Karpatskiy Wind project non-technical summary

Update 07 Oct 2016

1 Introduction

This document provides a non-technical overview of the proposed development plans of private company *Karpatskiy Wind* to construct a wind power plant in Lviv Oblast of Ukraine.

It also presents a summary of potential environmental and social impacts and other environmental and social issues relevant to the project activities. Appropriate measures to mitigate key adverse environmental and social effects that may arise during project construction and operation are provided in *Table 1* at the end of this document.

The project developer *Karpatskiy Wind* has approached the European Bank for Reconstruction and Development (EBRD) for financing this development. The project is thus subject to EBRD's 2014 Environmental and Social Policy and has been determined as a Category B project.

This Non-Technical Summary (NTS) document and other project materials have been placed in the locations shown below for public disclosure. Environmental and social documents have been available for review and comments during normal business hours at the following locations:

- Karpatskiy Wind/Eco-Optima company offices
  Address: 12/9, Sichovyh Strilciv Street, Lviv Phone: +38 032 2610776

- Staryi Sambir Town Hall
  Address: 35, L.Galytskogo Str., Staryi Sambir, Lviv Oblast Phone: +38 03238 21643

- Strilbychi Village Council
  Address: 82, Yabluneva Str., Staryi Sambir District, Lviv Oblast Phone: +38 03238-62544

- Staryi Sambir District Administration
  Address: 40, L.Galytskogo Str., Staryi Sambir, Lviv Oblast Phone: +38 03238 21195

For further information on this project, or to provide comments on the project or the environmental and social documentation, please contact:

Name	**Contact information**
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2 Description of the Proposed Development

The project will construct a wind park that will accommodate six wind turbine generators made by Danish producer Vestas, 3.45 MW each, with total installed capacity of 20.7 Megawatt. The expected annual electricity generation of the project will be approximately 59 Million kilowatt-hours, which will be sold to the grid at the "green tariff".

The wind park will be located in the Precarpathian lowland at the headwater of Dnister River between Staryi Sambir town and Strilbychi village, 74 km south-west of Lviv and approximately 40 km east of Ukraine-Poland border. Staryi Sambir has 6,266 residents and Strilbychi has 1,831. *Figure 1.1* further below shows the location of the project site.

The turbines will measure 117 meters at tower height, and 175 meters at total maximum height including rotor blades. They will be linked with each other by 35 kV underground cables.

Electricity generated at the wind farm will be connected to the distribution grid by means of a 2.5km long underground transmission cable attached to an existing substation "*Staryi Sambir-tyaga*" owned by Lviv Railway.

An existing site access dirt road will be upgraded, and news roads for delivering and servicing the wind turbines will be constructed within the site. The new roads will have the width of 5 m and be made of gravel.

The project will be operated on an area of close to 2.5 hectares that will be leased for siting of the towers and on-site roads. In addition, *Karpatskiy Wind* will lease another 5.2 ha short-term during the construction period.

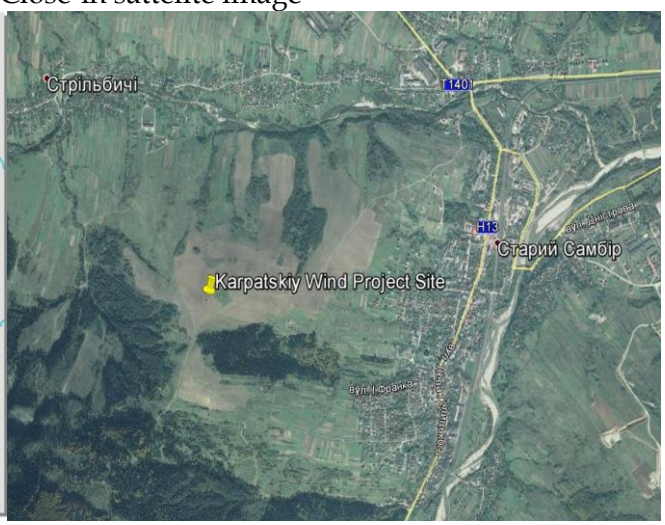
By using the renewable wind power, the project will have significant environmental benefits over other types of energy generation, such as those utilising fossils fuels (gas, coal) or nuclear. It will contribute to the reduction of emissions of greenhouse gases, as well as create new jobs and improve security of energy supply in the area.

The project is owned by *Karpatskiy Wind Limited Liability Company,* which is a subsidiary of Lviv-based *Eco-Optima*. Main business focus of this company is the development of renewable energy projects in Western Ukraine, including wind power.

Figure 1: Location of the project site

General map view

Close-in sattelite image



3 Environmental, Health, Safety and Social Review

3.1 Project studies and documents

Several documents collectively make up the environmental and social documentation for the project. In addition to this Non-Technical Summary, the other materials include the following documents.

Local Environmental Impact Assessment (EIA/OVNS)

An Environmental Impact Assessment (OVNS in Ukrainian) of the project has been prepared by appropriately licensed Lviv-based consultancy *Proyekt-Bud LLC* in 2014, although according to the current Ukrainian regulations no OVNS for wind power projects is required. The scope of this OVNS study is generally in line with international standard to satisfy the requirements of international funding agencies. The study includes detailed information on biodiversity and protected species found in the wider project area.

Biodiversity Study

A Biodiversity Study of the wider project area was prepared in 2010 by a group of fauna and flora specialists under the guidance of an ornithologist from Lviv University. This Study is based on the results of a multi-year German-Ukrainian international research of the Upper Dniester ecosystems carried out since mid-1990s and contains a lot of data and analysis relevant to the wider project area, including those concerning bird migration and protected species.

Environmental and Social Action Plan (ESAP)

As part of the environmental and social due diligence evaluation, a review of environmental, health, safety and social management issues was conducted. From the overall review, an Environmental and Social Action Plan (ESAP) has been developed. This document identifies mitigation measures to avoid, reduce or control potential adverse impacts of the project on the environment and the people. Key mitigation measures proposed in the ESAP are summarised in *Table 1* at the end of this document.

Stakeholder Engagement Plan (SEP)

The Stakeholder Engagement Plant (SEP) has been developed to describe how *Karpatskiy Wind* will communicate with people and institutions who may be affected by, or interested in the project, at various stages of project preparation and implementation.
The developer will assign a social liaison officer, who will be responsible for keeping open dialogue with stakeholder groups and local public. At any time before and during construction and operation, any stakeholder will be able to raise concerns, provide comments and feedback about the project. All such comments and grievances from people will be accepted, processed and answered by the developer in a timely manner.

3.2 Sensitive locations

The project area is considered to have medium environmental sensitivity due to the presence of valuable biodiversity habitats and protected species, but no protected areas in the immediate vicinity. The nearest protected area, landscape park *Verhnyodnistrovski Beskydy*, is located more than 20km to the south-east of the project.

The nearest to the project site residential houses are located at 615 meters in Strilbychi village which, according to the ONVS report, is far enough to ensure that noise and vibration levels from the generators are within the applicable sanitary norms.

There are no sites of cultural heritage or archeological significance in the immediate vicinity of the project.

3.3 Project impacts and their mitigation

An evaluation of potential environmental and social impacts determined that, in addition to its benefits, the project could have potential negative impacts on the environment and people, if not managed carefully. Therefore, the project developer will be required to implement certain actions (called "mitigation measures") to prevent, reduce, or mitigate negative impacts of this project. A summary of key impacts and mitigation measures that have been identified, is provided in *Table 1* below.

Table 1 Overview of Key Potential Project Impacts and Their Mitigation

No	Issue	Potential impact	Mitigation measures
1	General construction activities	Impacts during construction of the main (wind towers) and associated (access and on-site roads, transmission cable) project facilities, such as land excavation, dust, noise, air emissions from vehicles involved, etc.	- Prepare and implement construction management plan to reduce and mitigate general construction impacts, including noise, air emissions, waste generation and disposal; - Continuously monitor impacts to comply with appropriate national environmental standards and EBRD requirements.
2	Noise	Noise and vibration generated by the operating wind turbines.	Reduce and mitigate the noise and vibration by: - Selecting appropriate modern technology wind turbines and other equipment; - Correctly installing and regularly maintaining the equipment; - Monitoring of noise levels onsite, and at the boundary of nearest residential properties (to stay within the regulatory norm of 45 dB in residential area).
3	Traffic and road condition	Increased road traffic during construction for transporation of building materials, machinery, oversize and heavy parts of the turbines. Impacts on local roads, which are generally in poor condition.	- Prepare and implement traffic management plan, with special attention to transportation of oversize and heavy loads, and public safety; - Prepare and implement occupational health and safety plan; - Comply with all applicable national requirements and standards.
4	Birds and bats	Potential impacts on birds and bats, particularly during their migrations.	- Paint rotor blades with special fluorescent paint to be visible to birds; - Install warning sound signals and lighting during migration periods as appropriate; - Continuously monitor of impacts on birds and bats, especially during migration periods in spring and autumn, with potential adjustment of operation during migrations.
5	Visual impacts	Visual impacts of the project on landscape; the total height of the installations including tower and blades will be 175m.	- Undertake a Landscape and Visual Impact Assessment (LVIA) of the project; - Develop and implement a Landscape Protection Plan following the LVIA, including measures to mitigate for the risk of 'shadow flicker'(which occurs when the sun passes behind the wind turbine and casts a shadow) and 'blade or tower glint' (which occurs when the sunlight strikes a rotor blade or the tower at a particular angle).