NonTechnical Summary

of the Environmental and Social Impact Assessment

of the

Alibunar A Wind Project

in the Alibunar Municipality,

Autonomous Province of Vojvodina, Serbia

View from Seleuš

View from Vladimirovac

Future Views of Alibunar A and B Wind Projects

April 2015

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1. Foreword

This document provides a Non-Technical Summary (NTS) of the Environmental and Social Impact Assessment (ESIA) of the Alibunar A Wind Project, which is being developed in the Republic of Serbia. The document describes in a non-technical manner the proposed Project and presents major findings of the ESIA. The document provides a summary of environmental and socioeconomic conditions and of how the project could affect the environment and people. In addition, the NTS describes what actions will be taken to reduce the effects on the environment and people.

The information contained within the NTS can be further researched in the detailed ESIA. The way in which to contact the company with requests for additional information is provided below and in the Stakeholder Engagement Plan. Both documents are provided on the WindVision website (www.windvision.com).

2. Introduction

The company WindVision Windfarm A d.o.o, a subsidiary of the Dutch company WindVision (both referred to in this NTS as WindVision or the Company), intends to develop and operate a wind energy power plant near the settlements of Seleuš, Vladimirovac, and Alibunar on the territory of the municipality of Alibunar, in the south Banat region of the autonomous province of Vojvodina in Serbia. The project will include Alibunar A and B windfarms (also known as Alibunar 1 and 2), a substation, and an 11.8 kilometre transmission line.

WindVision prepared an Environmental Impact Assessment (EIA) that was approved by the Vojvodina General Secretariat for Urbanism, Building, and Environmental Protection in 2014. This EIA covered only the Alibunar A wind project, not the entire development. Another EIA was prepared for Alibunar B and approved by the General Secretariat. If required, EIAs will also be prepared for the substation and the transmission line. As required by Serbian law, the EIAs for Alibunar A and B were disclosed for public review and comment in 2014 before being approved by the General Secretariat.

The European Bank for Reconstruction and Development (the EBRD) and the European Investment Bank (EIB) (together, the Lenders) are considering providing financing for the Alibunar A project, the substation, and the transmission line. To meet their requirements, WindVision prepared an assessment that covered the entire development, and this NTS is a summary of this larger Environmental and Social Impact Assessment (ESIA), written in nontechnical language. WindVision is now disclosing this NonTechnical Summary and a series of companion documents. Documents are in Serbian and in English and include:

- The ESIA that covers the entire project and the EIAs for Alibunar A and B.
- A Stakeholder Engagement Plan that describes how WindVision will communicate with people and institutions, and how they may communicate with WindVision and be assured of being heard.
- An Environmental and Social Action Plan that identifies actions WindVision and its contractors will have to take to make sure there are no unacceptable impacts on people or the environment from construction and operation of the Project.

In addition, WindVision is disclosing the results of a year's monitoring of birds and bats (Serbian only) as well as archaeological studies conducted by the Institute for Protection of Cultural Heritage Pančevo.

All these documents will be publicly available on the internet at www.windvision.com and www.ebrd.com. They may also be reviewed (in Serbian) at the following places:

- WindVision, 18-20 Obilicev venac str., Floor VII, Apr. 1 &2, Belgrade (also in English) and 10 Zarka Zerenjanina str., Alibunar
- Opština Alibunar, TRG Slobode 4, Alibunar
- MZ Vladimirovac, Cara Lazara 76, Vladimirovac
- MZ Seleuš, Branka Radičevića 2, Seleuš
- MZ Banatsko Novo Selo, Maršala Tita 67, Banatsko Novo Selo
- EBRD, One Exchange Square, London EC2A 2JN, UK (also in English)
- EBRD Belgrade Resident Office, Bluecentre building, Spanskih boraca 3, 6th floor, 11070 Novi Beograd.

Copies of this NTS may be requested from Milicia Vukojicic at the WindVision Alibunar address above, by calling +381 11 3283 527, or by sending an email to milicia.vukojicic@ windvision.com.

WindVision will hold a public hearing in Alibunar in late May or early June 2015 to present information on the project and to receive comments on the project and the documentation. The date, time, and location of the meeting will be advertised in the following newspapers at least a week before the meeting: *Dnevnik* (Novi Sad), *Hlas Ludu* (Novi Sad), *Libertatea* (Pančevo), and *Familia* (Vladimirovac) and will also be announced on the radio station Radio-TV Serbia in Belgrade.

3. The Proposed Project

The Project is in the south Banat region of northeast Serbia (Figure 1) about 50 kilometres northeast of Belgrade. It is located on a gently rolling loess plateau on land that is currently used to grow maize, sunflowers, and other crops. The Project is being developed in two phases, Alibunar A and Alibunar B. The Project will include the following components, as shown on the bottom section of Figure 1:

- Improvements to about 60 kilometres of existing municipal roads to connect turbine locations, including 28 kilometres for Alibunar A, 15 kilometres for Alibunar B, and 17 kilometres of access and common roads. The improvements will involve relocating some roads to their original locations and reconstructing all roads with crushed stone to a depth of 30-40 centimetres over a width of 4 metres.
- Burying electrical cables under the roads to carry electricity from the turbines to the new substation.
- Excavating and pouring concrete to form turbine foundations about 25 metres in diameter and 5 metres deep. Foundations will be placed about 350-500 metres apart. Alibunar A turbines will be spread over an area of about 3,000 hectares, and Alibunar B about 2,200 hectares.

- Installing 33 turbines for Alibunar A and 25 for Alibunar B, each turbine will generate up to 3 megawatts of electricity, so Alibunar A will have the capacity to generate up to 99 megawatts and Alibunar B up to 75 megawatts. The turbines will be up to about 120 metres high, with blades about 60 metres long. They will be painted a white or gray neutral colour, with a red stripe on the blades.

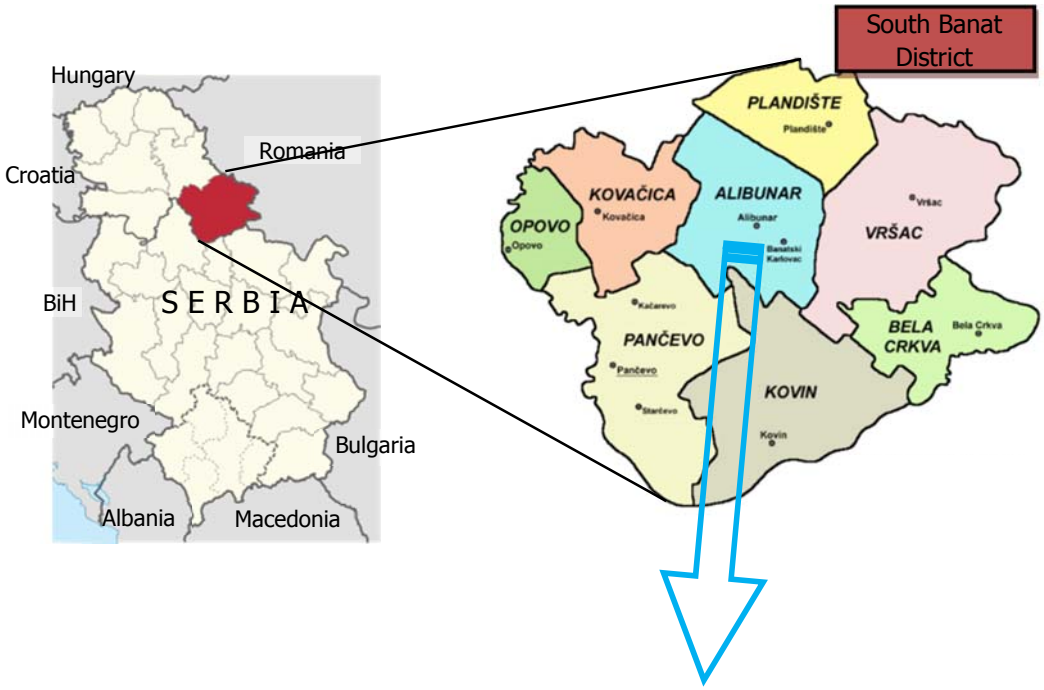

Figure 1. Location and layout of Alibunar wind project

- Constructing a new 35kV/220kV substation and control center that will cover an area of about 1.78 hectares.
- Constructing 11.8km of 220kV overhead transmission line to carry electricity from the substation to an existing 220kV line that runs between Zrenjanin and Pančevo.

- Transporting equipment and materials to the site. The very large turbines and blades and large quantities of rock will come via the Danube River port at Pančevo and will be carried to the site in trucks.

The wind will cause the turbine blades to turn, and a generator in the turbine tower will convert this energy into electricity. The electricity will be carried in underground cables to a transformer substation, which will increase the voltage so the electricity can be carried over the transmission line to the national grid.

No turbines will be closer than 1,000 metres from the nearest house. The land plots where turbines will be located are owned by 49 individuals and two companies, all of whom have leased land to WindVision. All roads, turbine locations, and substation are on land used for agriculture, so no trees will need to be cut or natural vegetation cleared. The transmission line will cross one narrow valley with remnant steppe grass vegetation and two similar valleys are within about a kilometre of the site boundary (see the bottom part of Figure 1 above). The Project is about five kilometres from the Deliblato Sands Special Nature Reserve.

An Environmental and Social Impact Assessment (ESIA) to evaluate potential impacts from the entire Alibunar project was prepared in 2012 to meet the EBRD's requirements. Based on this ESIA, two separate Environmental Impact Assessment (EIA) reports, one for Alibunar A and one for Alibunar B, were prepared to meet Serbian legislative requirements. The Provincial Secretariat of Urbanism, Construction and Environment reviewed and approved these two EIAs in 2014. EIAs for the substation and the transmission line will be prepared later in 2015 if the Provincial Secretariat determines they are required.

Current plans are for construction of roads to begin late in 2015 and for construction of all project elements to continue through 2016 until the project begins operating in 2017. Alibunar A turbines will be erected first, along with the substation and power line. Construction will continue with Alibunar B, which will also be commissioned in late 2017 or early 2018. The main contractor for Alibunar A will be the German company that supplies the turbines, and WindVision will encourage this company to hire many or most workers from the South Banat region and Belgrade. At its height in 2016, construction will employ up to about 200 workers. There will not be a workers' camp -- people will live in their own homes or in rented accommodations in nearby towns and cities. During operation, about 10 people will be employed for the entire project.

Alibunar A will generate up to about 313.5 gigawatt hours (GWh) of electricity per year, or enough to supply over 20,000 Serbian homes (at 2011 electricity usage rates).

4. Legal and Bank Requirements

Project planning and execution will be guided by Serbian laws and rules as well as the international standards of the Lenders, as described in Chapter 3 of the ESIA. As a candidate country to accede to the European Union, Serbia has transposed EU Directives relevant to the ESIA process and nature protection into national legislation and so the relevant Serbian laws conform to EU requirements.

The EIAs for Alibunar A and B were prepared to meet the requirements of the Law on Environmental Protection (Off. Gazette of the Republic of Serbia No. 135/04, 36/09, 72/09

and 43/11), the Law on Environmental Impact Assessment (Off. Gazette of RS No. 135/04 and 36/09) and Rule Book on the Contents of the Environmental Impact Assessment Study (Off. Gazette of RS No. 69/05). The ESIA that covered all project components was prepared to meet the requirements of EBRD Performance Requirement 1.

Environmental considerations for the project will primarily be guided by the following key laws, decrees, and standards:

- Law on Planning and Construction (Off. Gazette of RS no. 72/09, 81/09, 64/10, and 145/14)
- Law on nature protection (Off. Gazette of RS No. 36/09, 88/10 and 91/10)
- Regulation on the Ecological Network (Off. Gazette of RS No. 102/2010) and Rule book on compensation measures (Official Gazette of the Republic of Serbia, No. 20/2010)
- Law on air protection (Off. Gazette of RS No. 36/09)
- Law on cultural heritage (Off. Gazette of RS No. 71/94)
- Law on protection against environmental noise (Off. Gazette of RS No. 36/09 & 88/10), Rule book on methods of noise measurements, content and scope of noise measurement reports (Off. Gazette of RS No. 72/10), and Decree on noise indicators, borderline values, methods for assessment of noise indicators, disturbance and harmful effects of environmental noise (Off. Gazette of RS No.75/10)
- Law on waters (Off. Gazette of RS No. 30/10)
- Law on confirmation of the Convention on preservation of the European wild flora and fauna and natural habitats (Off. Gazette of RS-International Contracts No. 102/07)
- Law on confirmation of the Convention on preservation of migratory species of wild animals (Off. Gazette of RS-International Contracts No. 102/07)
- Law on protection of strictly protected and protected wild species of plants, animals and mushrooms (Off. Gazette of RS No.5/10 and 47/11)
- Rule book on categorization of protected natural goods (Off. Gazette of RS No. 30/92).
- Rule book on airports (Official Gazette of RS No. 23/12)
- Rule book on compensation measures (Official Gazette of the Republic of Serbia, No. 20/2010)
- Decree on conditions for monitoring and requirements for air quality (Official Gazette of the Republic of Serbia,No.11/10 and 75/10) and Decree on borderline values of emissions of pollutants into air (Official Gazette of the Republic of Serbia, No. 71/10)
- The Aarhus Convention (the United Nations Economic Commission for Europe Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (which was ratified by Serbia in 20096
- EBRD Performance Requirements 1-6, 8, and 10
- EIB Environmental and Social Standards 1-5 and 8-10.

5. Project Activities that Could Affect the Environment and People

The project will involve a variety of activities, many of which could affect environmental resources and people if they are not carefully designed and implemented. The activities that could cause the most important effects include:

- Transportation of turbines and construction materials from Pančevo port to the site on public road IB-10.
- Excavation and improvement of the public farm roads and of foundations for the turbines, and long-term storage of topsoil and other excavated material.
- If a well is used for water for concrete and keeping roads wet to reduce dust, pumping could lower the water table.
- Construction traffic on the public farm roads.
- Operation of the turbines, whose blades will make some noise as they rotate in the wind.

6. Potential Environmental and Social Effects and Required Mitigation

Chapter 4 of the ESIA describes the current conditions of water, land use, animals, plants, people and all other environmental and socioeconomic resources that the project could change. Chapter 5 then described how the project would affect these resources, including the people.

Table 1 shows the resources that are examined in the ESIA.

Table 1. Resources Examined in the ESIA and/or EIAs

Environmental	*Socioeconomic*
Air	Telecommunications
Soil	Aviation
Water	Public & occupational health & safety
Noise & vibration	Income, employment, & land ownership
Shadow flicker & ice throw	Roads & traffic
Landscape	Cultural heritage
Birds & bats	Electricity infrastructure
Other animals	Health (electromagnetic frequency radiation)
Plants and habitat	-

For areas where the ESIA found that the project could cause impacts, actions or procedures were developed to avoid, reduce, or otherwise mitigate the effects and reduce their significance. Permits issued by Provincial authorities and an Environmental and Social Action Plan in the legal agreements between WindVision and the Lenders will require to avoid or reduce the most important potential impacts, and those of most concern to people.

6.1 Air quality

Construction activities, especially traffic and work on cleared land, will raise dust when the ground is dry. The primary area of concern is along the access road near Vladimirovac between IB-10 and the site, as the site itself is over a kilometre from the nearest house. WindVision will spray water on roads and other areas as needed to control dust, and also will enforce speed limits on trucks and construction equipment and require that dusty loads be covered. In addition, combustion engines will add pollutants to the air, although only in small amounts and for a limited period. These will be controlled by making sure vehicles and equipment are properly maintained. Overall, the impact on air quality is expected to be minor and very local.

During operation, the Project will generate electricity with no carbon emissions, which contribute to climate change. If the same amount of electricity were to be generated by other plants in Serbia, over 245,000 tonnes of carbon dioxide would be emitted per year.

6.2 Soil

The soil on the site is very rich and excellent for agriculture. The Project will require clearing vegetation from relocated or widening roads, turbine sites, the substation site, and at transmission line towers. Contractors will save all topsoil and place it in stable piles for later use after construction is complete. Subsoil and deeper material from the excavation of turbine foundations will also be placed in stable piles. Other soil could be compacted, reducing its value, or could be contaminated by spills of fuel or other materials. Vehicles and equipment will be restricted to designated areas on the Project site, and there will be careful rules about storing and using fuel and other materials, which are described below. Overall, impacts on soil are expected to be very minor and easily mitigated.

6.3 Water

The nearest surface water is a pond at the pig farm in Vladimirovac, and groundwater is 50 metres deep, so there is little concern about contamination in case of spills. WindVision will need a certain amount of water during construction, especially for dusting roads and for making concrete for the turbine foundations. WindVision may take this water from a new groundwater well, in which case there could be some temporary lowering of the water table. If this is the case, WindVision will also monitor the nearest public and private wells to identify any effect on water levels in those wells; if there are, WindVision will provide alternate water until water levels rise again or reduce the rate of their own pumping in order to reduce the drawdown. The impact on water will be very minor, and only if WindVision takes groundwater for construction use.

6.4 Noise & vibration

There will be normal construction-related noise, but turbines will be over one kilometre from the nearest residences in Vladimirovac and even farther from residences in Seleuš and Alibunar. This distance means that people will hear little or no noise. Vehicles and trucks transporting turbines and construction materials to the site will also cause noise and vibration on the road from Pančevo port and the site, which could disturb those who live and work along the highway in Pančevo and Banatsko Novo Selo. A traffic management plan (see

section 6.14 below) will include requirements – vehicle maintenance, consultations with authorities regarding schedules, signs to notify people of heavy traffic, etc. -- that will reduce any impact to acceptable levels. The noise assessment in the ESIA concluded that impacts from noise and vibration could be moderate during construction, but would be temporary.

During operation, the rotating blades will generate noise that can be heard at a distance. Computer models predicted that noise may be heard in Vladimirovac when wind speeds are greater than 5 m/sec and in small parts of both Seleuš and Vladimirovac when greater than 8 m/sec, but only when the wind is blowing in that direction (that is, the noise could be heard only downwind of the turbines). Even then, noise levels are below standards set by Serbian law and by the International Finance Corporation, and so should not be loud enough to create a nuisance or be disruptive. WindVision will monitor noise at the nearest houses every year to verify the models were correct. If anyone complains about noise from the turbines, WindVision will monitor noise at their houses and take corrective action as needed to meet standards.

6.5 Shadow flicker & ice throw

Shadow flicker occurs when rotating blades pass between the sun and a house or other place where people could be disturbed by a flickering effect. A computer model predicted that only two or three houses in Kolonija could be affected, for less than 25 hours per year and for less than 30 minutes per day during the winter, and even then only when there were no clouds in the sky. This is considered by international experts to cause a negligible effect. If there are complaints, however, WindVision will work with the affected people to reach an acceptable solution. Anyone concerned about this issue should discuss it further with WindVision.

Ice throw can occur if blades are coated with ice and the ice is then thrown to the side as the blades rotate. This will not be a problem since no one lives within a kilometre of a turbine.

6.6 Landscape

Wind projects can have a significant effect on the visual landscape since they tower over the land and are visible from a distance. Some people find the tall turbines and their slowly rotating blades to be pleasing additions to the visual landscape, but others find they are distracting and negative, especially in the first weeks and months. The ESIA used computer models to estimate the Zone of Visual Influence, which is the area from which turbines and project components will be visible. It was found that some turbines could be visible from as far as 30 kilometres, but only barely visible at that distance. The ESIA defined 11 viewpoints along roads and in settlements within 20 kilometres and prepared simulated views from each location – the views from Seleuš and Vladimirovac are shown on the cover of this NTS, and views from the other locations are presented in the ESIA. Overall, the ESIA concluded the impact on the visual landscape would be moderate as seen from the roads entering Vladimirovac, Alibunar, and Banatsko Novo Selo, and in Seleuš, and low or negligible from other settlements and roads (including Novi Kozjak, Padina,Samoš, and Lokve, and between Ilandža and Novi Kozjak).

Because of topography, the wind project will not be visible from the valleys nearest the project or from the Alibunar depression, from the Deliblato Sands Special Nature Reserve, from the valley southwest of Padina, from the valleys south of Alibunar, from the valley of the

Tamiš river, from the valleys located between Kočarevo and Banatsko Novo Selo, and to the south of these last valleys.

6.7 Birds & bats

Birds. The south Banat supports large populations of raptors and other large birds, as well as several grassland birds that are vulnerable to wind projects. A program to monitor birds on the Project site and within 15 kilometres of the site was implemented in 2011 and 2012. A total of 125 species that are strictly protected under Serbian law were observed, including 34 listed in Annex I of the European Union Birds Directive. One species, Saker falcon (*Falco cherrug*) is considered endangered at the international level by the International Union for the Conservation of Nature (IUCN), one is Vulnerable (*Aquila heliaca*) and five are Near Threatened (*Falco vespertinus*, *Phalacrocorax pygmaeus*, *Aythya nyroca*, *Crex, Gallinago media*). The results of the monitoring program showed a clear pattern: numbers of birds and species were higher at longer distances from the site and lower closer to and on the site.

The primary risk to birds during construction is the loss of habitat when land is cleared and disturbance by noise and human activity. That is of little or no concern here since there is no suitable habitat for birds on the site itself and few or no birds actually use the site. One narrow valley that supports steppe grassland habitat lies west of the turbines. It is only about 100 metres wide, but will be crossed by the transmission line. However, no construction will take place in the valley and so no habitat will be directly affected. The ESIA recommended that activities that could disturb plants and animals not take place during breeding season and this has been taken on board by WindVision.

There is a Saker falcon nest near where the transmission line will connect to the grid. Due to the elevated concern for this species (see below), no construction will take place within two kilometre of the nest between mid-January and mid-August.

During operation, patterns of breeding, resting or feeding can be disrupted. This also is of little concern since there is very limited breeding, resting, or feeding in these farm fields. Of more concern is that turbines can act as a barrier that causes birds to avoid an area. If they regularly fly across or in that area, this type of disruption can disrupt breeding or feeding, at least temporarily. This is of special concern since the Deliblato Sands Special Nature Reserve supports many protected species that may hunt or feed outside the protected area. Fortunately, the monitoring program found that birds typically do not cross the Project site, from Deliblato Sands or any other locations. This is thought to be because the land and vegetation on all sides of the site is similar (that is, agricultural) and so there is nothing to attract birds to fly in any particular direction.

Some grassland birds have elaborate mating rituals in which birds fly high in the air and back down in order to attract mates. If this is near a turbine, they may collide with a rotating blade or be caught in the disturbed air behind the moving blade. Since all turbine locations are surrounded by cropland, this is of only minor concern at this Project.

Finally, birds can be killed if they collide with moving blades, or if they collide with or are electrocuted by transmission lines. Some large birds in particular – some species of raptors, cranes, geese, etc. – cannot change directions quickly and so are vulnerable to wind projects. If large numbers of birds fly through wind projects, there can be significant bird kills – that is

not likely to be the case here, as the site is not on a major migration pathway, and most migrating birds seen during monitoring were far higher than the turbines and blades. This makes the major concern for this Project a few protected species, whose numbers are low and where the loss of one or a few birds can have a major impact on local, regional, or international populations.

Perhaps of most concern is the Saker falcon (*Falco cherrug*), which as considered to be Critically Endangered at the international level. Two nests were found in the area, both well away from the site, and only twice in a year was a falcon seen on the Alibunar site. As of 2014, only one of the breeding pairs remained, to the west of the site, which was considered to be consistent with a drastic decline (from 55 to 14) of breeding pairs in Serbia in just the past few years. The decline is believed to be due primarily to illegal hunting and possibly pesticide use.

Figure 2. Saker falcon (photo ©Biotope)

Overall, the ESIA concluded that the risk of collision for most species was negligible or low, with a few considered to be at moderate risk. These moderate-risk species typically do not pass or use the site, or do so at heights much higher than the turbines. However, several are of conservation concern so any loss would be considered significant.

To reduce the risk of collision, a red stripe will be painted on all turbine blades so they will be more visible birds and give the birds more time to change course and avoid collisions. In addition, the transmission line will be equipped with bird “deflectors” (shiny spinners or balls that increase visibility) to reduce the risk of collision, and wires will be spaced and insulated to prevent electrocution. The area around turbines will be kept clear of vegetation so insects and small mammals (prey for bats and birds, respectively) are not attracted, and any spills of corn or other crops will be cleaned up quickly so it does not attract small mammals.

To verify that the wind project does not present a significant risk to birds, a comprehensive monitoring programme will be implemented for at least the first three years of operation. This program will repeat past monitoring of bird use and passage, and also survey for dead birds around turbines. If it is concluded by an independent expert, in consultation with the Institute for Nature Conservation of Vojvodina, that too many birds are being killed (which is not anticipated), WindVision will design and implement a program to reduce the risk. If necessary, this could be accomplished by installing a radar detection system, shutting down one or more turbines at particular times or seasons, or possibly by making other areas more attractive to the species at issue. Any such program would be approved by the Institute. It is important to note that this additional measure to confirm the ESIA’s finding that the Project does not present a significant risk to birds.

Bats. No bat species depends on habitats that will be damaged or destroyed by the Project. However, the Project could affect bats if they fly near the rotating blades; if they do, they can collide with the blade or rapid changes in air pressure caused by moving blades can kill them.

The ESIA reported results of monitoring in 2011 and 2012; monitoring involved observing bats and listening for their calls on electronic devices set to hear "hear" each species' frequencies.

Monitoring found that many species of bats are found in the area, but that the site itself is not used intensively since bats are attracted to concentrated insect populations, which generally do not occur on the site since the only vegetation is cultivated crops. Bats also do not commonly cross the Project site when "commuting" between roosts and hunting grounds. However, they do fly along "corridors" of vegetation and semi-natural grassland and hedgerows found outside the windfarm site to move between roosts and hunting grounds, in particular a pond at the pig farm near Vladimirovac and some narrow valleys that support semi-natural steppe vegetation. To protect against bats flying near turbines in operation, turbines will all be 200 metres or more away from the vegetation corridors that are used by bats.

In addition, WindVision will continue monitoring for bats during operation to confirm the ESIA's conclusion that there should be very limited impact, and will also check turbine sites for dead bats. If experts conclude that too many bats are being killed (which also is not anticipated), WindVision will consult with the Institute for Nature Conservation and implement measures that are proven to reduce bat mortality – these measures could include such things as turning off "problem" turbines at dawn and dusk in peak seasons, turning off selected turbines at low wind speeds when bats are most active, or some other measures.

6.8 Other animals

Biodiversity experts conducted surveys of the Project site and of surrounding areas to determine what animals are found there. Very few mammals, reptiles, amphibians, and insects were found on the site, since it is intensively cultivated. Only in three small steppe-habitat valleys and a corridor of bushes between a valley and the pig farm pond were important numbers of animals found. None of these areas will be affected by the Project, other than the transmission line crossing one of them (see section 6.9 below).

There are four species of conservation concern in the area, none of which are vulnerable to significant adverse impacts from the Project:

- Ground squirrel (*Spermophilia citellas*) found in grasslands near the Project but not on the windfarm and substation sites. There could be a few in a narrow valley west of the site to be crossed by the transmission line, and ecologists will survey the area prior to construction of towers to verify there will be no impact at all.
- Pannonian locust (*Acrida ungarica ungarica)* is present in the Project area but in very small numbers. Because it prefers grasslands and other natural habitats, the Project site does not provide important habitat.
- Predatory bush cricket (*Saga pedo*) was observed in the wider area but not on the project site. It is not considered likely to be present because it prefers steppe habitat. This insect is considered to be Vulnerable at the international level.

Figure 3. Predatory bush cricket (photo ©Biotope)

- Caspian whipsnake (*Dolichophis caspius)* is a rare snake that was observed in the wider area but not on the project site. This species also prefers natural habitats and is not likely to be present on the site

6.9 Plants, habitat, and protected areas

The Alibunar A and B sites and the substation are entirely agricultural, with no natural vegetation except when fields are left fallow. There are a few small mammals and birds that may live in these areas or come to eat seeds, but there are no protected plant or animal/bird species that occur on these sites. However, there are two narrow valleys with relict steppe habitat near the project site. These are shown to the northeast and west of the Project in the bottom part of Figure 1. The transmission line will cross the valley on the west, which is about 100 metres wide at the crossing, but no towers will be placed in the grassland so there should be little or no disturbance to that area. There will be no disturbance to the valley to the northeast, and thus no impact on the habitat it provides.

Another area that measures 54.25 hectares lies to the northeast of Alibunar A and is also visible on Figure 1. It also supports steppe habitat (known as habitat type ALI05). It has been designated by the Institute for Nature Protection of Vojvodina as part of the Serbian ecological network, and protected plants, insects, birds, and mammals live there. As noted above, the Project will not affect this area.

The Deliblato Sands Special Nature Reserve covers about 35,000 hectares southeast of the Project site (see Figure 4 below). At its closest, it is about five kilometres from the site. This area has been protected since 1977 due to its unique geology and very rare biodiversity. It is part of the Emerald Network of Areas of Special Conservation Interest and will be designated as a Natura 2000 site when Serbia accedes to the European Union. It also is a tentative candidate UNESCO World Heritage Site and hosts rare ecosystems and populations of plants, birds, and butterflies. At the far end of the protected area near the Danube, far from the Project site, there are Ramsar wetlands of global importance. Although much of Deliblato Sands area has been subject to agriculture, animal husbandry, forestry, and other human changes, it remains as an important haven for animal and plant populations.

The Project will have no effect on Deliblato Sands or its conservation values.

6.10 Telecommunications

Wind turbines can interfere with wireless telecommunications signals under some conditions and cause problems with television and radio reception. The Alibunar project is not expected to cause any problems due to its location in relation to houses and transmitters. A permit has been received from Telekom Srbija.

6.11 Aviation

Turbines will rise about 120 metres in the air, which can present a hazard to low-flying aircraft. To increase visibility in daytime and at night, the Civil Aviation Directorate is requiring WindVision to paint a red stripe on the blades and to install flashing red lights on the turbines.

6.12 Public & occupational health & safety

All construction projects present risks to worker health and safety. WindVision will control those risks by requiring contractors to develop and strictly enforce occupational health and safety plans that meet Serbian and international standards for worker protection. This will include assessments of the hazards presented by every job, training of all workers, and requiring the use of contractor-provided protective equipment. For jobs that present special risks, such as working with electricity, working at heights, working in excavations, or working in confined spaces, there will be special rules and extra training. This will reduce the risk to acceptable levels.

The primary risk to other people will be from traffic and from trespassing on the site, especially the substation. As described in section 6.14 below, there will be a traffic management plan to reduce the risk from increased traffic. Trespassers could fall into excavations or be electrocuted if they come into contact with live electricity. Fences and warning signs will reduce this risk, and there may be guards at some sites during construction to prevent trespassing.

6.13 Income, employment, and land ownership

Contractors may employ up to 200 or more workers at peak construction times, which would probably be in 2016. WindVision will encourage contractors to set goals for local hiring, and will monitor how well they meet those goals. It is expected most workers will come from local area, which will provide added income to their families. A total of about 10 people will operate and maintain the Project after construction is completed. Again, WindVision will favour local workers if they have the required skills. In addition, WindVision will offer one or more grants a year to students from local communities for them to study electro-technical engineering or other relevant disciplines in Belgrade or Novi Sad.

WindVision will also pay to lease land for turbines from 49 landowners (about 0.25 hectares for each turbine and surrounding area), including two companies, and land for transmission line towers from 37 landowners. The prices were negotiated and agreed with each landowner. Leases were signed only when the landowner agreed and there was no legal requirement that they do so.

Overall, the Project will have a small positive economic effect on the local economy.

6.14 Roads & traffic

Turbines and construction materials will come to the port at Pančevo and then brought on trucks to the site. Each turbine will require up to ten oversize trucks, or a total of 330 trucks for Alibunar A. In addition, large amounts of sand and stone will be needed for construction. The ESIA concluded there will be a 50 percent increase in truck traffic on national highway IB-10 during construction phase in 2016. This could interfere with normal traffic and also increase the possibility of accidents.

WindVision's contractors will be required to develop and use traffic management plans that place strict speed limits, time limits, and other restrictions to reduce the chance of accidents and also reduce noise and other nuisances. WindVision and contractors will work with Alibunar and Pančevo traffic and road authorities to design a program that causes the least

disruption and nuisance to residents and businesses along the highway as well as travellers. In addition, signs will be posted before major increases in traffic are expected, and local authorities will be informed. There will also be signs posted on the municipal farm roads that are used by construction equipment, and equipment operators will be trained required to follow strict rules. If required by authorities, there may be public hearings and/or announcements in local media. All of these measures should reduce the potential for serious accidents or inconvenience.

6.15 Cultural heritage

The Institute for Protection of Cultural Monuments Pančevo surveyed the locations of the turbines and roads, substation and transmission line towers to determine if there were ruins or other artefacts that should be investigated further. They found nothing of concern on the site of Alibunar A and the substation, but did find some scattered artefacts within the boundaries of Alibunar B and also at some tower locations. The Institute decided that the project could be constructed, but required some areas to be investigated by archaeologists before construction began and for excavation in some other areas to be supervised by archaeologists. For Alibunar A and all areas, contractors will have to stop work and consult with the Institute if any discoveries are made. These requirements will prevent any damage or destruction to cultural resources.

6.16 Electricity infrastructure

The only risk to Serbia's electricity supply would be during the short period of time during which the new transmission line is being connected to the existing 220kV line that runs between Zrenjanin and Pančevo. This would be a minor disruption and would last only a few minutes, at most.

6.17 **Health** *(Electrical and magnetic radiation)*

All wiring and equipment that carry electricity generate electric fields from voltage and magnetic fields from electricity flowing through lines. The strength of these fields decreases rapidly with distance from the source. Although there is no consistent pattern in research findings, there is concern these fields can cause cancer or other health effects. However, since no one lives or works within a kilometre of the Project site, substation, or transmission line, there is no potential for impacts on health.

7. Cumulative effects

As of early 2015, at least seven wind energy projects within about 30 kilometres of the Alibunar project had been proposed. The approximate locations of these Projects are shown in Figure 4. The projects are in different stages of development, but only one (Plandište) was under construction.

The concentration of many projects in a relatively small area can exaggerate some types of impacts. In some cases, the combined impacts of multiple projects can require that individual projects take steps to reduce their own impacts. Thus, it is necessary to consider the combined impacts of multiple projects. Only a limited amount of quantitative data are

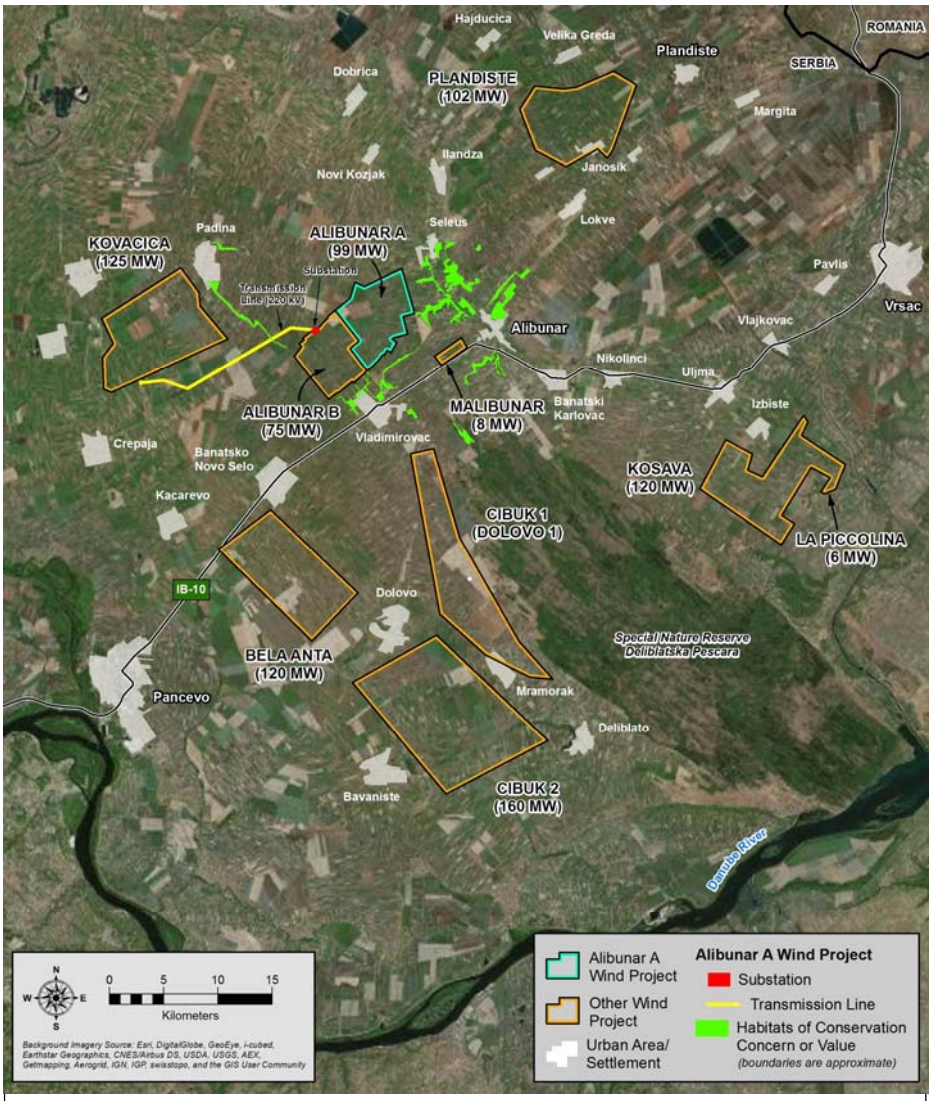

Figure 4. Wind projects proposed in the South Banat region

available for most of the projects that have been proposed, so it is only possible to consider their combined cumulative effects in a qualitative manner.

The areas of most concern when considering the impacts of multiple projects are landscape and visual effects, birds and bats, protected areas, and traffic.

7.1 Landscape

As described in section 6.6 above, the introduction of the Alibunar wind farm into the landscape was assessed to have a negligible to moderate negative effect on the landscape character. In some settlements and on some roads, the turbines of this Project and nearby ones are likely to become the dominant visual feature and a key characteristic of the landscape within the local area, including parts of Banatsko Novo Selo, Vladimirovac, Alibunar, and Seleuš.

The construction of all seven wind projects would make wind turbines an important part of the landscape in the wider South Banat region on three sides of Deliblato Sands. This would

be a significant cumulative change to the character of a landscape that is now assessed to be uniform.

7.2 Biodiversity – birds, bats, and protected areas

Bird monitoring in 2011 and 2012 showed that the Project site is not on a primary path that birds follow when moving from one area to another or in their seasonal migrations north and south. One main route that birds follow is from Deliblato Sands to the Danube, which is far to the south and southwest of the site and so not subject to impacts from Alibunar.

Each of the wind projects could displace some birds from their feeding locations by changing habitat. However, the projects for which data are available are all on uniform cultivated land that provides limited value to birds considered vulnerable to collision with turbine blades. In addition, the distances between the various projects should provide sufficient arable land for feeding for over-wintering birds, and there is abundant alternative habitat in the wider south Banat and surrounding regions.

No bat roosts were identified within any sites for which data were available (Čibuk, Alibunar, Kovačica) and each of these projects' EIAs concluded there was no evidence that the sites were on a migration flyway for bats. Given the distance between the Alibunar site and the Čibuk and Kovačica sites (more than 10 kilometres), it is not considered likely there would be cumulative effects from construction of all projects, even for species potentially migrating through the region.

The International Finance Corporation is coordinating with the Institute for Nature Protection and the Vojvodina Secretariat for Urbanism, Construction, and Environmental Protection to organize a workshop on wind energy development in late May 2015. The focus will be on international practice of bird/bat monitoring, bird collision risk assessment, and cumulative impact assessment. This is intended to increase knowledge of the area and minimize impacts from all developments.

7.3 Traffic

Both Alibunar and Čibuk projects will import turbines and construction materials via the port in Pančevo. Individually, they would cause major increases in traffic on national road IB-10 (see section 6.14 above), and together the effect will be even more pronounced. Impacts could include increased accidents, increased risk to pedestrians, nuisance noise along the roads, and interference with normal traffic. The traffic management plans that will be prepared for each project will call for measures to reduce all of these risks, including speed limits, driver training, vehicle maintenance, scheduling to avoid sensitive times, coordination with road authorities, and notification concerning changes in traffic. In addition, the developers will coordinate their efforts, including their traffic planning and consultations with road authorities, in order to minimize the cumulative effect.

8. Conclusion

WindVision is a European company with experience in developing wind projects. The Alibunar wind project is being designed to meet Serbian and international standards for environmental protection and for preventing adverse effects on people. The Project will be an important step

for Serbia in meeting European Union requirements for renewable energy generation and will benefit the local and national economies.

With the implementation of required mitigation measures and best practices, all negative impacts on the environment and people will be avoided, reduced, or otherwise mitigated to acceptable levels. Environmental and social performance will be monitored by Serbian authorities and by EBRD and EIB. Most important, Project performance will be monitored by WindVision, who will implement the Project Stakeholder Engagement Plan and will remain in close consultation with local authorities, landowners, and other affected people.