:		2016	2017	2018
Commune Banie	Water supply	92.8	92.8	91.4
	Sewerage	49.5	49.5	43.6

[15] Source: https://eacea.ec.europa.eu/national-policies/eurydice/content/population-demographic-situation-languages-and-religions-56_en

	Gas	-	-	-
Communee Widuchowa	Water supply	99.9	99.9	99.9
	Sewerage	33.4	33.4	33.0
	Gas	0.1	-	-

Source: ERM 2020, adapted from the Szczecin Statistics Office

Banie commune is supplied with electricity by ENEA and more than 80% of its inhabitants are connected to cable TV and internet services.

People who by virtue of gender, locality, age, physical or mental disability, economic disadvantage, or social status may be more adversely affected by the Project than others and who may be limited in their ability to claim or take advantage of support measures and development benefits are considered to be vulnerable groups.

Vulnerable groups among the Project affected population were not identified to date and in the absence of field data collection exercises or local engagement, it is difficult to define them at this stage. In this context, the following groups could potentially be identified as vulnerable:

- women-headed households and disabled persons who rely on the support of other residents of their villages and/or on government support and who are affected by the Project (eg loss of land, limited freedom of movement during construction due to safety issues);
- farming households affected by land take, relying on agriculture as main or only economic activity, with overall low competiveness on the labour market. However, these people are expected to only be affected temporarily during the construction phase when farming activities could be more limited;
- female employees with low skills, who are expected to have significantly limited or no access to alternative sources of income if they are affected by the Project (eg losing their farming jobs);
- poor people dependent on other villagers or the state for their livelihood.

Vulnerable groups should be considered in a targeted way with mitigation and support measures and through continuous consultation in order to assure meaningful implementation of all types of compensation, support and development measures.

Perception of commune authorities towards the project has been confirmed to be very positive.

4.2.6.2 Impact assessment

Potenntial socio-ecomonic impacts are summarised for the construction and operation of the Project in the table below, along with mitigation measures and subsequent residual impact.

No.	Impact Description	Impact Assessment	Mitigation Measures	Residual Impact
1	Community cohesion: tensions could arise due to the unequal distribution of benefits. Landowners have direct financial benefits; the rest of the community may experience some inconvenience / disturbance during the construction/ operation and not receive any kind of compensation.	**Minor**	■ A community investment plan to be co-created with local stakeholders and disseminated in the community. ■ Ultimately, ERM's recommendation is for Banie 1, I2 and 3 to have a common approach and leverage the community investment efforts for maximising the local impact. ■ An accessible, transparent and effective community grievance mechanism will ensure an open dialogue with community members, who will have the opportunity to raise their concerns and benefit from timely resolution.	**Negligeable**
2	Damage and disruption to road transport and infrastructure. The main potential impacts on the local road network as a result of project construction activities (transport of personnel, material and equipment, waste disposal, etc.) are disruption to traffic and transportation due to road crossings, and damage to local roads from heavy truck movement to and from construction sites, worker camp, etc. Disruption to road infrastructure and reduced access due to road cuttings could result in impacts to livelihood or quality of life and if unmanaged properly and in time, could result in health impacts (eg inability to pass roads in an emergency etc.).	**Moderate**	■ The Project will maintain the existing road network by keeping it open to the public during construction through the use of diversions if/ when closure or restriction of a given road is required. Where roads are closed, local solutions (including diversions if necessary) will be put in place. Project Manager will be present at work fronts to ensure that impacts from planned disruptions are minimised. ■ Addtionally, the ESMP to be created for the Project will include a Traffic Management Plan.	**Minor**
3	The Project will generate tax revenue for the local and national budget. Tax revenues will be generated through VAT, income taxes and	**Positive impact**		**Remains positive**

No.	Impact Description	Impact Assessment	Mitigation Measures	Residual Impact
	corporate taxes on expenditures, operational and corporate revenues and incomes of employees.			
4	**Employement opportunities and procurement services**: the construction of the wind farm may result in temporary employment via contractors and subcontractors and indirect opportunities supplying goods and services for the approximately 50 workers on site.	**Positive impact**	■ Subcontractors will be encouraged to employ local personnel. ■ Supply-chain opportunities for local people/businesses will be facilitated via the Project Manager/ Construction Manager/ Operation Manager and local authorities. ■ Local employment and purchasing policies will be adopted, establishing tenders for procurement of subcontracted goods and services at a scale that local businesses can respond to, ensuring opportunities are advertised locally, and providing training for local people to allow them to obtain jobs/ contracts with the Project as much as possible.	**Remains positive**
5	**Potential loss of crops for formal and informal land users** during the construction period.	**Minor**	■ The Company will inform each land owner individually with regards to the planned construction works. Compensation for potential lost crops will be provided, as confirmed by provisions the land lease agreements.	**Negligeable**
6	**P**otential double economic displacement of some people in relation to the other wind farms developed in the area.	**Moderate cumulative impact**	■ The Company will widely disseminate the Stakeholder Engagement Plan and the grievance mechanism, allowing for land related concerns to be raised by each potentially affected land owner.	**Minor**

4.2.7 Land acquisition and compensation

4.2.7.1 Baseline

The land use Area of Influence (AoI) is defined as the area likely to be affected by the Project activities during the construction and operation of the Project.

Land affected communities for the construction of the wind turbines, MV line and GPZ station are:

- Banie commune: Banie, Baniewice, Lubanowo, Piaseczno, Sosnowo, Swobnica, Kunowo, Tywica villages;
- Widuchowa commune: Żelechewo village.

The 48 land plots that will host the turbines, substation, internal access roads and MV cable line are all agricultural land of medium grade, secured via voluntary lease agreements with private owners.

No public land will be used to host permanent project components; the connection of the internal roads to public roads will be realised via easement agreements with the commune authorities for existing dirt roads with public status.

Although unlikely, it is uncertain at this stage if the construction will require the setup of a construction camp. This would be established and managed by the BoP contractor and would most probably be located in the same settlements as the wind farm.

No primary data collection has been undertaken to support a socio-economic baseline and land use study of the localities within the AoI as part of the formal impact assessment process. Moreover, land use was not assessed as part of previous EIA process. During ERM's site visit in September 2020, it was observed that some of the internal public roads to be used by the project were cultivated.

4.2.7.2 Impact assessment

Significant impacts are summarised for the construction and operation of the Project in the table below, along with mitigation measures and residual impact.

No.	Impact Description	Impact Assessment	Mitigation Measures	Residual Impact
	Effects on livelihood from farming activities resulting from economic displacement as a result of loss of assets or access to them, loss of employment or other aspects of livelihood, welfare and/or amenity, due to direct changes in land use on which the windfarm will be located	**Moderate impact on Livelihood and Economic Displacement**	■ Beginning of works and removal of topsoil will be communicated in advance and will take place after the year's harvest. The company plans a meeting with all land owners as soon as the construction schedule is confirmed. In case damage to existing crops is produced, it will be compensated. ■ Legitimate requests of local people regarding the avoidance and/or minimization of the restriction of access between their settlement areas and agricultural lands will be considered by the Project Sponsors' design team and feasible solutions will be developed and implemented, where possible. ■ Develop a Compensation Procedure at corporate level to ensure transparent and consistent compensation through implementation of standards across all company projects, which will include both accidendal damage and termporary land use provisions. ■ Impacts to agricultural lands will be minimised as far as possible by keeping the Project construction footprint as narrow as possible, and efficiently restoring any damaged areas, according to the environmental decisions conditions, building permits and land lease agreements. ■ An effective external grievance mechanism will enable all land related queries and concerns to be addressed and managed in a timely and appropriate manner.	**Minor**
	Potential double economic displacement of some people in relation to the other wind farms developed in the area.	**Moderate cumulative impact**	■ The company to engage with the local communities on regular basis, and disseminate the grievance mechanism to ensure all issues are raised and dealt with in a timely manner.	**Minor**

4.3 Further environmental and social actions to be implemented

Energix will comply with the Laws of Poland and with local EIA decisions and will additionally implement the environmental and Social Action Plan (ESAP) as agreed with the Lenders, which will be, to the extent possible, in line with previously agreed ESAPs with EBRD for the previous Banie WF stages.

ERM recommends the following additional actions to help bring the Project in conformance with the Applicable Standards.

Corporate environmental and social standards and capabilities

- Define an Environmental and Social Policy for Energix Polska, which would provide the environmental and social objectives and principles that guide the company's performance. Incorporate environmental and social principles and commitments made in this Policy into contractual arrangements with contractors in Poland.
- Develop and implement a Corporate-level Environmental and Social Management System, to be further cascaded down at the level of each windfarm, as appropriate to the nature and scale of the respective project, with the aim of ensuring a coordinated process of implementing environmental and social requirements for each development project, embedding the developer's main operational activities at the same time.
- As part of the ESMS to be developed, design and implement a procedure for assessing environmental and social risks associated with contracted works and services. Develop a procurement procedure to include clear selection criteria for contractors, including past performance with regard to labour and health & safety as well as key requirements which selected contractors will have to meet in terms of EHSS.
- Develop a Contractor Management Plan as part of the Corporate-level ESMS, which should include the established mechanisms, such as internal inspections and audits, to verify compliance and progress towards the desired project outcome
- Develop a set of topic-specific Management Plans / Framework Plans- MPs (either as standalone MPs or few MPs combining several topics) to document how Project-related impacts will be managed during construction and, subsequently, during operation. The requirements set out in these Management Plans will then be the basis for the Construction Contractor's own and more detailed Management Plans. Examples of such plans include, but are not limited to: Community Health and Safety and Occupational Health and Safety Management Plans, Emergency Preparedness and Response Plan, Traffic Management Plan. The Occupational Health and Safety Management Plan is to also address measure to ensure prevention and protection of both direct and contracted workers against COVID-19. Energix Polska could delegate preparation and implementation of these management plans directly to its contractors in charge with construction and operation of the Project. Such delegation will be clearly establish through the contracts between Energix and the Contractors. Energix will assure regular (at minimum quarterly during construction and biannual during operation) monitoring of implementation of the management plans. If needed, as a results of the audits, Energix will impose to the contractors corrective measures.
- Designate specific personnel, including management representative(s), with clear lines of responsibility and authority to maintain and implement the defined ESMS. Required personnel is estimated to include, as a minimum, an Environmental (and Social) Manager and an OHS Manager. Additionally, Community Liaison Officer(s) are required. Energix Polska could delegate these roles and responsibilities directly to its contractors in charge with construction and operation of the Project. Such delegation will be clearly establish through the contracts between Energix and the Contractors. Energix will assure regular (at minimum quarterly during

construction and biannual during operation) monitoring of implementation of the EHS local regulations and international standards /good practices. If needed, as a results of the audits, Energix will impose to the contractors corrective measures.

- Once defined, the key environmental and social responsibilities will be communicated to the relevant personnel. Energix will ensure that employees/ contractors employees with direct responsibility for activities relevant to the Project's environmental and social performance are suitably qualified and trained.
- Define a Human Resources Policy, which establishes the company's approach to managing its direct and indirect workforce, which is to include: working relationships, work organization, working hours, absence and late arrivals, vacation periods, business travel and use of company vehicles, employee development, health and safety responsibilities, remuneration terms and conditions, employee order responsibilities. Additionally, explicit language around prohibition of child and forced labour, non-discrimination, equal opportunity and fair treatment. A procedure documenting how the company ensures its approach to managing workforce is cascaded to its contractors should complement the Policy.
- Develop and implement a Worker Grievance Procedure for all employees, including contractors

Biodiversity

- During construction retain a professional ecologist to undertake an assessment of flora and fauna of the area to limit the impact on any protected species. Several of the strictly protected Annex IV may breed and/or rest in even very small isolated localities. As a minimum, all areas of new land take, including road widening and temporary laydown areas, will be surveyed prior to construction starting. If Annex IV species are present alternative translocation sites will be identified within the project footprint. Immediately prior to any construction starting in that area the ecologist will collect as many individuals as practicable and remove to the translocation site. In temporary land take ponds will be reinstated.
- Appoint an Independent Ornithological and Chiropterologist (birds and bats) expert (IOCE), to undertake monitoring of the Project during commissioning then subsequently during operation of the wind farm. The IOCE will be appointed on 3 year contract and this will continue through the operation of the wind farm. The IOCE will produce annual reports to be submitted to the Lenders on the impacts. The IOCE should work on all Banie windfarms to ensure cumulative assessment and ensure that the focus is on highest risk areas. After 3 years the scope of the IOCE will be refined to concentrate on areas that are seen as high risk. This will include any further expansion of the wind farm.
- Begin VP based surveys in February 2021 and develop an additional Collision Risk Modelling (CRM) using the accepted Band model developed by SNH. Undertake assessment of potential displacement of SPA qualifying features through winter geese surveys of habitat use within the wind farm. Flight altitudes for White Tailed Eagle should be surveyed in a combination of assessment (trained observers) and measurement (technical). The CRM should consider cumulative impacts with the adjacent Banie 1 and 2 wind farms. A biodiversity related ESAP identifying mitigation options and the limits of acceptable change that trigger intervention should be developed by the IOCE. Based on the impact assessment outcomes, define required mitigation measures, and ensure these are adequately transposed into a Biodiversity Management Plan (BMP).
- Applicable in case of significant bird impact: Specific survey work using VP studies and CRM mentioned above under 6.3 together with further desk study and consultation, will assist with identifying whether automated approaches such as DTbird would be suitable, and if so how best to configure them. Such studies will also assist in refining and understanding peak risk periods, when shut down procedures may be most effective. Based on the results, develop a shut down on demand procedure to be used by the IOCE to shut down individual turbines if needed due to

risk of collision notably with the endangered birds – notably the white tailed eagle. Once in place, all shut down incidents will be reported annually to Lenders.Test the shut down protocol with the IOCE each year. Provide summary of results to Lenders as part of annual report, and regulators as required.

- Develop a post-construction bird and bat monitoring programme in line with best international practices, Polish guidelines and the requirements of the Environmental Decision. The post-construction programme needs to include carcass surveys to identify bird and bat casualties and carcass persistence/ surveyor efficiency surveys to confirm removal rates by scavengers, or removal by any other reasons (e.g. ploughed into the soil during seasonal agricultural activities). Use best practice for instance being developed by the UN CMS Energy Task Force. Provide summary of results to Lenders as part of annual report, and regulators as required.
- Develop a bat mitigation procedure that includes triggers for change based on the number of bats per turbine killed assessed against European averages for operational turbines and population levels. Protocols for curtailment procedures aimed at shutdown of turbines at night when wind speeds fall below 6 m/s to be developed. Use EuroBat guidance to develop this procedure with the IOCE within the first 2 years of operation of the wind farm. Results from the carcass monitoring in relation to time of year and location of casualties will be used to optimise any curtailment regime.

Noise

- Establish and implement a Noise monitoring programme in line with Polish legislation and international standards (during operation). Based on the results develop an action plan if needed to ensure compliance with international standards and Polish legislation. Include the noise monitoring results and any noise related complaints (if applicable) in the Reports to Lenders under point 0.1.

Shadow flicker

- Perform the shaddow flicker assessment by mapping all the receptors within the area of influence (i.e. ten times the rotor diameter) to provide more robustness to the study and to the final assessment. Rather than re-run the modelling, ERM suggests to overlay the modelling results with receptors layers identified using updated satellite imagery in order to confirm no receptors are located within impacted areas. Receptor layer will also take into consideration the urban expansion occurred in the area, if any.
- As shadow flickering is something that can be confirmed only once in operation, ERM recommends to consider to have a grievance mechanism to record potential occurrence of the phenomenon.

Ice and blade throw risk

- Ensure that warning signs are located at the entrance to the WF's area, are all the time in place at the entrance to each WTG;
- Perform periodical checks of each WTG location with focus on safety and warning signs condition;
- Ensure appropriate public communication and ongoing engagement with local Authorities as well as local inhabitants in order to be able to respond to any issues related to ice and blade throw risk immediately.

Cultural Heritage

- A map showing the proposed windfarm infrastructure including, where available, details of access/haul roads and borrow pit location, as well as the location of known heritage assets within

1.5 km of the proposed wind turbines should be provided. The regional institute for the protection of monuments is to be consulted regarding the location and extent of any buried remains within 250m of the proposed windfarm. These should also be put on mapping and considered in the impacts assessment.

- Prepare and implement a Chance find procedure in line with Polish and international standards, to apply to Banie III and to all other Energix projects which will involve instrusive/construction works.

Social and land-related aspects

- Develop and implement an Annual Community Investment Plan for Banie 3 using a participatory approach (involving the local affected communities).
- Develop a Compensation Procedure at corporate level to ensure transparent and consistent compensation through implementation of standards across all company projects.
- Develop an Annual Environmental and Social Report on the environmental, social and health and safety performance of the Project and share it with the relevant stakeholders.

- Implement the Stakeholder Engagement Plan (SEP) as a "living document", updated regularly to reflect engagement conducted to date, potential new stakeholders identified and any changes required to adapt the SEP to the project conditions and stakeholder expectations. In order to achieve this:
  - Shareinformation about the Project with the interested stakeholders, as early as possible, by all the accessible means of communication.
  - Conduct meetings with the local communities to understand their opinion about the Project, Project status, future engagement strategy and start building the relation with these stakeholders.
  - Annually report on ESG impacts to the local community, including on the cumulative impacts of Banie wind farms
  - Summary ESG report covering Energix Poland sites disclosed on Company's website.
  - Consultation meetings will be planned and held with due consideration of the needs of any disadvantaged or vulnerable groups identified and will be free of external manipulation, interference, coercion or intimidation.
  - Document the results of future consultation activities as annexes to the Project SEP.
  - Disseminate the SEP in local language to the local communities.

- Implement the grievance mechanism / procedure for external stakeholders as defined in the SEP:
  - the grievance mechanism will be disseminated in the affected communities starting as early as possible, prior to construction;
  - ensure Grievance Forms are constantly made available to the local communities and that people know where they can access these and how to use/submit them to the company;
  - ensure grievances received are managed in line with the management procedure presented in the Project SEP.
  - assess the efficiency of the grievance process periodically and adjust it as appropriate.
- Appoint an employee responsible for relations with the local communities (to be called Community Liaison Officer - CLO) and ensure she/he conducts regular engagement with the local communities during construction and operation, according to the SEP. Ensure that contact details of the CLO are made available to all stakeholders (contractors, local communities and residents of the area) in order to ensure that any grievances including related to environmental, social and H&S aspects of the Project can be easily communicated to the SPV/ Energix Polska. The CLO will need to be acquainted with the stakeholders and stakeholder process as outlined in the SEP,

and have a clear understanding of the project schedule and engagement milestones in order to inform stakeholders appropriately about the progress of the Project.

- Develop an Annual Environmental and Social Report or ESG report on the environmental, social and health and safety performance of the Project and share it with the relevant stakeholders.
- This will also include reporting on a regular basis to the impacted communities about project progress status, and progress in the implementation of the ESAP. Reporting frequency could be bi-annual during construction and annual during operation. However, this could be refined depending to feedback received from the relevant stakeholders and, in this case, it should be reflected in the Project SEP.

ERM has over 160 offices across the following countries and territories worldwide

Argentina
Australia
Belgium
Brazil
Canada
Chile
China
Colombia
France
Germany
Ghana
Guyana
Hong Kong
India
Indonesia
Ireland
Italy
Japan
Kazakhstan
Kenya
Malaysia
Mexico
Mozambique
Myanmar
The Netherlands
New Zealand
Norway
Panama
Peru
Poland
Portugal
Puerto Rico
Romania
Russia
Senegal
Singapore
South Africa
South Korea
Spain
Sweden
Switzerland
Taiwan
Tanzania
Thailand
UAE
UK
US
Vietnam

ERM Polska Sp. z o.o.
ul. Chmielna 132/134
00 – 805 Warsaw, Poland
Add address 3

T: +4822 518 49 73
www.erm.com

The business of sustainability

ERM