



Wind Farm Grajewo Environmental and Social Monitoring Report III (ESMR III)

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Wind Farm Grajewo

Environmental and Social Monitoring Report III (ESMR III)

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Grajewo Municipality, Poland

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List of terms and abbreviations

BIOZ	Plan Bezpieczeństwa I Ochrony Zdrowia (eng. Health and Safety Management Plan)
C-ESMP	Environmental and Social Management Plan for the construction phase
Contractor	A person or company that signs a contract to supply materials or workers to perform a service, e.g. maintenance work
dB	Decibel
Developer	OX2
E&S	Environmental and Social
ED	Environmental Decision
ESAP	Environmental and Social Action Plan
ESMR	Environmental and Social Monitoring Report
GPO	Główny Punkt Odbioru (eng. Electrical Substation)
GWh	Gigawatt hours
H&S	Health and Safety
HSE	Health, Safety and Environment
IOE	The independent / qualified bird expert
ION	Interim Operational Notification
km	Kilometer
MW	Megawatt
O-ESMP	Environmental and Social Management Plan for the operational phase
PCP	Project Communication Plan
PR	Performance Requirement
Project	WF Grajewo
SEP	Stakeholder Engagement Plan
TCM	Technical and Commercial Management
WF Grajewo	Wind Farm Grajewo
WTG	Wind turbine generator

1. Introduction

Environmental and Social Monitoring Report III (ESMR III) for period January 2023 – December 2023 for Wind Farm (WF) Grajewo is prepared to ensure compliance with the requirements of the Lenders, on environmental and social matters arising in relation the Project during reporting period. The aim of the report is to provide information: on the implementation of the Environmental and Social Action Plan (ESAP); on how the Project has monitored the compliance with the ESAP; on compliance by the Borrowers with Environmental and Social Laws in relation to the Project and its business and operations, on occupational Health and Safety (H&S) management of the Project. The report was based on Project's documentation analysis, and also on data and information obtained from OX2 Technical and Commercial Management (TCM) via a project questionnaire.

WF Grajewo is situated in north-eastern part of Poland, in podlaskie voivodeship, Grajewo County, Grajewo Municipality. Construction of the wind farm begun in January 2021 and ended in December 2022. The project has a Use Permit and an Interim Operational Notification (ION) issued. The Use Permit for turbines and the Electrical Substation (GPO) substation was issued on 19 December 2022 and became final on 20 December 2022. Taking over the turbines of the WF Grajewo took place in January 2023. It consists of a total of 12 turbines (3.45 MW each, up to 41.4 MW in total; turbine type: Vestas 126; total height: 200 m). Estimated annual energy production is 130.6 GWh, what covers an average annual household energy consumption up to 40,000 households per year.

2. Environmental Decision Compliance

Based on the documentation provided as well as the information received from the Developer and Contractors, compliance of the activities carried out so far within the framework of project implementation with the Environmental Decision (ED) was verified and confirmed (Table 2.1).

Table 2.1 Compliance with Environmental Decision (number R-RG 6220.3.2013; dated 8 May 2015)

No.	Requirement	Timetable	Status	Comment
Required documents to develop and implement				
1.	Precise requirements for the positioning of individual turbines are presented in the ED.	Prior to construction phase	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).
2.	Do not backfill ponds and undrained basins of the land, it is prohibited to change the water conditions on the site. They should be restored to its state before construction.	Construction phase	Requirement fulfilled	According to the Developer, no ponds, undrained basins or stagnant water bodies were backfilled during the construction phase.
3.	Design the protection of soil and water in places where transformers are located.	Construction phase	Requirement fulfilled	According to the Developer, design solutions for soil and water protection have been implemented. The foundation for the transformer was designed and constructed in such a way that the oil sump is sealed and does not cause soil and ground water pollution.
4.	After construction, the agricultural land should be restored.	Prior to operational phase	Requirement fulfilled	The fulfillment reported in the ESMR II (dated 1 March 2023).

No.	Requirement	Timetable	Status	Comment
5.	Selective collection of the generated waste and its collection until it is transported to a waste landfill or managed by authorized entities.	Construction phase	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).
6.	Carry out construction and assembly work during the daytime (except when continuity of works is required for technological reasons) in such a way as to limit noise emissions.	Construction phase	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).
7.	Develop an optimal transport route for the wind farm components and materials, ensuring the least inconvenience to local residents.	Prior to construction phase	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).
8.	The foundation of structures (deep excavations) must be adapted to the hydrogeological conditions and other features of the subsoil.	Construction phase	Requirement fulfilled	The excavation and foundation work was carried out in accordance with the geological-engineering documentation and further design.

No.	Requirement	Timetable	Status	Comment
9.	Use equipment in good technical condition, as required by Polish law.	Construction phase	Requirement fulfilled	During the construction phase, H&S requirements were supervised by a staff of inspectors, i.e. from the Developer, the Contractors of all trades, and the contract engineer. The technical condition of the equipment was regularly checked by the H&S Inspector. Compliance with H&S regulations was documented regularly in weekly and monthly reports.
10.	Keep land occupation and destruction of vegetation to a minimum during construction works.	Construction phase	Requirement fulfilled	Based on the supervision reports – no issues of land occupation and vegetation destruction were reported throughout the construction phase.
11.	Avoid leaving machinery and equipment running.	Construction phase	Requirement fulfilled	Based on the supervision reports – no issues were reported throughout the construction phase in relation to leaving machinery or equipment running.

No.	Requirement	Timetable	Status	Comment
12.	During construction works, the technical condition of vehicles and equipment which may be a source of potential contamination of the ground and groundwater with hazardous substances should be checked regularly. Equip the construction site with materials to neutralise potential spills or leaks.	Construction phase	Requirement fulfilled	Based on the supervision reports – no issues were reported throughout the construction phase. According to the information from the Contractor, the technical condition of the equipment was checked by the H&S Inspector regularly.
13.	Collect domestic wastewater generated during construction in a sealed collection system.	Construction phase	Requirement fulfilled	Based on the supervision reports – no issues have been reported throughout the construction phase. According to information from the Contractor, generated waste was stored properly.
14.	The top layer of soil removed for the execution of the foundations should be stored in a separate place for later land restoration.	Construction phase	Requirement fulfilled	Some issues were reported in the supervision reports. However, all issues were solved. The explanations and solutions of the specific issues encountered were presented in the ESMR I (dated 2 March 2022) and ESMR II (dated 1 March 2023).

No.	Requirement	Timetable	Status	Comment
15.	Collect waste resulting from construction works in special containers and forward for recovery and disposal to authorized entities.	Construction phase	Requirement fulfilled	Based on the supervision reports – no issues were reported throughout the construction phase. According to information from the Contractor, generated waste was stored properly.
16.	Hazardous waste generated during maintenance work should be stored in specialized containers, in designated places and sent for recovery or disposal to authorized entities.	Operational phase	No issues so far	According to information from the Developer, a specialized company authorized to collect such waste was contracted. The quantities of the hazardous waste were negligible. No waste was stored at the farm site.
17.	Noise monitoring to be undertaken within two months after operation phase. If noise levels exceed national requirements regarding noise, recommendations from the noise modeling reports will be applied.	Within 2 months after operational phase	Requirement fulfilled	Acoustic measurements were conducted for the WF Grajewo on 9 and 10 February 2023. No exceedances of permissible noise levels were noted (see Chapter 5).
18.	During the operation of the project the acceptable noise levels in relation to the nearest acoustically protected areas must be met.	Operational phase	No issues so far	Acoustic measurements conducted for the WF Grajewo showed no exceedances of permissible noise levels (see Chapter 5).

No.	Requirement	Timetable	Status	Comment
19.	During the works, provide wildlife supervision in the form of a specialist naturalist with experience in field work, with knowledge and ability to identify habitats/species in a wide range, whose task will be to control the investment and prevent possible loss of species, and in the case of violation of the prohibitions set out in the Nature Conservation Act, to stop the works and apply for the relevant permit/decisions.	Construction phase	Requirement fulfilled	Wildlife supervisions were carried out during the works. Analyses of the past nature supervision reports carried out during the construction phase were included in the ESMR I (dated 2 March 2022) and ESMR II (dated 1 March 2023).
20.	Provide a 3-years-long ornithological and chriopterological monitoring in line with Polish guidelines.	Operational phase	No issues so far	Operational monitoring started on 13 January 2023 (for birds and bats). It is conducted in line with the Polish guidelines. The annual report is already prepared (see Chapter 4).
21.	Do not carry out tree felling or earthworks during the bird breeding season. However, if it is necessary, provide ornithological supervision.	Construction phase	Requirement fulfilled	According to the documentation, direct ornithological supervision was provided throughout the construction phase.

No.	Requirement	Timetable	Status	Comment
22.	Protect trees and bushes in the immediate vicinity during the work, e.g. by boarding up or using straw mats. The groundworks in the vicinity of trees and bushes must be done manually.	Construction phase	Requirement fulfilled	Some issues were reported in the supervision reports. However, all issues were solved. The explanations and solutions of the specific issues encountered were presented in Chapter 5 in the ESMR I (dated 2 March 2022) and ESMR II (dated 1 March 2023).
23.	Restoration of the construction site area, facilities, and access roads after completion of construction works.	After construction phase	Requirement fulfilled	The fulfillment reported in the ESMR II (dated 1 March 2023).
24.	Implementation and operation of the investment must be consistent with the provisions of local spatial development plan (no. 98/XVIII/12 Grajewo Municipality Council of 7 September 2012).	Ongoing	No issues so far	Local spatial development plan analysis provided in the Chapter 6.
25.	Turbines should be located at a distance of not less than 500 m from residential buildings and 100 m from the border of a forest (of at least 2 hectares in size).	Prior to the construction phase	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).

No.	Requirement	Timetable	Status	Comment
26.	Do not fill in ponds and depressions. Do not create trees and greenery in the vicinity of the farm. To avoid an increase in bat activity, do not build water reservoirs in the area of the farm. Water bodies should not be built in the area.	Ongoing	No issues so far	Realization of the investment does not require filling in ponds, depressions, creating new greenery or building new water bodies in the investment area or in the vicinity. None of these activities were carried out during the reporting period.
27.	Keep linear infrastructure elements treeless. New planting should not be introduced, while spontaneously appearing new trees and shrubs be removed.	Ongoing	No issues so far	Operation of the Project does not require the introduction of new planting. No such activities were carried out during the reporting period. Elements of the linear infrastructure were clear of trees, which was inspected during visual inspections of the site.
28.	Include safety and landscape protection consideration in design and procurements of turbines as required per national legislation: <ul style="list-style-type: none"> • use one type of wind turbine, 	Construction phase	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).

No.	Requirement	Timetable	Status	Comment
	<ul style="list-style-type: none"> • use of light colours for towers and rotor blades (e.g. white, grey), subject to compliance with safety requirements, • use of tubular mast structures, • selection of wind turbines whose rotors consist of three blades, • masts and turbines must not become advertising media, • do not use overhead transmission lines. 			
29.	Marking of the power plant in accordance with current regulations to prevent the possibility of aircraft colliding with the wind turbine.	Prior to start of construction	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).

No.	Requirement	Timetable	Status	Comment
30.	Avoid illuminating the power station with white light and flashing lights (this does not apply to lighting resulting from air traffic safety regulations). It is advisable to use light of the minimum power required by the regulations and to keep the flashes per minute to a minimum. Lighting should be as little visible from the ground as possible.	Before construction	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).
31.	Tree felling should be avoided. If necessary, felling or ground works should be carried out during the non-breeding period for birds. If the timing of the works involves carrying out these operations during the bird breeding period, ornithological supervision should be provided.	Construction phase	Requirement fulfilled	During the construction phase, trees were felled, for which the permits were obtained from the Regional Directorate for Environmental Protection. An expert opinion was prepared for the felled trees. According to the documentation, direct ornithological supervision was provided throughout the construction phase.

3. Environmental and Social Action Plan Compliance

Based on the documentation provided, as well as the information received from the Developer and the Contractors, the compliance of most of the activities carried out so far in the project implementation with the ESAP has been verified and confirmed (Table 3.1). The only non-compliance to date is the lack of a shutdown on demand procedure, which will be prepared in the 1H 2024, and non-compliance with the timing of the preparation and implementation of the Environmental and Social Management Plan for the operational phase (O-ESMP), which should have been made prior to the start of operations, while the O-ESMP is still under development, which started in November 2023.

Table 3.1 Environmental and Social Action Plan actions (number 21-0942) and their status

No.	Action	Timetable	Status	Comment
Required documents to develop and implement				
1.	Require the Construction Contractor to develop and implement documents which constitute Environmental and Social Management Plan for the construction phase (C-ESMP). Plan BIOZ can be used as Construction Environmental Management Plan, together with the following supplements:	Prior to commencement of the construction works	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).

No.	Action	Timetable	Status	Comment
	<ul style="list-style-type: none"> • Management of labour including grievance mechanism for construction work, • Construction traffic management, • Emergency preparedness and response plan. 			
2.	Include decommissioning plan as a part of the O-ESMP.	Prior to operation phase	Requirement fulfilled	Decommissioning Plan (dated 20 July 2022) was prepared by the Contractor and was included in the O-ESMP.
3.	Require the Operation Contractors to develop and implement documents which constitute O-ESMP.	Prior to operation phase	Non-compliance	O-ESMP is under development which began in November 2023, which is a non-compliance with the ESAP provision that the O-ESMP should be developed and implemented prior to operation. The Operation Contractors will be required to familiarise with the O-ESMP and to implement the actions and documents outlined in the O-ESMP.

No.	Action	Timetable	Status	Comment
4.	Report to Lenders annually and to environmental authorities on Project environmental and social performance and on implementation of environmental permits conditions and ESAP.	During construction and operation	No issues so far	Project environmental and social performance and implementation of environmental permits conditions and ESAP are addressed in this Report.
5.	Maintain a formal employee grievance mechanism in accordance with Performance Requirement (PR) 2 for all direct and nonemployee workforce and communicate it to all personnel.	Prior to main construction phase	Requirement fulfilled	The fulfillment reported in the ESMR II (dated 1 March 2023).
6.	The turbines should be equipped with a lightning protection system and appropriate protection against electromagnetic wave emissions and electric shocks.	Prior to start of construction	Requirement fulfilled	The fulfillment reported in the ESMR II (dated 1 March 2023).

No.	Action	Timetable	Status	Comment
7.	The Company will ensure that Contractors have developed and implemented construction health and safety management plans in line with national legislation, PR4 and good international practices to manage the risks to all workers and project affected communities. This will include outlining such requirements in contracts for contractors and subcontractors.	Prior to start of construction	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).
8.	Develop and implement traffic and transport management plans.	Prior to delivery of equipment and materials	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).

No.	Action	Timetable	Status	Comment
9.	<p>Develop and implement a Stakeholder Engagement Plan (SEP) / Project Communication Plan (PCP) covering the identification of key stakeholders, their concerns and interests in the project; targeted methods of engagement with these stakeholders throughout the project lifecycle; roles and responsibilities for implementing the plan; contractor oversight. A community grievance mechanism and monitoring & reporting arrangements to be in place.</p>	<p>Prior to start of construction/ongoing</p>	<p>No issues so far</p>	<p>Project Communication Plan was developed (dated 5 November 2021). It contains the complete list of stakeholder groups identified for the Project as well as the robust communication plan with activities specified for each group. It also includes community grievance mechanism. PCP is to be implemented throughout the Project lifecycle.</p> <p>During the handover of the land after the construction process, the landowners were informed by the Contractor that they can use the land. They were also notified on the completion of the construction work and obtaining of the Use Permits. The site managers also made the relevant post-construction statements about cleaning up the adjacent areas.</p>

No.	Action	Timetable	Status	Comment
				<p>During the reporting period fire drill was given to the local fire brigades in April 2023. Throughout 3 days of training there were total 24 firefighters from the State Fire Department in Grajewo and 15 members of Voluntary Fire Brigades from Szczuczyn, Żebry and Grajewo.</p> <p>On 25 May 2023, the wind farm was officially launched. The event was attended by representatives of the company, including OX2's General Manager in Poland Katarzyna Suchcicka and Patryk Jarzębski, Construction Project Manager at OX2, as well as representatives of the local authorities: Stanisław Szleter - Head of the Grajewo Municipality, Tomasz Cebeliński - Vice-Mayor of the Grajewo County and Dariusz Latarowski - Mayor of the City of Grajewo. A press release was published on 26 May 2023: https://www.ox2.com/pl/polska/media/aktualnosci-i-informacje-prasowe/ox2-oficjalnie-otwiera-farme-wiatrowa-grajewo/</p>

No.	Action	Timetable	Status	Comment
				No grievances were raised during the reporting period.
10.	Disclose annual Environmental and Social (E&S) performance reports with a summary of key E&S impacts and risks, how they were mitigated and key indicators of E&S performance (including incidents, grievance resolution etc.) in a format accessible to stakeholders.	Ongoing	No issues so far	E&S impacts and risks are addressed in this Report. The WF Grajewo project has a dedicated website, with the possibility to contact the Developer on matters related to the Project. Communication with stakeholders was carried out based on the standards and practices of participants in the construction phase. The ESMR III will be disclosed during 1H 2024 in a form accessible to stakeholders on Project's official website: https://www.ox2.com/projects/grajewo
Other requirements				

No.	Action	Timetable	Status	Comment
11.	Communicate to the workforce a Human Resources policy and procedures which meet Lenders and national legislation requirements (contractors to have equivalent policies/procedures in place). This will include Covid management procedures under H&S. Ensure both the Company and contractors retain appropriate responsible persons for PR2 implementation.	Prior to main construction phase	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).
12.	Undertake monthly supervision of the construction works through the construction stage by designated OX2 Environment, Health and Safety staff to confirm adherence to C-ESMP, conditions of the environmental permit ESAP and good construction practice.	Throughout construction stage	Requirement fulfilled	According to the Developer, H&S inspections were carried out throughout the construction phase.
13.	Implement ED conditions.	Ongoing	No issues so far	ED conditions implementation has been analysed in the Chapter 2.

No.	Action	Timetable	Status	Comment
14.	Noise monitoring to be undertaken within two months after operation phase in the O-ESMP. If noise levels exceed national requirements regarding noise, recommendations from the noise reports will be applied. Submit the reports form noise monitoring to relevant environmental authorities.	Within 2 months after operational phase	Requirement fulfilled	Acoustic measurements were carried out for the WF Grajewo on 9 and 10 February 2023. No exceedances of permissible noise levels were noted (see Chapter 5). The requirement to submit noise monitoring reports to the relevant environmental authorities was not a requirement of the ED.
15.	Include safety consideration in design and procurements of turbines as required per national legislation. The use of wind turbines with high productivity and low noise emissions, as well as ensuring human safety. Marking the power plant in accordance with applicable regulations, preventing the possibility of a collision between aircraft and wind turbines.	Prior to start of construction	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).

No.	Action	Timetable	Status	Comment
16.	Community grievance mechanism in place.	Complaints investigated upon receipt	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022). No grievances were raised during the reporting period.
17.	Implement awareness raising measures (including warning signs), in co-operation with the appropriate authorities, for local users of access tracks and agricultural fields regarding risks of blade and ice throw.	Prior to operation phase	Requirement fulfilled	Warning signs were placed near each wind turbine (12 signs in total). Moreover, information and warning signs were placed at the main entrances to the farm site (4 signs and 1 at the GPO substation) to warn of falling and thrown ice, especially in winter (see Chapter 7.1). These signs also inform people not to be near wind turbines during storms. In the upcoming reporting period, the Project will review the correct placement of the information and warning signs and, if necessary, relocate existing signs or place new warning signs for land users / access paths. The issue will be addressed in the next ESMR.

No.	Action	Timetable	Status	Comment
18.	There should be an authorized surveyor on-site. Establish the function of the construction site manager in the appropriate specialization. The site manager is obliged to keep a construction log and place on the construction site, in a visible place, an information board and an advertisement containing data on work safety and health protection, and to properly secure the construction site.	Construction phase	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).
19.	Upon completion of construction and reinstatement of temporary areas conduct information sessions with adjacent regular land users to inform them of ability to re-use land (as applicable); safety restrictions in proximity to the turbines and the community grievance mechanism.	Before operation starts	Requirement fulfilled	According to the information provided by the Developer, during the handover of the land after the construction process, the landowners were informed by the Contractor that they can use the land. They were also notified on the completion of the construction work and obtaining of the Use Permits. The site managers also made the relevant post-construction statements about cleaning up the adjacent areas.

No.	Action	Timetable	Status	Comment
20.	Develop a biodiversity management plan (including shut down on demand etc.) as part of the O-ESMP.	Before operational phase	Requirement fulfilled	The Biodiversity Management Plan was developed and included in the O-ESMP.
21.	Implement design conditions stipulated in Environmental permit at design stage. The minimum distance between the individual turbines, located within the boundaries of the applicable local spatial development plan, should be at least 450 m. Additionally, locate the turbines at a distance no less than 500 m from residential buildings, and 100 m from forest borders for Grajewo. Design the protection of soil and water in places where transformers are located in line with national requirements. After construction, the agricultural land should be restored. Do not backfill ponds and undrained basins of the land, it is prohibited to change the water conditions on the site. They should be restored to its state before construction.	Before construction	Requirement fulfilled	ED conditions implementation has been analysed in the Chapter 2.

No.	Action	Timetable	Status	Comment
22.	Establish direct ornithological supervision of the construction works.	Through construction phase	Requirement fulfilled	According to the documentation, direct ornithological supervision was provided throughout the construction phase.
23.	Develop shutdown on demand procedure prior to commissioning stage. Application of the shutdown on demand procedure will be made following the results of operational monitoring. Provide a summary in annual report to Lenders.	Prior to commissioning	Non-compliance	The procedure will be developed in the 1H 2024. The decision to implement the procedure (as well as information on when and for how long it will be implemented) will be taken after analysis of the results of the full operational monitoring.
24.	Undertake monitoring at the operational stage in line with the ED requirements.	Prior to operational phase	No issues so far	The Investor has appointed an independent / qualified bird expert (IOE) to carry out monitoring and prepare reports (Jakub Hankiewicz "Ecoinvent"). The submission of an avifauna and bats monitoring report is scheduled annually for 3 consecutive years from the Use Permit (dated 19 December 2022). The field work methodology for the WF Grajewo will be compliant with the Polish guidelines (see Chapter 4).

No.	Action	Timetable	Status	Comment
25.	Develop a Chance Finds Procedure as required by Lenders' policies, covering, at a minimum: the legal framework for cultural heritage; the process to follow in the event of chance finds; roles and responsibilities for implementing the procedure and an induction for all workers, including project staff, contractors and government agencies.	Before construction	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).
26.	Limit visual impacts of the windfarm by: <ul style="list-style-type: none"> • use one type of wind turbine, • use of a light color of turbines (e.g. white, gray), subject to meeting the requirements of aviation safety, • use of tubular mast structures, • selection of wind turbines consisting of three blades, • masts and turbines cannot become advertising media (only the logo/name is allowed on the nacelle housing), 	Before construction	Requirement fulfilled	The fulfillment reported in the ESMR I (dated 2 March 2022).

No.	Action	Timetable	Status	Comment
	<ul style="list-style-type: none"> • use appropriate colours for the wind turbines which do not contrast with the surroundings (e.g. light gray or light green) and make the surface matt instead of reflective, • do not use white lights and keep necessary lighting minimal on the wind turbines, • do not use artificial illumination to illuminate the wind farm area, such as lanterns, turbines and masts, • do not use overhead transmission lines. 			

No.	Action	Timetable	Status	Comment
27.	SEP / PCP to define operational phase engagement and reporting with local stakeholders including adjacent communities and implement. This should include specific engagement required related to relevant disturbance impacts as noted under PR3 & 4. Review annually and update the SEP / PCP if necessary for the life of the Project. Provide information on local Corporate Social Responsibility programs as well as payments made to the local community in terms of tax etc.	Ongoing	No issues so far	Project Communication Plan was developed. It includes community grievance mechanism. PCP is to be implemented throughout the Project lifecycle. During the reporting period fire drill was given to the local fire brigades in April 2023. Throughout 3 days of training there were total 24 firefighters from the State Fire Department in Grajewo and 15 members of Voluntary Fire Brigades from Szczuczyn, Żebry and Grajewo.

No.	Action	Timetable	Status	Comment
				<p>On 25 May 2023, the wind farm was officially launched. The event was attended by representatives of the company, including OX2's General Manager in Poland Katarzyna Suchcicka and Patryk Jarzębski, Construction Project Manager at OX2, as well as representatives of the local authorities: Stanisław Szleter - Head of the Grajewo Municipality, Tomasz Cebeliński - Vice-Mayor of the Grajewo County and Dariusz Latarowski - Mayor of the City of Grajewo. A press release was published on 26 May 2023: https://www.ox2.com/pl/polska/media/aktualnosci-i-informacje-prasowe/ox2-oficjalnie-otwiera-farme-wiatrowa-grajewo/</p>

No.	Action	Timetable	Status	Comment
				<p>During the handover of the land after the construction process, the landowners were informed by the Contractor that they can use the land. They were also notified on the completion of the construction work and obtaining of the Use Permits. The site managers also made the relevant post-construction statements about cleaning up the adjacent areas.</p> <p>No grievances were raised during the reporting period.</p>

4. Supervision and Monitoring Reports Analysis

4.1 Birds

An independent and qualified bird expert (IOE) – Jakub Hankiewicz "Ecoinvent" appointed by the Investor, conducted annual monitoring between 13 January 2023 and 20 December 2023 and presented the results in a form of report (dated December 2023). Methods applied during the field work were in accordance with the following Polish guidelines:

- Chylarecki P., Paslawska A. Guidelines for the impact of wind power plants on birds recommended by the Polish Wind Energy Association, the Polish Society for the Protection of Birds and the West Pomeranian Association for Practical Ecology (PWEA) 2008.
- Chylarecki P., Kajzer K., Wysocki D., Tryjanowski P., Wuczyński A. Guidelines for assessing the impact of wind power plants on birds submitted for consultation by the General Directorate for Environmental Protection, 2011.

Several types of field work were carried out in the area of the wind farm and in the 2 km buffer zone around it:

- observations from points (studies of the intensity of airspace use by birds) – the aim was to estimate the intensity of flights (local and long-distance) of birds in the airspace, with a particular focus on species with high collision risk (birds of prey, other large birds) and to assess the variability of these parameters over the annual cycle. Each time the field work (38 inspections) included an inspection,
- observations of birds in the plot (transect surveys) – the aim was to obtain basic information on the species composition of the avifauna using the plot and how birds use the area, the densities of individual species and the variability of these

parameters over the annual cycle. Transect inspections were performed twice each month,

- counts according to the methodology of the Monitoring of Common Nesting Birds – the aim was to know the species composition of birds during the breeding season. Counts were performed twice during the breeding season (the first by mid-May, the second by mid-June),
- censuses of breeding rare and medium-sized species – the aim was to estimate the abundance and distribution of breeding rare species and species of large or medium body size. Censuses of rare species, crane, white stork, raptors, owls (night checks) were carried out during spring inspections,
- searching for fatalities of collisions with turbines – the aim is to estimate the magnitude of collisions of birds and bats with turbines, the species composition of the fatalities, to confront the results with the mortality forecasts resulting from the pre-implementation monitoring, and to determine the change in collision intensity on an annual basis. Each time the field work (38 inspections) included a search for collision victims under each of the 12 turbines.

During the analysed period, the bodies of four dead birds were found, victims of collisions with turbines (bean goose *Anser fabalis*, buzzard *Buteo buteo*, honey buzzard *Pernis apivorus* and goldcrest *Regulus regulus*). The dead birds were located under wind turbine generators (WTG) WTG01, WTG02, WTG03 and WTG04, i.e. only the group of four turbines in the north-western part of the farm. The estimation of the actual mortality of the number of dying birds was carried out in two variants according by Chylarecki et al. (2011). In first variant, the actual bird mortality for the 12 turbines was estimated at 4.0 individuals, resulting in 0.33 fatalities/turbine/year. In second variant estimated actual bird mortality for the 12 turbines at 4.36 individuals, resulting in 0.36 fatalities/turbine/year. Based on the above calculations, it can be assumed that the annual actual bird mortality at WF Grajewo was in the range of 4-4.5 fatalities per entire farm, giving a mortality rate of **0.35-0.40 fatalities/turbine/year**.

Against the background of the reported magnitude of bird collisions at some wind farms and against the background of other causes of mortality for this group of animals, the demonstrated mortality for WF Grajewo in 2023 was evaluated by IOE as very low. An important aspect is the

location of the collision sites. All 4 fatalities (including two birds of prey: buzzard and honey buzzard) were found in one place (northwest part of WF Grajewo) where the turbines are located between the forest and large wooded areas.

WF Grajewo may have an impact on the local population of buzzards, which, in addition to being exposed to collisions, may increase the flight distance from hunting grounds to nesting sites. Additionally, buzzards, as the most numerous raptors in Poland, are the most frequent victims of collisions in the group of birds of prey. The death of one individual per year may not necessarily but may signal a possible negative impact of the wind farm resulting in habitat fragmentation by partitioning of flight routes from nesting to feeding grounds with turbines. In addition, the death of a honey buzzard, a rare species in Poland, was observed. There are many indications that this individual died during the breeding dispersal period or autumn migration. The mortality of raptors should be monitored with great care (future years of monitoring) and adequate minimising measures should be taken in case of repeated collision incidents at the sites. Other species should not be subject to this effect, especially as the siting of the turbines and the location of the infrastructure does not disturb biotopes that are valuable from the point of view of avifauna.

Observations of key species: marsh harrier *Circus aeruginosus*, buzzard *Buteo buteo*, kestrel *Falco tinnunculus*, lesser spotted eagle *Clanga pomarine*, white-tailed eagle *Haliaeetus albicilla*, honey buzzard *Pernis apivorus*, eurasian hobby *Falco subbuteo*, red-footed falcon *Falco vespertinus*, eurasian crane *Grus grus*, white stork *Ciconia ciconia*, geese and corvidae clearly show that birds using the airspace above the WF Grajewo area do not exhibit avoidance behaviour towards wind turbines. The impact of WF Grajewo to date in terms of barrier effect and habitat loss and fragmentation should be considered low and not significantly affecting the bird populations present. However, the barrier effect should be monitored for raptors, especially in the north-western part of the farm (WTG01 to WTG04) and possible minimising measures should be taken if mortality is detected in the same locations.

Based on the results of the annual ornithological post-completion monitoring in the first year of the farm's operation, it can be concluded that minimisation measures for the WF Grajewo are not needed at this time.

During the first year of operational monitoring, mortality of raptors was recorded, therefore, according to the ED (number R-RG 6220.3.2013; dated 8 May 2015), the operational monitoring will be extended for a further 5 years, from the start of the operation.

Depending on the results obtained in the following monitoring years, especially in the case of repeated collision incidents, adequate mitigation measures will be implemented.

4.2 Bats

An IOE appointed by the Investor has conducted annual monitoring and prepared a report (Jakub Hankiewicz "Ecoinvent"). Methodology of field work for WF Grajewo was in accordance with Polish guidelines:

- Kepel A., Ciechanowski M., Furmankiewicz J., Gottfried T., Górawska M., Ignaczak M., Jaros R., Jaśkiewicz M., Kasprzak K., Kmicik P., Kowalski M., Popczyk B., Szkudlarek R., Urban R., Wojtaszyn G., and Wojtowicz B. Interim guidelines for the assessment of the impact of wind turbines on bats, version II, December 2009.
- Kepel A., Ciechanowski M., and Jaros R. Draft guidelines for the assessment of the impact of wind turbines on bats, 2013.

The monitoring was carried out between 13 January and 20 November 2023 (dated December 2023), by types of bat activity: search for wintering grounds (January), leaving wintering grounds (15 to 31 March), spring migration and formation of breeding colonies (1 April to 31 May), breeding, peak activity of local populations and search for a breeding site (1 June to 31 July), disintegration of breeding colonies, start of autumn migration and swarming (1 August to 15 September), autumn migration and swarming (16 September to 31 October) and last migration and start of hibernation (1 to 30 November).

Bats use the area of the farm with low intensity during the period of forming breeding colonies (not found at all during spring migration) moreover, the location of WF Grajewo does not interfere with the migration routes of bats. During migration periods, their activity was found to be very low (not recorded at all in spring). At this stage of monitoring, the impact of the wind farm on the occurrence and migration routes of bats should be considered low/moderate. In light of the results presented (comparison of bat activity under the turbines and outside the

farm area and mortality), in the case of WF Grajewo in the year 2023 the barrier effect, although locally may be significant, can generally be considered as minor and locally moderate.

During the period analysed, the bodies of 21 dead bats were found, all of which died due to pressure injury (barotrauma). Dead bats were located under WTG02, WTG03, WTG05, WTG06, WTG10, WTG11 and WTG12. Estimation of the actual mortality of the number of bats that die was done in two variants according to the draft guidelines by Kepel et al. (2013), which use the formulas and calculations adopted in the assessment of bird mortality, according to the draft guidelines by Chylarecki et al. (2011), to assess the actual mortality of bats. In first variant actual bat mortality for the 12 turbines was estimated at 35 individuals, resulting in 2.9 fatalities/turbine/year. In second variant, actual bat mortality for 12 turbines was estimated at 39.4 individuals, resulting in 3.28 fatalities/turbine/year. Based on the above calculations, it can be assumed that the annual actual mortality of bats at WF Grajewo was in the range of 35-40 fatalities per entire farm, which gives a mortality rate of **3-3.5 fatalities/turbine/year**. Against the background of the reported magnitude of bat collisions at some wind farms and against the background of other causes of mortality for this group of animals, the demonstrated mortality for WF Grajewo in 2023 was average. However, the mortality of bats as a result of collisions was not uniform, higher mortality (at the level of 4-5 fatalities) was found in the vicinity of WTG02, WTG10 and WTG12, in other cases it was negligible (1-2 fatalities) and in the case of three turbines no fatalities were found.

Due to the identified elevated bat mortality between late July and late August (4-5 fatalities under the three turbines), in accordance with the IOE conclusions, measures to minimise bat mortality during this period and possible compensation may be necessary. According to Kepel A, Ciechanowski M., Jaros R. (2013): *if the number of dead or injured bats found for the turbine under study exceeds the value of 1 individual/turbine in a given phenological period, periodic shutdowns of turbines under which killed individuals were found should be introduced for the whole of this phenological period (from dusk to dawn), with wind speeds below 6 m/s. If the estimated mortality exceeds 10 individuals, shutdowns should be applied, with wind speeds below 8 m/s. Exclusions need not be applied during heavy rainfall. The period of shutdowns can be adjusted to the actual time of increased bat activity in the vicinity of the turbine or the entire farm, based on the results of post-construction detector surveys. After applying the shutdowns, it is necessary, using the same method, to check their effectiveness in the next season and, if necessary, adjust the applied*

measures - for example, changing the dates of the shutdowns. Under the circumstances, taking measures to periodically shutdown the turbines should be considered if repeated high bat mortality under the same turbines is found in successive years of bat mortality and activity monitoring. Elevated bat mortality or activity under specific turbines can result from both local and periodic conditions. Important in this context is the variability of crop types, which can affect the occurrence of an adequate food base for bats in specific locations and periods, as well as changing weather conditions. In subsequent years, these conditions may change, entailing changes in the use of space by bats.

According to information obtained from Developer the shutdown procedure will be developed in the 1H 2024. The decision to implement the procedure will be taken after analysis of the results of the full operational monitoring.

In addition, according to the IOE suggestion, a possible compensatory measure is the installation artificial shelters in forests and forested areas located at an appropriate distance (minimum 4-5 km) from the wind farm. Such activities may reduce the activity of bats on the wind farm itself, since their feeding grounds are usually located in the immediate vicinity of the summer roosts. The Project decided to implement compensatory measures in the form of artificial shelters. The shelters will be built in 2024.

5. Summary of Noise Analysis

An independent and qualified accredited acoustic-environmental laboratory EKO-POMIAR appointed by the Investor conducted acoustic measurements. Acoustic measurements were carried out for the WF Grajewo on 9 and 10 February 2023. The measurements took place before 2 months from the start of operation of the wind farm (January 2023), so the ED requirement was fulfilled. The results were presented and analysed in a report dated 15 March 2023. A summary of the results is presented below (Table 5.1, Table 5.2).

For areas where there is a risk of exceeding permissible noise levels, and for which no local spatial development plan has been designated, permissible noise levels have been verified on

the basis of the acoustic classification of acoustically protected areas prepared by the competent authority of the municipality. To this end, letters were sent to the Grajewo Municipality Mayor (dated 10 January 2023 and 27 February 2023) requesting public information on the determination of the acoustic classification and permissible noise levels. Such information was obtained for measurement points P8 and P9 (Letter of the Grajewo Municipality Mayor dated 17 January 2023, sign: R.1431.1.2023), and P2 and P14 (Letter of the Grajewo Municipality Mayor dated 27 February 2023, sign: R.1431.6.2023).

No exceedances of permissible noise levels were recorded at the 15 measurement points. The standards for permissible noise levels set by Polish law have been met.

Table 5.1 Noise measurement results for the time of day in February 2023

No.	Measurement point	Equivalent sound level A [dB]	Permissible value [dB]*	Exceedance [dB]
1.	P1	42.5	55	No exceedance
2.	P2	42.1	55	No exceedance
3.	P3	45.9	55	No exceedance
4.	P4	44.0	55	No exceedance
5.	P5	41.9	55	No exceedance
6.	P6	39.7	50	No exceedance
7.	P7	42.9	55	No exceedance
8.	P8	42.5	55	No exceedance
9.	P9	38.0	55	No exceedance
10.	P10	41.6	50	No exceedance

No.	Measurement point	Equivalent sound level A [dB]	Permissible value [dB]*	Exceedance [dB]
11.	P11	38.9	55	No exceedance
12.	P12	40.9	55	No exceedance
13.	P13	37.4	55	No exceedance
14.	P14	39.6	55	No exceedance
15.	P15	39.6	55	No exceedance

*the permissible levels of noise in the environment, specified in the detailed regulations in Decree of the Ministry of the Environment dated 14.06.2007 on permissible levels of noise in the environment, Journal of Laws 2014 item 112

Table 5.2 Noise measurement results for the time of night in February 2023

No.	Measurement point	Equivalent sound level A [dB]	Permissible value [dB]*	Exceedance [dB]
1.	P1	39.7	45	No exceedance
2.	P2	41.4	45	No exceedance
3.	P3	43.3	45	No exceedance
4.	P4	42.2	45	No exceedance
5.	P5	37.9	45	No exceedance
6.	P6	39.7	40	No exceedance
7.	P7	39.3	45	No exceedance
8.	P8	38.1	45	No exceedance

No.	Measurement point	Equivalent sound level A [dB]	Permissible value [dB]*	Exceedance [dB]
9.	P9	38.3	45	No exceedance
10.	P10	39.7	40	No exceedance
11.	P11	38.9	45	No exceedance
12.	P12	37.9	45	No exceedance
13.	P13	37.6	45	No exceedance
14.	P14	43.7	45	No exceedance
15.	P15	42.3	45	No exceedance

*the permissible levels of noise in the environment, specified in Decree of the Ministry of the Environment dated 14.06.2007 on permissible levels of noise in the environment, Journal of Laws 2014 item 112

6. Spatial Development Plan Analysis

According to the Developer, WF Grajewo is consistent with the principles of protection and shaping of spatial order outlined in the resolution no. 98/XVIII/12 of 7 September 2012, on establishing a local spatial development plan for a part of the Grajewo Municipality, in Boczeki-Świdrowo, Elżbiecin, Łękowo, Kurejewka, Kurejwa, Flesze, Popowo, Uścianki, Wierzbowo and Wojewodzin village precincts (Official Journal of Podlaskie Voivodeship of 21 September 2012, item 2647).

7. Health and Safety Analysis

According to the documentation provided, no Health, Safety and Environment (HSE) events (such as severe incidents, accidents, or severe accidents) occurred during the reporting period. In terms of HSE, the Contractors responsible for maintenance work acted in accordance with internal guidelines and manuals for organizing safe work. The Contractors have provided, in compliance with the requirements of Polish H&S regulations, introductory training for persons involved in service and maintenance work, internal training and obtaining the necessary qualifications. They have also provided periodic H&S training for those involved in maintenance work, which, in accordance with Polish H&S legislation, should take place at least every 12 months.

According to the Developer, all Contractors and Subcontractors acted in line with the signed contracts. There were no breaches of contracts during the reporting period. Contractors have carried out annual and every 3 months routine maintenance and any non-routine maintenance which has been outlined in the Monthly Operational Reports prepared by OX2 TCM for information and internal viewing. All measures performed were audited through inspections of site and site facilities, which were carried out by OX2 TCM Managers twice during the reporting period, in accordance with the contract. During these audits, a visual inspection of trees, roads, signs, visible infrastructure, among others, was carried out. In conjunction with the site inspection, a technical inspection of the wind turbines was conducted. These audits included the inspection of 33% of wind turbines and covered checking the expiry or renewal date of fire extinguishers and safety kits.

7.1 Community Health and Safety

In accordance with the ESAP, awareness-raising measures were implemented for local users of access roads and agricultural fields regarding the risks associated with throwing blades and ice. The Project placed warning signs at each of the WTG in the first quarter of 2023 – 12 signs in total (Photo 7.1, Photo 7.2, Photo 7.3). In addition, 4 information and warning signs (Photo 7.4) were placed at the main entrances to the farm (Photo 7.5) and 1 sign at the GPO substation (Photo 7.6). These signs show the layout of the wind turbines and the location of the sign against

the area of the wind farm. They also warn people of falling and thrown ice, especially in winter, and inform them not to be near wind turbines during storms. In the upcoming reporting period, the Project will review the correct placement of the information and warning signs and, if necessary, relocate existing signs or place new warning signs for land users / access paths. The issue will be addressed in the next ESMR.

No Community H&S incidents were notified during the reporting period.



Photo 7.1 Warning sign placed in the vicinity of WTG02



Photo 7.2 Warning sign placed in the vicinity of WTG12



Photo 7.3 Warning sign placed in the vicinity of WTG10

Farma Wiatrowa Grajewo OX2

Informacje o Farmie

Liczba turbin	12 szt.
Typ turbin	Vestas V95
Wysokość wieży	137 m
Średnica rotora	150 m
Moc turbiny	2,3 MW
Roczna produkcja	130,6 GW
Opisowaliśmy ten rodzaj konstrukcji energetycznej przez ok. 27 500 gospodarstw domowych/rok	

Właściciel DIF

Urządzenie turbin 2023

Zarządca Farmy OX2 TCM

+48 8 559 310 07 | monitoring@ox2.com

OX2 rozwija, buduje, finansuje i zarządza urządzeniami OX2 posiada działki udział w projektach wiatrowych typu onshore w Skandynawii. Pracujmy więcej na www.ox2.com

Ostrzeżenie ● Tu jest!

Ryzyko spadania i rzucania lodem, szczególnie w okresie zimowym. Zachowaj bezpieczną odległość co najmniej 400 metrów od każdej turbiny wiatrowej. Nie przebiegaj w pobliżu turbin wiatrowych podczas burzy.

Nie zaleca się przebywania na terenie farmy wiatrowej podczas burz z piorunami oraz w okresach, w których istnieje ryzyko rzucań lodem i opadu lodu z turbin wiatrowych.

W nagłych przypadkach zadzwonić – pod numer 112
In case of emergency – call 112

Photo 7.4 Template of information and warning sign



Photo 7.5 Information and warning sign placed at the main entrance to the wind farm



Photo 7.6 Information and warning sign placed in the vicinity of GPO substation

8. Conclusion

During the operation of the WF Grajewo in the reporting period from January to December 2023, it was found that:

- compliance of the activities carried out during the reporting period as part of the Project implementation with the ED was verified and confirmed, as the acoustic measurements were conducted within two months after operation phase, there were no exceedances of the permissible noise levels, and operational monitoring of birds and bats has commenced and is being carried out in accordance with Polish guidelines,
- the Project was operating in compliance with most of the actions required in ESAP, as a Decommissioning Plan and a Biodiversity Management Plan were prepared and included in the O-ESMP, which is under development, acoustic measurements and operational monitoring of birds and bats were conducted, community grievance mechanism is in place, and awareness raising measures in the form of warning signs were implemented,

- a lack of compliance was identified for the timeline for the preparation of the O-ESMP, which according to the ESAP should be prepared and implemented before operation commences, whereas it is still under development which began in November 2023,
- a gap was identified, as the shutdown on demand procedure has not yet been prepared, whereas, according to the ESAP, it should have been developed prior to commissioning phase and the application of the procedure should be made following the results of operational monitoring,
- the gap will be addressed by the Project, as the shutdown on demand procedure will be developed in the 1H 2024, and it will be implemented if needed, after a full operational monitoring that will give a more complete picture of birds and bats activity and mortality in the area of WF Grajewo,
- the Project decided to implement compensatory measures for bats in the form of artificial shelters, which will be built in 2024 in forests and forested areas located at the appropriate distance (minimum 4-5 km) from the wind farm.