



PROPOSED WIND FARMS, SARICHIOI DOBROGEA
REGION AND VUTCANI MOLDOVA REGION,
ROMANIA



Supplementary Information

18/07/2012

PROPOSED WIND FARMS, SARICHIOI, DOBROGEA REGION AND VUTCANI, MOLDOVA REGION, ROMANIA

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1 Introduction

1.1 Background and Context

- 1.1.1 EDP Renewables (EDPR), Romania has developed two wind farms at Sarichioi (Dobrogea region) and Vutcani (Moldova region), including associated infrastructure. The project locations are shown on Figure 1 (below) and on Figures 2 and 3 (see Section 8).

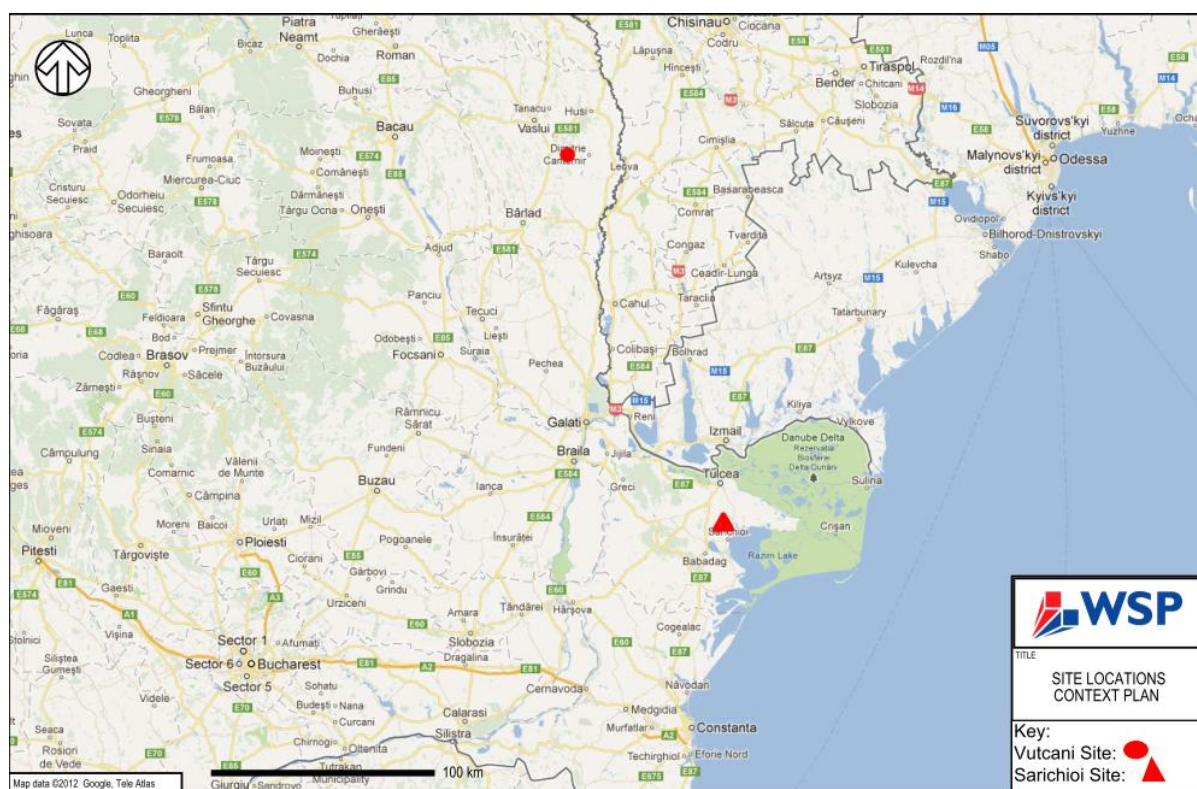


Figure 1 Site Locations Context Plan

- 1.1.2 The projects were originally developed by Wind Experts and EDPR (formerly known as SC Renovatio Power SRL, the name of the company changed to SC EDP Renewables Romania SRL) acquired the permitted development projects. Construction on the wind farms started in April 2011 and the first operational turbines commenced operations in March (Sarichioi) and May (Vutcani) 2012 respectively.
- 1.1.3 EDPR is seeking financing for the projects from the European Bank for Reconstruction and Development (EBRD). In line with EBRD requirements, the projects have been assessed against the Banks' environmental and social policy requirements, and a gap analysis has been undertaken to ensure the project is structured to meet the EBRD Performance Requirements. This includes information disclosure and stakeholder engagement. A separate Stakeholder Engagement Plan will be implemented for the projects.

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- 1.1.4 The projects have been subject to Romanian permitting requirements, and an Environmental Impact Assessment (EIA) has been undertaken of each project in line with National requirements in 2009 (Sarichioi) and 2008 (Vutcani) respectively, which is in line with the EU EIA Directive. The Projects have obtained the required permits and authorisations including building permits, environmental permits and environmental authorisations (in line with Romanian legal requirements).
- 1.1.5 Upon acquisition EDPR identified the need for additional ornithological monitoring in accordance with corporate requirements and best international environmental practices. Therefore EDPR engaged with SC Eco Green Consulting SRL and agreed an approach for further studies with the Romanian Ornithological Society (SOR) and Regulators. The agreed approach is attached to this supplementary report.
- 1.1.6 This report is a supplementary report aimed at providing additional information on ecological and landscape and visual impacts that are required by the EBRD and the Equator Principles and go beyond the requirements of the EU EIA Directive. This report also assesses the cumulative impacts of the two wind farms in line with best practice.
- 1.1.7 A list of abbreviations and acronyms used in this report is provided in Appendix A.

2 Description of the Projects

2.1 Site Locations

Sarichioi

- 2.1.1 The Sarichioi wind farm is located approximately 7 km north of the Sarichioi commune, and is approximately 4 km west of the town of Sabangia. The nearest village to the Site is Agighiol, which is located approximately 900 m to the north-east at the closest point (see Figure 2). The current population of Sarichioi is 3,722 and covers an area of 295.95 ha.
- 2.1.2 The site is accessed via DJ222, which links Sarichioi in the south with Tulcea in the north. The total area of land allocated for the wind farm amounts to 200 ha. The footprint of the infrastructure works covers an area of approximately 1.35 ha, including access road, the footprint of turbines and the transformer station. The land which was temporarily disturbed during the construction works has been restored. The location of the wind farm at Sarichioi is shown on Figure 2.
- 2.1.3 The Site lies approximately 5km west of Lake Agighiol, and approximately 7 km north of Lake Razim. There are no hydrological features within the Site boundary. A significant landscape feature within the site and the surrounding area is a large 'hilly' island, which has formed through a number of erosion processes, and is now blanketed with thick loess. There are also a number of limestone formed hills surrounding the north of the Site, towards the commune of Agighiol. Steppe vegetation can be found on rough areas (slopes, rocky plateaus and valleys). Although there are areas of woodland on Site, there are only small clusters within the surrounding area; this is due to intensive agricultural practices. The land is privately owned and is classed as arable land.
- 2.1.4 The Site is situated approximately 25 km west of the Danube Delta and is surrounded largely by flat, open arable land. Due to the rural surrounding, existing ambient noise levels are expected to be low and determined largely by occasional aircraft fly-overs, local agricultural activities and birdcalls.

Vutcani

- 2.1.5 The Vutcani wind farm is located within the Dumbrava area, and is approximately 1 km west of the town of Vutcani and 3.5 km north-east of Rosiesti village. The wind farm is located within 5 km of the Albesti commune with villages Albești, Corni-Albești, Crasna, Gura Albești. These localities are rural in character and are situated along water courses, roads and farmland. The surrounding population is ageing and therefore there is an increasing demographic dependency typical of rural communities of this nature.
- 2.1.6 The plot of land covers an area of approximately 19 ha. Access to the Site is via the DJ224b (asphalt) and links with DN28b between Lasi-Barlad and Vutcani. The road which enters Vutcani is unpaved. The location of the wind farm at Vutcani is shown on Figure 3.
- 2.1.7 The Site is on land which is privately owned. The land has limited agricultural value (category IV) and is used for crop production, including wheat. Within the Site there are no forested areas or rare/sensitive plant species. Agricultural land use is not colonised other than by grasses and plants which are fast growing and tolerant to the environmental conditions. Water resources are limited, with no irrigation systems in place; however, approximately 1.5 km east of the Site is the Idrici riverbed, which flows in to the Elan (this riverbed is dry during summer months). The Site is located approximately 9 km south from Lake Manjesti.

2.2 Overview of the Wind Farms

Sarichioi

- 2.2.1 The wind farm at Sarichioi comprises 11 wind turbines (turbine model VESTAS V90 3.0MW), providing a total power of 33MW. Each wind turbine consists of a hollow steel tower with a generator nacelle which houses and protects the main components of the rotor blades, gear box, transformer and control systems. The turbines each have a total height of 150 m (comprising 105 m tower and 45 m rotor blade above the tower height). Each foundation has a turbine with an area of 324 sqm to a depth of 3 m. The turbines have an installed power of 3000kW each and are provided with their own transformer station located within the nacelle. The wind turbines will be separated at a distance of 500 m. Further information relating to the technical details of the wind farm is provided in Sections 1 and 2 of the EIA Report and also within the Gap Analysis report.

Vutcani

- 2.2.2 The Vutcani wind farm comprises 12 wind turbines (turbine model VESTAS V90 2.0MW), providing a total power of 24MW. The specifications of the wind turbines are the same as described for the Sarichioi site (except for the tower height being 80 m instead of 105 m), i.e. hollow steel towers and fibreglass rotor with three blades of a total height of 125 m (comprising 80 m tower and 45 m rotor blade above the tower height) fitted with two integral transformer stations (at 690V to 20,000V) within the turbine nacelle. The turbines are connected, through 20kV underground cables and junction stations which are connected to a transformer station within the wind farm and this is then be connected to the nearest E.ON Romania transformers. The turbines have been constructed approximately 500 m apart. Further information relating to the technical details of the wind farm is provided in Sections 1 and 2 of the EIA Report and also within the Gap Analysis report.

2.3 Protected Areas and Other Designated Sites

Sarichioi

- 2.3.1 There are five protected areas within 10 km of the Sarichioi wind farm (as shown on Figure 4), two relating specifically to birds, designated under the Birds Directive, and the other three designated under the terms of the Habitats Directive. The designated sites are as follows:
- Delta Dunării și Complexul Razim – Sinoie (Site Code ROSPA0031) - located approximately 4 km east of the wind farm;
 - Delta Dunării (Site Code ROSCI0065) (also referred to as the Danube Delta) - located approximately 4 km east of the wind farm;
 - Dealurile Agighiolului (Site Code ROSCI0060) (also referred to as the Agighiol Hills) - located adjacent to the north, west and east of the wind farm;
 - Deniz Tepe (Site Code ROSPA0032) – located approximately 10 km west of the wind farm but contains approximately 600 m of overhead transmission line associated with the wind farm; and
 - Deniz Tepe (Site Code ROSCI0067) – located approximately 9 km west of the wind farm but near the overhead transmission line associated with the wind farm.
- 2.3.2 The River Danube (SPA and SCI) (to the east of the Site) is a major bird flyway during spring and autumn migration periods for species such as osprey, little tern, pygmy cormorant, ferruginous duck, white-tailed eagle and glossy ibis. The area also includes species such as otter, steppe polecat and European mink. The area is covered by Article 4 of Directive 79/409/EEC and is listed in Annex II of

Directive 92/43/EEC. The main characteristics of the area include: bogs, marshes, water fringed vegetation, fens and mud flats.

- 2.3.3 One of the turbines associated with the wind farm (turbine 6) is located on agricultural land within the Dealurile Agighiolului SCI. Prior to the construction of the turbine, extensive consultation was undertaken with Tulcea Environmental Protection Agency (EPA) and the Danube Delta Biosphere Reserve Authority (ABRDD) in relation to the proximity of the wind farm to this SCI. Following the consultation, a permit was granted for the development. The general character of the designated area is dry grassland and steppes with extensive cereal cultures and broad leaved woodland. Within the area are a number of species, including: Romanian hamster, spur-thighed tortoise and European ground squirrel. The species are covered by Article 4 of Directive 79/409/EEC and listed in Annex II of Directive 92/43/EEC.
- 2.3.4 In addition approximately 600 m of overhead transmission lines and three pylons associated with the wind farm are located on agricultural land within the Deniz Tepe SPA. Consultation has been held with Tulcea EPA, SOR and EcoPontica and a permit for the development was issued by EcoPontica. Monitoring and mitigation measures are being implemented in accordance with the permit requirements to minimise any potential effects on bird species associated with this site. Part of the Deniz Tepe SPA is also designated as a SCI. The general character of the designated area is also dry grassland and steppe vegetation with extensive cereal cultures. Within the designated site are a number of protected species, including European ground squirrel and rat snake and plant species including *Campanula romanica*, *Vinning asparagus*, *Celtis glabrata* and *Festuca callieri*.
- 2.3.5 A geological reserve is located at Agighiol, 0.7 km north of the Site. The reserve covers an area of 9.7 ha and is situated between Regiment Hill and the village. The geological reserve is within the Dealurile Agighiolului SCI and is protected due the presence of fossils of fauna from the middle Triassic age (i.e. cephalopods, brachiopods and bivalves).

Vutcani

- 2.3.6 There are three protected areas within 20 km of the Vutcani wind farm, one relating specifically to birds, designated under the Birds Directive, and the other two designated under the terms of the Habitats Directive. The designated sites are as follows:
- Horga - Zorleni (Site Code ROSPA0119) - located approximately 20 km south of the wind farm;
 - Pădurea Dobrina – Huși (Site Code ROSCI0335) - located approximately 5 km north of the wind farm; and
 - Râul Prut (Site Code ROSCI0213) - located approximately 20km to the east of the wind farm.
- 2.3.7 The protected areas located within approximately 15 km of the Vutcani site is shown on Figure 5.
- 2.3.8 The Horga-Zorleni SPA supports a number of Annex 1 bird species covered by Article 4 of Directive 79/409/EEC and listed in Annex II of Directive 92/43/EEC within the area. These include species such as: tawny pipit, lesser spotted eagle, European nightjar and white stork. The main characteristics of the area include areas of extensive cereal cultures and broad-leaved woodland.
- 2.3.9 The Padurea Dobrina – Husi SCI is an area covered in broad-leaved deciduous woodland and includes species such as the grey wolf, which is covered by Article 4 of Directive 79/409/EEC and listed in Annex II of Directive 92/43/EEC.

2.3.10 Raul Prut SCI has been designated for species covered by Article 4 of Directive 79/409/EEC and listed in Annex II of Directive 92/43/EEC, these include otter, mouse-eared bat and European ground squirrel. The main characteristics of the site include inland water bodies, broad-leaved deciduous woodland and dry grassland steppes.

2.3.11 The Vutcani wind farm is not located within the boundary of any protected areas, including Natura 2000 sites such as SPAs, SCIs and IBAs.

2.4 Performance Standards and Monitoring

2.4.1 The appropriate permit requirements relating to ecology for both the Sarichioi and Vutcani wind farm sites were obtained to allow both wind farm developments to be constructed and start operation.

Sarichioi

2.4.2 Environmental permits for the Sarichioi wind farm have been issued by the following organisations:

- Tulcea Environmental Protection Agency (EPA);
- Danube Delta Biosphere Reserve (referred to as the ABRDD); and
- EcoPontica (or Ponte Eco Foundation).

2.4.3 When the wind farm was developed it was designed not to encroach on the Deniz Tepe SPA. However, during construction it became apparent that for technical reasons, three of the pylons would need to be re-positioned within the area. Prior to construction of these pylons, EDPR undertook detailed consultations with SOR and EcoPontica and came to an agreement on the mitigation measures required. EDPR have implemented several of the measures identified, including installation of artificial falcon nests, installation of flashing beacons on the turbines and painting the turbine blades.

2.4.4 Given the proximity of the Sarichioi wind farm from the Danube Delta Biosphere Reserve (approximately 4 km east), a permit was required from the ABRDD. The permit requirements are set out in Table 2.1 below.

2.4.5 The Danube Delta Biosphere Reserve Authority (also referred to as the ABRDD) was established in 1990 to administrate the natural heritage of the Danube Delta Biosphere Reserve. The Authority is part of the Ministry of the Environment and is led by a Scientific Council which includes representatives from various organisations involved in the reserve (local authorities, health services, research institutions, Romanian Academy of Science, financial organisations etc.). The Authority is headed up by a Governor, appointed by the Romanian Government at the proposal of the Ministry of Environment and Sustainable Development with approval of the Tulcea County Council and Academy of Science.

2.4.6 The main objectives of the ABRDD for management of the Biosphere Reserve include:

- Conservation and protection of the existing natural heritage;
- Encouragement of sustainable use of the natural resources; and
- Provision of support, based on the results of research, for management, education, training and services.

2.4.7 The Authority's activities include:

- Assessing the ecological status of the natural heritage, organizing the scientific research, drawing up the conservation and restoration strategy and implementing the necessary measures for biodiversity conservation and protection;
- To establish and implement the ecological reconstruction measures of the deltaic ecosystems and decide the adequate legal measures for the protection, improvement and restoration of the environment quality, where it's condition has deteriorated;
- Direct management of the public land of national interest within the Biosphere Reserve and taking measures for restoration and protection of the component physical and geographical units; to organize and implement the survey and control of the enforcement and compliance with the legal provisions concerning the protection measures established in the ABRDD status, as well as other aspects which, according to the law, are in the responsibility of ABRDD; and
- For the achievement of its attributions ABRDD can request from the state institutions responsible with the discouragement of the illegal practices, support for the control and punishment, in accordance with the law, of the minor offences committed on the ABRDD territory.

2.4.8 The ABRDD is responsible for the preparation and implementation of the Management Plan of the Danube Delta Biosphere Reserve, the official document which regulates all the activities carried out within this protected natural area and in its surroundings. The Management Plan consists of objectives and a programme of planned actions which are a working tool for administration of the Reserve and those who wish to carry out activities within the boundary of the Reserve.

2.4.9 The sustainable use of renewable natural resources is an important part of the ecological administration of the Reserve. It is achieved by organising the knowledge of the productive potential of the natural ecosystems of the delta and evaluating the natural resources within the Reserve boundaries imposed by the tolerance limit of the ecosystems in the Danube Delta.

2.4.10 The Foundation Eco Pontica (referred to as EcoPontica) was established in 2005 and deals with the protection and research into ecosystems within Romania. The Foundation is a Non-Governmental Organisation (NGO) which was formed by a team of specialists in biodiversity including ornithologists and forest habitat specialists. The foundation is focused on nature protection in the Dobrogea region and the Danube Delta.

2.4.11 EcoPontica's areas of expertise include knowledge and awareness of the evolution of natural ecosystems, connections and influences of human activity in order to protect the environment and specifically the most important natural areas. The Foundation is particularly concerned with the conservation management of protected areas and the natural important areas within Dobrogea region and mountain areas and supports and sustains scientific research of the environment, including publication of research papers. The Foundation has scientific research contracts with institutions like the ABRDD, the National Research and Development Institute Danube Delta, The National Research and Development for Museum Research in Tulcea, to support, apply and sustain these institutions on research projects in the Dobrogea region and the Danube Delta.

2.4.12 The requirements of the environmental permits relating to the Sarichioi wind farm are summarised in Table 2.1 below.

Table 2.1: Permit Requirements for Sarichioi

(Details in italics relate to construction requirements)

Environmental Agreement – Tulcea county Environmental Protection Agency	
General Requirements	<ul style="list-style-type: none"> ■ <i>Following completion of the wind farm, construction areas will be reinstated with topsoil and vegetation to maximise the area that can be used for agriculture, apart from those areas within the project.</i> ■ Measures detailed within the EIA are to be implemented.
Air	<ul style="list-style-type: none"> ■ <i>Excavated material is to be dampened during strong winds in order to avoid dust. Material is to be covered when transported to minimise dust.</i> ■ <i>The equipment and vehicles shall be appropriately maintained and vehicle exhaust emissions shall not exceed legal values.</i> ■ <i>No concrete production is to take place on site.</i>
Soil	<ul style="list-style-type: none"> ■ <i>Construction works must be supervised in order to prevent contamination off-site</i> ■ Waste collection shall be carefully supervised in order to prevent uncontrolled escape or disposal of waste. ■ There shall be no oil or fuel leakages.
Waste	<ul style="list-style-type: none"> ■ Ecological toilets shall be used. ■ During decommissioning wastes shall be handled according to their type, and handed over to specialized recycling companies; the entire surface of the wind farm shall be restored to its original condition.
Noise and Vibration	<ul style="list-style-type: none"> ■ <i>Construction and mounting of the parts of the wind turbine shall be done correctly.</i> ■ <i>Equipment used for the construction process shall be fitted with equipment to reduce noise and vibration as much as possible.</i>
Ecology	<ul style="list-style-type: none"> ■ Blade tips to be painted in bright colours to avoid bird strike. ■ Turbine towers to be signalled with red paint. ■ It is forbidden to alter property of Dealurile Agighiolului SCI, except the ones mentioned within the project and which are used in agricultural purposes. ■ Compliance with environmental protection laws and regulations: <ul style="list-style-type: none"> - G.O. no. 195/2005 concerning environmental protection, approved and modified by Law 265/2006 modified and completed by G.O. 164/2009 - G.D. no 856/ 2007 concerning waste administration and approval of the list of waste, including hazardous waste - Law no. 27/ 2007 concerning the approval of G.O. no. 61/ 2006 (concerning modification and completion of G.O no. 78/ 2000 regarding waste) - G.O. no. 57/ 2007 concerning protected natural areas, preservation of natural habitats, of the wild fauna and vegetation, modified by G.O. 154/ 2008. ■ Compliance with the terms of the permit issued by Danube Delta Biosphere Reserve Authority no.23 of 24.06.2009. ■ Special protective measures shall be taken if species of plants and animals in the neighbouring areas (SCI Dealurile Agighiolului) which are strictly protected by law are affected by the construction and operation of the wind farm. ■ Order and environment quality shall be preserved within and outside the wind farm. ■ Monitoring will include recording bird activities at varying times of the day and year and in different weather conditions and recording bird carcasses. Specific details are listed within the individual permits. ■ The observation period is a minimum of one year, and it can be extended according to the conclusions drawn after interpreting observation data and videos. ■ The owner of the project shall compile the results of the monitoring activity into a database and analyse them in order to draw conclusions which shall be sent every 6 months to Tulcea EPA. The way the monitoring activity is to be continued will be based on these results.

Danube Delta Biosphere Reserve (ABRDD) No.23 of 24.06.2009 (Ministry of Environment)	
General Requirements	<ul style="list-style-type: none"> ■ The project will comply with the conditions provided in the regulations documentation issued by other certification authorities, urban planning certificate and with the parameters concerning the organisation of the area and the certified technical and legal status. ■ Tulcea Danube Delta Biosphere Reserve Authority must be notified immediately of any accidental pollution of the environment. ■ Personnel must be trained with a view to prevent technological hazards or accidental release of pollutants into the environment, to avoid noise levels above the maximum allowed levels and the uncontrolled storage of waste material of any kind.

Danube Delta Biosphere Reserve (ABRDD) No.23 of 24.06.2009 (Ministry of Environment)	
	<ul style="list-style-type: none"> ■ Establishing a working calendar for the duration of the investment and after the commissioning, considering the need to preserve and protect the ecosystems. ■ <i>The materials necessary for the execution of the works shall be stored in proper and adequately equipped places in order to prevent the pollution of the ground and/or underground and of the surface water. The works at the construction site shall be carried out exclusively within the perimeter of the owner and no soil resulted from different activities shall be deposited outside the location.</i> ■ <i>Dust generation and noise emissions etc. should be avoided, standards and legislation concerning environmental protection must be complied with.</i>
Soil	<ul style="list-style-type: none"> ■ <i>Any materials necessary for the works shall be stored in appropriate locations to prevent pollution of the ground and/or groundwater and surface water.</i>
Waste	<ul style="list-style-type: none"> ■ Recyclable waste materials shall be collected separately and delivered to specialised units for recycling according to waste management legislation: Law 465/2001, the MMGA Order 117/2004, the Government Decision 166/2004, and the MMGA Order 1027/2005. ■ <i>Waste materials from construction shall be transported to locations identified by Sarichioi Local Council.</i> ■ Activities shall be in compliance with Government Decision 621 of June 23, 2005 management of packaging material and packaging waste material, as amended by Government Decision 1872/2006. ■ Sanitation of the areas polluted with any materials and waste materials. The large waste materials resulted from the construction shall be transported exclusively to the locations indicated by the Sarichioi Local Council. The recyclable waste shall be processed in specialized units. ■ The urban sanitation norms adopted by the local administration should be complied with. ■ Any areas polluted with materials and waste materials shall be cleaned.
Noise and Vibration	<ul style="list-style-type: none"> ■ Noise levels shall not exceed the maximum allowed levels.
Ecology	<ul style="list-style-type: none"> ■ The operation schedule of the wind farm shall be established depending on the birds' migration, feeding and reproduction periods and consider the need to preserve and protect surrounding ecosystems ■ The continuation of the environmental impact study that shall focus on the impact of the operation of the wind power stations on the flora, the habitats and especially the bird population after the investment has been finalized, considering that the location is in the neighbourhood of the Danube Delta Biosphere Reserve – an extremely important area for the migration, feeding and reproduction of birds. Quarterly reports with all results of the monitoring activity will be submitted to the Danube Delta Biosphere Reserve Authority. ■ Establishing a self-monitoring system according to the recommendations in the environmental impact study both during the construction and during the operation period: <ul style="list-style-type: none"> - monitoring the birds carcasses found around the wind farm, beginning with the construction period at an interval of 7 days and collecting the data in the database; - during the operation of the wind farm and at the peak of the migration periods, namely during the interval March-May and August-October respectively, the observation shall be without interruption three days a week; - in order for the monitoring process to be efficient and accurate, infrared video cameras equipped with microphones and radars shall be placed on the turbines thus allowing for the real-time transmission of information concerning the abundance of the bird species at the location and also an accurate assessment of the impact of the wind farm on the birds; - if the monitoring process shows that there is a risk of birds colliding with the blades of the power stations, a special monitoring device equipped with a video camera will be installed, able to detect the presence of birds and their trajectory 750 meters before they reach the wind power station with the possibility to reduce the speed of the blades of the air generators, thus avoiding the birds being killed or injured; - observation operations on site shall be conducted during the birds' migration period in order to study their behaviour as regards the presence and operation of the wind farm. Special consideration shall be given to the following aspects: whether the flight altitude changes when encountering the wind farm, the maximum distance the birds come to the wind power stations, the change of the migration routes should these cross the wind farm, the development stage of the birds identified at the location etc. ■ Monitoring will include recording bird activities at varying times of the day and year and in differ-

Danube Delta Biosphere Reserve (ABRDD) No.23 of 24.06.2009 (Ministry of Environment)	
	<p>ent weather conditions and recording bird carcasses. Specific details are listed within the individual permits.</p> <ul style="list-style-type: none"> ■ If the conclusions resulting from interpreting the data collected from direct observation together with the audio-video recordings show a negative impact on the biodiversity in the Danube Delta Biosphere Reserve, the construction works shall be stopped or the operation of the wind farm shall be interrupted. ■ No species of flora or fauna are to be brought into the SPA/SCI without prior authorization. ■ Compliance with environmental protection laws and regulations: <ul style="list-style-type: none"> - G.O. no. 195/2005 concerning environmental protection, approved and modified by Law 265/2006 modified and completed by G.O. 164/2009 - G.D. no 856/ 2007 concerning waste administration and approval of the list of waste, including hazardous waste - G.O. no. 57/ 2007 concerning protected natural areas, preservation of natural habitats, of the wild fauna and vegetation, modified by G.O. 154/ 2008

EcoPontica No.152 of 20.12.2011 – Ponte Eco Foundation	
Ecology	<ul style="list-style-type: none"> ■ For areas within the Deniz Tepe Natura 2000 site the following conditions apply: <ul style="list-style-type: none"> - Power lines are to be marked with visual signage signalling devices every 50 meters. - Artificial nests (technical specifications to be provided by SOR) are to be provided for the saker falcon (Falco cherrug) on each power pylon in and near the protected area of Deniz Tepe SPA/SCI. - The risk of electricity poles inside the protected area should be eliminated. - The high voltage transmission line shall be monitored from the time of commissioning for a period of 36 months in accordance with the following conditions: ■ Monitoring protocols to be approved by EcoPontica. ■ Monitoring reports to be submitted to EcoPontica.

Environmental Authorisation 8372/2012	
General Requirements	<ul style="list-style-type: none"> ■ Measures detailed within the EIA are to be implemented. ■ The wind farm is to be operated in accordance with the conditions imposed by ABRDD in their permit 23/2009. ■ The issuing authority is to be notified of any changes of equipment, operation conditions approved by authorisation 8372/2012. ■ The wind farm is to be operated in accordance with the conditions imposed by permit (152/2011) issued by EcoPontica and SOR (as administrators of Deniz Tepe SPA/SCI and Nature reserve Deniz Hill). ■ Tulcea EPA must be notified immediately of accidents that may happen in the vicinity of the wind farm and can endanger the quality of the environmental components, habitats, flora and fauna species for which the protected areas of Deniz Tepe SPA, Deniz Tepe SCI and Deniz Hill nature reserve are designated.
Soil	<ul style="list-style-type: none"> ■ There shall be no oil or fuel leakages.
Waste	<ul style="list-style-type: none"> ■ The volume of waste oils collected during turbine maintenance shall be transported by certified companies and the volumes will be recorded together with the means of disposal. The details shall be reported to the EPA twice a year. ■ The activity owner must submit records to the EPA biannually on the management of waste oils in accordance with GD 235/2007. ■ No waste is to be stored temporarily on the site.
Ecology	<ul style="list-style-type: none"> ■ The ecological monitoring programme in place during construction shall be continued and at the same time monitoring will be undertaken in a reference area in the vicinity of the wind farm, not influenced by the wind farm, in order to compare the construction and operational reports and determine the wind farm's effect on biodiversity within Deniz Tepe SPA/SCI and the Deniz Hill nature reserve. The period for this monitoring will be for 5 years following the wind farm becoming operational with the possibility to extend the period based on the monitoring results. The biodiversity monitoring report will be sent on a yearly basis to Tulcea EPA. ■ Immediately after observation the accidental death of birds due to collision with the wind turbines shall be notified to Tulcea EPA.

Vutcani

2.4.13 The requirements of the environmental permits relating to Vutcani are summarised in Table 2.2 below.

Table 2.2: Permit Requirements for Vutcani

Unique Environment Agreement 2007	
General Requirements	<ul style="list-style-type: none"> Conditions to be met by the wind farm beneficiary include to provide an appropriate project design and to obtain the specific permits listed in the Urban Certificate. Any topsoil remaining after construction will be re-used by Vutcani City Hall. In addition within 45 days before starting operations the Environment Authorisation and Fire Safety Permit from ISUVaslui is to have been requested.
Environmental Authorisation 78/2012	
General Requirements	<ul style="list-style-type: none"> The provisions of EGO 196/2005 on Environment Fund approved by the Law 105/2006 with subsequent amendments shall be complied with. Proper beaconing of the turbines shall be implemented. Proper technical and organisation conditions shall be implemented to avoid the risks for persons, goods and environment. The issuing environmental authority shall be advised of any changes in equipment, as per operation conditions approved by this authorisation. The issuing environmental authority shall be notified of any changes in ownership. An environmental permit shall be requested and obtained for any extension or modification of activities that may have significant impact on the environment. The project vicinity shall not be affected. Turbine maintenance will be carried out by the agreed operator.
Noise and Vibration	<ul style="list-style-type: none"> The noise limit set in the standard STAS 10009/1988 shall be complied with.
Waste	<ul style="list-style-type: none"> The technological platforms, transformer station, controlling building and access roads shall be kept clean. Wastes from maintenance and service activities will be removed by certified companies for value/disposal, in accordance with Law 211/2011 on the waste regime, GD 235/2007 on the waste oils management, GD 1061/2008 on hazardous and non-hazardous waste transportation. Waste records will be kept according with GD 856/2002 and reported to Vaslui EPA. The provisions of the EGO 68/2007 on the environment liabilities, namely prevention of pollution and restoration of any environmental damage, as approved by the Law 19/2008 with subsequent amendments, shall be complied with Data on the nature and intensity of any accidental contamination to be sent to EPA Vaslui and County Vaslui National Environmental Guard. Also, corresponding mitigation and clean-up actions that have been implemented are to be sent. Waste oils from the turbines will be transported by certified companies. Household wastes will be managed by SC CUP Barlad. The activity owner will keep waste management records in accordance with GD 856/2002. The waste recording questionnaire shall be completed at the request of the EPA. The packaging from hazardous substances shall be appropriately managed and metal drums taken by the company doing the turbine maintenance. Records of waste generation will be kept.
Ecology	<ul style="list-style-type: none"> A biodiversity monitoring programme will be undertaken for the first 12 months of operation of the wind farm and the results submitted to Vaslui EPA.
Soil	<ul style="list-style-type: none"> The maximum allowed limits for soil as set out in Order 756/1997 shall be met. In the event of contamination EPA can request the analysis of soil samples at a specialised laboratory.
Wastewater	<ul style="list-style-type: none"> The wastewater quality limits set out in NTPA002/2002-GD188/2002 amended by GD352/2005 shall be met.

3 Additional Environmental Assessment

3.1 Ecology and Nature Conservation

- 3.1.1 This section summarises the results of the desk study and baseline for both Sarichioi and Vutcani wind farm sites and interprets them to understand the ecological context of the sites within the wider landscape. Designated sites and known flyways within proximity of each site are identified along with records of species of conservation concern. This baseline of information is then combined with the findings of the field visit and additional monitoring undertaken at the site to inform the ESIA process.

Overview of Ornithological Interest in Romania

- 3.1.2 In Romania a total of 385 bird species have been recorded, of these 66% have bred (Anon, 2008). There are 109 species that are resident (present year-round); 36 winter visitors; 134 summer visitors; 36 regular passage migrants; and 70 'vagrants' (recorded only occasionally). Of the 385 species, 102 regularly-occurring species are listed in Annex 1 of the Wild Birds Directive (79/409/EEC).
- 3.1.3 As a result of the high percentage of certain species breeding in Romania, the country may be considered important in maintaining breeding populations of certain bird species of European importance. For example, over 50% of the European breeding population of seven bird species occur in Romania and 13 bird species for which 10-50% of the European breeding population is found within Romania (Anon, 2008).
- 3.1.4 Romania is also a key geographical region on the route of one of Europe's major migratory flyways, Via Pontica. Via Pontica is the main flyway connecting Eastern Europe with the eastern coast of Africa; it supports hundreds of thousands of waterfowl, birds of prey and passerines annually (Anon, 2008). Via Pontica passes through Dobrogea, relatively close to many of the wind farm sites present, particularly those close to the Danube Delta and Black Sea coast. The Danube Delta SPA/IBA is one of the most important protected areas in Europe; it is reported to accommodate between 470,000 - 950,000 migratory waterfowl annually; the western Black Sea coast also supports significant numbers of waterfowl, with an estimated 110,000 – 250,000 individuals stopping to feed during their migration every year.
- 3.1.5 Species of note which breed, migrate through or over winter in Romania include a number of 'globally threatened' species, such as the red-breasted goose *Branta ruficollis* (estimated world population of 88,000 birds); lesser white-fronted goose *Anser erythropus* (estimated world population of 28-33,000 pairs); white-headed duck *Oxyura leucocephala* (estimated world population of under 10,000 pairs); and the greater spotted eagle *Aquila clanga* (estimated world population of less than 10,000 pairs, with a total European population of approximately 900 pairs). Population estimates obtained from the Birdlife International website (Anon, 2012) indicate that all of these species are declining.

Overview of Protected Areas and Natura 2000 Sites

Sarichioi

- 3.1.6 As indicated in Section 2, there are five designated sites within approximately 20 km of the Sarichioi wind farm site, the location of these is shown on Figure 4. Two relating specifically to birds, a Special Protection Area (SPA) designated under the Birds Directive and three Sites of Community Interest (SCIs), which are protected in terms of their habitats. SCI are to be designated as Special Areas of Conservation (SACs) under the terms of the Habitats Directive within a period of six years following the implementation of the Directive.
- 3.1.7 The first is Delta Dunării și Complexul Razim – Sinoie (Site Code ROSPA0031). This site is located less than five km to the east of the Sarichioi wind farm.
- 3.1.8 Annex 1 bird species covered by Article 4 of Directive 79/409/EEC and listed in Annex II of Directive 92/43/EEC are detailed in Table 3.1.

Table 3.1: Details of bird species listed as part of the designated site

Common Name	Scientific Name	Population			
		Resident	Migratory		
			Breeding	wintering	Passage
Levant Sparrowhawk	<i>Accipiter brevipes</i>		3-5p		40-80i
Moustached Warbler	<i>Acrocephalus melanopogon</i>		400-1000 p		
Common Kingfisher	<i>Alcedo atthis</i>		1500-1700 p		
Lesser White-fronted Goose	<i>Anser erythropus</i>			10-30 i	
Tawny Pipit	<i>Anthus campestris</i>		RC		
Greater Spotted Eagle	<i>Aquila clanga</i>			8-14 i	
Imperial Eagle	<i>Aquila heliaca</i>				1-3 i
Lesser Spotted Eagle	<i>Aquila pomarina</i>				200-300 i
Purple Heron	<i>Ardea purpurea</i>		230-450 p		
Squacco Heron	<i>Ardeola ralloides</i>		3000-4000p		
Short-eared Owl	<i>Asio flammeus</i>			8-12 i	
Ferruginous Duck	<i>Aythya nyroca</i>		3800-4200 p		
Eurasian Bittern	<i>Botaurus stellaris</i>		800-1000p		
Red-breasted Goose	<i>Branta ruficollis</i>			1000-3000i	7000-24000i
Stone Curlew	<i>Burhinus oedicnemus</i>		44-60 p		
Long-legged Buzzard	<i>Buteo rufinus</i>		4-5 p		
Kentish Plover	<i>Charadrius alexandrinus</i>		90-120 p		450-520 i
Dotterel	<i>Charadrius morinellus</i>				R
Whiskered Tern	<i>Chlidonias hybridus</i>		5000-6000p		30000-50000i
Black Tern	<i>Chlidonias niger</i>		200-300 p		
White Stork	<i>Ciconia ciconia</i>		100-120p		45000-60000i
Black Stork	<i>Ciconia nigra</i>		2-5i		500-1000i

Common Name	Scientific Name	Population			
		Resident	Migratory		
			Breeding	wintering	Passage
Short-toed Eagle	<i>Circaetus gallicus</i>				R
Marsh Harrier	<i>Circus aeruginosus</i>		300-400 p		
Hen Harrier	<i>Circus cyaneus</i>			150-200 i	
Pallid Harrier	<i>Circus macrourus</i>				50-60i
Montagu's Harrier	<i>Circus pygargus</i>		3-6i		500-800i
European Roller	<i>Coracias garrulus</i>		500-600p		
Bewick's Swan	<i>Cygnus columbianus bewickii</i>			10-40i	
Whooper Swan	<i>Cygnus cygnus</i>			340-1270 i	
Middle Spotted Woodpecker	<i>Dendrocopos medius</i>	R			
Syrian Woodpecker	<i>Dendrocopos syriacus</i>	RC			
Black Woodpecker	<i>Dryocopus martius</i>	RC			
Great White Egret	<i>Egretta alba</i>		320-360p	1000-1200i	
Little Egret	<i>Egretta garzetta</i>		1700-2500 p		
Ortolan Bunting	<i>Emberiza hortulana</i>		R		
Saker	<i>Falco cherrug</i>		2-4i	5-10i	
Merlin	<i>Falco columbarius</i>			20-60 i	
Lesser Kestrel	<i>Falco naumanni</i>		1-3 p		
Peregrine	<i>Falco peregrinus</i>		2-4i	10-20i	
Red-footed Falcon	<i>Falco vespertinus</i>		300-350p		2000-3000i
Collared Flycatcher	<i>Ficedula albicollis</i>				C
Red-breasted Flycatcher	<i>Ficedula parva</i>				C
Great Snipe	<i>Gallinago media</i>				20-80 i
Black-throated Diver	<i>Gavia arctica</i>			50-80i	
Red-throated Diver	<i>Gavia stellata</i>			40-50i	
Gull-billed Tern	<i>Gelochelidon nilotica</i>		8-12 p		320-350 i
Collared Pratincole	<i>Glareola pratincola</i>		420-540 p		
Common Crane	<i>Grus grus</i>				R
White-tailed Eagle	<i>Haliaeetus albicilla</i>		26-28 p		
Booted Eagle	<i>Hieraaetus pennatus</i>				50-80i
Black-winged Stilt	<i>Himantopus himantopus</i>		220-370 p		1400-2200 i
Little Bittern	<i>Ixobrychus minutus</i>		3000-3500 p		
Red-backed Shrike	<i>Lanius collurio</i>		RC		C
Lesser Grey Shrike	<i>Lanius minor</i>		R		C
Slender-billed Gull	<i>Larus genei</i>				20-70 i

Common Name	Scientific Name	Population			
		Resident	Migratory		
			Breeding	wintering	Passage
Mediterranean Gull	<i>Larus melanocephalus</i>		160-200p		
Little Gull	<i>Larus minutus</i>				10000-12000 i
Black-tailed Godwit	<i>Limosa lapponica</i>				1-5 i
Woodlark	<i>Lullula arborea</i>		R		R
Bluethroat	<i>Luscinia svecica</i>		300-700 p		
Calandra Lark	<i>Melanocorypha calandra</i>		RC		
Smew	<i>Mergus albellus</i>		R	4000-5000i	
Black Kite	<i>Milvus migrans</i>		6-7i		20-30i
Slender-billed Curelw	<i>Numenius tenuirostris</i>				1-3 i
Night Heron	<i>Nycticorax nycticorax</i>		3500-4000p		
Pied Wheatear	<i>Oenanthe pleschanka</i>		12-24 p		
White-headed Duck	<i>Oxyura leucocephala</i>			1-4 i	
Osprey	<i>Pandion haliaetus</i>				RC
Dalmatian Pelican	<i>Pelecanus crispus</i>		320-410 p		
White Pelican	<i>Pelecanus onocrotalus</i>		3560-4160 p		
Pygmy Cormorant	<i>Phalacrocorax pygmeus</i>		8700-9500 p	4000-6500 i	4000-6500 i
Red-necked Phalarope	<i>Phalaropus lobatus</i>				700-1200 i
Ruff	<i>Philomachus pugnax</i>				13000-18000 i
Grey-headed Woodpecker	<i>Picus canus</i>	RC			
Spoonbill	<i>Platalea leucorodia</i>		360-440 p		
Glossy Ibis	<i>Plegadis falcinellus</i>		2000-3200 p		
Golden Plover	<i>Pluvialis apricaria</i>				300-500i
Little Crake	<i>Porzana parva</i>		2000-3000 p		
Spotted Crake	<i>Porzana porzana</i>		300-400 p		
Baillon's Crake	<i>Porzana pusilla</i>				V
Yelkouan Shearwater	<i>Puffinus yelkouan</i>				20-100i
Avocet	<i>Recurvirostra avosetta</i>		220-280 p		800-1200 i
Little Tern	<i>Sterna albifrons</i>		40-100p		
Caspian Tern	<i>Sterna caspia</i>				500-1000i
Common Tern	<i>Sterna hirundo</i>		1800-2300 p		
Sandwich Tern	<i>Sterna sandvicensis</i>		250-300p		3000-5000i
Barred Warbler	<i>Sylvia nisoria</i>		R		RC
Terek Sandpiper	<i>Xenus cinereus</i>				1-3 i

- 3.1.9 The second designated site in the vicinity of Sarichioi wind farm is Delta Dunării (Site Code ROS-CI0065). This site is located less than five km to the east of the Sarichioi wind farm.
- 3.1.10 Species covered by Article 4 of Directive 79/409/EEC and listed in Annex II of Directive 92/43/EEC are detailed in Table 3.2.

Table 3.2: Details of species listed as part of the designated site

Common Name	Scientific Name	Population			
		Resident	Migratory		
			Breeding	wintering	Passage
Otter	<i>Lutra lutra</i>	x			
Steppe Polecat	<i>Mustela eversmannii</i>	x			
European Mink	<i>Mustela lutreola</i>	x			
European Ground Squirrel	<i>Spermophilus citellus</i>	x			
Marbled Polecat	<i>Vormela peregusna</i>	x			
Fire bellied Toad	<i>Bombina bombina</i>	x			
European Pond Turtle	<i>Emys orbicularis</i>	x			
Spur-thighed tortoise	<i>Testudo graeca</i>	x			
Danube Crested Newt	<i>Triturus dobrogicus</i>	x			
Meadow Viper	<i>Vipera ursinii</i>	x			

- 3.1.11 The third designated site in the vicinity of the Sarichioi wind farm is Dealurile Agighiolului (Site Code ROSCI0060). This site is located less than one km to the north, west and east of the Sarichioi wind farm.
- 3.1.12 Species covered by Article 4 of Directive 79/409/EEC and listed in Annex II of Directive 92/43/EEC are detailed in Table 3.3.

Table 3.3: Details of species listed as part of the designated site

Common Name	Scientific Name	Population			
		Resident	Migratory		
			Breeding	wintering	Passage
Romanian Hamster	<i>Mesocricetus newtoni</i>	x			
Spur-thighed tortoise	<i>Testudo graeca</i>	x			
European Ground Squirrel	<i>Spermophilus citellus</i>	x			

- 3.1.13 The remaining designated sites include:
- Deniz Tepe (Site Code ROSPA0032) – located approximately 10 km west of the wind farm but contains approximately 600m of overhead transmission line associated with the wind farm; and
 - Deniz Tepe (Site Code ROSCI0067) – located approximately 9 km west of the wind farm but near the overhead transmission line associated with the wind farm.

- 3.1.14 Part of the Deniz Tepe SPA is also designated as a SCI. The general character of the designated area is dry grassland and steppe vegetation with extensive cereal cultures. Within the designated site are a number of protected species, including European ground squirrel and rat snake and plant species including *Campanula romanica*, Vinning asparagus, *Celtis glabrata* and *Festuca calieri*. Details of species listed as part of the Deniz Tepe SPA are provided in Table 3.4.

Table 3.4: Details of species listed as part of the Deniz Tepe designated site

Common Name	Scientific Name	Population			
		Resident	Migratory		
			Breeding	Wintering	Passage
Levant Sparrowhawk	<i>Accipiter brevipes</i>		2-4p		90-100i
Tawny Pipit	<i>Anthus campestris</i>		1200p		
Greater Spotted Eagle	<i>Aquila clanga</i>				2-5i
Lesser Spotted Eagle	<i>Aquila pomarina</i>		1p		300i
Eurasian Eagle-owl	<i>Bubo bubo</i>		1-2p		
Eurasian Stone-curlew	<i>Burhinus oedicnemus</i>		20-24p		
Long-legged Buzzard	<i>Buteo rufinus</i>	4-5p			
Greater Short-toed Lark	<i>Calandrella brachydactyla</i>		100-150p		
Common Nightjar	<i>Caprimulgus europaeus</i>		20-30i		
Short-toed Snake Eagle	<i>Circaetus gallicus</i>		3-4p		
Hen Harrier	<i>Circus cyaneus</i>				200i
Montagu's Harrier	<i>Circus pygargus</i>				300i
European Roller	<i>Coracias garrulus</i>		20-30p		
Syrian Woodpecker	<i>Dendrocopos syriacus</i>		10p		
Red-footed Falcon	<i>Falco vespertinus</i>		200-300p		
Booted Eagle	<i>Hieraaetus pennatus</i>		1p		
Woodlark	<i>Lullula arborea</i>		300-350p		
Calandra lark	<i>Melanocorypha calandra</i>		200-300p		
Saker Falcon	<i>Falco cherrug</i>		2p		
Pied Wheatear	<i>Oenanthe pleschanka</i>		16-20p		

Vutcani

- 3.1.15 There are four designated sites in proximity to the Vutcani wind farm site, the location of these are shown on Figure 5. One relates specifically to birds under the Birds Directive and the other three designated under the terms of the Habitats Directive.
- 3.1.16 The first is Horga - Zorleni (Site Code ROSPA0119). This site is located approximately 20 km to the south of the Vutcani wind farm.
- 3.1.17 Annex 1 bird species covered by Article 4 of Directive 79/409/EEC and listed in Annex II of Directive 92/43/EEC are detailed in Table 3.5.

Table 3.5: Details of bird species listed as part of the Horga-Zorleni designated site

Common Name	Scientific Name	Population			
		Resident	Migratory		
			Breeding	Wintering	Passage
Tawny Pipit	<i>Anthus campestris</i>		50-100 p		
Lesser Spotted Eagle	<i>Aquila pomarina</i>		1-2 p		
European Nightjar	<i>Caprimulgus europaeus</i>		30-50 p		
White Stork	<i>Ciconia ciconia</i>		30-40 i		
European Roller	<i>Coracias garrulus</i>		3-5 p		
Corn Crane	<i>Crex crex</i>		5-10 p		
Middle-spotted Woodpecker	<i>Dendrocopos medius</i>		7-14 p		
Ortolan Bunting	<i>Emberiza hortulana</i>		12-15 p		
Merlin	<i>Falco columbarius</i>			5-10 i	
Peregrine	<i>Falco peregrinus</i>			3-5 i	
Collared Flycatcher	<i>Ficedula albicollis</i>		25-30 p		
Booted Eagle	<i>Hieraaetus pennatus</i>		1-2 p		
Red-backed Shrike	<i>Lanius collurio</i>		300-500 p		
Lesser Grey Shrike	<i>Lanius minor</i>		150-200 p		
Woodlark	<i>Lullula arborea</i>		200-400 p		
Black Kite	<i>Milvus migrans</i>				2-5 i
Honey Buzzard	<i>Pernis apivorus</i>		3-5 p		
Grey-headed Woodpecker	<i>Picus canus</i>		15-20 p		
Barred Warbler	<i>Sylvia nisoria</i>		50-80 p		

- 3.1.18 The second designated site in the vicinity of Vutcani wind farm is Pădurea Dobrina – Huși (Site Code ROSCI0335). This site is located approximately 2 km to the north east of the Vutcani wind farm.
- 3.1.19 Species covered by Article 4 of Directive 79/409/EEC and listed in Annex II of Directive 92/43/EEC are detailed in Table 3.6.

Table 3.6: Details of species listed as part of the Pădurea Dobrina designated site

Common Name	Scientific Name	Population			
		Resident	Migratory		
			Breeding	Wintering	Passage
Grey Wolf	<i>Canis lupus</i>	x		x	

- 3.1.20 The third designated site in the vicinity of Vutcani wind farm is Râul Prut (Site Code ROSCI0213). This site is located approximately 20 km to the east of the Vutcani wind farm.
- 3.1.21 Species covered by Article 4 of Directive 79/409/EEC and listed in Annex II of Directive 92/43/EEC are detailed in Table 3.7.

Table 3.7: Details of species listed as part of the designated site

Common Name	Scientific Name	Population			
		Resident	Migratory		
			Breeding	Wintering	Passage
Otter	<i>Lutra lutra</i>	R			
Mouse-eared Bat	<i>Myotis myotis</i>	R			
European Ground Squirrel	<i>Spermophilus citellus</i>	<1000i			

- 3.1.22 The fourth designated site in the vicinity of Vutcani wind farm is Colinele Elanului (Site Code ROS- CI0286). This site is located approximately ten km to the southeast of the Vutcani wind farm.
- 3.1.23 Species covered by Annex II of Directive 92/43/EEC are related to plants only.

Qualifying Avifaunal Species in Natura 2000 Sites

Sarichioi

- 3.1.24 Species listed as qualifying species for each SPA under the provisions of the EC Birds Directive are listed in Tables 3.1 to 3.4.
- 3.1.25 The Danube Delta SPA/IBA is by far the most important within Romania, and in fact in Europe. Measuring 51.5 km² it occupies an area similar in size to all of the other SPAs in the Dobrogea region combined.
- 3.1.26 The contribution both the Danube Delta and Black Sea protected areas make to the Via Pontica (the main bird flyway between Eastern Europe and the east coast of Africa) is also significant. The Danube Delta supports between 470,000 – 950,000 migratory waterfowl, and the Black Sea between 110,000 – 250,000 migratory waterfowl annually. These figures refer to the number of waterfowl that stop to feed at these sites during migration; additional waterfowl may fly over the sites without stopping, and birds of prey and passerines, not included in these figures, may also stop to feed and/or fly over these sites. Although these considerable numbers of bird movements are focussed within the Danube Delta and along the western Black Sea coasts, some migratory movements also occur north and south along the River Danube, located approximately 50 km to the west. Although the Via Pontica bird movements will occur along a broad front which may encompass all of the wind farm sites around Sarichioi, it is likely to be focussed on coastlines, steppes and major rivers rather than flat agricultural planes.
- 3.1.27 According to SOR (Cazacu, 2012) there are also significant movements of birds from the Black Sea coast moving west to the River Danube, particularly in freezing weather, and back again to the Black Sea in warmer conditions. Such movements include those made by the red-breasted goose, a globally threatened species, almost the entire global population of which overwinters near the Black Sea.

Vutcani

- 3.1.28 Species listed as qualifying species for each SPA under the provisions of the EC Birds Directive have been illustrated in Table 3.4.
- 3.1.29 The area around the Vutcani wind farm is devoid of designated areas and SPA/IBAs.
- 3.1.30 According to SOR (Cazacu, 2012) there are no significant movements of birds around the Vutcani wind farm site.

Overview of Bat Status within Romania

- 3.1.31 Published information on the status of bats in Romania is limited. Information obtained from EUROBATS.AC7.14, 'Agreement on the Conservation of Bats in Romania', March 2002 (Anon, 2002), states that there are 30 bat species in Romania.
- 3.1.32 Romania also has a number of cave systems which have, at least in the past, held significant aggregations of breeding, mating and hibernating bats (in winter). Many of these systems have been damaged or subject to vandalism, which has resulted in levels of displacement, whereby bats have left these caves (Anon, 2002).
- 3.1.33 Most of the caves are in the Carpathian Mountains, a significant distance from the wind farm sites at Sarichioi and Vutcani.
- 3.1.34 It is during swarming and migration for the mating period that potential impacts on bats are generally predicted whereby direct mortality is caused due to proximity to and collisions with wind turbines.
- 3.1.35 Bats are also known to roost in trees and buildings in Romania, although there are few trained bat ecologists and ultrasonic bat detectors in Romania resulting in a limited understanding of both the spatial distribution of bats and how they travel across the landscape. However, there are bat species which are common to both Romania and other European countries, and it is likely that through evolution identical species have evolved over many thousands of years to use identical ecological niches.
- 3.1.36 Given their insectivorous feeding habits, bats will predominantly forage over habitats rich in insects such as freshwater, woodland, scrub and grassland. They are less likely to forage over arable crops which are often subject to frequent insecticide treatment. Bats use echolocation to find their prey and navigate their way around the landscape. Navigation is generally via linear features (e.g. hedgerows, watercourses and woodland edges) which provide clear routes across the landscape and also often provide shelter from the wind (bats aren't very strong flyers and will often use sheltered routes to save energy). Bats will also habitually use the same commuting routes to navigate between roosts and favoured feeding grounds. Therefore, the availability of suitable roosts, high quality feeding grounds and strong landscape connectivity are usually important for the health of a bat population at a landscape scale. None of these features are present within the vicinity of the wind turbines therefore impact on bats is considered to be minimal.

Designated Sites and Flyways within Proximity of the Sites

- 3.1.37 In 2007 a series of natural areas were identified as Important Bird Areas (IBA) according to IBA C criteria (EU-level criteria) by the Romanian Ornithological Society (SOR), the BirdLife Partner in Romania. In October 2007, the Romanian Government adopted Government Decision no. 1284/2007 which designates 108 Special Protection Areas (SPAs) for the conservation of wild birds.
- 3.1.38 In Romania, Dobrudjia is an area with a natural and landscape heritage with very high biodiversity and international importance. There are 26 SPAs in Dobrogea, which, in many areas, overlap with the 37 protected areas (national parks, landscape or natural reserves) designated according to national legislation.

-
- 3.1.39 Dobrogea territory belongs to two counties: Tulcea and Constanta. Tulcea County has the largest legally protected area in Romania (436143.2 ha) which includes 31 protected areas that were proposed by the EMRI Tulcea (Eco-Museal Research Institute). In addition, on the basis of field studies, five protected areas were elaborated by other institutions and 10 SPAs.
- 3.1.40 Danube Delta Natura 2000 site (The Danube Delta and Razim-Sinoe Lagoon Complex) has a total surface area of 512.380 ha (official identification reference - ROSPA0031). The majority of the area covered by the current SPA designation has also been proposed as a Site of Community Importance (SCI) (ROSCI0065 - total surface 450 540 ha) through Minister Order no. 776/2007.
- 3.1.41 The Danube Delta is the second largest delta in Europe and the only Delta in the world entirely declared (in 1990) as a Biosphere Reserve by UNESCO. Designated as a Ramsar site in 1990, it is one of the biggest wetlands of international importance in the world, habitat for waterfowl and the biggest area of compact reed beds in the world. With 30 types of ecosystems and 5,300 flora and fauna species, the Danube Delta is a natural genetic bank with significant value for natural heritage (a fact which has been recognized by its inclusion in the World Heritage List under the World Cultural and Natural Heritage Convention).
- 3.1.42 Razim-Sinoie lagoon complex is the part of the SPA/pSCI and of the Danube Delta Biosphere Reserve (DDBR) and is the largest lagoon area in Romania covering 101,500 ha. This area is isolated from the Black Sea by beach ridges (levees) which divide the former lagoon into a rather heterogeneous lacustrine complex, 85% of which comprises lakes.
- 3.1.43 Over 320 bird species have been identified in the SPA/pSCI, 97 of which are listed in Annex I of Birds Directive, 151 under the Bonn Convention on migratory species and 17 are globally threatened species. The Danube Delta Natura 2000 site is important for hundreds of thousands of birds. During the migration period about 130,000 – 250,000 individuals per day can be observed, especially geese, ducks, gulls and waders.
- 3.1.44 The Danube Delta is also protected by national legal instruments concerning biodiversity protection and conservation:
- Law no. 82/1993 concerning the creation of the DDBR;
 - Government Decision no. 248/1994 which delineates the areas within the DDBR with different functions and the activities which are permitted in these different types of 'functional areas' (the DDBR has 18 strictly protected areas surrounded by buffer zones, the rest of the Biosphere Reserve contains economical areas); and
 - Government Emergency Ordinance (OUG) 202/2002 concerning the management of the coastal area.

Ecological Baseline

- 3.1.45 The ecological baseline presented in this document is based on the following sources:
- Qualifying Avifaunal Species in Natura 2000 Sites in the vicinity of Sarichioi and Vutcani from the European Environment Agency Website;
 - Data from EDPR made available from the project team;
 - Information from SOR obtained in May 2012;
 - Information from biodiversity monitoring conducted at the Sarichioi site during the construction works (reports covering the periods April – September 2011 and September 2011- December 2011);

- Monitoring Plan for the operational lifespan of Sarichioi wind farm (including the 110kV cabling area to Zebil North) discussed with EcoPontica, SOR and Tulcea EPA and based on the conditions imposed in the Environmental Permit No. 8372.01.2012; and
- Additional supplementary data gathered during validation field visits in May 2012.

Sarichioi

Site Overview

- 3.1.46 The Sarichioi wind farm site in Tulcea County lies within the Dobrogea region of Romania. It is a largely dry area with a landscape typically comprising rolling steppe and flat agricultural land, dotted with woodlands and brackish and freshwater lakes adjacent to the River Danube, the Danube delta, with lagoons and Black Sea coast to the east. The wind farm area comprises agricultural land with a single crop, mainly cereals, but also sunflower, rapeseed, and in between small steppe vegetation.
- 3.1.47 The wind farm comprises eleven 3MW turbines which have been in operation since early May 2012. A 110kV overhead power line provides the grid connection between the wind farm and Zebil North. In close proximity to the EDP wind farm site to the north was a separate wind farm which comprised thirteen 33MW turbines. This wind farm had commenced operation prior to the EDP site.
- 3.1.48 An initial EIA was undertaken in 2009 and this included baseline data as required by Romanian legislation and authorisations.
- 3.1.49 Upon acquisition by EDPR, additional monitoring and surveys were undertaken between April 2011 and December 2011, during the construction period for the site. Biodiversity monitoring re-commenced following commissioning of the wind farm in March and is on-going at this time. The area is well monitored by various ornithological organisations due to the proximity of the Danube Delta which is a major bird migratory route. In addition, a significant amount of consultations were carried out in relation to the site and this included discussions with SOR during which it was indicated that the spring migration period when birds were moving through the area was short (e.g. 6-8 weeks). In autumn, the migration period was longer (e.g. 8-12 weeks). The proximity of the Sarichioi wind farm site to important protected areas for birds was recognised as was its location near known migration routes.

Biodiversity Monitoring During Construction April 2011 – December 2011

- 3.1.50 As part of the mitigation for the wind farm and to comply with the terms of the permit and licence agreement two monitoring programmes were undertaken during the construction period by Blue Terra Consulting on behalf of EDPR. The first occurred during April – September 2011 and the second period was between October – December 2011.
- 3.1.51 Monthly survey visits were undertaken and during this time, the following data was recorded: date, observation place, species, number of individuals, observation periods etc.
- 3.1.52 Due to technical difficulties and excessive investment costs associated with installation of video cameras as stated in the permit from the ABRDD, alternative monitoring methods were agreed with the SOR, EcoPontica and the ABRDD. The Ecological Monitoring Plan for the site (prepared by SC Eco Green Consulting SRL, January 2012) is provided in Appendix B.
- 3.1.53 During the bird monitoring programmes a total of 48 species of birds were observed. A summary of the results of the bird monitoring is provided in Tables 3.8-3.12 below.

Table 3.8: Summary of bird monitoring between April – September 2011

Number	Scientific Name	Common Name	IUCN category*
1.	<i>Ciconia ciconia</i>	White Stork	Least Concern (L.C.)

Number	Scientific Name	Common Name	IUCN category*
2.	<i>Pelecanus onocrotalus</i>	White Pelican	L.C.
3.	<i>Circus aeruginosus</i>	Marsh Harrier	L.C.
4.	<i>Circus pygargus</i>	Montagu's Harrier	L.C.
5.	<i>Buteo buteo</i>	Common Buzzard	L.C.
6.	<i>Buteo rufinus</i>	Long-legged Buzzard	L.C.
7.	<i>Falco tinnunculus</i>	Common Kestrel	L.C.
8.	<i>Falco subbuteo</i>	Eurasian Hobby	L.C.
9.	<i>Coturnix coturnix</i>	Common Quail	L.C.
10.	<i>Perdix perdix</i>	Grey Partridge	L.C.
11.	<i>Phasianus colchicus</i>	Common Pheasant	L.C.
12.	<i>Larus cachinnans</i>	Caspian Gull	L.C.
13.	<i>Streptopelia decaocto</i>	Eurasian Collared Dove	L.C.
14.	<i>Merops apiaster</i>	European Bee-eater	L.C.
15.	<i>Burhinus oedicephalus</i>	Eurasian Stone-curlew	L.C.
16.	<i>Upupa epops</i>	Hoopoe	L.C.
17.	<i>Melanocorypha calandra</i>	Calandra Lark	L.C.
18.	<i>Galerida cristata</i>	Crested Lark	L.C.
19.	<i>Alauda arvensis</i>	Eurasian Skylark	L.C.
20.	<i>Riparia riparia</i>	Sand Martin	L.C.
21.	<i>Hirundo rustica</i>	Barn Swallow	L.C.
22.	<i>Anthus campestris</i>	Tawny Pipit	L.C.
23.	<i>Motacilla flava feldegg</i>	Black-headed Wagtail	Data not available
24.	<i>Motacilla alba</i>	White Wagtail	L.C.
25.	<i>Parus major</i>	Great tit	L.C.
26.	<i>Delichon urbica</i>	Common House Martin	L.C.
27.	<i>Oenanthe oenanthe</i>	Wheatear	L.C.
28.	<i>Sylvia communis</i>	Common Whitethroat	L.C.
29.	<i>Phylloscopus collybita</i>	Common Chiffchaff	L.C.
30.	<i>Phylloscopus trochilus</i>	Willow Warbler	L.C.
31.	<i>Lanius collurio</i>	Red-backed Shrike	L.C.
32.	<i>Lanius minor</i>	Lesser Grey Shrike	L.C.
33.	<i>Pica pica</i>	Eurasian Magpie	L.C.
34.	<i>Corvus monedula</i>	Western Jackdaw	L.C.
35.	<i>Corvus frugilegus</i>	Rook	L.C.
36.	<i>Corvus corone cornix</i>	Hooded Crow	L.C.
37.	<i>Sturnus vulgaris</i>	Common Starling	L.C.
38.	<i>Passer domesticus</i>	House Sparrow	L.C.
39.	<i>Passer montanus</i>	Eurasian Tree Sparrow	L.C.

Number	Scientific Name	Common Name	IUCN category*
40.	<i>Frigilla coelebs</i>	Chaffinch	L.C.
41.	<i>Carduelis carduelis</i>	European Goldfinch	L.C.
42.	<i>Emberiza hortulana</i>	Ortolan Bunting	L.C.
43.	<i>Miliaria calandra</i>	Corn Bunting	L.C.

Note to table:

* The International Union for Conservation of Nature (IUCN) have developed nine categories into which every taxon in the world (excluding micro-organisms) can be classified. Complete definitions of the categories are given in the Guidelines for Using the IUCN Red List Categories and Criteria Version 8.1 (August 2010), prepared by the Standards and Petitions Subcommittee of the IUCN Species Survival Commission. A taxon is classified as of Least Concern (L.C.) when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

Table 3.9: Details of bird monitoring between April – September 2011

Number	Scientific Name	Common Name	Maximum number of species	Phenology	Preferred Habitat type
1	<i>Ciconia ciconia</i>	White Stork	40	OV	Aquatic
2	<i>Pelecanus onocrotalus</i>	White Pelican	5	OV	Aquatic
3	<i>Circus aeruginosus</i>	Marsh Harrier	1	OV	Terrestrial
4	<i>Circus pygargus</i>	Montagu's Harrier	1	OV	Terrestrial
5	<i>Buteo buteo</i>	Common Buzzard	2	MP	Terrestrial
6	<i>Buteo rufinus</i>	Long-legged Buzzard	1	OV, P	Terrestrial
7	<i>Falco tinnunculus</i>	Common Kestrel	1	MP	Terrestrial
8	<i>Falco subbuteo</i>	Eurasian Hobby	1	OV	Terrestrial
9	<i>Coturnix coturnix</i>	Common Quail	2	OV	Terrestrial
10	<i>Perdix perdix</i>	Grey Partridge	8	S	Terrestrial
11	<i>Phasianus colchicus</i>	Common Pheasant	2	S	Terrestrial
12	<i>Larus cachinnans</i>	Caspian Gull	4	S	Aquatic
13	<i>Streptopelia decaocto</i>	Eurasian Collared Dove	5	S	Terrestrial
14	<i>Merops apiaster</i>	European Bee-eater	40	OV, P	Terrestrial
15	<i>Burhinus oedicephalus</i>	Eurasian Stone-curlew	1	OV	Terrestrial
16	<i>Upupa epops</i>	Hoopoe	2	OV	Terrestrial
17	<i>Melanocorypha calandra</i>	Calandra Lark	4	MP	Terrestrial
18	<i>Galerida cristata</i>	Crested Lark	4	S	Terrestrial
19	<i>Alauda arvensis</i>	Eurasian Skylark	6	MP	Terrestrial
20	<i>Riparia riparia</i>	Sand Martin	100	OV	Terrestrial
Key: OV=summer guest; MP=partially migrating; S=sedentary; OI=winter guest; RI=rare in winter; P=passing					

Table 3.10: Details of flight heights of specific species during bird monitoring between April – September 2011

Number	Scientific Name	Common Name	Maximum number of individuals	Phenology	Observations
1	<i>Ciconia ciconia</i>	White Stork	40	OV	Flight height of 150-200m
2	<i>Circus pygargus</i>	Montagu's Harrier	1	OV	Single sighting in flight, flight height 5-50m
3	<i>Buteo buteo</i>	Common Buzzard	1	MP	Single sighting in flight, flight height 50-150m
4	<i>Buteo rufinus</i>	Long-legged Buzzard	1	P, OV	Single sighting in flight, flight height 50-150m
5	<i>Merops apiaster</i>	European Bee-eater	40	OV, P	Single sighting in flight, flight height 10-100m
6	<i>Riparia riparia</i>	Sand Martin	100	OV	Single sighting in flight, flight height 50-50m
7	<i>Upupa epops</i>	Hoopoe	2	OV	Single sighting of flight height 4-40 m
8	<i>Alauda arvensis</i>	Eurasian Skylark	6	MP	Single sighting in flight, flight height of 10-60m
9	<i>Delichon urbica</i>	Common House Martin	15	OV	Single sighting in flight, flight height of 40-50m
10	<i>Hirundo rustica</i>	Barn Swallow	20	OV	groups of birds / single sightings in flight (e.g. 3-5.), high flying 35-40 m;
11	<i>Anthus campestris</i>	Tawny Pipit	5	OV	Single sighting in flight, flight height of 25-30m
12	<i>Motacilla flava feldegg</i>	Black-headed Wagtail	18	OV	Single sighting in flight, flight height of 30-40m
13	<i>Motacilla alba</i>	White Wagtail	2	OV	Single sighting in flight, flight height of 20-30m
14	<i>Lanius collurio</i>	Red-backed Shrike	3	OV	Single sighting in flight, flight height of 40-50m
15	<i>Sylvia communis</i>	Common Whitethroat	2	OV	Single sighting in flight, flight height of 35-40m
16	<i>Coturnix coturnix</i>	Common Quail	2	OV	Single sighting in flight, flight height of 40-50m
17	<i>Fringilla coelebs</i>	Chaffinch	4	MP	Single sighting (e.g. 2-4) in flight, flight height of 40-50m
Key: OV=summer guest; MP=partially migrating; S=sedentary; Ol=winter guest; RI=rare in winter; P=passing					

Table 3.11: Summary of bird monitoring between October - December 2011

Number	Scientific Name	Common Name	IUCN category*
1	<i>Circus aeruginosus</i>	Western Marsh Harrier	Least Concern (L.C.)
2	<i>Circus pygargus</i>	Montagu's Harrier	L.C.
3	<i>Buteo buteo</i>	Common Buzzard	L.C.
4	<i>Buteo rufinus</i>	Long-legged Buzzard	L.C.
5	<i>Falco tinnunculus</i>	Common Kestrel	L.C.
6	<i>Falco columbarius</i>	Merlin	L.C.
7	<i>Perdix perdix</i>	Grey Partridge	L.C.
8	<i>Phasianus colchicus</i>	Common Pheasant	L.C.
9	<i>Streptopelia decaocto</i>	Eurasian Collared Dove	L.C.
10	<i>Larus cachinnans</i>	Caspian Gull	L.C.
11	<i>Melanocorypha calandra</i>	Calandra Lark	L.C.
12	<i>Galerida cristata</i>	Crested Lark	L.C.
13	<i>Motacilla alba</i>	White Wagtail	L.C.
14	<i>Phoenicurus ochruros</i>	Black Redstart	L.C.
15	<i>Saxicola rubetra</i>	Whinchat	L.C.
16	<i>Parus major</i>	Great tit	L.C.
17	<i>Lanius excubitor</i>	Great Grey Shrike	L.C.
18	<i>Garrulus glandarius</i>	Eurasian Jay	L.C.
19	<i>Pica pica</i>	Eurasian Magpie	L.C.
20	<i>Corvus monedula</i>	Western Jackdaw	L.C.
21	<i>Corvus frugilegus</i>	Rook	L.C.
22	<i>Corvus corone cornix</i>	Hooded Crow	L.C.
23	<i>Sturnus vulgaris</i>	Common Starling	L.C.
24	<i>Passer domesticus</i>	House Sparrow	L.C.
25	<i>Passer montanus</i>	Eurasian Tree Sparrow	L.C.
26	<i>Frigilla coelebs</i>	Chaffinch	L.C.
27	<i>Carduelis carduelis</i>	European Goldfinch	L.C.
28	<i>Emberiza hortulana</i>	Ortolan Bunting	L.C.
29	<i>Miliaria calandra</i>	Corn Bunting	L.C.

Note to table:

* The International Union for Conservation of Nature (IUCN) have developed nine categories into which every taxon in the world (excluding micro-organisms) can be classified. Complete definitions of the categories are given in the Guidelines for Using the IUCN Red List Categories and Criteria Version 8.1 (August 2010), prepared by the Standards and Petitions Subcommittee of the IUCN Species Survival Commission. A taxon is classified as of Least Concern (L.C.) when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

Table 3.12 Details of bird monitoring between October – December 2011

Number	Scientific Name	Common Name	Period of the field observation	Maximum number of individuals of a species
1	<i>Circus aeruginosus</i>	Western Marsh Harrier	November 2011	2
2	<i>Circus pygargus</i>	Montagu's Harrier	October 2011	1
3	<i>Buteo buteo</i>	Common Buzzard	October, December 2011	2
4	<i>Buteo rufinus</i>	Long-legged Buzzard	November 2011	1
5	<i>Falco tinnunculus</i>	Common Kestrel	October, November 2011	3
6	<i>Falco columbarius</i>	Merlin	December 2011	2
7	<i>Perdix perdix</i>	Grey Partridge	November 2011	20
8	<i>Phasianus colchicus</i>	Common Pheasant	December 2011	1
9	<i>Streptopelia decaocto</i>	Eurasian Collared Dove	December 2011	12
10	<i>Larus cachinnans</i>	Caspian Gull	October, November, December 2011	42
11	<i>Melanocorypha calandra</i>	Calandra Lark	October, November, December 2011	99
12	<i>Galerida cristata</i>	Crested Lark	October, November, December 2011	16
13	<i>Motacilla alba</i>	White Wagtail	October 2011	16
14	<i>Phoenicurus ochruros</i>	Black Redstart	November 2011	1
15	<i>Saxicola rubetra</i>	Whinchat	October 2011	1
16	<i>Parus major</i>	Great tit	December 2011	2
17	<i>Lanius excubitor</i>	Great Grey Shrike	November 2011	1
18	<i>Garrulus glandarius</i>	Eurasian Jay	October 2011	1
19	<i>Pica pica</i>	Eurasian Magpie	October, November, December 2011	37
20	<i>Corvus monedula</i>	Western Jackdaw	December 2011	100
21	<i>Corvus frugilegus</i>	Rook	October, November, December 2011	1190
22	<i>Corvus corone cornix</i>	Hooded Crow	October, November, December 2011	43
23	<i>Sturnus vulgaris</i>	Common Starling	October, November, December 2011	2350
24	<i>Passer domesticus</i>	House Sparrow	December 2011	50
25	<i>Passer montanus</i>	Eurasian Tree Sparrow	October 2011	20
26	<i>Frigilla coelebs</i>	Chaffinch	November 2011	11
27	<i>Carduelis carduelis</i>	European Goldfinch	November, December 2011	15
28	<i>Emberiza hortulana</i>	Ortolan Bunting	October 2011	9
29	<i>Miliaria calandra</i>	Corn Bunting	October, December 2011	12

3.1.54 The overall conclusions from the two monitoring reports prepared by Blue Terra Consulting on behalf of EDP Renewables are as follows:

- Most of the areas affected by construction works are cultivated land;
- The works were carried out without affecting other areas than those mentioned in the project;
- The construction works are not disturbing the birds or other fauna, the ecology of the species noticed is not being significantly influenced;
- The habitats demonstrated a high capacity of natural restoration in the areas that were temporary affected within the wind farm;
- Although the monitoring period April to September 2011 overlapped partially with the spring migration periods, a low number (43) of species, with reduced number of individuals, were observed. During the monitoring period September to December 2011 a low number (29) of species, with a reduced number of individuals were also recorded. It is noted that during the monitoring the temperature was relatively low and there was a drought, which may account for such a low number of species being recorded;
- No migration routes were identified at the wind farm level, however future observations (which are on-going) will inform if the area is an important migrating route;
- The pelican and stork flocks that were observed passed above the turbine height;
- The most numerous species encountered were the starlings and rook, with flocks of hundreds of individuals;
- Obvious migration was noticed of European bee-eater, swallows, house martin (hundreds of individuals);
- Birds of prey were a constant presence, but low numbers were observed;
- A stone curlew was noticed on a hill with steppe vegetation (August 2011), adjacent to the construction site organization, within the eastern part of the site;
- No reptiles or amphibians were observed (October – December);
- Mammals (rabbits and foxes) are disturbed only during day time and in the working areas. The impact from construction is low, especially because these animals are adaptable;
- No dead birds were recorded on the wind farm area during the monitoring; and
- It is necessary to continue the monitoring in order to provide continuity in the data and to verify the observations made.

Biodiversity Monitoring During Operation - March 2012 – on-going

3.1.55 Biodiversity monitoring of the wind farm and the electricity transmission lines re-commenced in March 2012 following commissioning of the wind farm, and will continue in accordance with the requirements of the permit issued by EcoPontica and the Environmental Authorisation issued by EPA. The monitoring is being undertaken by SC Eco Green Consulting SRL on behalf of EDPR and in accordance with the Monitoring Plan (dated January 2012, see Appendix B).

3.1.56 EDPR have appointed an independent ornithological Expert (IOE), SC Eco Green Consulting SRL, on a full time basis to carry out the biodiversity monitoring at the Sarichioi site. The IOE is responsible for undertaking surveys and monitoring bird movements in the immediate area and also for instigating appropriate mitigation measures as required. At certain times of the year, during

spring and autumn migration periods in particular, the rotor speed of the turbines may be reduced and/or they could be temporarily turned off during bird and bat migration periods, should it be required. A formal turbine shut-down system managed by the IOE has been developed. Further details are provided in the Mitigation and Monitoring section below.

- 3.1.57 The Ecological Monitoring Plan (see Appendix B) includes surveying flora and fauna in the area of both the wind farm and the corridor of the transmission line. The Plan stipulates that monitoring will be undertaken by a qualified specialist between March and October each year. It is intended that the specific survey visits will be selected so as to facilitate the study of all flora seasons and all development phases of the fauna species. In relation to birds, the study periods will include the autumn migrations (serotinal and autumnal), winter period (hibernal), spring migrations (prevernal and a part of the vernal period) and the nesting time (vernal and aestival).
- 3.1.58 The Ecological Monitoring Plan outlines the survey methodologies to be implemented on site and includes fixed point, vantage point and transect method combined with fixed point observations. In relation to vegetation, the area will be studied according to European phytocenology methods.
- 3.1.59 The objectives of the bird monitoring comprise:
- To evaluate the bird populations (including the key species as per the standard Natura 2000 form) as against the seasonal agglomerations/fluctuations and the way in which aerial space and the habitats are used;
 - To evaluate the disturbance (the fact that the habitat can no longer be used properly, if at all, the fact that the feeding areas are lost, the rest areas are lost too) that this project will cause to the local birds;
 - To evaluate the risk of electrocution of birds (when touching the power cables);
 - To evaluate the barrier effect created by the obstacles that birds can encounter across their normal migration and transit corridors; and
 - To evaluate the potential impact that habitat changes may have upon the birds.
- 3.1.60 Biodiversity monitoring reports will be submitted to SOR, EcoPontica and Tulcea EPA on an annual basis. The reports will include:
- An evaluation of the impact upon bird species will be presented for every key species separately that will have been identified as vulnerable to the turbines and overhead power lines;
 - A collision risk will be presented for each season separately (migration, reproduction, wintering, resident species). In relation to the powerlines an assessment of the electrocution risk will be presented separately for each age category (nesting adults, juvenile birds/immature birds). This approach will facilitate a greater understanding of (and subsequently compare based on the monitoring that will be performed after the project is implemented and commissioned) the causes that lead to the electrocution of birds against the overhead power lines;
 - Standard observation reports that are commonly used to monitor species;
 - Estimates covering flight activities will be made insofar as possible in correlation against the behaviour of the species (flight to the feeding territory, mating flight, etc.), depending on age/gender and depending on the date/season and hour;
 - A detailed map with points and observation itineraries will be presented; the location of the wind turbines must also be indicated on the map; and
 - Maps and tables describing the distribution of the species/nests.

- 3.1.61 The monitoring will continue for the first five years of operation as required in the Environmental Authorisation.

Verification Field Visit May 2012

- 3.1.62 A verification bird survey visit was carried out by WSP on 22nd May 2012 and appeared to confirm the findings of the biodiversity monitoring, with birds of prey being a constant presence and observed in low numbers. Three species were identified during the validation survey visit which had not been recorded during the construction monitoring, these comprised steppe buzzard, honey buzzard (which is listed on Annex 1 of the EU Birds Directive) and yellow wagtail.
- 3.1.63 The survey identified 13 species using the Sarichioi wind farm site at the time of the survey (see Section 3.2). This was carried out by an ecologist, an ornithological specialist with over 20 years' experience and a Member of the Institute of Ecology and Environmental Management (MIEEM) and Chartered Environmentalist (CEnv).

Table 3.13: Details of bird species recorded at EDP Sarichioi Wind farm site on 22nd May 2012

Common Name	Scientific Name	Conservation Status	Number	Time	Activity/ Flight Direction	Height (0-10m;10-100m; >100m)	Apparent use of the site
White Pelican	<i>Pelecanus onocrotalus</i>	Annex 1 of Wild Birds Directive. Unfavourable European conservation status.	50+	1215	Thermaling	10-100	Migration
White Pelican	<i>Pelecanus onocrotalus</i>	Annex 1 of Wild Birds Directive. Unfavourable European conservation status.	30+	1215	Thermaling	10-100	Migration
Honey Buzzard	<i>Pernis apivorus</i>	Annex 1 of Wild Birds Directive. Favourable European conservation status.	3	1220	Flying North	>100	Migration
Steppe Buzzard	<i>Buteo buteo vulpinus</i>	Favourable European conservation status.	2	1220	Flying North	>100	Migration
Steppe Buzzard	<i>Buteo buteo vulpinus</i>	Favourable European conservation status.	1	1230	Flying North	>100	Migration
Honey Buzzard	<i>Pernis apivorus</i>	Annex 1 of Wild Birds Directive.	4	1230	Flying North	>100	Migration

Common Name	Scientific Name	Conservation Status	Number	Time	Activity/ Flight Direction	Height (0-10m; 10-100m; >100m)	Apparent use of the site
White Pelican	<i>Pelecanus onocrotalus</i>	Annex 1 of Wild Birds Directive. Unfavourable European conservation status.	3	1242	Thermaling	>100	Migration
Calandra Lark	<i>Melanocorypha calandra</i>	Annex 1 of Wild Birds Directive. Unfavourable European conservation status.	10+	1215-1515	Display flight	0-10, 10-100	Breeding
Skylark	<i>Alauda arvensis</i>	Annex 2 of Wild Birds Directive. Unfavourable European conservation status.	30+	1215-1515	Display flight	0-10, 10-100	Breeding
Crested Lark	<i>Galerida cristata</i>	Unfavourable European conservation status.	10+	1215-1515	Display flight	0-10, 10-100	Breeding
Northern Wheatear	<i>Oenanthe oenanthe</i>	Unfavourable European conservation status.	1	1215-1515	Feeding	0-10	Breeding
Yellow Wagtail	<i>Motacilla flava feldegg</i>	Favourable European conservation status.	10+	1215-1515	Feeding	0-10	Breeding
Steppe Buzzard	<i>Buteo buteo vulpinus</i>	Favourable European conservation status.	1	1310	Flying North	10-100	Migration
Common Kestrel	<i>Falco tinnunculus</i>	Unfavourable European conservation status.	1	1320	Flying North	10-100	Migration
Marsh Harrier	<i>Circus aeruginosus</i>	Favourable European conservation status.	1	1330	Hunting	10-100	Feeding
Marsh Harrier	<i>Circus aeruginosus</i>	Favourable European conservation status.	1	1342	Hunting	10-100	Feeding

Common Name	Scientific Name	Conservation Status	Number	Time	Activity/ Flight Direction	Height (0-10m;10-100m; >100m)	Apparent use of the site
White Pelican	<i>Pelecanus onocrotalus</i>	Annex 1 of Wild Birds Directive. Unfavourable European conservation status.	60+	1345	Thermaling	>100	Migration
European Bee-eater	<i>Merops apiaster</i>	Unfavourable European conservation status.	10+	1351	Flying North	>100	Migration
Steppe Buzzard	<i>Buteo buteo vulpinus</i>	Favourable European conservation status.	1	1410	Thermaling	10-100	Migration
Marsh Harrier	<i>Circus aeruginosus</i>	Favourable European conservation status.	1	1415	Thermaling	10-100	Migration
Steppe Buzzard	<i>Buteo buteo vulpinus</i>	Favourable European conservation status.	1	1415	Thermaling	10-100	Migration
European Bee-eater	<i>Merops apiaster</i>	Unfavourable European conservation status.	20+	1420	Flying North	10-100	Migration
Hen Harrier	<i>Circus cyaneus</i>	Annex 1 of Wild Birds Directive. Unfavourable European conservation status.	1	1421	Thermaling	10-100	Migration
Red-footed Falcon	<i>Falco vespertinus</i>	Annex 1 of Wild Birds Directive. Unfavourable European conservation status.	3	1450	Thermaling	10-100	Migration
Steppe Buzzard	<i>Buteo buteo vulpinus</i>	Favourable European conservation status.	1	1500	Flying North	10-100	Migration

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- 3.1.64 The verification bird survey identified 13 species using the area in the vicinity of the Sarichioi wind farm site at the time of the survey.
- 3.1.65 Five species (white pelican, honey buzzard, calandra lark, hen harrier and red-footed falcon) were of significance due to their conservation status as Annex 1 species of the EU Birds Directive.
- 3.1.66 Nine species (white pelican, calandra lark, skylark, crested lark, northern wheatear, kestrel, hen harrier, European bee-eater and red-footed falcon) were of significance due to their unfavourable conservation status within Europe.
- 3.1.67 The birds recorded at the Sarichioi wind farm site during the verification survey were observed demonstrating a variety of behavioural activities. The pelicans, birds of prey and bee-eaters were primarily using the area as a migration route. The pelicans and birds of prey were observed using the updrafts from the hill to gain lift and height to carry on the migration. The smaller birds such as the larks and wagtails were displaying and feeding at the site and were considered to be using the site as a breeding area.
- 3.1.68 A search around the vicinity of each turbine revealed no signs of bird corpses present as a result of collision with the wind turbines.

Bats

- 3.1.69 Bat species were not identified as a potential ecological receptor during the consultation with local consultees and no known bat migration routes were identified over the site. No bats were recorded during the biodiversity monitoring during construction (April to December 2011) and no evidence of bats was observed during the verification survey in May 2012.
- 3.1.70 The area covered by the wind farm is considered unsuitable for bats due to a number of factors. The site is located on an open and windy hillside predominantly covered in arable crops. There are no trees or hedgerows within the wind farm envelope and all turbines maintain at least a 50 m buffer from the nearest vegetation feature. Bats tend to avoid open windy areas (except when migrating – when they typically fly relatively high along known migration routes) due to a combination of them being weak flyers, the lack of insect prey (usually associated with water or vegetation features) and the lack of linear features which they use for navigation across the landscape. Bats prefer to follow linear vegetated or water features which provide shelter from the wind and an ample supply of insect prey.
- 3.1.71 There is some suitable habitat for foraging and roosting bats in the form of woodland and scrub habitat within the locality, but this is adjacent and outside the northern boundary of the wind farm and it is likely that any bat activity will be restricted to or near this area. Consequently, a bat survey was not considered necessary as the chances of bats using the site is very low if not negligible.

Vutcani

Site Overview

- 3.1.72 The Vutcani wind farm site in Vaslui County lies within the Moldova region of Romania. The wind farm is located on top of an elevated ridge running northwest to southeast. Within the site the landscape typically comprises agricultural land, grassland and patches of scrubland. Towards the northern end of the site, approximately 350 m away from the nearest wind turbine is a block of mature deciduous woodland however no areas of woodland are located within the wind farm. Woodland is also located along the valley sides north and south of the wind farm and in the valley floor.
- 3.1.73 The EIA Report for the Vutcani site considered that since the wind farm site was not located within a migration corridor for migratory birds, no detailed biodiversity study was required to be undertaken. However, during the impact assessment, biologists made several visits to the site to review the bird population. The study took place over a period of three months, from March 2008 until the end of May 2008. During this period no biodiversity effects were identified which required further investigation. On 6th March 2008 a team of biologists, engineers and representatives from the project designer, went to the Vutcani future wind farm. A visual inspection was undertaken to identify the area and the number of bird species recorded at the site comprised 56 tree sparrow (*Passer montanus*), 24 carrion crow (*Corvus corone*) and 4 thrush nightingale (*Luscinia luscinia*). None of these species were considered to be at risk from the installation of the wind farm.
- 3.1.74 Prior to the wind farm development being constructed no baseline data for birds were collected. However, a significant amount of consultations were carried out, which included discussions with SOR. The key outcome from these discussions was that the Vutcani wind farm site is of limited ornithological importance, being significantly distant from any protected areas for birds and was not located on any known migration routes.

Biodiversity Monitoring During Construction and Operation

- 3.1.75 There was no requirement for biodiversity monitoring to be undertaken at the Vutcani site during construction of the wind farm. However in accordance with conditions of the Environmental Authorisation a biodiversity monitoring programme is to be undertaken for the first 12 months of operation of the wind farm (which became operational in May 2012). At the time of writing this report the wind farm is undergoing a testing period for compliance with the electricity grid requirements, following which the biodiversity monitoring programme will be implemented by EDPR.

Verification Field Visit May 2012

- 3.1.76 A verification bird survey was carried out by WSP at the Vutcani wind farm site on 23rd May 2012. This was carried out by an ecologist, an ornithological specialist with over 20 years' experience and a Member of the Institute of Ecology and Environmental Management (MIEEM) and Chartered Environmentalist (CEnv). The weather was clear, sunny, dry and cloud cover was 30%. The wind was southerly and force 3-4 on the Beaufort scale. Towards the end of the survey the cloud cover increased to 100% and thunder and lightning were visible in the distance, rain came later. The results of the reconnaissance survey are detailed in Table 3.14.

Table 3.14: Details of bird species recorded at EDP Vutcani Wind farm site on 23rd May 2012

Common Name	Scientific Name	Conservation Status	Number	Time	Activity/ Flight Direction	Height (0-10m;10-100m; >100m)	Apparent use of the site
European Bee-eater	<i>Merops apiaster</i>	Unfavourable European conserva-	10+	1345	Flying north	10-100	Migration

Common Name	Scientific Name	Conservation Status	Number	Time	Activity/ Flight Direction	Height (0-10m;10-100m; >100m)	Apparent use of the site
Skylark	<i>Alauda arvensis</i>	tion status. Annex 2 of Wild Birds Directive, Unfavourable European conservation status.	10+	1345-1645	Display flight	10-100	Breeding
Corn Bunting	<i>Miliaria calandra</i>	Favourable European conservation status.	10+	1345-1645	Singing	0-10	Breeding
Northern Wheatear	<i>Oenanthe oenanthe</i>	Unfavourable European conservation status.	2+	1345-1645	Feeding	0-10	Breeding
Crested Lark	<i>Galerida cristata</i>	Unfavourable European conservation status.	10+	1345-1645	Display flight	10-100	Breeding
Whinchat	<i>Saxicola rubetra</i>	Unfavourable European conservation status.	2+	1345-1645	Feeding	0-10	Breeding
Tawny Pipit	<i>Anthus campestris</i>	Annex 1 of Wild Birds Directive, Unfavourable European conservation status.	2+	1345-1645	Feeding	0-10	Breeding
Common Kestrel	<i>Falco tinnunculus</i>	Unfavourable European conservation status.	1	1345-1645	Hunting	10-100	-
Red-backed Shrike	<i>Lanius collurio</i>	Annex 1 of Wild Birds Directive, Unfavourable European conservation status.	2+	1345-1645	Feeding	0-10	-
Woodlark	<i>Lullula arborea</i>	Annex 1 of Wild Birds Directive, Unfavourable European conservation status.	2+	1345-1645	Display flight	10-100	Breeding
Steppe Buzzard	<i>Buteo buteo vulpinus</i>	Favourable European conservation status.	1	1615	Hunting	10-100	-

- 3.1.77 The verification bird survey identified 11 species using the area in the vicinity of the Vutcani wind farm site at the time of the survey.
- 3.1.78 Three species observed (tawny pipit, red-backed shrike and woodlark) are of significance due to their conservation status as Annex 1 species of the EU Birds Directive.
- 3.1.79 Eight species observed (European bee-eater, skylark, crested lark, northern wheatear, whinchat, common kestrel, tawny pipit and red-backed shrike) are of significance due to their unfavourable conservation status within Europe.
- 3.1.80 The birds recorded at the Vutcani wind farm site were observed demonstrating a variety of behavioural activities. Most birds, especially the smaller birds such as the larks, pipits, buntings and

wheatear, were displaying and feeding at the site and were considered to be using the site as a breeding area. Only the bee-eater was considered to be migrating over the wind farm site.

- 3.1.81 A search around the vicinity of each turbine during the verification survey revealed no signs of bird corpses present as a result of collision with the wind turbines.
- 3.1.82 Discussions with SOR (M. Cazacu May 2012) indicated that the Vutcani wind farm site was of limited ornithological importance, being distant (more than 20 km) from any protected areas for birds and not being located on any known bird migration routes.

Bats

- 3.1.83 Bat species were not identified as a potential ecological receptor during the consultation with local consultees and no known bat migration routes were identified over the site. No evidence of bats was observed during the verification site visit in May 2012.
- 3.1.84 The area covered by the wind farm is considered unsuitable for bats due to a number of factors. The site is located on an open and windy hillside predominantly covered in arable crops. There are no trees or hedgerows within the wind farm envelope and all turbines maintain at least a 50 m buffer from the nearest vegetation feature. Bats tend to avoid open windy areas (except when migrating – when they typically fly relatively high along known migration routes) due to a combination of them being weak flyers, the lack of insect prey (usually associated with water or vegetation features) and the lack of linear features which they use for navigation across the landscape. Bats prefer to follow linear vegetated or water features which provide shelter from the wind and an ample supply of insect prey.
- 3.1.85 There is some suitable habitat for foraging and roosting bats in the form of woodland and scrub habitat within the locality, towards the northern boundary of the site (but outside the wind farm envelope) and in the surrounding river valleys and it is likely that any bat activity will be restricted to or near these areas. Greater mouse-eared bat has been recorded at Râul Prut approximately 20 km from the wind farm site. However, given the distance from the site, and the factors discussed above, the chances of greater mouse-eared bats being present on site are considered minimal especially as they feed almost exclusively on the ground (and away from the turbines). While greater mouse-eared bats are known to be vulnerable to collision risk while migrating (Eurobats, 2008) there are no known migration routes across the site. Consequently, a bat survey was not considered necessary as the chances of bats using the site is very low if not negligible.

Ecological Impact Assessment

3.1.86 The EIA assessment process has been undertaken with the knowledge of the following legislation and guidance:

- European legislation and requirements of international conventions (to which Romania is a signatory) have been transposed into Romanian legislation by the Law of Protected Areas (462/2001). In addition to this law, there are several other regulations that relate to birds, including the Hunting and Game Management Law (407/2006), issuing 38 species on the list of game species and 182 species as “protected species for which hunting is forbidden”;
- At the end of October 2007, the Romanian Government adopted Government Decision No. 1284/2007 which designated 108 Special Protection Areas (SPAs) for the conservation of wild birds, some of which occur within the Dobrogea region;
- Romania is a member of the European Union, and therefore the Habitats Directive (92/43/EEC) and Wild Bird Directive (79/409/EEC) apply; these Directives were transposed in the Romanian legislation through GUO no. 57/2007 (Government Emergency Ordinance);
- European Commission (2010) Guidance Document Wind Energy Developments and Natura 2000, EU Guidance on wind energy development in accordance with the EU nature legislation;
- Institute of Ecology and Environmental Management (IEEM). (2006). Guidelines for Ecological Impact Assessment;
- Scottish Natural Heritage (2000). Wind farms and birds: Calculating a theoretical collision risk assuming no avoiding action;
- Scottish Natural Heritage (2005). Survey methods for use in assessing the impact of onshore wind farms on bird communities;
- Scottish Natural Heritage (2006). Guidance: Assessing significance of impacts from onshore wind farms on birds out with designated areas; and
- Rodrigues *et al.*, (2008): Guidelines for consideration of bats in wind farm projects. EUROBATS Publication Series No. 3.

Potential Impacts

- 3.1.87 There are two phases of the development that have the potential to affect the ecological value of the two wind farm sites at Sarichioi and Vutcani. These are:
- Construction; and
 - Post-construction operation/management.
- 3.1.88 The two wind farm farms have already been constructed and are operational. Therefore the effects of construction on the ecological value of the two sites at Sarichioi and Vutcani (such as related to habitat destruction) have already been encountered and addressed.
- 3.1.89 Factors associated with the two wind farm developments at Sarichioi and Vutcani that have the potential to affect the ecological value of the site during post-construction operation and management include the following:
- Disturbance;
 - Displacement/ Barrier effects; and
 - Direct mortality through collision, electrocution and barotrauma.
- 3.1.90 The main effects of the wind farm developments at Sarichioi and Vutcani will likely be displacement/barrier effects and direct mortality. Habitat loss and disturbance are not considered to be significant due to the existing habitat present at the site comprising arable land and species sensitive to disturbance being absent from the site.

Sarichioi

- 3.1.91 The Sarichioi EIA Report suggested the habitat at the wind farm was considered of value at the site level only. Given the nature and size of the habitat to be lost (due to the turbine foundations and the access roads) and the amount of similar alternative habitat in the area, no significant impacts are predicted with regards to habitat loss, breeding birds or bats.
- 3.1.92 There is potential for local impacts due to mortality caused by collision for migrating birds, large flocking wintering birds and bats; and disturbance/avoidance during both construction and operation. The significance of this issue will be minimised by the presence on site of an IOE who will be responsible for monitoring bird movements in the area of both wind farms and applying appropriate mitigation measures as required, including reducing the speed of the turbines or, potentially, for the turbines to be temporarily turned off during bird migration periods (which often coincide with bat migration periods), should it be required. The IOE will be present daily during the spring and autumn migration periods and during the winter. In addition, the marking of overhead powerlines with bird deflectors to increase visibility will also reduce the potential for bird strikes.
- 3.1.93 The wind farm is located outside areas of international importance, but partly on the boundary of the Agighiol Hills SCI. One of the 11 turbines (Turbine 6) is inside the boundary of the Agighiol Hills SCI. However, it is located on the arable land, so that the integrity of the SCI is considered not to be affected by the wind farm construction and operation.
- 3.1.94 Approximately 600 m of overhead transmission line and three pylons are located on agricultural land within the Deniz Tepe SPA. EDPR undertook detailed consultations with the Tulcea EPA, SOR and EcoPontica and came to an agreement on the mitigation measures required for this turbine. Special provisions relating to monitoring of bird species and mitigation measures have been implemented to deter birds from the wind farm, and in particular the transmission lines within the Deniz Tepe SPA.

Vutcani

- 3.1.95 One of the criteria used to determine the location of the wind farm at Vutcani, was to minimise any adverse effects on birds. Consequently the wind farm is located outside of any protected areas, such as Natura 2000 sites.
- 3.1.96 The Vutcani EIA Report suggested the habitat at the Vutcani wind farm was considered of value at the site level only. Given the nature and size of the habitat to be lost (due to the turbine foundations and the access roads) and the amount of similar alternative habitat in the area, no significant impacts are predicted with regards to habitat loss for breeding birds or bats.
- 3.1.97 Given the nature of the existing habitat, topography (on flat land) the spacing between turbines and location between the significant flyways and away from designated sites no significant barrier effect for birds or bats is anticipated.
- 3.1.98 The conclusion of the Vutcani EIA Report stated that the location of the wind farm will have no significant effect on terrestrial wildlife (including birds). The turbines are located large distances from colonies of breeding birds and will not have an effect on bird reproduction. The site is located outside of flight paths of migratory birds.
- 3.1.99 Analysis of existing information on the biodiversity at the Vutcani wind farm site revealed the following:
- The site is not on the pathway of migration routes used by birds;
 - There are no known migration routes for bats over the site;
 - There have not been extensive studies in the area because biodiversity value was considered to be low; and
 - Important fauna habitats are sufficiently distant from site and the Vutcani wind farm was considered not to affect them.

Mitigation and Monitoring

- 3.1.100 The operation of both the Sarichioi and Vutcani wind farm sites will be observed on a continuous basis via video cameras installed in the meteorological tower and substation within each wind farm which are controlled from a computer located within the substation building. All functions of the wind turbines themselves are monitored and controlled by various command and control units based on microprocessors.
- 3.1.101 The required mitigation has been detailed in the licenses and permits for the developments and following detailed discussions between EDPR and local stakeholders such as SOR and EcoPontica. Where monitoring is prescribed the results will be used to inform the on-going operation of the wind farm site in accordance with the site's environmental agreements and international best practice.

Sarichioi

- 3.1.102 As the wind farm is already operational the ecological mitigation for the site is limited. The mitigation for the site will include managing the habitat at the site as low intensity farming and/or grassland. This will limit the habitats' suitability to certain species and reduce the attractiveness of the site to species that may be vulnerable to turbine collisions.
- 3.1.103 A meeting held between EDPR, SOR and EcoPontica agreed a set of mitigation measures that would be expected to reduce the potential impact of the Sarichioi wind farm to a level acceptable to SOR and EcoPontica. These measures included:
- Marking lines with visual signalling devices to make the power lines more visible to birds and reduce collision potential;
 - Placing artificial nests platforms for saker falcon (*Falco cherrug*) on each pole and near high voltage powerlines inside the protected area to enhance the nesting opportunities for this species; and
 - Carrying out bird monitoring for a period of 5 years following commissioning.
- 3.1.104 The power lines used to form the grid connection will be fitted with bird deflectors (Frost, 2008). The deflectors will be fitted at 50 m intervals along the route of the grid connection especially in areas where the power lines cross waterbodies.
- 3.1.105 In addition, in response to EPA letter Tulcea No. 1244/25.03.2009, EDPR agreed that the proposed number of wind turbines be decreased by a total of nine turbines from the 20 originally proposed in the technical memorandum, to 11. This was due to difficulties in acquiring the necessary land as well as in order to avoid potential adverse ecological effects due to the turbines being close to or within the Agighiol Hills SCI.
- 3.1.106 As indicated above EDPR have appointed an Independent Ornithological Expert (IOE), SC Eco Green Consulting SRL, on a full time basis to carry out the bird monitoring at the Sarichioi site. The IOE comprises an ornithological expert with more than 5 years' experience in undertaking field surveys of birds in accordance with recognised best practice methodologies and has an excellent working knowledge of bird identification, direct observation and collision risk assessments for wind farms.
- 3.1.107 The IOE is responsible for undertaking surveys and monitoring bird movements in the immediate area and instigating appropriate mitigation measures as required. At certain times of the year, during the spring and autumn migration periods in particular, the rotor speed of the turbines may be reduced and/or they could be temporarily turned off during bird and bat migration periods, should it be required. A formal turbine shut-down system managed by the IOE has been developed. A decision to shut down a turbine or turbines will be made by the IOE based on field observations. The IOE will inform the wind farm site manager of the requirement for turbine shut-down via a phone call and will

then confirm the instruction by email. A formal record will be made of the time and duration of any turbine shut-down.

- 3.1.108 This system provides an early warning system for approaching flocks of birds and allows turbines to be switched off in the event of adverse weather conditions (which could result in a risk of bird collision with the turbines). The process will be documented and a management system developed for the process as part of an environmental management system.
- 3.1.109 The surveys will be undertaken in accordance with the Ecological Monitoring Plan which is in place at the site (see Appendix B) and the monitoring objectives detailed above, including the application of agreed survey techniques and submission of monitoring reports to the SOR, EcoPontica and Tulcea EPA on an annual basis (see Environmental Baseline section, Biodiversity Monitoring During Operation - March 2012 – on-going above).
- 3.1.110 The IOE will monitor in the vicinity of each turbine to identify any carcasses (of birds or bats) present as a result of collisions with the turbines and these will be reported immediately so that corrective and preventive measures can be taken. Should bat carcasses be found it may be necessary to carry out bat activity surveys across the site during the spring, summer and autumn to determine if activity is taking place in certain areas or at certain times of the year.
- 3.1.111 The monitoring methods used and frequency that the IOE is to be present on site have been discussed with EDPR, SOR and EcoPontica. After commissioning of the wind farm monitoring will be done weekly, and during the spring (March-May) and autumn migrations (August-October) the monitoring frequency will increase to three shifts per week. As required by the Environmental Authorisation the monitoring will be undertaken for a period of 5 years following commencement of operation of the wind farm. The monitoring period will be reviewed based on the results. There is a possibility for the monitoring to be extended to more than 5 years, depending on the results of the monitoring, which will be reported on an annual basis as indicated above.
- 3.1.112 In accordance with the Environmental Agreement the site will be monitored shortly after extreme weather conditions (storms, fog, heavy rains, and blizzard conditions) in order to check the consequences such as low visibility phenomena. The behaviour of the birds, in various weather conditions, will then be monitored in respect with the construction of the turbines, also the flying height in respect of the operating space of the blades, the maximum distance the birds come near the turbines and changes in the migration routes.
- 3.1.113 Since many birds hunt or migrate during the night, it was recommended that their night-time activity shall also be monitored. Species building nests in the area would also be identified in order to determine the number of the species nesting in the area and to assess the environmental impact upon them. Well set observation intervals would be adopted in order to provide accurate information. Each observation day shall be documented on a data recording form (as suggested by the authority issuing the report on the EIA Study).
- 3.1.114 A Collision Risk Assessment will be completed within two years of the Sarichioi wind farm becoming operational. The results of the assessment will be made available to the Lenders, regulators, local community and published on the website. The results of the Collision Risk Assessment will be used to further define site specific mitigation measures which will be included within the Environmental Management and Monitoring Plan for the Sarichioi site.
- 3.1.115 Table 3.15 summarises the ecological mitigation for the Sarichioi wind farm site, in particular due to the proximity of the wind farm to the Dealurile Agighiolului Site of Community Importance (SCI). Further details relating to this designated site are provided in Section 3.2. The Ecological Monitoring Plan implemented at the site is provided in Appendix B.

Table 3.15: Summary of the Ecological Mitigation for Sarichioi wind farm

Potential Impact	Measures to reduce impact	Comment
Disturbance and displacement	None required	The turbines would not be expected to cause disturbance to birds. No particular measures were necessary as the habitat was mainly agricultural land and considered of low value for wildlife.
Collision	Reduced the number of turbines installed from 20 to 11 and location of the wind farm outside areas of international importance (although one turbine is located on arable land within boundary of the Agighiol Hills SCI). Reduced speed of turbine rotations and switching turbines off.	Employment of an Independent Ornithological Expert to monitor bird movements in the site and surrounding area (including bird and bat collisions) and undertake surveys, as well as instigating appropriate mitigation measures as required. During periods of migration the speed of the turbines could be reduced or if necessary switched off. A formal turbine shut-down system managed by the IOE has been developed. A decision to shut down a turbine or turbines will be made by the IOE based on field observations. The IOE will inform the wind farm site manager of the requirement for turbine shut-down via a phone call and will then confirm the instruction by email. A formal record will be made of the time and duration of any turbine shut-down. A Collision Risk Assessment will be undertaken and the results will be used to further define specific monitoring measures for the wind farm.
Barrier effects	Reduced the number of turbines installed from 20 to 11.	
Habitat destruction	None required	No particular measures were necessary as the habitat was mainly agricultural land and considered of low value for wildlife.
Extension of habitats by change in land use	None required	Land that will be used for the wind farm is agricultural and by default is of low value in terms of biodiversity. Agricultural use of the land will continue during operation of the wind farm.

Vutcani

- 3.1.116 Biodiversity monitoring is required to be undertaken for the first 12 months of operation of the wind farm and the results submitted to the Vaslui EPA
- 3.1.117 As the wind farm is already operational the ecological mitigation for the site is limited. The mitigation for the site will include managing the habitat at the site as grassland. This would limit the habitats' suitability to certain species and reduce the attractiveness of the site to species that may be vulnerable to turbine collisions.
- 3.1.118 Specially designed nest boxes for birds will be installed in appropriate locations on the poles along the overhead power line grid connection.
- 3.1.119 Ecological monitoring activities at the Vutcani site will take place and be focused on performing vantage point and mortality bird and bat surveys. The frequency of the vantage point surveys, seasons in which they are to be carried out and the methods used will be those that are established and recognised as providing valid data e.g. SNH (2010) Survey methods for use in assessing the impact of onshore wind farms on bird communities. The reason for this is because the EIA was based on literature searches not on baseline field studies, so to confirm the findings of the EIA some site monitoring will take place.

- 3.1.120 While not a requirement of the permit or license for the Vutcani site, EDPR will also appoint an IOE to carry out the bird and bat surveys at the Vutcani site. The IOE will be responsible for undertaking surveys and monitoring bird movements in the immediate area and instigating appropriate mitigation measures as required (see below).
- 3.1.121 The IOE will monitor the vicinity of each turbine to identify any bird and bat carcasses present as a result of collisions with the turbines and these will be reported immediately so that corrective and preventive measures can be taken. Should bat carcasses be found it may be necessary to carry out bat activity surveys across the site during the spring, summer and autumn to determine if activity is taking place in certain areas or at certain times of the year.
- 3.1.122 The results of vantage point and mortality monitoring will be recorded and reported to the SOR.
- 3.1.123 The power lines used to form the grid connection will be fitted with bird deflectors (Frost, 2008). The deflectors will be fitted at 5 m intervals along the route of the grid connection especially in areas where the power lines cross waterbodies.
- 3.1.124 As for the Sarichioi site, at certain times of the year during spring and autumn migration periods in particular the rotor speed of the turbines may be reduced and/or they could be temporarily turned off during bird and bat migration periods, should it be required. A formal turbine shut-down system managed by the IOE has been developed. A decision to shut down a turbine or turbines will be made by the IOE based on field observations. The IOE will inform the wind farm site manager of the requirement for turbine shut-down via a phone call and will then confirm the instruction by email. A formal record will be made of the time and duration of any turbine shut-down.
- 3.1.125 This system provides an early warning system for approaching flocks of birds and allows turbines to be switched off in the event of adverse weather conditions (which could result in a risk of bird collision with the turbines). The process will be documented and a management system developed for the process as part of an environmental management system.
- 3.1.126 A Collision Risk Assessment will be completed within two years of the Vutcani wind farm becoming operational. The results of the assessment will be made available to the Lenders, regulators, local community and published on the website. The results of the Collision Risk Assessment will be used to further define site specific mitigation measures which will be included within the Environmental Management and Monitoring Plan for the Vutcani wind farm.
- 3.1.127 Table 3.16 summarises the ecological mitigation for the Vutcani wind farm site.

Table 3.16: Summary of Ecological Mitigation for Vutcani Wind Farm

Potential Impact	Measures to reduce impact	Comment
Disturbance and displacement	None required	The turbines would not be expected to cause disturbance to birds. No particular measures were necessary as the habitat was mainly agricultural land and considered of low value for wildlife.
Collision	Vehicle speed restrictions The wind farm is located outside of any protected areas such as Natura 2000 sites and is not on a route used by migratory birds	The possibility of impact is limited to the construction stage and the mitigation measures identified do not apply to the operational stage. Employment of an Independent Ornithological Expert to monitor bird movements in the site and surrounding area (including bird and bat collisions) and undertake surveys, as well as instigating appropriate mitigation measures as required. During periods of migration the speed of the turbines could be reduced or if necessary switched off. A formal turbine shut-down system managed by the IOE has been developed. A decision to shut down a turbine or turbines will be made by the IOE based on field observations. The IOE will inform the wind
Barrier effects	The wind farm is located outside of any protected areas such as Natura 2000	

Potential Impact	Measures to reduce impact	Comment
	sites and is not on a route used by migratory birds	farm site manager of the requirement for turbine shut-down via a phone call and will then confirm the instruction by email. A formal record will be made of the time and duration of any turbine shut-down. A Collision Risk Assessment will be undertaken and the results will be used to further define specific monitoring measures for the wind farm.
Habitat destruction	None required	The area of land to be permanently occupied by the turbines and other infrastructure is relatively small (in comparison to the total surface area of the project). The natural habitat to be lost (2.8 ha) is of low biological value. The land is already influenced by agricultural use.
Extension of habitats by change in land use	None required	Land that will be used for the wind farm is agricultural and is of low value in terms of biodiversity. Agricultural use of the land will continue during operation of the wind farm.

Residual Effects

- 3.1.128 The mitigation and monitoring implemented for both the Sarichioi and Vutcani wind farm sites provide the opportunity to ensure that any potential ecological effects from the operational wind farms are recognised and controlled.
- 3.1.129 Research (Ferrer, 2012) shows that there is a low correlation between the predicted impacts of EIAs using data collected pre-wind farm construction and the findings of post construction monitoring. Therefore the biodiversity monitoring programme for the Sarichioi and Vutcani sites will help to inform the actual impacts of the wind farms on birds and would be used to manage the operation of the wind turbines at certain times of the year.

3.2 Landscape and Visual Impact

Sarichioi

- 3.2.1 The landscape is reviewed in terms of its character (identifying and assessing the landscape characteristics, quality and condition of the area) and visibility (the potential areas within which the wind turbines may be visible, the perception of viewers and visually sensitive receptors).
- 3.2.2 The site consists of undulating agricultural land (including arable and pasture) and is set within a rural character more than 500 m from the closest residential properties. There are very few trees on either the site or in the surrounding landscape and a limited number of single storey buildings on the site (a substation) as well as the turbines (as the wind farm is operational). There are no major wetlands, significant watercourses or other notable natural features within the site, although a number of large water bodies are located in the wider landscape, approximately 5 km to the east and further to the south. Plate 1 below shows the layout and the location of the turbines in relation to the main residential settlement of Agighiol.

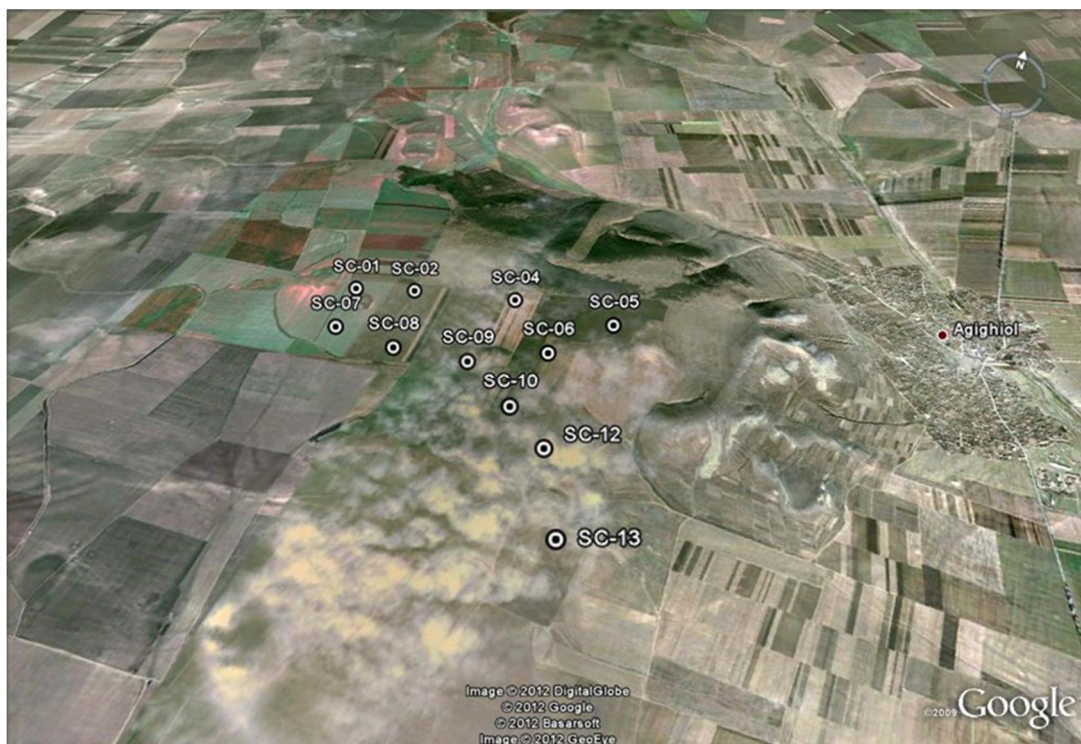


Plate 1 – Layout and location of the Sarichioi Site (Source: Photomontages prepared for EDPR)

- 3.2.3 Electricity pylons and telegraph poles are distinctive features across the wider landscape. Photographs of typical views to/ from the Sarichioi Site are provided below.



Plate 2 - Typical View of the Sarichioi Site from the substation (*Source: taken during site visit, May 2012*)



Plate 3 - Typical View of the Sarichioi Site looking north-east from substation site (*Source: taken during site visit, May 2012*)

- 3.2.4 There are also a significant number of wind turbines located in the surrounding landscape, widely spaced, and which create a distinctive visual feature. The nearest wind farm lies adjacent to the Sarichioi Site and is located between the Sarichioi Site and the nearest residential receptors. Plate 4 below provides an image of the adjacent wind farm turbines.



Plate 4 Adjacent Wind farm Turbines – view from the access road within the Site, looking north-east
(Source: Photomontages prepared for EDPR)

- 3.2.5 There are no trees on the site and very little tree cover within the area, therefore due to the nature of wind turbines there is little mitigation possible to reduce the visual impacts of the turbines. The introduction of wind turbines and ancillary infrastructure would therefore have an impact on the existing landscape character of the site and surrounding visual amenity. This impact would last for the operational period of the wind farm and be reversed on decommissioning, although during operation, any impacts would be more significant to receptors within approximately 2-4 km of the site. As the distance from the site is increased, the effect of the Sarichioi wind farm on visual amenity would be reduced, particularly given the number of wind turbines associated with other wind farms in the local area.
- 3.2.6 The existing site and surrounding landscape is used primarily for growing agricultural crops over vast tracts of land. As agricultural activity can still occur within the Sarichioi wind farm in between the turbines, the overall character of the landscape in terms of colour, texture, form and openness would change very little. The open character of the turbines and their uniformity of colour and design enable the development to relate well to the receiving landscape character of the site and surrounding area (which is currently open and expansive). The 11 turbines of the Sarichioi Site will extend the character of the adjacent wind farms, helping them to be read as a single entity in the landscape

rather than a series of unconnected, disparate sites. It is therefore anticipated that wind turbine developments of this nature will not result in a significant adverse impact on the local landscape character of the site or the diversity of the landscape character beyond the local context.

- 3.2.7 Although there are numerous wind turbines in the vicinity, including one between the Sarichioi site and the nearest residential receptors at Agighiol, the location of the Sarichioi wind turbines will result in some visual impact to nearby residential receptors within a few kilometres of the Site due to their height, lack of tree screening, and the openness of the landscape.
- 3.2.8 At greater distances (from approximately 2 km onwards), the impact of the turbines on visual amenity reduces to negligible or no effect. The Sarichioi wind turbines will be seen in the context of the existing wind turbines as well being screened by topography and vegetation at greater distances. Potential views of the wind farm may be afforded from nearby residential areas, particularly Agighiol (see Plate 5 below) and Sabangia (see Plate 6 below).



Plate 5 - View towards the Sarichioi Site looking south-west from Agighiol village (*Source: taken during site visit, May 2012*)



Plate 6 - View towards the Sarichioi Site looking north-west from Sabangia village (*Source: taken during site visit, May 2012*)

- 3.2.9 Given the proximity of surrounding wind farms, it is unlikely that the Sarichioi wind turbines will be distinguishable from the adjacent existing wind turbines from settlements such as Sarichioi. It is also unlikely that the openness of the existing landscape character is likely to be significantly compromised by the turbines, as shown in Plate 7 below.

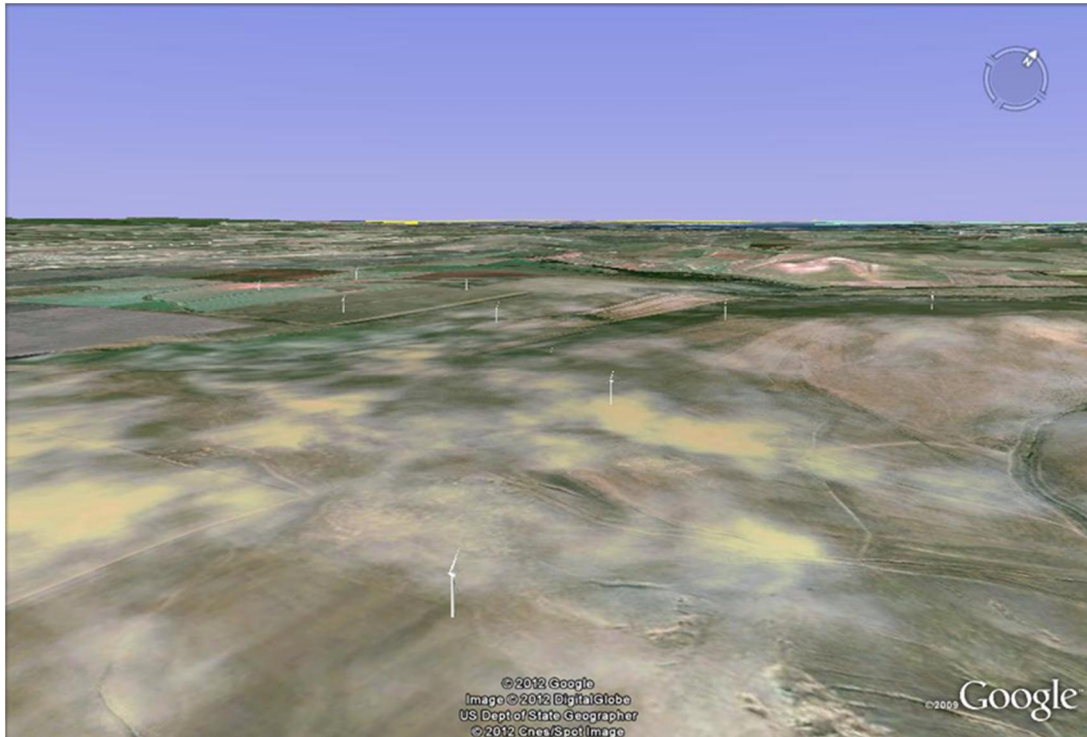


Plate 7 Sarichioi site photomontage, view looking north-west (Source: *Photomontages prepared for EDPR*)

- 3.2.10 The overhead power lines constructed between the turbines within the wind farm and to link the wind farm to the national electricity grid pass over open countryside largely away from residential properties. Consequently the impact of the power lines on visual amenity is minimal.
- 3.2.11 To minimise adverse impacts to local landscape character or visual amenity, the red lights on top of the turbines should be as dim as possible to limit visual intrusion into the night time scene whilst maintaining their warning function for birds. The height, colour and spacing of the turbines should be in keeping with, or lower than, any existing turbines in the vicinity.

Vutcani

- 3.2.12 The local topography around the Vutcani wind farm is composed of a series of hills and valleys which are mostly orientated north-south, with vast tracts of land which is under agricultural production (typically arable farming). Belts of mature trees, where present, typically follow watercourses and lower slopes of the valleys helping to break up the vast, open landscape. Agricultural fields and paddocks adjacent to the villages of Vutcani and Codreni are much smaller, more irregular and typically enclosed by woodland copses, tree-lined hedgerows and mature belts of trees to create a more enclosed character around the main settlement areas, in contrast to much wider landscape beyond. Plates 8, 9 and 10 below illustrate this more enclosed, tree-filled landscape.



Plate 8 - View from Vutcani village looking north-east (*Source: taken during site visit, May 2012*)



Plate 9 - View from Vutcani village looking north-west (*Source: taken during site visit, May 2012*)



Plate 10 - View from Codreni village looking north (*Source: taken during site visit, May 2012*)

- 3.2.13 There are no buildings on the Site other than the substations belonging to the wind farm and no wetlands or significant watercourses are present within the Site itself. A photograph of a typical view is provided in Plate 11 below.



Plate 11 - View of the surrounding landscape from the Vutcani Site looking north-west (*Source: taken during site visit, May 2012*).

- 3.2.14 Plate 11 above also shows the influence of electricity pylons on the local landscape. Where pylons are located on higher ground and ridgelines, they can be clearly seen on the skyline. In addition, the adjacent residential and built up areas, typically following water courses, contain many trees and blocks of vegetation in contrast to the extensive, open plains above them. Plate 11 also shows the influence of the existing vegetation and generally open, expansive rural landscape with limited views of settlements.
- 3.2.15 The Vutcani wind farm site is located nearer to residential properties than the Sarichioi site, although still not closer than 500 m. Plate 12 below shows the layout and the location of the turbines in relation to the main residential settlements of Vutcani, Codreni in the west and Barbosi in the east (please note that North is to the bottom of the map). The settlements are located at a slightly lower level than the surrounding hills on which some of the turbines are located, thereby making the turbines more visible on skyline views.

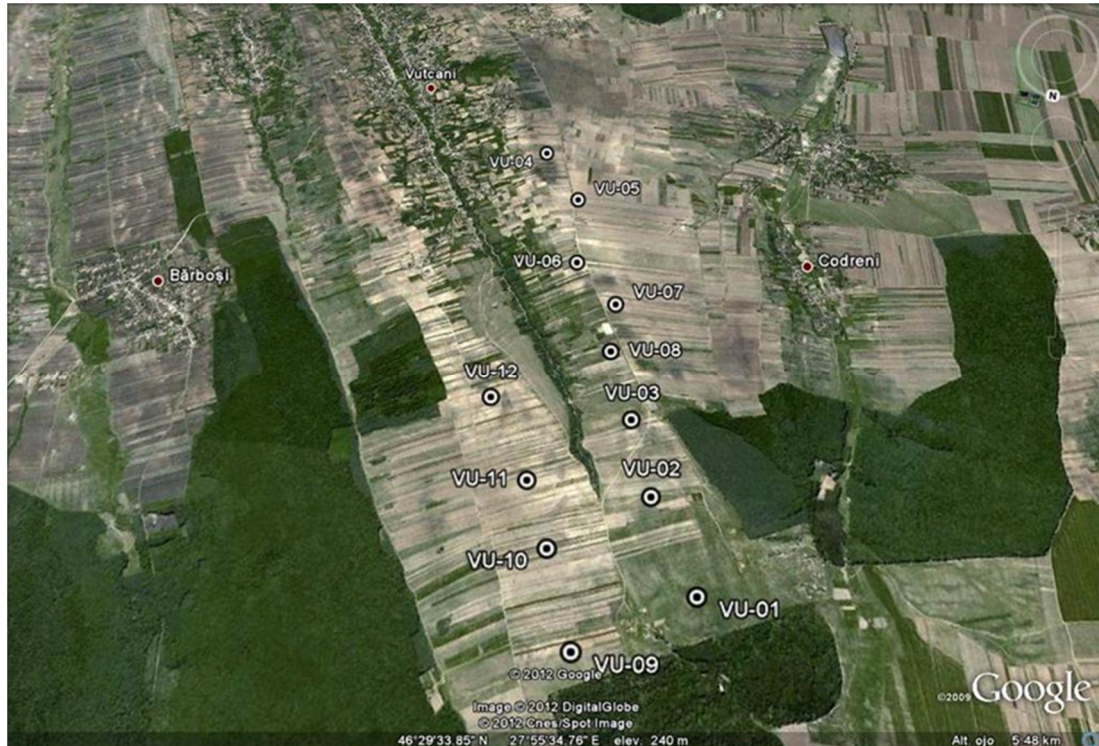


Plate 12 Location of Proposed Wind Turbines – Vutcani Site (Source: Photomontages prepared for EDPR)

- 3.2.16 Plate 13 above also shows the proximity of residences on the edges of Vutcani and Codreni in particular (please note that North is to the bottom of the map). Due to the orientation of some houses to the wind turbines, some views will be oblique, with other views blocked by topography, vegetation or intervening built form. However, the location of turbines on the ridgeline and proximity of some of the settlements are likely to result in some clear views of the turbines from certain short-distance locations.
- 3.2.17 Access to the Site is via the DJ224b (asphalt) and links with DN28b between Lasi-Barlad and Vutcani. The road which enters Vutcani is unpaved. Views of the wind farm from users of the road network within and between settlements will be transient, with many views being only glimpsed or oblique views of the turbines. Due to the orientation of some of the houses to the wind turbines, many views will be oblique views only and/ or blocked by topography, vegetation or intervening built form. Even so, there will be many open views of the wind turbines, which will be seen as slim silhouettes on the skyline.
- 3.2.18 Plate 14 below shows that, even with the turbines in operation, the openness of the existing landscape character is not significantly compromised.

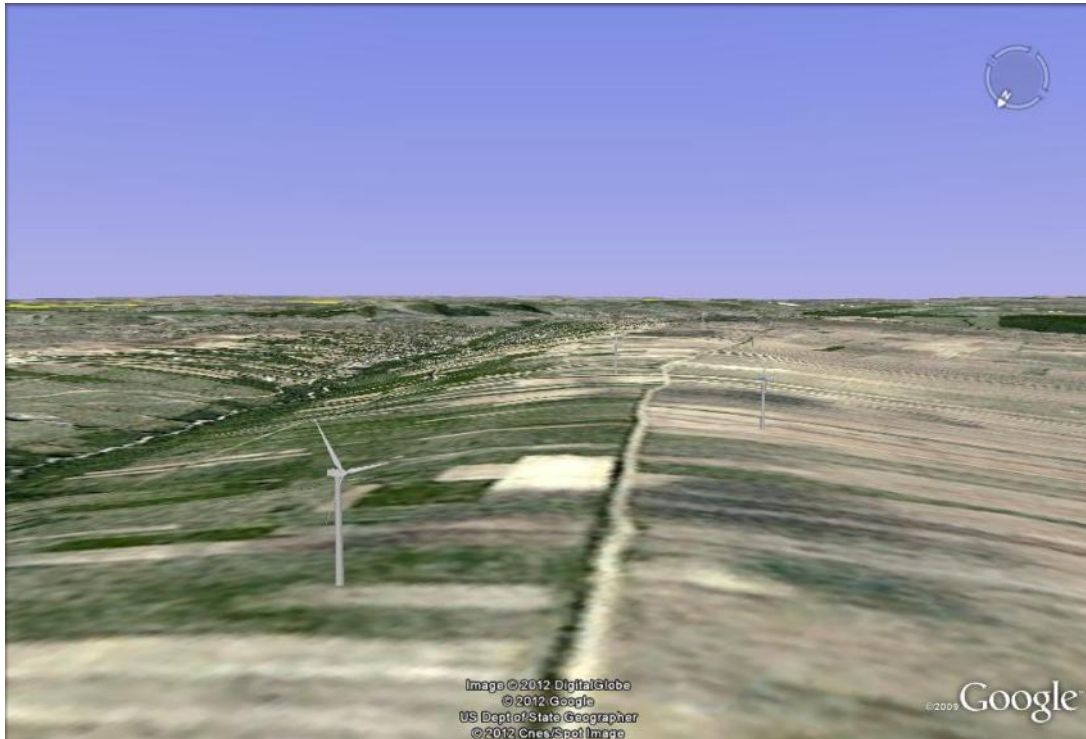


Plate 13 Vutcani site photomontage, view looking south-east towards Vutcani settlement (*Source: Photomontages prepared for EDPR*)

- 3.2.19 The overhead power lines will pass over open countryside away from residential properties and consequently the impact of the power lines on visual amenity will be minimal. Power lines and pylons already form part of the skyline of many views, as shown in Plates 9 and 11 above.
- 3.2.20 The effect of the proposed wind farm will therefore have a minor negative effect on the local landscape character, and a minor negative effect on local visual receptors but this is not considered to be a significant negative effect.
- 3.2.21 To minimise adverse impacts to local landscape character or visual amenity, the red lights on top of the turbines should be as dim as possible to limit visual intrusion into the night time scene whilst maintaining their warning function for birds. The height, colour and spacing of the turbines should be in keeping with, or lower than, any existing turbines in the vicinity.
- 3.2.22 It should be noted, however, that, local communities consulted as part of this project see the wind farms as being predominantly beneficial.
- 3.3 Potential for Cumulative Impacts of Sarichioi and Vutcani Wind Farms, in-combination with other Wind Farms

Number and Location of the Schemes Included in this Assessment

- 3.3.1 For the purposes of this report the cumulative impact assessment considers those wind farm proposals in the vicinity of the Sarichioi and Vutcani sites which are considered to be within the zone of influence of the two subject sites. In accordance with best practice guidance, the assessment of cumulative effects should only consider those areas where there is the potential for the cumulative effect of a proposal, which taken with other existing or proposed projects, might add to a significant cumulative effect from a natural heritage perspective. The zone of influence of the Sarichioi and

Vutcani projects has been identified through consideration of the likely spatial extent of the potential environmental effects arising from these wind farm developments in respect of ecological effects (specifically avifauna and bats), landscape and visual impacts and noise impacts. Although the zone of influence varies between environmental topics and receptors, given the nature of the surrounding area (including the habitat types, topography, land uses and the location of Natura 2000 sites and known flyways used by birds) the anticipated zone of influence associated with the potential effects has been identified as being approximately 10 – 15 km from each site.

- 3.3.2 This approach is in line with best practice in respect of cumulative effects and effects on Natura 2000 sites, including the following guidance:
- Scottish Natural Heritage (2005) Cumulative Effect of Wind Farms;
 - European Commission (2001) Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites; and
 - European Commission (2000) Managing Natura 2000 Sites.
- 3.3.3 As discussed in the Gap Analysis report the EIA reports do not include consideration of the potential for cumulative environmental effects arising from the proposed wind farms at Sarichioi and Vutcani together with other wind farm projects in the same geographical area. An assessment of potential cumulative effects is therefore provided below.
- 3.3.4 A search of information published by the EPA offices in Tulcea and Vaslui has been carried out supplemented by a review of building permits published on Tulcea and Vaslui County Councils websites. A review of Transelectrica website was undertaken to determine the permitting status of wind farms within the area, including technical connection permits, connection contracts and the operational status. The findings of these searches are presented in Tables 3.17 and 3.18 below, those projects highlighted in bold relate to wind farms which are operational at the time of writing.

Sarichioi

- 3.3.5 The nearest known locations of other operational wind farms in the local area around the Sarichioi site (within approximately 15 km) comprise the following, the distances of the wind farm projects from each commune are indicative:
- An operational wind farm at Valea Nucarilor approximately 13 km north east from Sarichioi commune with a capacity of 6.95MW. A review of available information indicates that applications for other wind farms in this area have been made (including one facility of 399MW capacity), these facilities are understood to have a connection contract and/or a technical connection permit but not to be operational at this time;
 - An operational wind farm at Agighiol adjacent to the north east with a capacity of 34MW; and
 - An operational wind farm at Babadag approximately 12 km south east of Sarichioi commune with a capacity of 8.4MW.
- 3.3.6 Permits for other wind farms in the vicinity (such as at Mihail Kogalniceanu and Mihai Bravu) have been submitted but are at varying stages of the permitting process and are understood not to be operational at this time. The indicative locations of these sites are shown on Figure 6.
- 3.3.7 The first two projects identified above are located closer to the Danube Delta SCI and SPA than the Sarichioi site. The wind farm at Babadag is also located near the Danube Delta SCI and SPA which covers a substantial area and includes Babadag Lake. It is not known whether these operational wind farms are located within the protected area.
- 3.3.8 Based on the anticipated zone of influence for the Sarichioi wind farm (approximately 10 – 15 km) the three wind farms listed above have been considered in respect of the potential for cumulative environmental impacts associated with the Sarichioi wind farm. Should other wind farms be

constructed in the area consideration may need to be given to the potential for cumulative ecological impacts on nearby protected areas.

Table 3.17: Wind Farm Projects in the Vicinity of Sarichioi Site (please note project locations are approximate)

No.	Company	Location	Capacity (if known)	Status (if known)	Distance and Direction from Sarichioi commune (see Figure 6)
1	SC BLUE LINE ENERGY SRL	BESTEPE commune, Tulcea County	Installed power of 4.6MW	Obtained Technical Connection Permit from Enel Distribution Dobrogea SA – January 2012, and valid until April 2012	Bestepe at 20km N of Sarichioi commune
2	SC FF WIND ENERGY INTERNATIONAL SRL	VALEA NUCARILOR commune, Tulcea County	Installed power of 399MW	Obtained connection contract to the national electric grid from Transelectrica SA in March 2011	Valea Nucarilor at 13km NE of Sarichioi commune
3	ELECTROGROUP	VALEA NUCARILOR commune, Tulcea County	Installed power of 0.75MW	The wind farm is in the operational testing stage.	Valea Nucarilor at 13km NE of Sarichioi commune
4	GREEN ENERGY GROUP	VALEA NUCARILOR commune, Tulcea County	Installed power of 0.75MW	The wind farm is in the operational testing stage.	Valea Nucarilor at 13km NE of Sarichioi commune
5	BLUE LINE IMPEX	VALEA NUCARILOR commune, Tulcea County	Installed power of 0.75MW	The wind farm is in the operational testing stage.	Valea Nucarilor at 13km NE of Sarichioi commune
6	GREEN ENERGY GROUP	VALEA NUCARILOR commune, Tulcea County	Installed power of 1.2MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in February 2009. The wind farm is in the operational testing stage.	Valea Nucarilor at 13km NE of Sarichioi commune
7	HYDRO WIND POWER	VALEA NUCARILOR commune, Tulcea County	Installed power of 0.6MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in February 2009. The wind farm is in the operational testing stage.	Valea Nucarilor at 13km NE of Sarichioi commune
8	ELECTRO GROUP ENERGY	VALEA NUCARILOR commune, Tulcea County	Installed power of 1.2MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in February 2009. The wind farm is in the operational testing stage.	Valea Nucarilor at 13km NE of Sarichioi commune

No.	Company	Location	Capacity (if known)	Status (if known)	Distance and Direction from Sarichioi commune (see Figure 6)
9	BLUE LINE ENERGY	VALEA NUCARILOR commune, Tulcea County	Installed power of 1.7MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in February 2009	Valea Nucarilor at 13km NE of Sarichioi commune
10	SC ENEL GREEN POWER	VALEA NUCARILOR commune, Tulcea County (assumed to be AGIGHIOL - VALEA NUCARILOR)	Installed power of 34MW	Operational, listed on Transelectrica SA website as operational wind farm connected to the grid	Valea Nucarilor at 13km NE of Sarichioi commune (adjacent to the north east of the EDPR Sarichioi site)
11	BLUE LINE ENERGY	AGIGHIOL - VALEA NUCARILOR commune, Tulcea County	Installed power of 35MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in July 2009	Agighiol - Valea Nucarilor at 12km NE of Sarichioi commune
12	Details not available	AGIGHIOL - VALEA NUCARILOR commune, Tulcea County	Installed power of 70MW	Operational	Agighiol - Valea Nucarilor at 12km NE of Sarichioi commune
13	Details not available	AGIGHIOL - VALEA NUCARILOR commune, Tulcea County	Installed power of 70MW	Operational	Agighiol - Valea Nucarilor at 12km NE of Sarichioi commune
14	EDP Renewables	SARICHIOI commune, Tulcea county	Installed power of 33MW	Operational, listed on Transelectrica SA website as dispatched operational wind farm connected to the grid	Sarichioi commune. This is the Sarichioi EDPR site
15	EVIVA NALBANT	BABADAG 2 commune, Tulcea county	Installed power of 8.4MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in February 2009. Operational	Babadag 2 at 12km SE of Sarichioi commune
16	EVIVA NALBANT	BABADAG 1 commune, Tulcea county	Installed power of 33.6MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in August 2009	Babadag 1 at 12km SE of Sarichioi commune

No.	Company	Location	Capacity (if known)	Status (if known)	Distance and Direction from Sarichioi commune (see Figure 6)
17	GROUND INVESTMENT	BABADAG 3 commune, Tulcea county	Installed power of 31.5MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in May 2010	Babadag 3 at 12km SE of Sarichioi commune
18	DELTALACT TULCEA	LASTUNI commune, Tulcea county	Installed power of 7.5MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in December 2010.	Lastuni at 15km NE of Sarichioi commune
19	GMALEX IMPEX	SATU NOU commune, Tulcea county	Installed power of 8MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in January 2011.	Satu Nou at 13km E of Sarichioi commune
20	EOLIANA FORTE	MIHAIL KOGALNICEANU commune, Tulcea county	Installed power of 69MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in August 2011.	Mihail Kogalniceanu at 13km NE of Sarichioi commune
21	PRESCOM SRL	MIHAIL KOGALNICEANU commune, Tulcea county	Installed power of 7.4MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in January 2012.	Mihail Kogalniceanu at 13km NE of Sarichioi commune
22	PROD PAN	MIHAI BRAVU commune, Tulcea county	Installed power of 1.5MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in September 2011.	Mihai Bravu at 15km NE of Sarichioi commune
23	SC EOL ENERGY SRL	MIHAI BRAVU commune, Tulcea county	Installed power of 7.8MW	Obtained connection contract to the national electric grid from ENEL Distribution Dobrogea SA in October 2011.	Mihai Bravu at 15km NE of Sarichioi commune
24	Details not available	MIHAI BRAVU commune, Tulcea county	Installed power of 10MW	Technical connection permit understood to be held.	Mihai Bravu at 15km NE of Sarichioi commune

Note to table: Items in bold relate to operational wind farms.

Vutcani

- 3.3.9 The nearest known other operational wind farms in the local area around the Vutcani site (within approximately 15 km) comprises the following. The distance of the wind farm project from the commune is indicative:
- An operational wind farm at Muntenii de Jos approximately 16 km north of Vutcani commune with a capacity of 0.23MW.
- 3.3.10 Permits for other wind farms in the vicinity have been submitted but are at varying stages of the permitting process and are understood not to be operational at this time. The indicative locations of these sites are shown on Figure 7. These include sites nearby at Albesti and Rosiesti which have connection contracts but where wind farms have not been constructed to date.
- 3.3.11 The Muntenii de Jos wind farm is located approximately 8 km east of the Padurea Dobrina-Husi SCI. Given that this SCI is designated for its habitats rather than bird species and no direct impact on this SCI is anticipated as a result of the Muntenii de Jos wind farm and the Vutcani wind farm no cumulative effects on this designated site are anticipated.
- 3.3.12 Should other wind farms be constructed in the area consideration may need to be given to the potential for cumulative ecological impacts on nearby protected areas.

Table 3.18 Wind Farm Projects in the Vicinity of Vutcani Site (please note project locations are approximate)

No.	Company	Location	Capacity (if known)	Status (if known)	Distance and Direction from Vutcani Commune
A) Sites with Building Permit but no further permits to date (based on available information – not shown on Figure 7)					
1	SC PROWIND WIND FARM SRL BUCHAREST	DELENI commune, Vaslui county COSTESTI commune, Vaslui county	Construction of wind farm – construction site organization, access roads, turbine and platform construction, electrical underground electrical cables and transformer station	Obtained building permit – December 2011	Deleni at 7km NE of Vutcani commune Costesti at 12km NW of Vutcani commune
2	SC PROWIND WIND-FARM VIIȘOARA SRL	DODESTI commune, Vaslui county	Electrical underground line to connect the turbines, trafo station, underground electrical line to connect to the national grid	Obtained building permit – January 2012	Dodesti at 13km S of Vutcani commune
3	SC PROWBID WIND-FARM BOGDĂNEȘTI SRL	BOGDANITA, commune, Vaslui county BOGDANESTI, commune, Vaslui county	Construction of wind farm – construction site organization, access roads, turbine and platform construction, electrical underground electrical cables and transformer station	Obtained building permit – February 2012	Bogdanita at 15km W of Vutcani commune Bogdanesti at 15km SW of Vutcani commune
B) Wind farm projects with a technical connection permit at least (shown on Figure 7)					
4	SC NORTH BRIDGE FOUR	OLTENESTI commune, Vaslui county	Installed power of 51MW	Obtained Technical Connection Permit from E.ON Moldavia Distribution – February 2012, valid until August 2012	Oltenesti at 11km N of Vutcani commune
5	PIROTEHNIC O.S.B. SRL	MUNTENII DE JOS commune, Vaslui county	Installed power of 0.23MW. Operational	Obtained connection contract to the national electric grid from E.ON Moldavia Distribution in July 2008.	Muntenii de Jos at 16km NW of Vutcani commune
6	SC WINDAIR SRL (LIPOVAT 1)	LIPOVAT village, commune, Vaslui County	Installed power of 6MW	Obtained connection contract to the national electric grid from E.ON Moldavia Distribution in December 2011.	Lipovat at 18km NW of Vutcani commune

No.	Company	Location	Capacity (if known)	Status (if known)	Distance and Direction from Vutcani Commune
7	SC WINDAIR SRL (LIPOVAT 2)	LIPOVAT village, LIPOVAT commune, Vaslui County	Installed power of 2MW	Obtained connection contract to the national electric grid from E.ON Moldavia Distribution in December 2011.	Lipovat at 18km NW of Vutcani commune
8	SC EDP RENEWABLES ROMANIA SRL	VUTCANI commune, Vaslui county	Installed power of 24MW	Obtained connection contract to the national electric grid from E.ON Moldavia Distribution in February 2011. EDP Vutcani site has been completed and is operational.	This is the Vutcani EDPR site
9	Details not available	ALBESTI commune, Vaslui county	Capacity unknown	Site is understood not to have been constructed.	Near Albesti approx. 4km N of Vutcani commune
10	Details not available	ROSIESTI	46MW	Obtained connection contract. Site is understood not to be operational	Rosiesti at approx. 4km SW of Vutcani commune

Note to table: Items in bold relate to operational wind farms.

Cumulative Landscape and Visual Impacts

Sarichioi

- 3.3.13 In terms of visual amenity, there is the potential for wind turbines to be seen over large distances, such as from the Danube Delta Biosphere Reserve or the main settlement of Tulcea. However, the local topography limits views towards the site to within a much more localised area of around 5 km. Over this distance it is unlikely that the Sarichioi wind turbines would be distinguishable in the view from the adjacent wind farm turbines, which were in operation prior to the Sarichioi site.
- 3.3.14 The locations of other potential and existing wind farms identified within 15 km of the site are outlined below and illustrated in Figure 6, distances are approximate. Those wind farms which have been identified as operational based on information provided by Transelectrica are indicated as such below, other sites are at various stages in the permitting process and have a building permit as a minimum:
- Agighiol – 12 km NE of Sarichioi commune (operational in part);
 - Babadag 1, 2 and 3 – 12 km SE of Sarichioi commune (operational in part);
 - Valea Nucarilor – 13 km NE of Sarichioi commune (operational in part);
 - Satu Nou – 13 km E of Sarichioi commune;
 - Mihail Kogalniceanu - 13km NE of Sarichioi commune;
 - Lastuni – 15 km NE of Sarichioi commune;
 - Mihai Bravu – 15 km NE of Sarichioi commune;
 - Lastuni – 15 km NE of Sarichioi commune; and
 - Bestepe – 20 km N of Sarichioi commune.
- 3.3.15 The number of wind turbines in the vicinity means that they are part of the character of the wider landscape. An additional 11 turbines, assuming they are of similar height, colour and spacing as the surrounding wind turbines, will have little additional impact on the local landscape character and will typically be of negligible significance. Those residents closest to the Sarichioi site will experience a slight increase in adverse effects to their visual amenity due to the proximity of turbines, and typically this will be of minor negative to negligible significance. However, it is also recognised that the local communities consulted as part of this project see the wind farms as being predominantly beneficial.

Vutcani

- 3.3.16 In terms of visual amenity, there is the potential for wind turbines to be seen over large distances, but views over distances of approximately 5 km are typically limited by intervening topography, vegetation and built form.
- 3.3.17 The locations of other potential and existing wind turbines within 15 km of the site are therefore outlined below and illustrated in Figure 7, distances are approximate. Those wind farms which have been identified as operational based on information provided by Transelectrica are indicated as such below, other sites are at various stages in the permitting process and have a building permit as a minimum:
- Deleni – 7 km NE of Vutcani commune;
 - Costesti – 12 km NW of Vutcani commune;
 - Dodesti – 13 km S of Vutcani commune;
 - Bogdanita – 15 km W of Vutcani commune;
 - Bogdanesti – 15 km SW of Vutcani commune;

- Oltenesti -11 km N of Vutcani commune;
- Muntenii de Jos – 16 km NW of Vutcani commune (operational);
- Lipovat (2 separate wind farms) – 18 km NW of Vutcani commune;
- Albesti – 4 km N of Vutcani site; and
- Rosiesti – 4 km SW of Vutcani commune.

- 3.3.18 Two of the prospective wind farms, namely Rosiesti and Albesti, are located within approximately 5 km of the Vutcani site and therefore if these wind farms become operational they have the potential to result in cumulative impacts on visual receptors, particularly within the Vutcani and Codreni settlements. The Albesti site is likely to have the greatest potential cumulative visual effect, as it will be seen in conjunction with the Vutcani site to the north of the Vutcani and Codreni settlements. The magnitude of the effect will be dependent on the proposed number, height, colour and layout of turbines within the two sites.
- 3.3.19 It does not appear that either the Rosiesti or Albesti wind farms are currently operational. Permits are held for the potential development of future wind farms in these areas but should they be built out then consideration would need to be given at that time to the potential for cumulative visual effects.

Potential Cumulative Ecological Impacts

- 3.3.20 The main potential issue in respect of cumulative effects arising from the proposed wind farms at Sarichioi and Vutcani together with the other proposed wind farm located within the zone of influence is related to impacts on the activity and migration routes used by birds.
- 3.3.21 It should be acknowledged that the locations of the proposed Sarichioi and Vutcani wind farms have been pre-selected to minimise impacts on migrating birds and known flight routes, such as the Via Pontica.
- 3.3.22 Of the two wind farms the Sarichioi site is of most significance in terms of potential cumulative ecological impacts. This is due to the site location in the vicinity of the Danube Delta SPA and the proximity of other operational wind farms. The Vutcani site is sufficiently distant from important areas for birds and lacks any concentrations of other wind farms. Consequently the potential for cumulative ecological impacts are mainly associated with the Sarichioi wind farm.
- 3.3.23 The potential impacts may include the creation of barriers to migration routes and an increased risk of direct mortality due to collisions (mainly in respect of raptors, waterfowl and waders). The potential ecological impacts are discussed in the following sections.

Sarichioi - Potential Cumulative Impacts on Avifauna

- 3.3.24 There are three key potential cumulative ecological impacts associated with the wind farm projects to be considered. Direct habitat loss is not considered as a cumulative impact as it tends to be limited given the relatively small footprint of the turbines themselves:
- Direct mortality associated with collision with and proximity to turbines/ overhead power lines;
 - Disturbance / avoidance impacts; and
 - The 'barrier effect'.

Direct Mortality

- 3.3.25 High mortality rates are primarily related to topographical bottlenecks where migrating or local birds fly through a relatively confined area, for example mountain passes or land-bridges between waterbodies. Other susceptible locations are slopes with rising winds where the birds gain lift, and

near wetlands or shallow seas that attract large numbers of feeding or resting birds. Flight corridors between feeding areas, roosting sites or breeding sites are also particularly susceptible (Barrios and Rodriguez 2004).

- 3.3.26 The Sarichioi wind farm site is located on rolling hills surrounded by flat agricultural land. There are limited areas of woodland or scrubland and the waterbodies associated with the Danube Delta are over 4 km away from the site. Therefore, the contribution the wind farms would make to potential bird collision figures is limited.
- 3.3.27 However in order to further minimise the potential significant of this impact, EDPR has implemented a series of mitigation measures including the appointment of an IOE for the Sarichioi site. The IOE is responsible for undertaking bird monitoring and surveys on site, including wintering, breeding and migratory bird surveys and Vantage Point surveys, which will be agreed with the Lenders and follow acceptable sector standards, including any EU Guidance. The results of the surveys will be reported to the Lenders on a quarterly basis, and summary information published once a year. The results will inform mitigation measures associated with operation of the wind farms, the mitigation will be summarised in an annual report. The surveys will continue until confidence in the residual effect prediction for the wind farm and their predicted contribution to potential cumulative impacts is confirmed.
- 3.3.28 The IOE will also be responsible for examining the land surrounding the turbines for carcasses of birds on a weekly basis during agreed periods. The results of these surveys will be reported to the Lenders and regulators on a weekly basis, and summary information published once a year. While monitoring for bird carcasses the IOE will also search for bat carcasses to check that the impacts on bats described in the EIA are borne out in reality.
- 3.3.29 The IOE will also have the authority to implement appropriate mitigation measures based on an agreed protocol, including reducing the speed of the turbines or, potentially, for the turbines to be temporarily turned off should a migrant flock be observed to be approaching either site. A detailed shutdown procedure for each wind farm has been developed and implemented in accordance with EBRD standards. Further details of this process are provided in Section 3.1.
- 3.3.30 In addition, the marking of overhead powerlines with bird deflectors to increase visibility will also reduce the potential for bird strikes.
- 3.3.31 A Collision Risk Assessment will be completed within two years of the wind farms becoming operational. The results of the assessment will be made available to the Lenders, regulators, local community and published on the website. The results of the Collision Risk Assessment will be used to further define site specific mitigation measures which will be included within the Environmental Management and Monitoring Plan for each site. EDPR will follow any National and EU guidance developed for wind farm monitoring and approved as the basis of monitoring and operating the Sarichioi and Vutcani wind farms.

Disturbance / Avoidance Impacts

- 3.3.32 Disturbance can be caused during the construction of the wind farms and due to the sight, noise and/or vibration of the turbines during their operational phase. Associated maintenance activities may also cause disturbance. This disturbance produces sub-lethal effects such as loss of condition due to reduced foraging habitat or failure to breed that could have a significant effect for the maintenance of certain species (Langston and Pullan, 2004).

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- 3.3.33 Researchers generally agree that 600 meters is the maximum avoidance distance from individual turbines (Drewitt and Langton 2006) that could amount to a cumulatively significant exclusion area for each wind farm. However recent studies have indicated that birds may develop a degree of habituation to wind turbines (Madsen and Boertmann 2008).
- 3.3.34 The spacing of the turbines at the Sarichioi site, the open topography and the limited amount of semi-natural habitats on the site, suggests the site would be unlikely to contribute towards a significant cumulative disturbance effect.
- 3.3.35 The mitigation measures described above, including results of the wintering, breeding and migratory surveys as well as Vantage Point surveys, will also assist in confirming that there are no significant cumulative disturbance effects on avifauna.

Barrier Effect

- 3.3.36 Wind farms may act as barriers if located along migration routes or flyways, or, at a more local level, along regular flight routes between feeding areas and resting or breeding sites (Kirby et. al. 2008). Wind farm avoidance is reported to be highly variable, it may occur at a distance of 100 metres to 3 km during daylight, whereas at night the distance is likely to be closer' (Desholm and Kahlert 2005).
- 3.3.37 The gaps between the turbines is large (approx. 500 m), and the turbines are not set, for example, within a narrow valley; birds could either fly between the turbines, or simply fly around the entire turbine cluster forming the wind farm. Furthermore, many birds migrating across large, flat landscapes may do so at height, above the sweep zone of the turbines.
- 3.3.38 Given the large spacing between the turbines, with a typical spacing of 450 metres or more, it is unlikely that a significant 'barrier effect will occur. Due to their location and the limited semi-natural habitats on the Sarichioi site it is predicted that the wind farm would be unlikely to contribute towards any significant cumulative barrier effect. The mitigation measures described above, including results of the wintering, breeding and migratory surveys as well as Vantage Point surveys, will also assist in confirming that there is no significant cumulative barrier effect.

Sarichioi - Potential Cumulative Impacts on Bats

- 3.3.39 Given that impacts on bats are not anticipated for the Sarichioi wind farm in isolation, no additional cumulative impacts on bats are anticipated during the operational phase of the wind farm. However, as a precautionary measure a weekly search for bat carcasses will be carried out to monitor the situation. Should bat carcasses be found activity surveys will be carried out and further mitigation measures (e.g. turning turbines off at certain periods) implemented to reduce any potential impacts.
- 3.3.40 The IOE is also responsible for examining the land surrounding the turbines for carcasses of bats on a weekly basis while carrying out the bird carcass search. The results of these surveys will be reported to the Lenders and regulators on a weekly basis, and summary information published once a year. While monitoring for bird carcasses the IOE will also search for bat carcasses to check that the impacts on bats described in the EIA are borne out in reality.

Vutcani - Potential Cumulative Impacts on Avifauna

- 3.3.41 There are three key potential cumulative impacts associated with the wind farm projects to be considered. Direct habitat loss is not considered as a cumulative impact as it tends to be limited given the relatively small footprint of the turbines themselves:
- Direct mortality associated with collision with and proximity to turbines/ overhead power lines;
 - Disturbance / avoidance impacts; and
 - The 'barrier effect'.

-
- 3.3.42 As there are currently no other operational wind farm developments associated with the area surrounding the Vutcani site, potential cumulative effects on avifauna are not considered to be significant. The other wind farm developments that are planned are at least 5 km from the Vutcani site and therefore the effect of disturbance and barrier effects is expected to be negligible.
- 3.3.43 The effect of direct mortality would also be expected to be low as the site is not near any important sites for birds. As no actual baseline data was collected from the site prior to the development taking place, it is recommended that a programme of monitoring be carried out. This should be based on the methods, frequency and longevity of the programme planned for the Sarichioi wind farm.

Vutcani - Potential Cumulative Impacts on Bats

- 3.3.44 As there are currently no other operational wind farm developments associated with the Vutcani site, potential cumulative effects on bats are therefore not considered to be a significant issue.

Mitigation for Cumulative Effects on Avifauna and Bats

- 3.3.45 The mitigation to be implemented for the Sarichioi site will be expected to reduce impacts for both avifauna and bats. The turbine towers will be fitted with a red flashing light; this is likely to make them more visible at night and therefore less likely to be flown into by birds and bats.
- 3.3.46 Temporary slowing or cessation of turbine rotation will also be operated by the IOE for the sites, in accordance with an agreed protocol, as informed by observations and monitoring during incidences of higher avifaunal and bat densities such as the migration periods (July to October inclusive for birds and August to September inclusive for bats). In addition, the marking of overhead powerlines with bird deflectors to increase visibility will also reduce the potential for bird strikes.
- 3.3.47 The monitoring and surveys will be undertaken by the IOE, as agreed with the Lenders and in accordance with acceptable sector standards and EU Guidance, will determine the success of the mitigation and the results will be used to inform the mitigation requirements.
- 3.3.48 Monitoring will be undertaken at the Sarichioi site for a period of 5 years following operation of the wind farm, as discussed in Section 3.1 above. The monitoring period will be reviewed based on the results. There is a possibility for the monitoring to be extended to more than 5 years, depending on the results of the monitoring, which will be reported on an annual basis.
- 3.3.49 No mitigation has been suggested for birds or bats at the Vutcani site however this report makes certain recommendations for mitigation and monitoring aimed at identifying any adverse ecological effects of the Vutcani wind farm site on birds.

Residual Cumulative Effects on Avifauna and Bats

- 3.3.50 Given the mitigation measures proposed, it is anticipated that the Sarichioi and Vutcani wind farms will not contribute to any residual cumulative effects from wind farm developments proposed in the local area. This assessment of no significant residual cumulative effect will be confirmed by the proposed mitigation and monitoring measures.

4 Conclusions

4.1 Overview

- 4.1.1 This section presents the main conclusions of the additional information on environmental and social impacts, including potential cumulative impacts, associated with the Sarichioi and Vutcani wind farms that are required by the EBRD, and the Equator Principles and go beyond the requirements of the EU EIA Directive.

4.2 Ecological Assessment

- 4.2.1 The key potential ecological impacts associated with the two wind farm developments at Sarichioi and Vutcani relate to birds and bats and include:
- Disturbance;
 - Displacement/ Barrier effects; and
 - Direct mortality through collision, electrocution and barotrauma.

Sarichioi

- 4.2.2 There are five designated ecological sites within approximately 20 km of the Sarichioi site, including the Danube Delta SPA. A series of mitigation measures have been defined for the Sarichioi site as conditions of its operating permit and these include undertaking ecological monitoring and the implementation of physical measures including bird deflectors on transmission lines.
- 4.2.3 Bird monitoring was undertaken during the construction phase of the development and results of these studies have been presented in reports submitted to EcoPontica, the SOR and the EPA in Tulcea for the periods covering April - September and September – December 2012. Further to consultation with the above organisations, the monitoring will be undertaken in accordance with the Ecological Monitoring Plan which is in place at the Sarichioi site and reports will be submitted on an annual basis (for five years) to EcoPontica, the SOR and the EPA.
- 4.2.4 EDPR have appointed an Independent Ornithological Expert (IOE) on a full time basis to carry out the bird monitoring at the Sarichioi site. The IOE is responsible for undertaking surveys and monitoring bird movements in the immediate area and instigating appropriate mitigation measures as required. At certain times of the year during spring and autumn migration periods in particular the rotor speed of the turbines may be reduced and/or they could be temporarily turned off during bird and bat migration periods, should it be required. A formal turbine shut-down system managed by the IOE has been developed. A decision to shut down a turbine or turbines will be made by the IOE based on field observations.

Vutcani

4.2.5 There are three ecologically designated sites within 20 km of the Vutcani site, the closest of which is Pădurea Dobrina – Huși, located approximately 5 km north of the wind farm.

4.2.6 Given the location and site conditions at the Vutcani site is considered to be of limited ornithological importance, being located a significant distance from any protected areas for birds and not located on any known bird migration routes. However, EDP will commission an IOE to undertake periodic bird and bat monitoring for a year after the commencement of the operation of the site to confirm whether there any adverse effects on birds and bats associated with operation of the wind farm.

4.3 Landscape and Visual Assessment

4.3.1 The introduction of wind turbines and ancillary infrastructure will have an impact on the existing landscape character of both sites. However, the open character of the proposed wind farms and their general uniformity of colour and design enables the developments to relate well to the receiving open and expansive landscape character of the sites. Therefore the proposed wind farms will not adversely impact upon the local landscape character beyond the local context. It is recommended that the red lights on top of the turbines are as dim as possible to limit visual intrusion into the night-time scene whilst maintaining their warning function for birds.

4.4 Cumulative Ecological Effects Assessment of Sarichioi and Vutcani Wind Farms in-combination with Other Wind Farms

4.4.1 Given the spacing of the turbines, the location and limited extent of semi-natural habitats on the wind farm sites and the comprehensive monitoring mitigation measures proposed it is considered that the wind farm developments at Sarichioi and Vutcani would not contribute towards a significant residual cumulative effect or any significant effect upon the integrity of Natura 2000 sites.

4.4.2 Given that both sites are situated in large open agricultural fields occupying exposed positions on hillsides, their suitability for bats is very low. Therefore the potential for impacts on the bat community within the vicinity of both wind farms, with regards roosting, foraging and commuting bats, is considered to be not significant. There are no known bat migration routes over either site and the mitigation measures suggested for birds should be suitable to reduce any potential impact on migrating bats such that it is unlikely to be significant.

4.4.3 The results of the proposed ecological mitigation and monitoring will aim to confirm this assessment of no significant residual effect, and guide any additional mitigation that may be required depending on the results of the monitoring surveys at both the Sarichioi and Vutcani sites.

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6 Appendices

Appendix A List of Abbreviations and Acronyms

ABRDD	Danube Delta Biosphere Reserve Authority
EDPR	EDP Renewables
EIA	Environmental Impact Assessment
EMRI	Eco-Museal Research Institute
EclA	Ecological Impact Assessment
EPA	Environmental Protection Agency
ESAP	Environmental and Social Action Plan
ESIA	Environmental Social Impact Assessment
EBRD	European Bank of Reconstruction and Development
IBA	Important Bird Area
IFC	International Finance Corporation
IOE	Independent Ornithological Expert
KW	Kilowatts
MW	Megawatts
SCI	Site of Community Importance
SEP	Stakeholder Engagement Plan
SOR	Societatea Ornitologica Romania
SPA	Special Protection Area

Appendix B Ecological Monitoring Plan for Sarichioi Wind Farm

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To

THE ROMANIAN ORNITHOLOGY SOCIETY

ECO - PONTICA FOUNDATION

Further to the conclusions of the discussion that we had on 25 January 2012 on the premises of EDP Renewables Romania SRL (that was also attended by representatives of the Romanian Ornithology Society, Eco-Pontica Foundation, EDP Renewables Romania and Eco Green Consulting SRL) and based on the conditions imposed in the Environment Permit No. 8372/23.01.2012, please find attached the proposal regarding the Monitoring Plan that will be implemented during the operational lifespan of Sarichioi wind farm (including the 110kV cabling area to Zebil North).

**MONITORING PLAN
PROPOSED FOR THE OPERATIONAL LIFESPAN
OF "SARICHIOI WIND FARM,, - main client: EDP RENEWABLES ROMANIA SRL**

According to Environment Permit No. 8372/23.01.2012, the biodiversity in the operational area of the wind farm (including the cabling area up to the 110 kV Zebil North plan) has to be monitored, and especially the local habitats, the flora and fauna species for which the Natura 2000 ROSCI0060 Agighiol Highlands, ROSCI0067 Deniz-Tepe and Deniz-Tepe Nature Reserve and ROSPA0032 Deniz-Tepe areas were officially declared to be "protected areas".

The period under scrutiny - study methods: The species and habitats within the perimeters that are part of this investment will be monitored from March through October every year. The onsite visit periods will be so selected so as to facilitate the descriptions, more specifically to facilitate the study of all flora seasons and all development phases of the fauna species. In the case of habitats, the periods favourable to descriptions are those in which the type of vegetation under scrutiny has the largest number of species, fully developed, more specifically in this case we are taking about grasslands turned to steppe in highland areas; all observations will mostly be made from March through July..

Regarding the climat, the area under scrutiny is a low hill area, with an Eastern continental influence, with annual average temperatures of about 10,6°C and annual average precipitations of 480 mm.

Given the fact that the perimeter where the investment is located has an irregular shape and the area under scrutiny covers approximately 500 ha, which is the double of the perimeter of the wind farm that covers approximately 254 ha. This 500 ha sizing of the area enables an objective evaluation of the impact that wind farming operations will have upon the local biodiversity. On the other hand, also under scrutiny will be the electric cabling area (from DN22A Tulcea- Constanta road) to the 110 kV Zebil North plant.

Classic methods will be used in order to study the flora and the vegetation in the area, more specific a phytocenotic scale mapping will be outlined to cover fixed test areas of 1600 sq.m. each. This is where flora species will be studied and for every species the abundance and prevalence rates will be determined based on the *Braun - Balanquet* scaling method. The 11 test areas will be established in the areas that are affected by construction works. Apart from the scale mapping, the transects' method will also be used, especially to identify species that are important for conservation purposes or that are protected under the enforceable legislation.

The area under scrutiny was so established as to cover the full perimeter of the wind farm, the electric cable area, as well as the adjoining area, depending on the types of birds under scrutiny.

Bird populations in the area will be monitored over one calendar year and the monitoring will cover all of the 6 phenological characteristics of the annual cycle of bird species: *Hibernal, Prevernal, Vernal, Aestival, Serotinal, and Autumnal*. Following this succession, the following periods will be covered:

- the autumn migrations (serotinal and autumnal),
- winter period (hibernal),
- spring migrations (prevernal and a part of the vernal period) and
- and the nesting time (vernal and aestival).

Working methods were customised to each separate category of birds so that the quality of the data can reflect the real onsite *status quo*, more specifically: nesting species, birds of passage, wintering birds. For that matter, since the cabling area covers 870 m of the Natura 2000 ROSPA 0032 Deniz-Tepe site, we shall have to monitor the presence/absence of the key bird species that this Natura 2000 site was supposed to host.

In order to identify the nesting birds species, the area will be divided into survey perimeters and fixed points will be selected wherefrom to study the local area. The monitoring perimeters were established on a random basis, so that the collected data can be as accurate as possible. In order to fill in the data collected from the fixed points, transects will be established in these observation points too in order to confirm and substantiate the first data category, thereby insuring the consistency of the data. In this way, the distribution of the species throughout the area under scrutiny will be better observed too.

Fixed point method - this method will be used to monitor the birds during their migration period (autumn and spring). The fixed point method is a quantitative method that will enable us to estimate the relative abundance of birds. Fixed points will be so selected so as the collected data should be relevant to the study. During the observation period, the following details will be noted down:

- the species under scrutiny
- the number of individuals of a certain species
- the flight direction of the species
- estimated flight height
- type of habitat where the species was found

By applying the fixed point method, data will be found with regard to:

(1) the diversity of bird species over the migration time (specific composition/qualitative evaluation) and the

(2) estimate of average flight height for the key species and

(3) the flight direction.

The Vantage Point Method - this method will be applied in order to evaluate the collision risk in the case of birds that have to be preserved. The Vantage point survey involves observations from a fixed point which is located in a favourable position that should enable watchers to observe flight activities without disturbing the birds' life and behaviour. The longer the fixed point observation period, the better outlined the behavioural flight pattern will be and the impact will also be assessed more accurately. The purposes of the Vantage Point Observation are to:

1. collect data for the *key bird species* regarding the following:

- ✓ fly-over time above the study area
- ✓ relative usage rate (feeding, mating, rest, passage) of the various perimeters inside the study area
- ✓ flight time above or under the rotor (the diameter of the rotor) of the turbine (this will be noted after the wind farm has become operational.)

2. to calculate the index of the flight activity for species other than the key bird species - secondary species

The transect method combined with the fixed point method - this combined method will help monitor birds nesting and wintering in the study area. The number of transects will be established based on the overall surface of the overhead power line, the peculiarities of the area (topography, vegetation, etc.), so that the transects of the study area can cover the habitats that are specified to this area in order to be able to analyse the relationship between the habitat and the species. Fixed points will be established along the overhead power line ever 3 km.

While scrutinising a transect, the following details will be noted:

- number of species seen
- number of individuals of a certain species
- the activity of birds
- estimated flight height
- type of habitat where the species was seen

Operators will spend about 5 minutes at every fixed point and will note the following:

- the fixed point wherefrom the observation was made
- number of species seen
- number of individuals of every species
- type of activity of the bird
- estimated flight height
- type of habitat where the species was seen

By applying the fixed point method, data will be found with regard to:

- the diversity of the bird species over the nesting and wintering period (specific composition/qualitative evaluation)
- the analysis of the species - habitat relationship,
- the flight height of the species.

Nesting birds will be observed on the site whenever they are more active, for instance when young chicks have already left the nest and are ready to fly, since this is when it is easier to establish where

a bird species is present or missing in the area under scrutiny.

For the migrating bird species, different monitoring methods will be implemented and used so that these methods can properly reflect all of the passage peculiarities (moving directions, migration corridors, behaviour, etc.). The main working method use was the fixed points methods because the data collected based on this method helps to establish the migration dynamics (patterns).

Referring to the species of amphibians, reptiles and mammals, they will be monitored during the onsite assignments that will be performed to monitor the birds because the onsite assignments scheduled on the optimum timing will coincide with the bird watching assignments, therefore the data will be collected together.

Monitoring the bird populations

The monitoring programme has to be so designed as to enable the collection of data that should refer to all of the animal categories that can be found on the location of the wind farm, more specifically: reptiles, nesting birds or summer birds, sedentary birds, wintering birds and migratory birds, that can migrate by flying over this location, and also mammals. Taking these considerations into account, two distinct methods will be used to collect data and to assess the bird populations, more specifically: the point transects method for the nesting species, sedentary birds and wintering birds and the fixed points method for the migrating birds. The periods when the bird populations will be monitored will be established depending on the periods that are favourable to collecting every data set, as it is illustrated in table below (Table No. 1):

	January	February	March	April	May	June	July	August	September	October	November	December
Nesting birds												
Sedentary birds												
Birds of passage												
Wintering birds												
Amphibians												
Reptiles												
Mammals												

Table No. 1: Favorable/optimum monitoring periods

Favourable period
Optimum period



Although the periods favourable to every bird category are known (nesting birds, birds of passage, sedentary, etc.), it is advisable to refrain from establishing strict *onsite* data collection dates, because the climate or other external factors may influence the birds' dynamics and these strict data may negatively influence the quality of the obtained data. Along this sense, it is recommendable that every monitoring phase should cover a sufficient amount of data collection days in order to be able to cover all phases of a stage, according to the frequencies itemised in Table No. 3.

All observations shall focus on the following:

A. A detailed analysis of the flight activity of the key species detected

1. The area will be scanned until an individual of a certain species will be noticed.
2. From that moment on, the individual will be monitored up to the time when they stop flying or has not been seen for at least 10 minutes. This period will be registered and noted down in the standard reports.
3. The distance to the observed individual and their flight direction will be estimated. The distance will be estimated by selecting a milestone that indicates the location of the respective individual and that will be measured subsequently.
4. The flight height will be estimated on the point where the individual was detected and the status will be re-estimated at an interval of 30 seconds of the flight height fluctuation. This period of 30 seconds is recommended in order to minimise the dependence among the data. The flight height estimate will be classified in <20, 20 - 100m and >100 m. The height will be estimated as against certain vertical structures, so that the data can be as accurate as possible.

B. Summary of the activity that is applied to secondary species

Every observation period of the secondary species will be divided into periods of 10 minutes along which the numbers and activities of all secondary bird species will be registered. If, along these 10 minutes, a key bird species has been identified, then the activity summary for that specific period will be abandoned and the observations will be resumed once the monitoring of the flight activity of the key species is over.

The observations focusing on the key species will take precedence over the secondary species. On the other hand, the still birds will be recorded separately from the flying birds

The data collected by all methods shall be recorded on observation reports and on maps, if necessary. The following will be used too:

-observation reports for the transects

-observation reports for the fixed points

- 2 types of observation reports for the vantage point observations: PF 1 - the observation report for the detailed analysis of the flight activity; PF 2 – the observation report for the summary of the activity.

The fauna monitoring plan will contain several peculiarities depending on the taxonomy group, as they are described in the table below (No. 2), each established object is measurable through the specific indicators:

FAUNA MONITORING PLAN - TABLE NO. 2		
TAXONOMY CLASSIFICATION	OBJECTIVES	INDICATORS
Reptiles and amphibians	1. Monitoring the populations of reptiles that are present inside the location;	1. Identification of all reptile species; 2. Performing works only during the recommended durations
Nesting birds	1. Continuing the monitoring of the locations of the nesting species inside the wind farm; 2. Monitoring the ethology of nesting bird species during the functioning time;	1. Complement current data with the data collected during the monitoring programme. 2. Describe the behaviour of birds comparing it with the initial behaviour 3. Comply with the

FAUNA MONITORING PLAN - TABLE NO. 2

TAXONOMY CLASSIFICATION	OBJECTIVES	INDICATORS
		recommended periods
Birds of passage	1. Monitoring the dynamics of migration within the perimeter of the wind farm and the adjoining areas; 2. Monitoring the behaviour of birds of passage while the wind farm is operational in order to insure optimum passage conditions.	1. Complement current data with the data collected during the monitoring programme. 2. Describe the behaviour of birds comparing it with the initial behaviour
Wintering birds	1. Monitoring the seasonal travels of geese populations within their wintering area;	1. Complement current data with the data collected during the monitoring programme.
Mammals	1. Monitoring the resident species of mammals and those that can transit the wind farm while looking for food;	1. Complement current data with the data collected during the monitoring programme.

The surface under the monitoring plan is represented by the surface area of the wind farm and that of the overhead power line, plus the adjoining area that contain the same kind of habitats like the site under scrutiny. These adjoining areas are actually witness areas that are a reference point between the current status found on the site and the final status, which is represented by the operation of the wind farm. Depending on the data collected on the site location and in the witness areas, the potential differences found between the analysed data will mark the way in which the biodiversity developed in the wind farm location starting from the time when the farm was commissioned.

Monitoring the flora and the vegetation

Target species/habitats	Measured attribute	Limitations	Monitoring method	Period
The relationship between the habitats	Changes the appearance of habitats	Increased and maintained at the levels reported in 2011	Phytocenotic scale mapping in the test areas	Biannual in May and July.
Vegetation - indicator species	Species % coverage Relative abundance	Increased and maintained at the levels reported in 2011	Monitoring the selected test areas.	Biannual in May and July.

The vegetation in the monitored area will be studied according to European phytocenology methods, along several phases:

- preliminary phase - the purpose and phases proposed for the study will be analysed during this phase, the scientific specialty literature covering research methods and the studies previously conducted in this area, as well as the physical and geographical conditions in this area will also be studied (relief, soil types, geomorphologic structure, hydrographic network, climate) and the optimum periods will be established for the performance of the on-site identification work.
- on-site research - this phase will cover works consisting of geo-botanical descriptions, photo shooting, mapping the studied points on the site in order to be able to subsequently establish the species and habitats of community interest, if needed (species will be established based on the determination keys taken from specialty publications [Ciocarlan, 2000]). The vegetation of phytocenoses will be studied starting from the outside of the area under scrutiny inwards, according to the itinerary-based research method. The surface area to be scanned has been established so as to cover all of the existing phytocenotic types.
- the closing phase involves the processing of the data in order to establish certainly the vegetal species and associations, the presence/absence of the plant species and the habitats that are interesting for conservation purposes.

Annex 1

Plan monitoring

Bird species monitoring methodology in Sarichioi wind farm and the related overhead power line area

Purpose Monitor the bird spe

cies and evaluate the potential impact upon the local bird populations that implementation of Sarichioi wind farm and the related overhead power lines could have upon the ROSPA0032 Deniz Tepe area.

Objectives

1. Evaluate the bird populations (including the key species as per the standard Natura 2000 form) as against the seasonal agglomerations/fluctuations and the way in which aerial space and the habitats are used.
2. Evaluate the disturbance (the fact that the habitat can no longer be used properly, if at all, the fact that the feeding areas are lost, the rest areas are lost too) that this project will cause to the local birds.
3. Evaluate the risk of electrocution of birds (when touching the power cables).
4. The evaluation of the barrier effect created by the obstacles that birds can encounter across their normal migration and transit corridors.
5. The evaluation of the potential impact that habitat changes may have upon the birds.

The information collected by monitoring will provide quantitative and qualitative data about the bird fauna located within the overhead power line area and the adjoining areas. The data will be analysed and interpreted according to the objectives that we have in mind.

The report so prepared will present in detail the selected methods, the periods when the methods will be applied in the on-site research activities and the reasons why it is considered that the impact has been evaluated satisfactorily. Apart from all that, a special attention will be attached to the following issues:

- The estimates and details about the evaluation of the impact upon bird species will be presented for every key species separately that will have been identified as vulnerable to the overhead power lines.
- The collision risk will be estimated and presented for each season separately (migration, reproduction, wintering, resident species) and whenever the characteristics of the species permit it, the electrocution risk will be presented separately for each age category (nesting adults, juvenile birds/immature birds). This approach will enable us to establish (and subsequently compare based on the monitoring that will be performed after the project is implemented and commissioned) the causes that lead to the electrocution of birds against the overhead power lines;
- The report will be accompanied by standard observation reports that are commonly used to monitor species.
- The estimates covering flight activities will be made insofar as possible in correlation against the behaviour of the species (flight to the feeding territory, mating flight, etc.), depending on

age/gender and depending on the date/season and hour.

- A detailed map with points and observation itineraries will be presented; the location of the wind towers must also be indicated on the map.
- Maps and tables describing the distribution of the species/nests;

On the other hand, the report will propose the measures that will be necessary to diminish the negative effects determined by the project, if applicable, as well alternative measures or compensation measures, if needed. The data will be collected:

- with adequate methods and materials.
- as frequently as necessary in order to capture the essentials of the biology of the species under scrutiny.
- over the periods when the largest amount of information that is relevant for this study can be collected,

The bird fauna survey will primarily focus on the species of birds that were invoked when the site under scrutiny was declared a Natura 2000 site, according to the standard "Natura 2000" Form in Government Decision No. 1284/2007, as amended.

The list of bird species itemised in Annex I to the Council Directive 79/409/EEC and their inventory in the RPSPA0032 Deniz-Tepe area (Natura 2000 standard form)

3.2.a Species of birds specified in Annex I of Council Directive

Species code	Resident population	Wintering	Passage	Site	Preservation	Isolation	Global
A402 Accipiter brevipes	2-4 p		90-100 i	B	A	C	B
A255 Anthus campestris	1200 p			C	A	C	B
A090 Aquila clanga			2-5 i	A	A	C	A
A089 Aquila pomarina	1p		300 i	C	B	C	B
A215 Bubo bubo	1-2 p			C	A	C	B
A133 Burhinus oedicnemus	20-24 p			C	B	C	B
A403 Buteo rufinus	4-5 p			B	A	B	C
A243 Calandrella brachydactyla	100-150 p			C	A	C	B
A224 Caprimulgus europaeus	20-30 i			C	C	C	C
A080 Circaetus gallicus	3-4 p			B	A	B	A
A082 Circus cyaneus			200 i	D	B	C	B
A084 Circus pygargus			300 i	B	A	B	B
A231 Coracias garrulus	20-30 p			C	A	C	B
A429 Dendrocopos syriacus	10p			C	A	B	C
A511 Falco cherrug	2p			A	A	B	A
A097 Falco vespertinus	200-300 p			C	A	C	B
A092 Hieraaetus pennatus	1 p			C	B	C	B
A246 Lullula arborea	300-350 p			D	A	C	B
A242 Melanocorypha calandra	200-300 p			C	A	C	B
A533 Oenanthe pleschanka	16-20 p			C	A	C	B

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Actions	Study methods:			Planning		the activities along the year							
		J	F	M.	A	M.	J	J	A	S	O	N	D
1. Analysis of bird species populations along an annual cycle, key bird species included.						(Natura 2000)							
> Evaluate the inventory of hatching birds	The itineraries method The "Vantage Point" Method - Sound level evaluation				X	X	X	X	X				
> Evaluate the inventories of birds that transit the area during their migration and that stop to rest or feed.	The itineraries method The fixed point method / The "Vantage Point" methodology		X	X	X				X	X	X	X	
> Evaluate the inventories of birds that transit the area during their migration without stopping to rest or feed.	The itineraries method The fixed point method / The "Vantage Point" methodology		X	X	X				X	X	X	X	
> Evaluate the inventory of hatching birds of prey	The itineraries method Methods specific to birds of prey (e.g. Hardey et al. 2005, Gilbert et al 1998) Identification of nests by means of the "Vantage Point" methodology					X	X	X					
> Evaluate the inventory of non-hatching birds of prey	The itineraries method/ Methods specific to birds of prey (e.g. Hardey et al. 2005) The fixed point method / The "Vantage Point" methodology	X	X	X	X				X	X	X	X	X
> Evaluate the inventory of wintering birds	The itineraries method / The "Vantage Point" methodology	X	X								X	X	X
2. Identification of seasonal agglomerations:													
> Identification of overnight stay areas that birds use during their migration within the farm area and its vicinity.	Itineraries method		X	X	X				X	X	X	X	
> Identification of the wintering headquarters of aquatic birds (Order <i>Anseriformes</i>) within the farm area and in the neighbouring area.	Itineraries method	X	X								X	X	X
3. Follow the way in which priority birds use the air space													
> Identify the migration itineraries	The fixed point method		X	X	X				X	X	X	X	
> flight height in relationship to overhead power line poles	The "Vantage Point" methodology	X	X	X	X	X	X	X	X	X	X	X	X

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Actions	Study methods:	Planning the activities along the year											
		J	F	M.	A	M.	J	J	A	S	O	N	D
> The intensity of the day use of the air space by the species of birds under scrutiny	The "Vantage Point" methodology	X	X	X	X	X	X	X	X	X	X	X	X
> The estimated "stay period" and the abundance of the birds that use the area for feeding, rest or overnight stay (habitats have to be considered too)	The "Vantage Point" methodology	X	X	X	X	X	X	X	X	X	X	X	X
> Analysis of how key birds use the habitats in the project area	The "Vantage Point" methodology	X	X	X	X	X	X	X	X	X	X	X	X
4. Behavioural aspects													
> Follow the behavioural patterns of birds (while weather conditions are both favourable and unfavourable)	The "Vantage Point" methodology	X	X	X	X	X	X	X	X	X	X	X	X

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Table 3. Details about the birds' movements, which are necessary in order to monitor the respective bird species

Month	January	February	March	April	May	June	July	August	September	October	November	December	Total
No. of expeditions	2	2	3	2	3	2	2	2	3	2	2	2	27
No. of days/expeditions	1	1	2	3	2	3	1	1	2	2	1	1	
Total days	2	2	6	6	6	6	2	2	6	4	2	2	46

Monitoring report frequency - once/year, according to the provisions of Environment Permit No. 8372/23.012012.

We are awaiting your opinion.

Sincerely yours,

SC ECO GREEN CONSULTING SRL

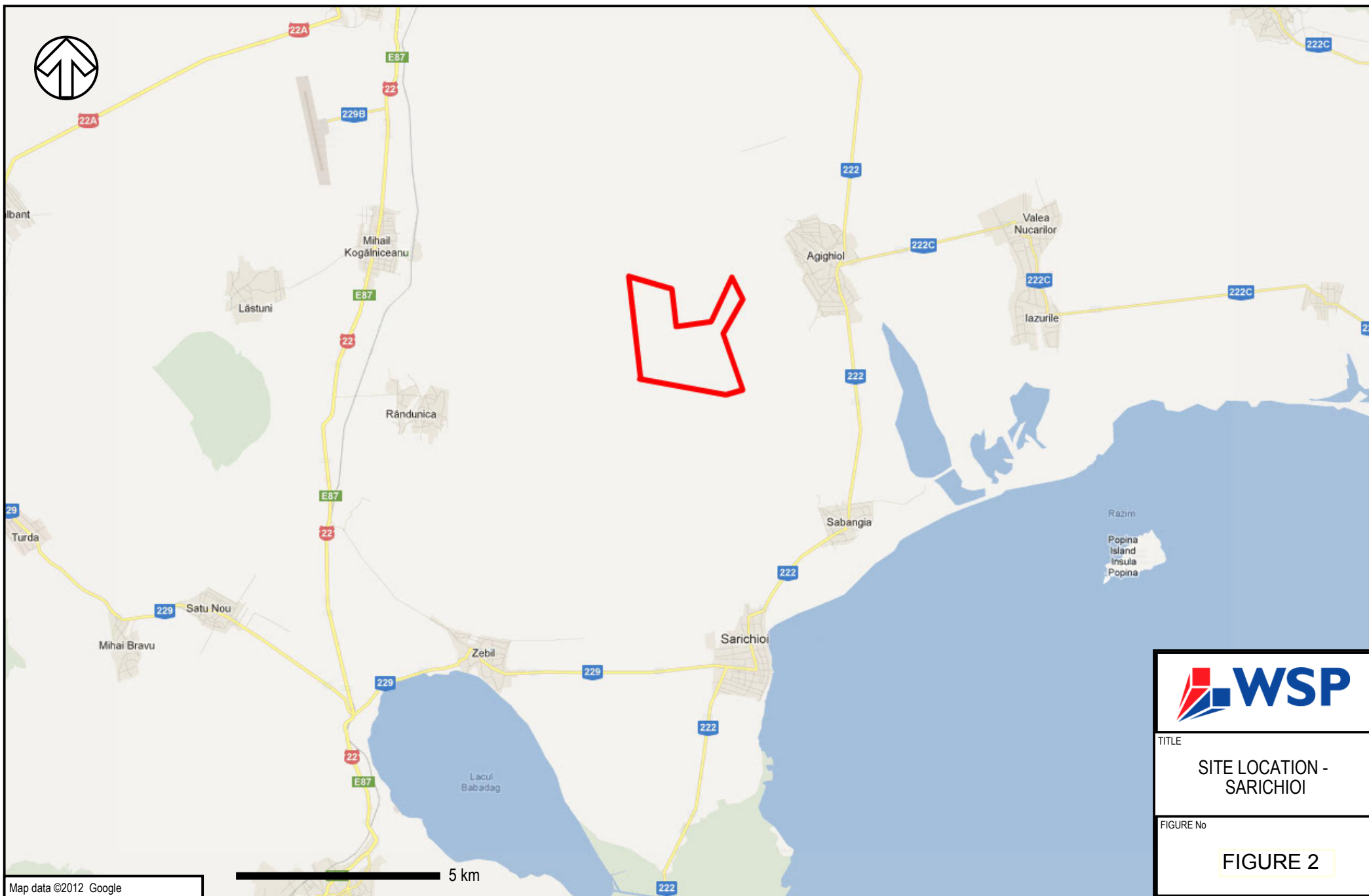
Administrator,


BADEA GABRIELA

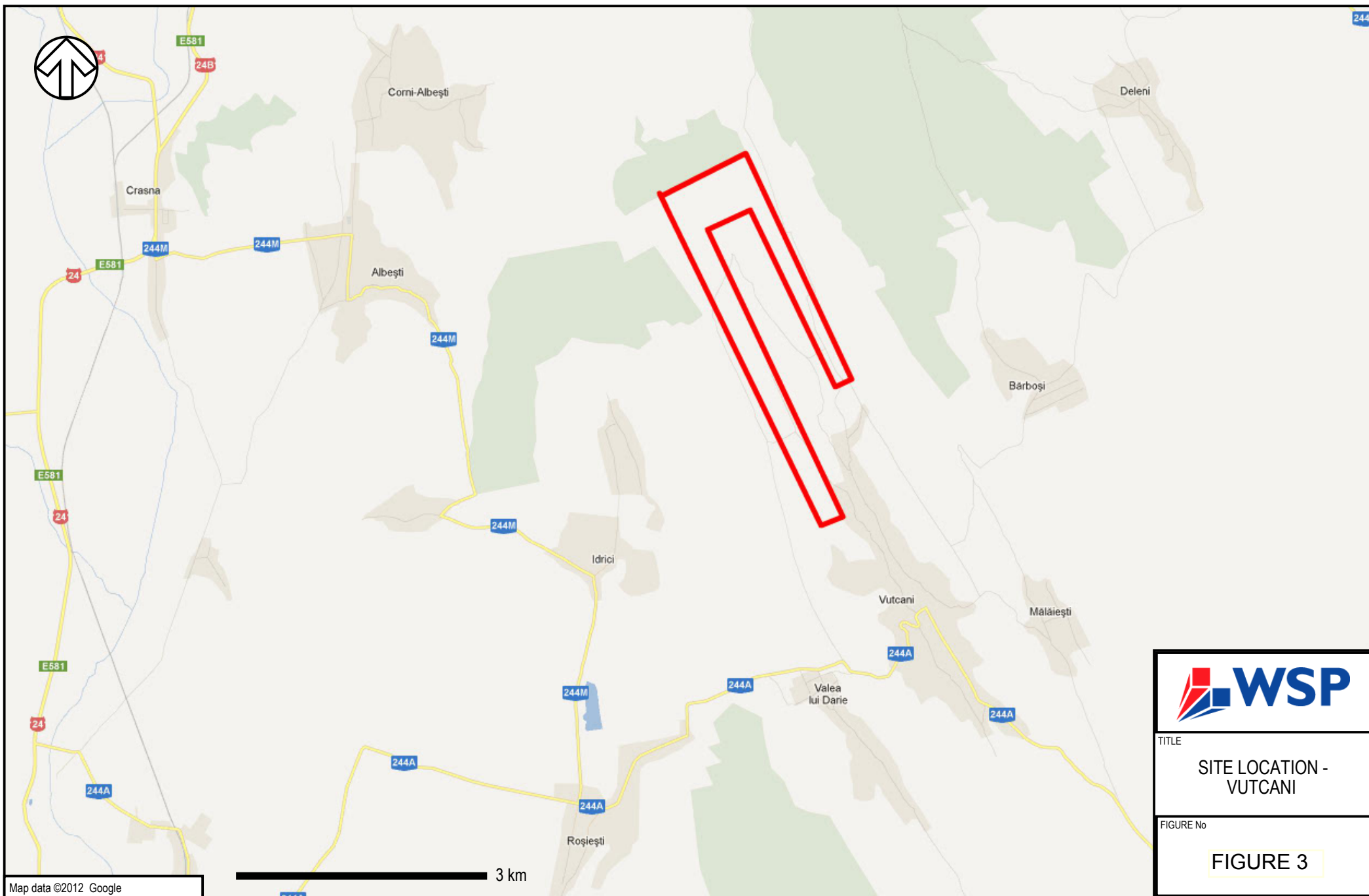
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7 Figures



	
TITLE	
SITE LOCATION - SARICHIOI	
FIGURE No	
FIGURE 2	



TITLE

SITE LOCATION -
VUTCANI

FIGURE No

FIGURE 3

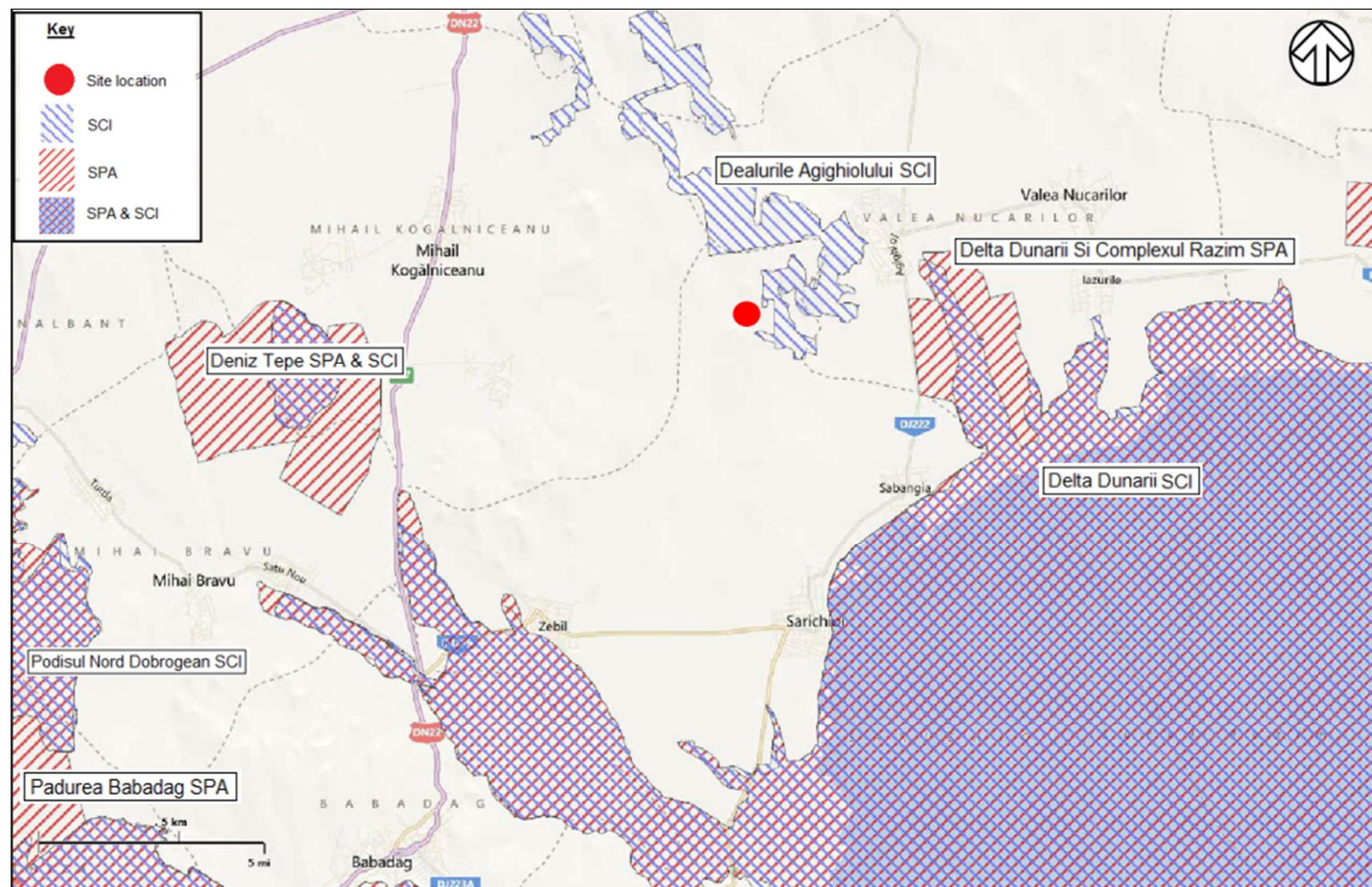


Figure 4: Sarichioi Natura 2000 Sites

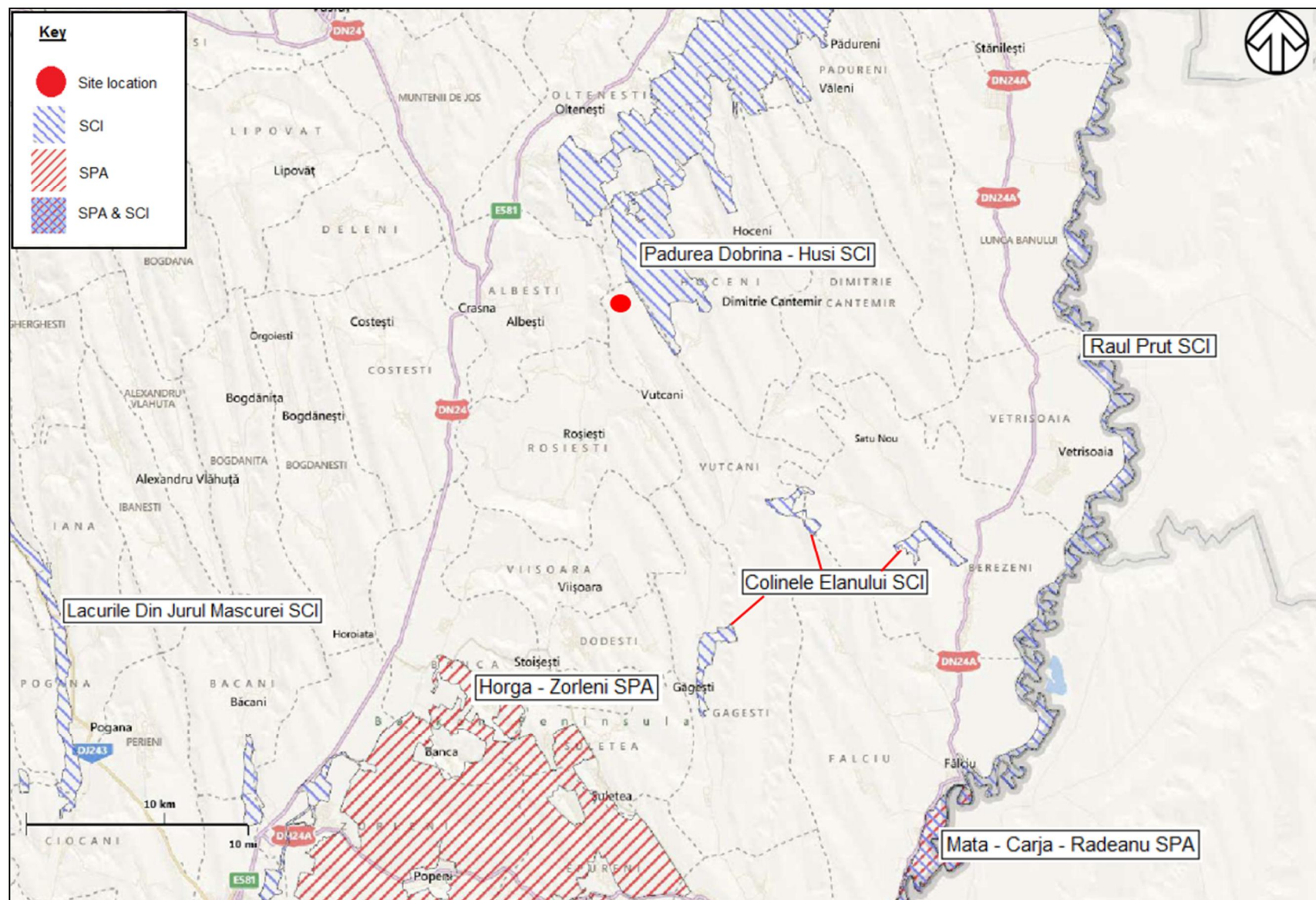
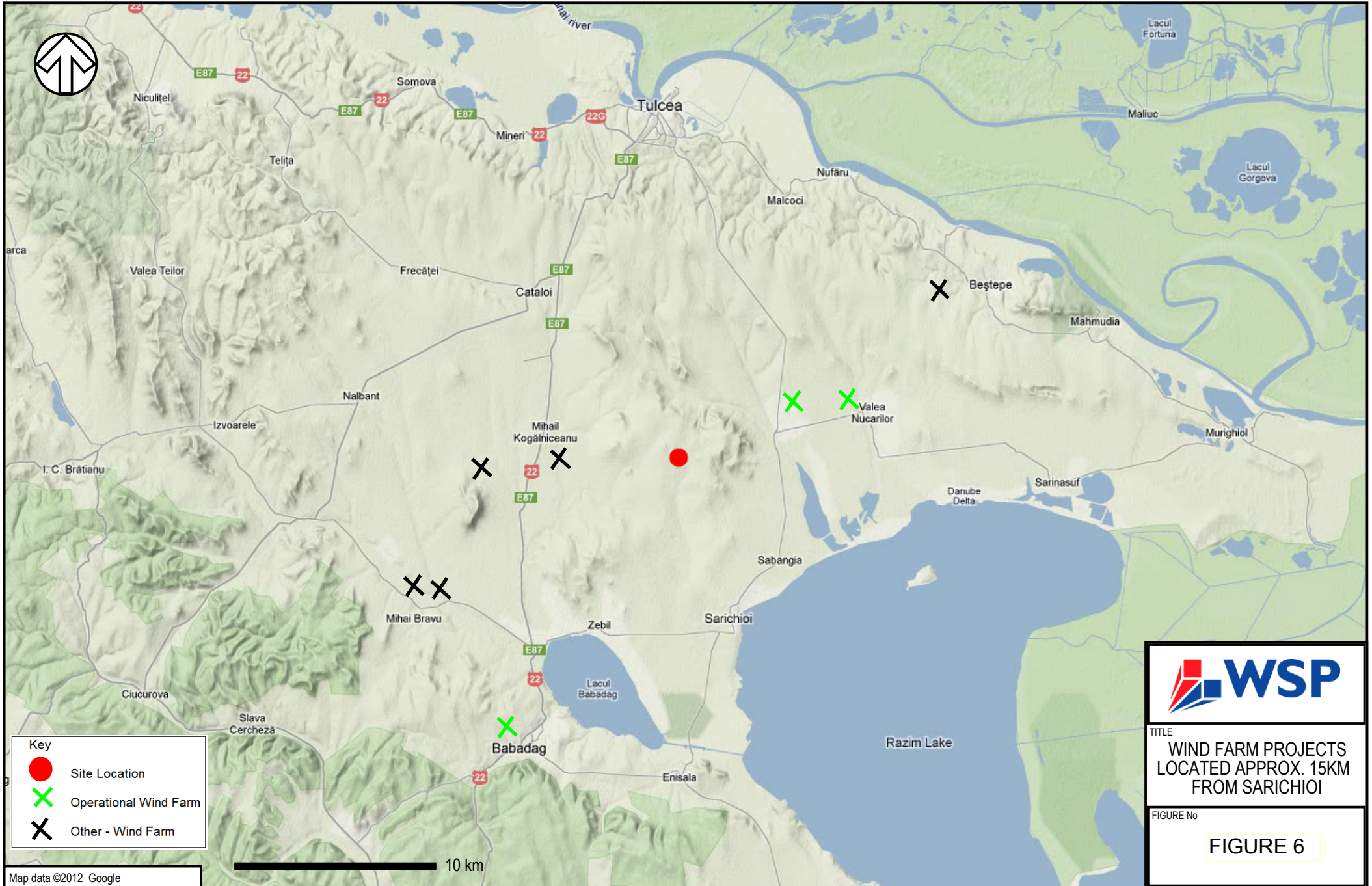
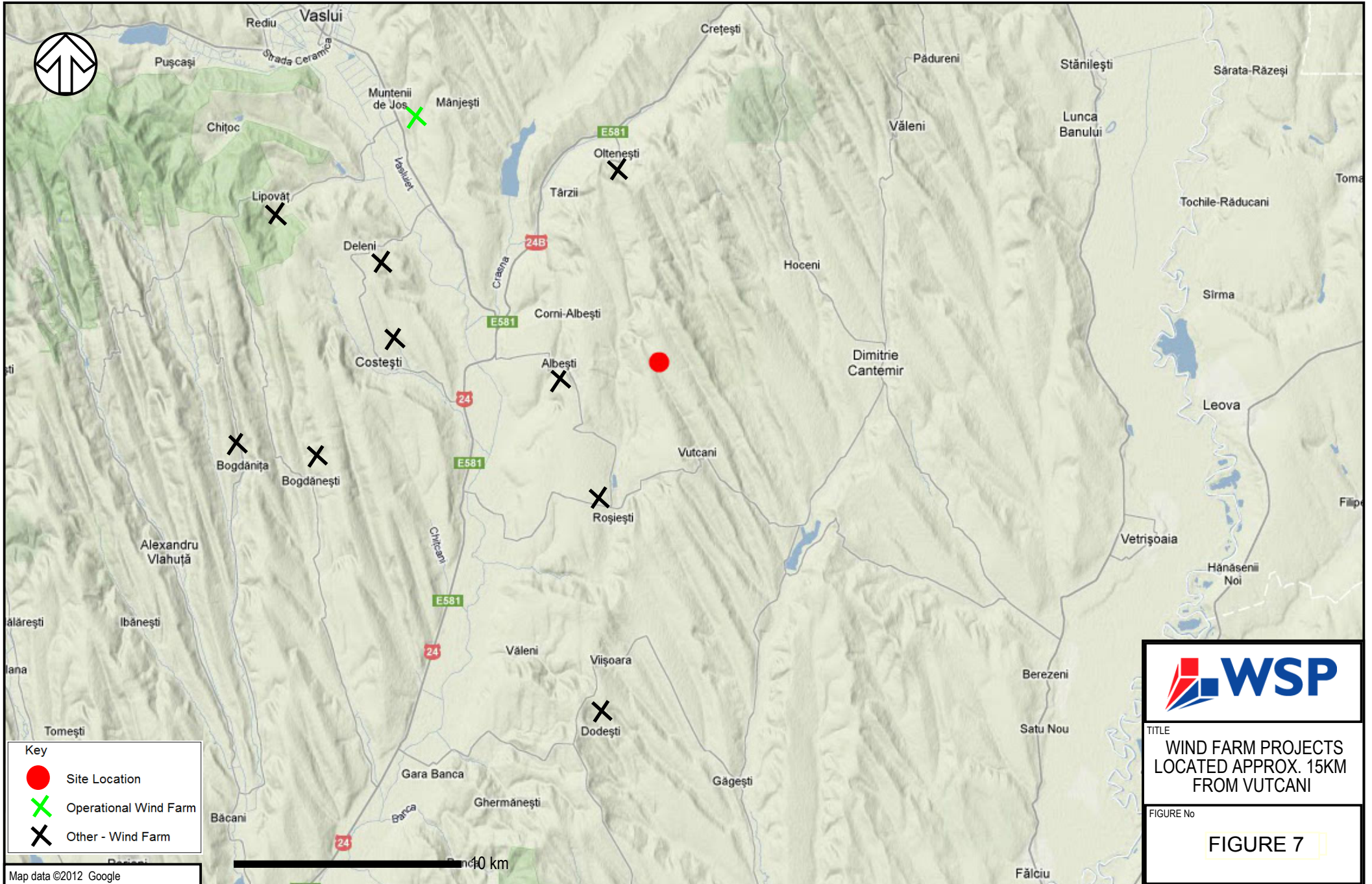


Figure 5: Vutcani Natura 2000 Sites







TITLE
WIND FARM PROJECTS
LOCATED APPROX. 15KM
FROM VUTCANI

FIGURE No
FIGURE 7

