GAP Analysis Report

"Compliance of Environmental and Social Precautions in Karacabey Wind Power Project with World Bank's Safeguard Policies and Environmental and Health and Safety Guidelines"

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Executive Summary

Yalova Rüzgar Enerjisinden Elektrik Üretim Anonim Şirketi (**Yalova**) plans to invest into Karacabey WPP (hereafter refers **Karacabey WPP**) in the district of Karacabey, Bursa, Turkey. The proposed project has 27.9 MW installed capacity with 12 turbines having 2.5 MW power capacities each.

The report at hand provides a gap analysis which results from comparison of World Bank Safeguard Policies and Environmental and Health and Safety Guidelines of the Worldbank Group and the documents listed under section 2. The reports prepared by Yalova covers ecosystem of the project region which are Ornithology Report, Floristic Diversity and Fitoecological Assessment Report, Fauna of Terrestrial Vertebrate and Ecosystem Assessment Report. Thus, aforementioned reports, documents and studies are reviewed in details with parallel to safeguarding policies of the World Bank targeting to put similarities and gaps in comparison.

The result of the gap analysis report outlines that there is compliance of the project with requirement of World Bank by safeguarding policies and Environmental and Health and Safety Guidelines for wind power projects.

1 Introduction

Yalova Rüzgar Enerjisinden Elektrik Üretim Anonim Şirketi (**Yalova**) aims to invest into a new wind power plant called Karacabey Wind Power Project (hereafter refers **Karacabey WPP**) in Karacabey district of Bursa city, Turkey. While the proposed project will have 27.9 MW installed capacity with 12 turbines, each turbine ranks 2.5 MW power.

With an aim to analyse the environmental and social impacts, Yalova had already conducted several environmental and social analyses which are the subject of this report. The most important studies done by Yalova for Karacabey WPP are three reports which consists of Ornithology Report, Floristic Diversity and Fitoecological Assessment Report, Fauna of Terrestrial Vertebrate and Ecosystem Assessment Report.

The aim of this Gap Analysis Report is to provide a detailed analysis on the compliance of the reports prepared by Yalova for Karacabey WPP with World Bank Safeguard Policies and the Worldbank Group Environmental and Health and Safety Guidelines for Wind Power Project. For this reason, the aforementioned reports are analysed in details with parallel to safeguarding policies of the World Bank targeting to put similarities and gaps in comparison.

As the first section of the Gap Analysis Report describes the project by location and technical specifications, the second section provides short summaries of the aforementioned reports prepared by Yalova. The third section goes in details to compare the requirements by World Bank's safeguarding policies with existing reports of the project and commitments of Yalova to mitigate negative impacts of the project. The aim of the third section is to put forward the gaps in between and create a base for the recommendations for further actions. Final section of the report consists of recommendations for the gaps found with the comparisons of the World Bank safeguarding policies and commitments of the project.

2 Methodology

Gap Analysis consisted of the following phases:

- Listing of requirement by World Bank Safeguarding Policies and the Worldbank Group Environmental and Health and Safety Guidelines for Wind Power Project
- Reviewing environmental reports and studies done by Yalova for Karacabey WPP
- Reviewing related regulations that compel the project to comply with environmental and health and safety requirements.
- Analysing and stating the gaps between reviewed documents which are listed in table 1 and requirements of World Bank

2.1 Document Review

Following table provides the list of the documents that were reviewed during Gap Analysis:

Table 1: Documents reviewed

	Documents
1	Ornithology Report by Prof. Dr. Levent Turan, December 2011.
2	Floristic Diversity and Fitoecological Assessment Report, Biologist Prof. Dr. Latif Kurt, 2011
3	Fauna of Terrestrial Vertebrate and Ecosystem Assessment Report, December 2011
4	Karacabey WPP Project Introduction File by PPM, which is prepared to get "EIA is not required document", December 2012.
5	Commitments by Yalova for Wildlife Development Zone which is submitted to Ministry of Environment and Forestry, Directorate of Nature Protection and National Parks
6	Implementation Regulation for 17th and 18th article of Forestry Law
7	The map of the road and commitment of the engineering company
8	Visual Impact and Prevention – Control Measures Study, EnergyGY, 2013
9	Shadow Flicker and Balde Glint Validation and Mitigation Study, EnerGY, 2013
10	Environmental, Health, and Safety Guidelines for Wind Energy, IFC, April 2007
11	World Bank Safeguarding Policies (OP 4.36 – Forests, OP 4.04 – Natural Habitats)

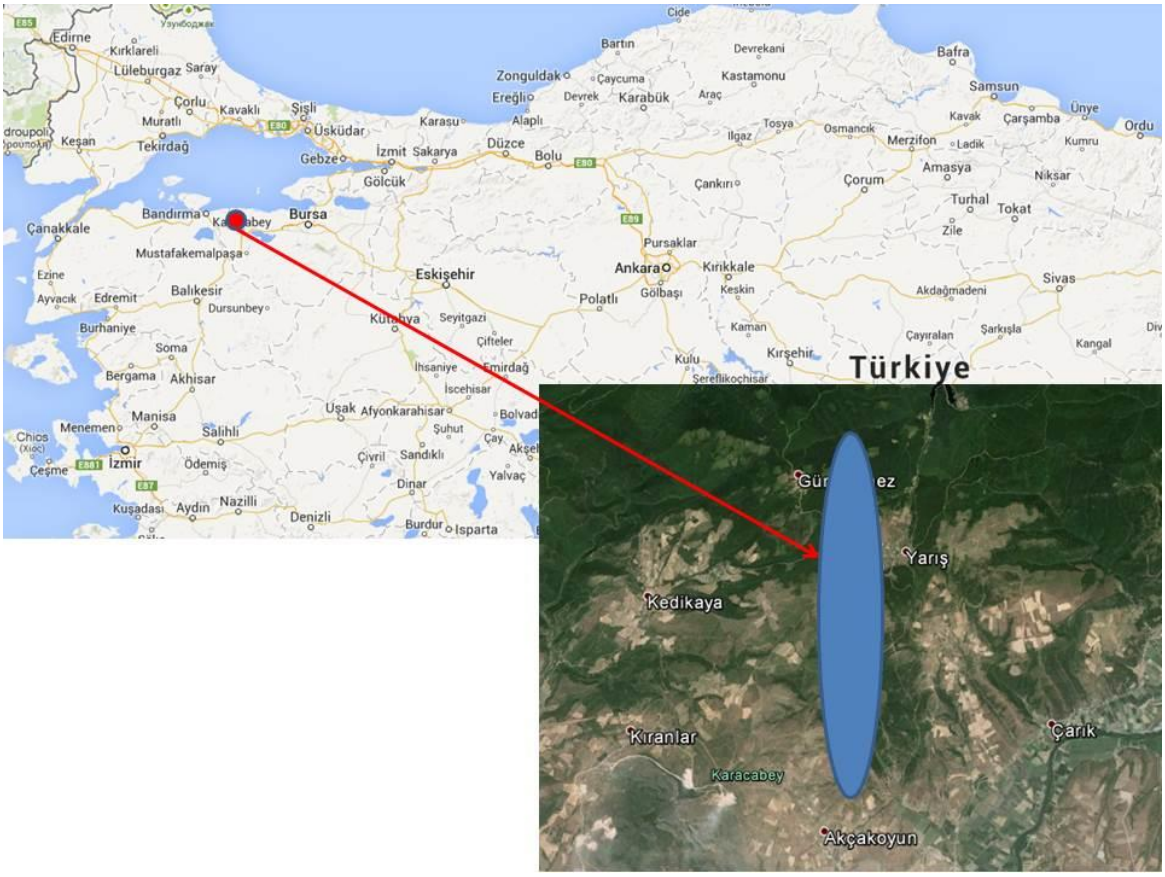
3 Description of the Project

Yalova won the licence right of Karacabey WPP in the tender of TETC (Turkish Electricity Transmission Company) in September 2011. The licence of the project allows for construction of a plant with 27.9 MW installed capacity, where the capacity of each turbine and micrositting of the project could be altered as it is required. The project had initially been designed with 27 turbines in the year of 2011. However the design is revised with less turbines and higher capacity each.

This section of the report provides a detailed description of the project location and technical specification about the project.

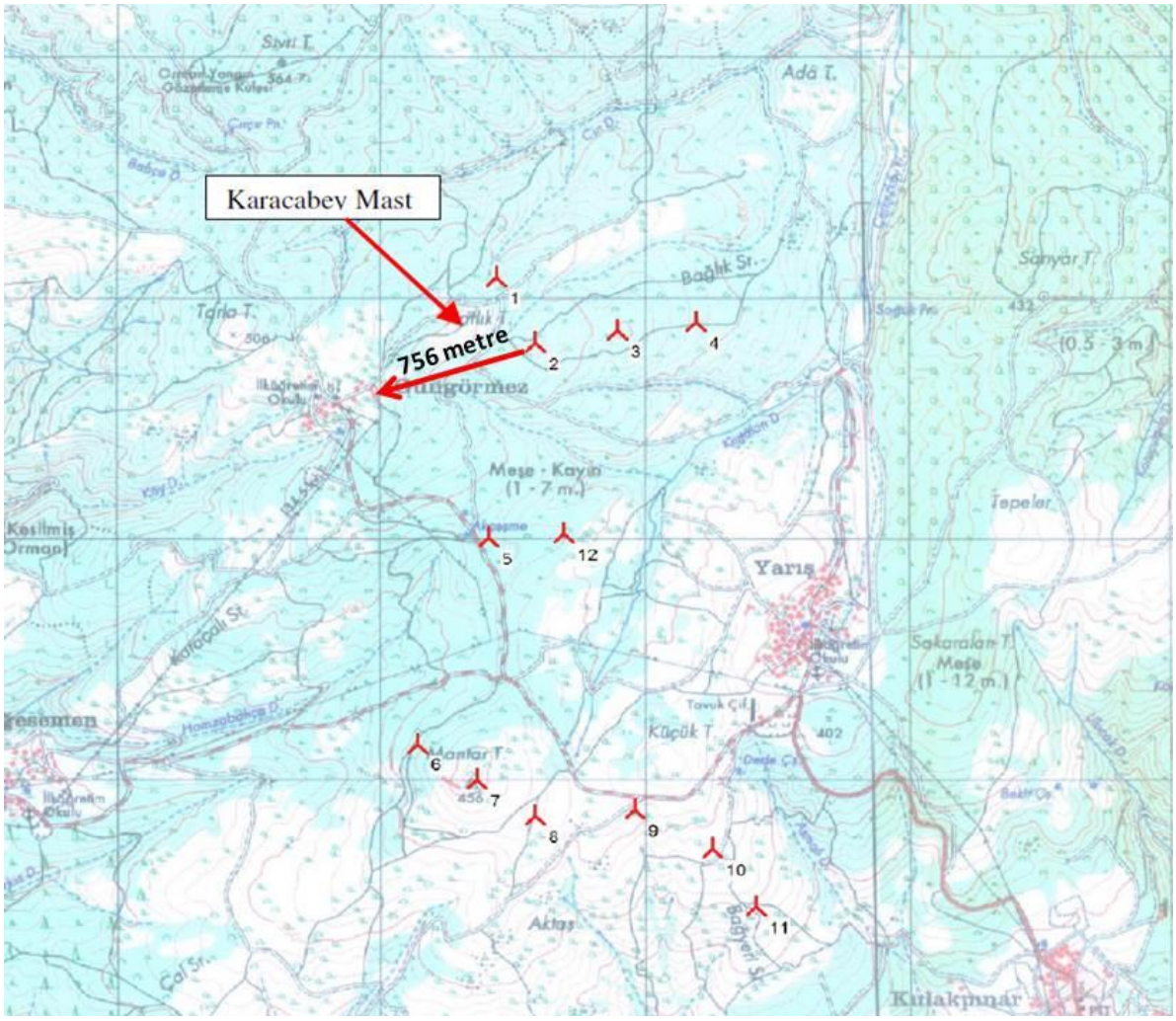
3.1 Location of the Project

Karacabey WPP is located 8 km in the north of Karacabey district and 30 km in the south east of Bandırma district of Bursa City. The project area lies in between of Akçakoyun, Güngörmez, Yarış and Çarık villages as a corridor from north to south.



Map 1: Location of the project and closest settlement to the project.

The closest settlement to the turbine is located in Güngörmez village and the distance is 756 metre per map below.



Map 2: Closest Settlement and Micrositting of the Project

The Project area consists of forestry and private lands where the location of 1-4. turbines is defined as "Karacabey Karadağ Ovakorusu Wildlife Development Area" and "Sustainable Usage Region"[1]. The closest wetland to the project is Bayramdere Small Lake which is 2 km is far from the turbines.

Some pictures from project area are as follows:

[1] Fauna of Terrestrial Vertebrate and Ecosystem Assessment Report of the Karacabey Project, page: 15.

Picture 1: A general picture from forestry and private lands.

Picture 2: A view from Karacabey Karadağ Ovakorusu Wild Life Development Area

Picture 3: Bayramdere Small Lake which is 2 km far from project.

As a conclusion the project area consists of different properties located on hilly region which belongs to forestry and private owners. While some part of project location situated in wildlife development zone, the revision of the project reduced the number of turbines that exist in this area. Reduction in the number of turbines from 27 to 12 pieces expected to reduce environmental and social impact as well.

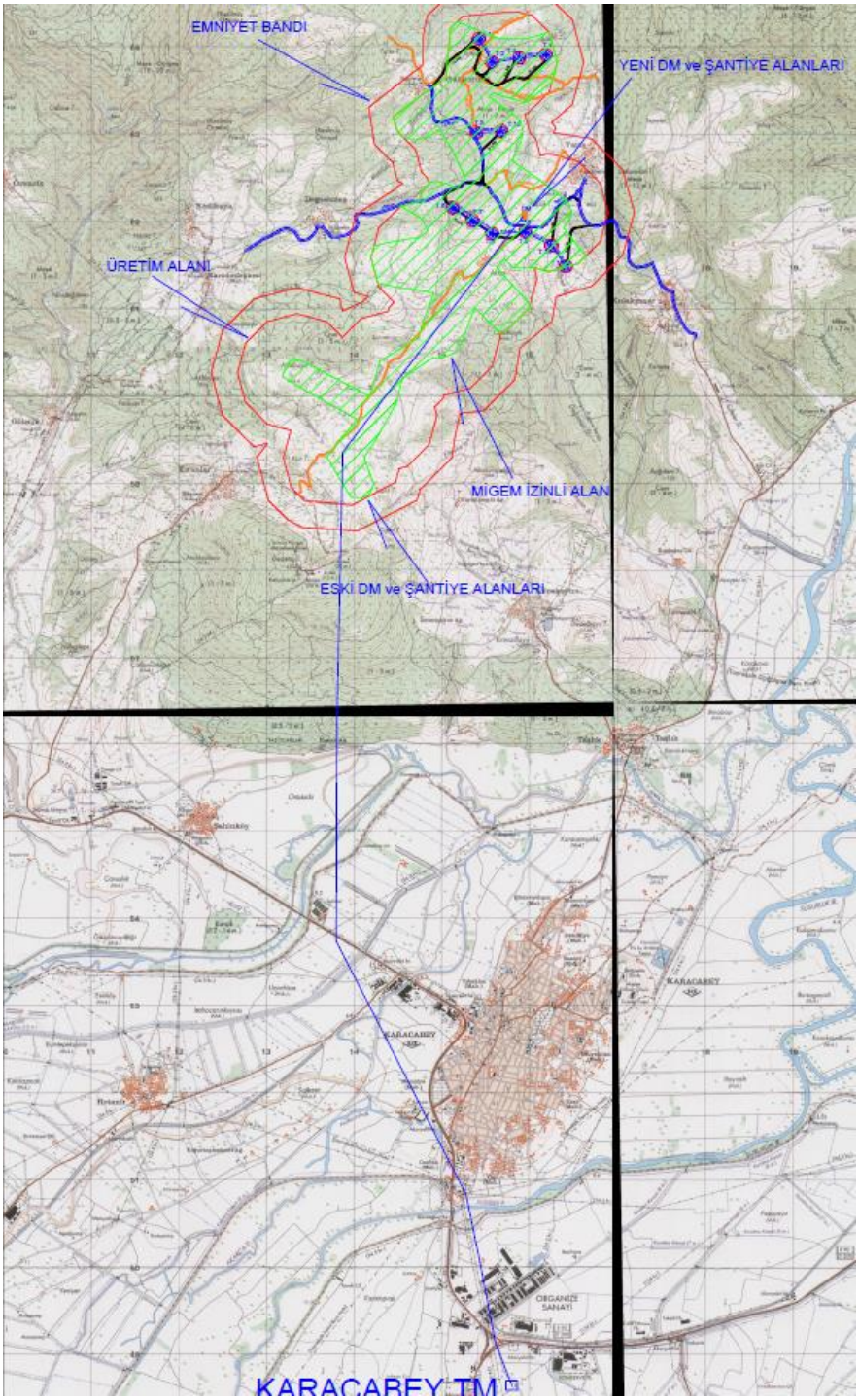
3.2 Technical Description of the Project

The initial design of the Project consist of 27 turbines which are rated 900 kW and 1.5 MW. The design change has reduced numbers of turbines to 12 pieces rated 2.5 MW each. Specification of the turbines which are planned to be contracted is as below:

Table 2: Wind Farm Specification

Wind Farm Specification	
Wind Turbine Manufacturer	Nordex
Wind Turbine Model	N100

Wind Turbine rated Power	2500 kW
Quantity of Wind Turbines	12
Hub Height	80 m
Rotor Diameter	99.8 m



The project is planned to be connected via a 34.5 kV transmission line to transformer centre in Karacabey which is 11 km away from the project. The map of route of transmission line is provided below, where the line passes over forestry and agricultural lands.

Map 3: The route of transmission line.

4 Summaries of the Studies done By Yalova

Although the project has "Environmental Assessment is not required" document, Yalova already undertook several studies to analyse the impact of the project on local environment. These studies are Ornithology Report, Floristic Diversity and Fitoecological Assessment Report, Fauna of Terrestrial Vertebrate and Ecosystem Assessment Report. This section of the Gap Analysis Report will provide short summaries of the reports before passing to the analysis of the gap in following section. The requirements stated in ecosystem assessment reports were already committed by Yalova as notarized deed of commitment which is submitted to Ministry of Forestry and Waterwork, General Directorate of Nature Conservation and National Parks[1]

4.1 Ornithology Report

The ornithology report for Karacabey WPP project is prepared by Ornithology Prof. Dr. Levent Turan in the year of 2011. The report was aimed to analyse the impact of the project on local and migrating birds in Ovakorusu Wildlife Development Zone and project area.

Besides a part of Karacabey WPP being in the wildlife development zone, there are also wetlands such as Ulubatlı Lake (14 km) and Manyas Bird Lake (27 km) close to project area, which are important habitats for local and migrating birds. While the report list all species of local birds in the region, it underlines that the turbine being built on hills gives room of a safe route in valleys for local and migrating birds and do not create an important barrier for their mobility.

According to the report, the target species of the wildlife development zone is Phasianus colchicus and capreolus capreolus which are not expected to be negatively impacted by the Project activity. Ornithology report also underlines that there is no endemic species living in the Project area and neighbouring areas.

4.2 Floristic Diversity and Fitoecological Assessment Report

Floristic Diversity and Fitoecological Assessment report was prepared by Biologist Prof. Dr. Latif Kurt in the year of 2011. The report aims to analyze floristic and fitoecologic character of the project area by a field research and literature review.

While the report analysis floristic diversity of project area, the list of floristic species are provided in the report which is based on both literature review and field research. According to the report, while there are 8 endemic floristic species in the project area,

[1] Complete set of commited measures is given in Appendix 2 (in Turkish)

there is also 1 species which is protected by Bern Convention. The report also highlights that the specie protected by Bern Convention is not under endemic danger.

Floristic Diversity and Fitoecological Assessment report analysis the impact of the project on flora in two categories such as electro mechanic and loss of habitat. According to the report there is no negative impact of electro mechanic while the electricity lines within the project and between turbines will pass underground, but there will be loss of habitat due to construction of turbines and roads. Thus, the report provides some recommendation during both construction and operation which are collection of seeds and transfers to seed's bank, precautions to avoid erosion and enabling ecological restoration in the project area.

4.3 Fauna of Terrestrial Vertebrate and Ecosystem Assessment Report

Fauna of Terrestrial Vertebrate and Ecosystem Assessment Report was prepared by Zoolog Prof. Dr. Ali Erdoğan in December 2011. Main aim of the report is to analyze the impact of the project on fauna of the region which includes Terrestrial Vertebrate of the region. For this reason, the team of the report had conducted a field research including meeting with local people from villages of Güngörmez, Yarış, Kulakpınar and Dağesemen.

The report provides a list of Terrestrial Vertebrate which categorized according to IUCN, Bern Convention, CITES and Ministry of Forestry and Waterwork, General Directorate of Nature Conservation and National Parks. The report also analyzes whether there is endemic species in the region besides providing recommendation for negative impacts of the project on fauna of the region.

Through the research and field work of the report, it is concluded that the location of the turbines is far from the habitat of mammals, thus the project is expected to have minimum impact on habitat of mammals. While the most important group of mammals affected by wind energy stated in the report is bats, there is no habitat of bats around project location. Thus, there is no expected negative impact of project on bats either. The final part of report provides analysis on birds where a negative impact is not expected for local and migrating birds.

The next section of the report provides a matrix that compares the requirements by World Bank's safeguarding policies with existing reports of the project and commitments of Yalova to mitigate negative impacts of the project.

5 Matrix of Comparisons

There are 10 safeguard policies, comprising the World Bank's policy on Environmental Assessment (EA) and policies on: Cultural Property; Disputed Areas; Forests; Indigenous Peoples; International Waterways; Involuntary Resettlement; Natural Habitats; Pest Management; and Safety of Dams.

As the project activity is electricity generation using wind energy, to be built in Bursa province of Turkey, safeguard principles below are not applicable to the project:

1) Disputed Areas: The project area is not a disputed area
2) International Waterways: The project does not involve use or potential pollution of international waterways,
3) Pest Management: The project activity does not use pesticide.
4) Safety of Dams: The project facilities do not include any dam.

For the following 5 principles, an assessment and gap analysis is provided in Table 2 of Matrix of Comparisons:

1) Natural Habitats
2) Forests
3) Cultural Property
4) Involuntary Settlement
5) Indigenous Peoples

For the Environmental Analysis; Environmental, Health, and Safety Guidelines for

Wind Energy is used and analysis is performed separately in Table 3.

5.1 Table 3: Matrix of Comparisons for Natural Habitats, Forests, Cultural Property, Involuntary Settlement, Indigenous Peoples

Safeguarding principles	Description	Relevance to the project	Assessment of the project with regards to the principles	Conclusion
Natural Habitats	*Natural habitats* are land and water areas where (i) the ecosystems' biological communities are formed largely by native plant and animal species, and (ii) human activity has not essentially modified the area's primary ecological functions. (OP 4.04 paragraph 1(a)) *Critical natural habitats* are: (i) existing protected areas and areas officially proposed by governments as protected areas (e.g., reserves that meet the criteria of the World Conservation Union [IUCN] classifications[2]), areas initially recognized as protected by traditional local communities (e.g., sacred groves), and sites that maintain conditions vital for the viability of these protected areas (as determined by the environmental assessment process[3]); or (ii) Sites identified on supplementary lists prepared by the Bank or an authoritative source determined by the Regional environment sector unit (RESU). Such sites may include areas recognized by traditional local	**RELEVANT** Part of the project area located in Karacabey Karadağ–Ovakorusu Wildlife Development Zone which is also called sustainable Utilization Zone.	Some of the project area and turbines of the project stay in "Bursa Karacabey Karadağ–Ovakorusu Wildlife Development Zone", which is a nationally development zone with target species of pheasant[1]. Being one of the administrative units for the development zones, no-objection letter of General Directorate of Nature Conservation and National Parks ("General Directorate") needs to granted in order to start implementation of project activity. Preliminary letter of the General Directorates indicates that the project activity in the area is permitted only if the assessment reports to be prepared for the project activity by an Ornithologist, a Zoologist and a Botanist, each from different universities, concludes that the project activity will not pose any threat to the target species or other species in the development zone and will not have negative impact to the ecosystem or migrating any negative	**NO GAP** Although the project area partially with in the Bursa Karacabey Karadağ–Ovakorusu Wildlife Development Zone", expert reports prepared concludes that the project activity will not involve the significant conversion or degradation of critical natural habitats, provided that identified measures will be implemented appropriately during construction and operation. Thus, project activity has sufficient ecological studies to fulfil the

[1] See: http://www.milliparklar.gov.tr/belge/yhgs.pdf (No:31)

	communities (e.g., sacred groves); areas with known high suitability for biodiversity conservation; and sites that are critical for rare, vulnerable, migratory, or endangered species.4 Listings are based on systematic evaluations of such factors as species richness; the degree of endemism, rarity, and vulnerability of component species; representativeness; and integrity of ecosystem processes. (OP 4.04 Annex A Definitions) The Bank does not support projects that, in the Bank's opinion, involve the significant conversion or degradation3 of critical natural habitats. (OP 4.04 paragraph 4)		impacts with appropriate measures is possible[1]. Three assessment report is prepared for the project activity and impact of it on environment: (1) Fauna Report: Karacabey WPP and Terrestrial Vertebrate Fauna and Ecosystem Assessment Report, prepared by Prof. Dr. Ali Erdoğan, Akdeniz University in December 2011. (2) Flora Report – Karacabey WPP Floristic Variety and Fitoecological Assessment Report, prepared by Prof. Dr. Latif Kurt, Ankara University in December 2011. (3) Ornithology Report: Karacabey WPP Ecosystem Assessment Report - Ornithology Section, prepared by Prof. Dr. Levent Turan, Hacettepe University in December 2011. All of the reports given above conclude that the project is not expected to have permanent, unpreventable and significant negative impacts on the ecosystem provided that identified measures to be implemented appropriately. Complete set of measures, identified	requirements of this principle.

[1] Please see Appendix 1.

			by these reports for protection of ecosystem are combined within a notarized deed of commitment and submitted to Ministry of Environment and Forestry, Directorate of Nature Protection and National Parks[1] Finding the reports and conclusions satisfactory and receiving the deed of commitments, the General Directorate provided no-objection letter to the project company.[2]	
Forests	The Bank does not finance projects that, in its opinion, would involve significant conversion or degradation[4] of critical forest areas[5] or related critical natural habitats.[6] If a project involves the significant conversion or degradation of natural forests or related natural habitats that the Bank determines are not critical, and the Bank determines that there are no feasible alternatives to the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project	**RELEVANT** Some of the project area is in the forests.	Some of the project area is identified as forest area.[3] Pictures of the project area shows areas where some of the turbines will be installed covered by trees. Although, there is no information and study on how many trees will be affected by construction of the project activity, the related regulation to get permission from forestry enforce Yalova to identify the numbers of trees to be cut down and pay the fee for replantation[4].	**NO GAP** Some of the project area is in the forests and thus may affect trees negatively. The number of affected trees and mitigation measure is defined with regulation. Thus there is no gap.

[1] Complete set of commited measures is given in Appendix 2 (in Turkish)

[2] See Appendix 3 for the letter.

[3] See letter of Regional Branch of Ministry of Forestry, dated 12/11/2008.

[4] Please see the link fort he document:
http://www.ogm.gov.tr/ekutuphane/Yonetmelikler/Orman%20Kanununun%2017%20ve%2018%20inci%20Maddelerinin%20Y%C3%B6netmeli%C4%9Fi.pdf

	substantially outweigh the environmental costs, the Bank may finance the project provided that it incorporates appropriate mitigation measures.[7] 6. The Bank does not finance projects that contravene applicable international environmental agreements.[8]			
Physical Cultural Resources	*Physical cultural resources*, are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water. Their cultural interest may be at the local, provincial or national level, or within the international community. When the project is likely to have adverse impacts on physical cultural resources, the borrower identifies appropriate measures for avoiding or mitigating these impacts as part of the EA process. These measures may range from full site protection to selective mitigation, including salvage and documentation, in cases where a portion or all of the	**NOT REVELANT** According to letter of Regional Branch of Cultural and Natural Assets Protection Commission, there are not any physical cultural resources in the project area.[1]	N/A	N/A

[1] Appendix 4

	physical cultural resources may be lost.			
Involuntary Resettlement	Involuntary resettlement may cause severe long-term hardship, impoverishment, and environmental damage unless appropriate measures are carefully planned and carried out. For these reasons, the overall objectives of the Bank's policy on involuntary resettlement are the following: (a) Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs.[2] (b) Where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits. Displaced persons[3] should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs. (c) Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels	**NOT RELEVANT** No resettlement in the project area.[1] Being a wind power project, the project facilities includes turbines, roads and transmission lines. None of these facilities needs or results with resettlement.	N/A	N/A

[1] Please refer to Project Description section for further information on the project area.

	prevailing prior to the beginning of project implementation, whichever is higher.[4]			
Indigenous Peoples	A project proposed for Bank financing that affects Indigenous Peoples requires: (a) screening by the Bank to identify whether Indigenous Peoples are present in, or have collective attachment to, the project area (see paragraph 8); (b) a social assessment by the borrower (see paragraph 9 and Annex A); (c) a process of free, prior, and informed consultation with the affected Indigenous Peoples' communities at each stage of the project, and particularly during project preparation, to fully identify their views and ascertain their broad community support for the project (see paragraphs 10 and 11); (d) the preparation of an Indigenous Peoples Plan (see paragraph 12 and Annex B) or an Indigenous Peoples Planning Framework (see paragraph 13 and Annex C); and (e) disclosure of the draft Indigenous Peoples Plan or draft Indigenous Peoples Planning Framework (see paragraph 15).	**NOT RELEVANT** There are no indigenous people in the project area.	N/A	N/A

5.2 **Table 4:** Matrix of Comparisons for Environmental Analysis; Environmental, Health, and Safety Guidelines for Wind Energy

Indicators	**Description of Principles**	**Assessment of the project and project documents with regards to the principles**	**Conclusion**
Environment (Industry-Specific Impacts and Management)			
Visual Impacts	Depending on the location and local public perception, a wind farm may have an impact on visual resources. Visual impacts associated with wind energy projects typically concern the turbines themselves (e.g. colour, height, and number of turbines) and impacts relating to their interaction with the character of the surrounding landscape. Prevention and control measures to address visual impacts include: · Consult the community on the location of the wind farm to incorporate community values into design; · Consider the landscape character during turbine siting; · Consider the visual impacts of the turbines from all relevant viewing angles when considering locations; · Minimize presence of ancillary structures on the site by avoiding fencing, minimizing roads, burying intra project power lines, and removing inoperative turbines; · Avoid steep slopes, implement erosion measures, and promptly revegetate cleared land with native species only; · Maintain uniform size and design of turbines (e.g. direction of rotation, type of turbine and tower, and height);	The distance of the turbines to the closest settlement is around 760 m (Güngörmez village). There are some agricultural lands and forests in the project area. Yalova undertook a study on visual impacts of the project on surrounding settlements by EnerGY in the year of 2013. The study analyses visual impact of the project and provides mitigation measures. According to the study, the project has visibility from two close villages, namely Yariş and Güngörmez. The study claims that while the view from Güngörmez is negligible because only top of 4 turbines are visible. Whereas in Yarış village, all turbines are visible from the centre but they constitute continuity only in west part of the village. The visual impact study has analysed the impact of the Project taking into consideration following	**No GAP** The study carried out by Energy for Yalova on visual impacts of the project facilities, especially turbines, on the local people and surrounding landscape takes into account the control measures to address visual impacts and include recommendations for mitigation of possible negative impacts. For this reason there is no identified gap between indicator and study.

	· Paint the turbines a uniform color, typically matching the sky (light gray or pale blue), while observing marine and air navigational marking regulations; · Avoid including lettering, company insignia, advertising, or graphics on the turbines.	points: - Project Visibility, Appearance and Landscape Context. - Scenic-Resource values and sensitivity levels: *visual diversity, intactness (order), focal points and unique visual resources* - Assessment of Aesthetic Impact: *Landscape characteristics (Duration, Angle of view, Panoramic versus Narrow view, Scenic Quality view, Focal point within a view and number of observers) and Project Characteristics (scale, number of turbines in view, visual clutter, visibility of project infrastructure)* The study concludes that As far as Karacabey Project is considered, the visual impact of the Project is neglible to its surrounding and it can be an acceptable Project. It also states that as a result of the analysis with stated indicators, it can be argued that, the Project has minimal visual impact both to the nearest residential areas and its surrounding. The study also provide mitigation measures such as appropriate	

		color and Minimizing Vegetation Removal	
Noise	Measures to prevent and control noise are mainly related to engineering design standards. For example, broadband noise is generated by air turbulence behind the blades and increases with increasing blade rotational speed. This noise may be controlled through the use of variable speed turbines or pitched blades to lower the rotational speed. Additional recommended noise management measures include: 1) Proper siting of wind farms to avoid locations in close proximity to sensitive noise receptors (e.g. residences, hospitals, and schools); 2) Adherence to national or international acoustic design standards for wind turbines (e.g. International Energy Agency, International Electrotechnical Commission [IEC], and the American National Standards Institute).	The project owner has a warranty agreement with wind turbine manufacturer to comply IEC 61400-11 ed. 2[1] (Wind turbine generator systems – Part 11: Acoustic noise measurement techniques; Second edition, 2002-12) The distance of closest turbine to the closest settlement (Güngörmez village) is around 760 m. According to calculations provided in the Project Information File, max. noise level to this distance will be 55 dBA during construction (Graphic 7, page 60) and around 43 dBA during operation (Graphic 8, page 64). Both levels are under legal limits, which are 70 dBA during construction[2] and 55 dBA (night) during operation[3].	**NO GAP** The project activity fulfils both recommendations indicated in ornithology report. Therefore, there is no gap between indicator and the report.
Species Mortality or Injury and Disturbance	Prevention and control measures to address these impacts include the following: 1) Conduct site selection to account for known	This indicator is also an issue of Natural Habitats Safeguarding Principles and a detailed	**NO GAP** The analysis of these three indicators are already included in the ornithology

[1] Equipment Contract, Exhibit-12

[2] PIF, page 60, Table 27

[3] PIF, page 61, Table 28

(on shore)	migration pathways or areas where birds and bats are highly concentrated. Examples of high-concentration areas include wetlands, designated wildlife refuges, staging areas, rookeries, bat hibernation areas, roosts, ridges, river valleys, and riparian areas; 2) Configure turbine arrays to avoid potential avian mortality (e.g. group turbines rather than spread them widely or orient rows of turbines parallel to known bird movements); 3) Implement appropriate stormwater management measures to avoid creating attractions such as small ponds which can attract birds and bats for feeding or nesting near the wind farm.	assessment is provided there. An ornithology report was prepared to address this indicator. This report includes a list of measure to minimize impacts of the project facilities on birds including first two prevention and control measures of Guidelines.	report.
Shadow Flicker and Blade Glint	Prevention and control measures to address these impacts include the following: 1) Site and orient wind turbines so as to avoid residences located within the narrow bands, generally southwest and southeast of the turbines, where shadow flicker has a high frequency. Commercially available modelling software can be used to identify a 'zone' of flicker and the wind farm can then be sited appropriately; 2) Paint the wind turbine tower with non-reflective coating to avoid reflections from towers.	A study on Shadow Flicker and Blade Glint validation and mitigation was carried out by EnerGY for Karacabey WPP in the year of 2013. The study states that shadow flicker is only present at distances of less than 1400 m from the turbine. The computerized analysis done in the study states that in both closest villages shadow flicker affect does not exceed 30 hours/year exposure which is a standard used in Germany. Thus the study concludes that the resulting effect is negligible. Blade glint is an issue that should be considered in wind farm planning. It happens when sunlight reflects off turbine blades and into a person's eye. The study	**NO GAP** While the shadow flicker and blade glint impacts of turbines were analysed by the study of EnerGY and mitigation measures are presented, there is no GAP identified.

		by EnerGY states that all major wind turbine blade manufacturers coat their blades with a low reflectivity treatment that prevents reflective glint from the surface of the blade. Even if there is no appropriate coating it is typically disappears when disappears when blades have been soiled after a few months of operation. In Karacabey Project, Nordex turbines will be utilized. According to Nordex Documentation on "Standard Colors of Outside Components" provided via client, tower, nacelle, hub, spinner and rotor blades are painted in matt and grey colors.	
Habitat Alteration (from EHS Guidelines for Toll Roads)[1]	Management practices to prevent and control impacts to terrestrial and aquatic habitats include: 1) Siting roads and support facilities to avoid critical terrestrial and aquatic habitat (e.g. old-growth forests, wetlands, and fish spawning habitat) utilizing existing transport corridors whenever possible; 2) Design and construction of wildlife access to avoid or minimize habitat fragmentation, taking into account motorist safety and the behaviour and prevalence of existing species. 3) Possible techniques for terrestrial species may include wildlife underpasses, overpasses, bridge	The study done by expert on mapping of the road for the project evaluated the alternative of the roads. The length of the planned project roads will be 4870 metre and the width is 10 metre. The map of the roads and commitment of the engineering company is added under reviewed documents	**NO GAP** While there is already a study on the roads of the project there is no gap for this principle.

[1] See: http://www.ifc.org/wps/wcm/connect/7e4c7f80488554d5b45cf66a6515bb18/Final%2B-%2BToll%2BRoads.pdf?MOD=AJPERES&id=1323162564158

	extensions, viaducts, enlarged culverts, and fencing. Possible techniques for aquatic species include bridges, fords, open-bottom or arch culverts, box and pipe culverts; 4) Avoidance or modification of construction activities during the breeding season and other sensitive seasons or times of day to account for potentially negative effects; 5) Preventing short and long term impacts to the quality of aquatic habitats by minimizing clearing and disruption of riparian vegetation; providing adequate protection against scour and erosion; and giving consideration to the onset of the rainy season with respect to construction schedules; 6) Minimizing removal of native plant species, and replanting of native plant species in disturbed areas; 7) Exploring opportunities for habitat enhancement through such practices as the placement of nesting boxes in rights of-way, bat boxes underneath bridges, and reduced mowing to conserve or restore native species; 8) Management of construction site activities as described in relevant sections of the General EHS Guidelines.		
Water Quality (from EHS General Guidelines)[1]	Recommended soil erosion and water system management approaches include: *Sediment mobilization and transport*	The PIF states that the measures will be implemented to prevent soil erosion, affected areas will be revegetated and top soils will be gathered and used for gardening	**NO GAP** Main construction activities for wind power plants are related with turbine bases and roads. Thus most of the

[1] See: http://www.ifc.org/wps/wcm/connect/554e8d80488658e4b76af76a6515bb18/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES (section 4.0, page 89,90)

	1) Reducing or preventing erosion by: a. Scheduling to avoid heavy rainfall periods (i.e., during the dry season) to the extent practical b. Contouring and minimizing length and steepness of slopes c. Mulching to stabilize exposed areas d. Re-vegetating areas promptly e. Designing channels and ditches for post-construction flows f. Lining steep channel and slopes (e.g. use jute matting) 2) Reducing or preventing off-site sediment transport through use of settlement ponds, silt fences, and water treatment, and modifying or suspending activities during extreme rainfall and high winds to the extent practical. *Clean runoff management* 1) Segregating or diverting clean water runoff to prevent it mixing with water containing a high solids content, to minimize the volume of water to be treated prior to release *Road design* 1) Limiting access road gradients to reduce runoff-induced erosion	after construction[1]. The project documents include prevention and control measures on wastewater[2] and surface waters like rivers. According to PIF, the project owner committed that during the construction and operation periods there will be no impacts/intervention on rivers and river beds and excavation wastes will not be dumped into these areas. The PIF also states that the project owner commits compliance to Regulation on the Protection of Wetlands and Regulation on Control of Water Contamination, which aims the protection of surface and ground water resources and regulates the activities which might have impacts on these resources[3].	measures identified within this indicator are not applicable to the project activity. As the project documents include necessary measures and commitments for prevention of soil erosion and water system management, no additional study is necessary for compliance of the project to this indicator.

[1] PIF, page 112

[2] PIF, Section 1.d

[33] PIF, page 109, 122, 123

	2) Providing adequate road drainage based on road width, surface material, compaction, and maintenance *Disturbance to water bodies* 1) Depending on the potential for adverse impacts, installing free-spanning structures (e.g., single span bridges) for road watercourse crossings 2) Restricting the duration and timing of in-stream activities to lower low periods, and avoiding periods critical to biological cycles of valued flora and fauna (e.g., migration, spawning, etc.) 3) For in-stream works, using isolation techniques such as berming or diversion during construction to limit the exposure of disturbed sediments to moving water 4) Consider using trenchless technology for pipeline crossings (e.g., suspended crossings) or installation by directional drilling *Structural (slope) stability* 1) Providing effective short term measures for slope stabilization, sediment control and subsidence control until long term measures for the operational phase can be implemented 2) Providing adequate drainage systems to minimize and control infiltration		
Occupational Health and Safety			
Working at Heights	Prevention and control of hazards associated with working at heights include: 1) Prior to undertaking work, test structure for integrity;	The PIF includes commitment for compliance to Occupational Health and Safety Regulations which includes prevention and control of	**NO GAP** The project owner has not finalized operation and maintenance agreement with turbine provider yet and thus all

	2) Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers; 3) Establishment of criteria for use of 100 percent fall protection (typically when working over 2 m above the working surface but sometimes extended to 7 m, depending on the activity). The fall-protection system should be appropriate for the tower structure and movements to be undertaken including ascent, descent, and moving from point to point; 4) Install fixtures on tower components to facilitate the use of fall protection systems; 5) Provide workers with an adequate work-positioning device system. Connectors on positioning systems must be compatible with the tower components to which they are attached; 6) Ensure that hoisting equipment is properly rated and maintained and that hoist operators are properly trained; 7) Safety belts should be of not less than 15.8 mm (5/8 inch) two in one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibres become evident; 8) When operating power tools at height, workers should use a second (backup) safety strap; 9) Signs and other obstructions should be removed from poles or structures prior to undertaking work; 10) An approved tool bag should be used for raising	hazards associated with working at heights and high voltage.	recommended measures for this indicator will be incorporated to this contract. In addition to that PIF includes commitment to Occupational Health and Safety Regulations which includes prevention and control of hazards associated with working at heights and high voltage. Therefore, no gap identified for this indicator.

	or lowering tools or materials to workers on elevated structures. 11) Avoid conducting tower installation or maintenance work during poor weather conditions and especially where there is a risk lightning strikes;		
Community Health and Safety			
Aircraft and Marine Navigation Safety	Prevention and control measures to address these impacts include the following: 1) Consult with air and marine regulatory traffic authorities before installation, in accordance with air and marine traffic safety regulations; 2) When feasible, avoid siting wind farms close to airports or ports and within known flight path envelopes or shipping lanes; 3) Use anti-collision lighting and marking systems on towers and blades.	There is no airport, port or flight path close to the project site. PIF already includes use of anti-collision lighting and marking systems on towers and blades.[1]	**NO GAP** All the measures recommended with related to this indicator is already in place within regulations and PIF. Therefore, no gap is identified for this indicator.
Blade / Ice Throw	Blade throw management strategies include the following: 1) Establish safety setbacks, and design / site wind farms such that no buildings or populated areas lie within the possible trajectory range of the blade. This safety setback range is unlikely to exceed 300 meters, although the range can vary with the size, shape, weight, and speed of the rotor, and with the height of the turbine; 2) Equip wind turbines with vibration sensors that can react to any imbalance in the rotor blades	As explained before, the closest residence is Güngörmez village which is 760 away from the closest turbine. Also as explained in "Working at heights" and "Working over water" indicators, all precautionary measures for prevention of Blade and Ice throw will be incorporated to the turnkey agreement and	**NO GAP** The distance of the closest settlement is more than recommended distance of the indicator. All management strategies given in this indicator will be incorporated to the turnkey agreement and Operation and Maintenance agreement to be signed with equipment provider.

[1] PIF, page 66

	and shut down the turbine if necessary; 3) Regularly maintain the wind turbine; 4) Use warning signs to alert the public of risk. Ice throw management strategies include: 1) Curtail wind turbine operations during periods of ice accretion; 2) Post signs at least 150 meters from the wind turbine in all directions; 3) Equip turbines with heaters and ice sensors; 4) Use cold-resistant steel for the turbine tower; 5) Use synthetic lubricants rated for cold temperature; 6) Use black fluoroethane-coated blades; 7) Provide full-surface blade heating, if available, or otherwise use leading-edge heaters at least 0.3 m wide.	Operation and Maintenance agreement to be signed with equipment provider.	
Electromagnetic Interference	*Aviation Radar* Prevention and control measures to address these impacts include the following: 1) Consider wind energy equipment component designs that minimize radar interference, including the shape of the turbine tower, the shape and materials of the nacelle, and use of radar-absorbent surface treatments (e.g. rotor blades made of glass-reinforced epoxy or polyester) which should not create electrical	*Aviation Radar and Telecommunication Systems* According to rules in Turkey, power plant operators need to get approval of The Scientific and Technological Research Council of Turkey (TUBITAK) on technical interaction of wind power plants on communication, aviation and radar systems.[1]	**NO GAP** While Yalova has already positive opinion from telecommunication and has to have permission from The Scientific and Technological Research Council of Turkey for radar system, it is expected that there is no gap.

[1] See: http://www.enerji.gov.tr/mevzuat/3154/Ruzgar_Enerji_Santrallerinin_Kurulmasinin_Haberlesme_Seyrusefer_ve_Radar_Sistemlerine_Olan_Etkilesimi_Konusunda_Izin_Sureclerinin_Olusturulmasina_Iliskin_Protokol.pdf

	disturbance; 2) Consider wind farm design options, including geometric layout and location of turbines and changes to air traffic routes; 3) Consider radar design alterations including relocation of the affected radar, radar blanking of the affected area, or use of alternative radar systems to cover the affected area. *Telecommunication Systems* 1) Prevention and control measures to address impacts to telecommunications systems include the following: 2) Modify placement of wind turbines to avoid direct physical interference of point-to-point communication systems; 3) Install a directional antenna; 4) Modify the existing aerial; 5) Install an amplifier to boost the signal. *Television* 1) Prevention and control measures to address impacts to television broadcast include the following: 2) Site the turbine away from the line-of-sight of the broadcaster transmitter; 3) Use non-metallic turbine blades; 4) If interference is detected during operation: a. Install higher quality or directional antenna;	In addition to that, the project owner has received positive opinion letter for turbine siting from Türk Telekomünikasyon A.Ş., stating that the electromagnetic waves stemming from turbines will not affect the telecommunication systems existing in the project region[1]. *Television* While TV broadcasting has been done mainly by satellite systems. NA.	

[1] See Appendix 5.

	b. Direct the antenna toward an alternative broadcast transmitter; c. Install an amplifier; d. Relocate the antenna; e. If a wide area is affected, consider the construction of a new repeater station.		
Public Access	Prevention and control measures to manage public access issues include: 1) Use gates on access roads; 2) Fence the wind farm site, or individual turbines, to prohibit public access close to the turbine; 3) Prevent access to turbine tower ladders; 4) Post information boards about public safety hazards and emergency contact information.	PIF includes measure of fencing the turbines and switchyard with fence.[1] Other measures will be implemented by equipment provider with whom the project owner will make a turnkey agreement	**NO GAP** PIF includes fencing the wind turbines and switchyard. Other measures will be incorporated to the turnkey agreement with equipment provider who will be responsible from construction, operation and maintenance of the power plant.

[1] PIF, page 71

6 Recommendations

The analysis of the gap between requirements of World Bank and the reports and studies done by Yalova shows that the project is in compliance with the requirements.

7 Conclusion

The gap analysis report at hand provided a comparison between requirements of World Bank as listed in safeguarding policies and environmental, health, and safety guidelines for wind energy and the studies and reports prepared by Yalova for implementation of the project as well as some regulations that Yalova has to comply with. The list of documents reviewed for gap analyses are provided under table 1.

The methodology of the analysis has been listing of requirements and reviewing of studies and reports prepared by Yalova by an aim to state gap and compliances. Reviewed documents listed under section 2. While the project description regarding location and technical specification has been provided through section 3, the section 4 presented short summaries of three ecosystem assessment reports for further clarification for the readers. As the gap analysis matrix which is composed of two separate tables presented in section 5, recommendations are stated in section 6.

The result of gap analysis has been compliance of the project design with the requirements of the World Bank.

8 APPENDIXES

Appendix 1:

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T.C.
ORMAN VE SU İŞLERİ BAKANLIĞI
Doğa Koruma ve Milli Parklar Genel Müdürlüğü

Sayı : B.23.0.DMP.0.13.02-430.03-15629 14.10.2011
Konu : Karacabey RES

BURSA VALİLİĞİNE
(İl Çevre ve Orman Müdürlüğü)

İlgi : 21.09.2011 tarihli ve 7121 sayılı yazı

Yalova Rüzgar Enerjisinden Elektrik Üretim Santrali Ltd.Şti' nin Bursa İli Karacabey İlçesi Kıranlar Mevkiinde yapmayı planladığı 27,9 MW kurulu gücündeki Karacabey RES projesine ilişkin ilgi yazınız ve ekleri Genel Müdürlüğümüzce incelenmiştir.

İlgi yazımızda da bahsedildiği üzere yapılmak istenilen türbinlerden T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11 numaralı türbinlerin Karacabey Karadağ Ovakorusu Yaban Hayatı Geliştirme Sahası'nın Sürdürülebilir Kullanım Bölgesi içerisinde kalduğu tespit edilmiştir. Sahanın Yönetim ve Gelişme Planı 29.06.2009 tarihinde Genel Müdürlüğümüz tarafından onaylanarak yürürlüğe girmiştir.

Yönetim ve Gelişme Planı'nın 3.3.1. Yaban Hayatı Geliştirme Sahasında Genel Prensiplerin 15. Maddesinde *"Yaban Hayatı Geliştirme Sahalarında; özellikle hedef tür ve diğer türlerin yaşam alanlarında habitat bölünmesine sebep olacak ticari nitelikte olan yatırımlar, her türlü enerji yatırımları, turistik amaçlı tesisler, sanayi tesisleri, enerji, su, petrol, doğalgaz, haberleşme faaliyetlerine ait nakil hatları ve bunlara ait yatırımlar ve tesisler, su kullanım kısıtları ile yaban hayatı ve ekosistemi etkileyecek her türlü faaliyet için: 3 (Üç) farklı üniversitenin yaban hayatı başta olmak üzere yatırımın özelliğine göre idarenin uygun göreceği bilim dallarında konusunda uzmanlaşmış öğretim üyelerince Ekosistem Değerlendirme Raporu hazırlanacaktır. Raporda; yatırım faaliyetinin hedef tür ve diğer türlerin bu alandaki devamlılığını tehlikeye düşürmeyeceği ve ekosistemi bozmayacağı sonucuna varılması halinde izin verilecektir."* kuralı getirilmiştir.

Yukarıda belirtilen karar kapsamında faaliyetin yapılacağı tüm alanı kapsayacak şekilde; üç farklı üniversitenin en az doktora seviyesinde uzmanlığı olan öğretim üyeleri; bir Ornitolog, bir Zoolog (Omurgalı Uzmanı), bir Botanik Uzmanı tarafından arazi incelemelerinde, yatırım faaliyetinin hedef tür ve diğer türlerin bu alandaki devamlılığını tehlikeye düşürmeyeceği ve ekosistemi bozmayacağı veya alınacak tedbirlerle oluşan olumsuz etkisinin giderilebileceğine dair kanaat oluşması durumunda inşaat ve üretim sürecince alınması gereken tedbirleri kapsayan Ekosistem Değerlendirme Raporlarının hazırlanarak üye oldukları üniversite kanalıyla Genel Müdürlüğümüze ulaştırılması, ayrıca raporları hazırlayacak öğretim üyeleri ile arazi programlarının arazi çalışmalarına başlamadan 1 ay önce Genel Müdürlüğümüze bildirilmesi gerekmektedir.

Bilgi ve gereğini rica ederim.

Yaşar DOSTBİL
Bakan a.
Genel Müdür

Adres : Söğütözü Cad. No:14/E Beştepe 06560
Yenimahalle - ANKARA
Telefon :
e-posta : [illegible]@cob.gov.tr

Ayrıntılı Bilgi : T. B. MURAT Harita Mühendisi

Faks :
Elektronik Ağ: www.ormansu.gov.tr

Appendix 2:

T.C.
ANKARA
. NOTERLİĞİ
Mu köy 2. Cad. 4. Sok. No:4
Ümitköy/ANKARA
Tel: 236 12 88 Fax: 236 12 80

10 NİS 2012

RES FAALİYETİNE AİT TAAHHÜT SENEDİ

Bu taahhüt senedi; Yalova Rüzgar Enerjisinden Elektrik Üretim Santrali Limited Şirketi tarafından Bursa İli Karacabey İlçesi, Kıranlar Mevki, Bursa Karacabey OvakorusuYaban Hayatı Geliştirme Sahası (YHGS)'nda yapılması planlanan 27,9 MW kurulu gücündeki Karacabey RES projesi için noter onayıyla yürürlüğe girdikten sonra Doğa Koruma ve Milli Parklar Genel Müdürlüğü (DKMP)'ne ve Orman ve Su İşleri Bakanlığı 2. Bölge Müdürlüğü'ne karşı aşağıda maddeler halinde yer alan ve yapmakla sorumlu olacağı hükümleri içermektedir.

No 10726

Bölge Adı	Faaliyet Türü	Faaliyet Adı	Şartlar
Mutlak Koruma Bölgesi	Hiçbir faaliyete izin verilmez		
Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	Tür Koruma Tedbirleri	Endemik Bitki Türleri	İnşaat sürecinde ya da daha evvel özellikle faaliyet alanı ve yakın çevresinde bulunabilecek ekte belirtilen endemik, nadir ve nesli tehdit altında olan türlerin tohumları mutlaka toplanmalıdır. Tohumların bir kısmı ilgili Tohum Gen Bankalarına ulaştırılmalıdır. Yöreye özgü hassas türler tohum ya da fide olarak ekolojik özellikleri yakın olan alan dışı habitatlara taşınarak (Ex-Situ) yeni populasyonlar oluşturulmalıdır.
Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	Tür Koruma Tedbirleri	Göçmen veya Yerleşik Kuş Türleri için Alınacak Tedbirler	Projede kullanılması planlanan 900 kW ve 1.5 MW'lık türbinlerin içerdiği riskler nedeniyle bunların yerine son gelişmelere uygun olarak, daha büyük kapasiteli türbinler kullanılacaktır. Bu sayede türbin sayısı azaltılarak yaban hayvanlarının türbinler ile olumsuz etkileşime girebilme riskleri düşürülecektir. Türbinler arası mesafe olası göç hareketlerini engellemeyecek açıklıkta ve sahanın topografik yapısı dikkate alınarak en az 250 m. olacaktır. Türbinlerin hareketli parçası olan pervanelerin fark edilebilir olması için ucundan itibaren, pervane kanadının 1/3' ü kadar kısmı göz alıcı ve kuşlar tarafından uzaktan fark edilecek bir şekilde (tercihen turuncu renk ile) boyanacaktır. Pervanelerin kuşlar tarafından geceleri de fark edilebilir olması için kulenin en üst noktasına belli aralıklarla yanıp sönecek beyaz-kırmızı ikili ışık sistemine sahip düzenekler kurulacaktır.

ASLINDA İMZA VARDIR

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Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	Tür Koruma Tedbirleri	Hedef Türler İçin Alınması Gereken Tedbirler	Karacabey –RES projesinin gerçekleştirilmesi planlanan alanda üreme dönemi Nisan-Haziran ayları arasındadır. Bu aylar içerisinde hiçbir faaliyet yapılamaz. Yapılacak çalışmalara üreme dönemi başlangıcı olan nisan ayından önce başlanacak ve bu aya gelmeden tamamlanacaktır.
	Habitatın Bozulmaması İçin Alınması Gereken Tedbirler	İnşaat Süresince	Proje inşaat aşamalarında yol ve şantiye sahaları haricinde doğal doku üzerinde kalıcı işlem yapılmayacaktır. Şantiye ve araç parkı sahaları ormanın yoğun dokusundan uzak açık bir alanda yer alacak ve birden fazla saha şantiye alanı olarak kullanılmayacaktır. Ormanlar gaz ve tozların absorbsiyonunda önemli rol oynarlar. Açık hava akımlarının hareketini önemli ölçüde engelleyerek zararlı gazların difüzyon kontrollerinde rolleri de vardır. Ayrıca oluşacak CO2 nin fotosentez yoluyla ortamdan temizlenecek olması ormanların önemini artırmaktadır. Bu sebeple çalışma alanı içi ve yakın çevresindeki sık vejetasyon, çalılıklar ve ormanlar korunmalıdır. Özellikle ormanın ve yaban hayatı geliştirme sahasının, planlanan tesistan kaynaklanacak olası bir yangından da korunması gerekmektedir. Alanın uygun yerlerine yangın vanaları yerleştirilmeli ve şantiye içerisinde yangına karşı alınabilecek tüm önlemlere yer verilmesi gerekmektedir. Kazım alanlarının öncelikli olarak alandan çıkan malzeme ile kapatılması gerekmekte olup, bu amaçla başka bir dolgu maddesi kullanılmayacaktır.
	Habitatın Bozulmaması İçin Alınması Gereken Tedbirler	İşletme Süresince	Habitatlarda meydana gelecek deformasyonların "Ekolojik Restorasyon" ilkelerine uygun olarak restore edilmesi mutlaka sağlanmalıdır. İnşaat aşamasından sonra erozyona karşı önlemler alınmalı ve en önemlisi yeniden bitkilendirme (Revegetation) yapılmalıdır. Yeniden bitkilendirme doğal bitki örtüsüne uygun türler ile gerçekleştirilmelidir. İnşa sürecinde siyrılarak muhafaza edilmiş olan toprak inşa sürecinden sonra gerçekleştirilecek restorasyonda kullanılmalıdır. Ex situ olarak başka habitatlara aktarılan endemik, nadir ve nesli tehdit altında olan türlerin yeni habitatlarda tohumların çimlenme başarıları ve fidelerin hayatta kalma başarıları en az 3 yıl izlenmelidir

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Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	İzleme Tedbirleri		Alandaki endemik türlerin tohumlarının toplanması, uygun koşullarda ekim ve izlenmesi için bir Orman Mühendisi ve yaban hayatının izlenmesi için projenin inşaat ve işletim süresi boyunca yaban hayatı konusunda çalışan veya uzmanlaşmış 1 adet Biyolog olmak üzere iki teknik elemanın gözlem, sayım, telemetri ile izleme, koruma – kontrol, plaalama gibi faaliyetlerde bulunmak, RES projesinin etkilerini izlemek ve diğer benzeri yaban hayatı odaklı çalışmalar yapmak üzere proje alanı ve diğer benzeri alanlarda görevlendirilmek üzere tüm özlük haklarıyla birlikte tam zamanlı olarak istihdam edilecektir. Görevlendirilecek bu elemanlara belirtilen işlerin takibinde kullanılmak üzere gerekli kıyafet ve 2 adet dürbün, 2 adet fotoğraf makinesi (müştemilatı ile birlikte), 2 adet taşınabilir teleskop (müştemilatı ile birlikte), 2 adet sırt çantası, 2 adet GPS, 2 adet kamp takımı (çadır, uyku tulumu, kampet, mutfak seti) tarafınızdan karşılanacaktır. Yaban hayatını izleme sistemi için yapılacak çalışmalarda kullanılmak üzere teknik özellikleri Doğa Koruma ve Milli Parklar Genel Müdürlüğünce belirlenecek: Kuşlar için 20 adet GPS-GSM uydu vericisi (müştemilatı ile birlikte) tedarik edilecek ve bu amaçla kullanıma sunulacaktır.
Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	Eğitim ve Bilinçlendirme		İnşaat ve hafriyat aşamalarında, nakliyat aşamalarına kadar projenin her aşamasında proje dahilinde çalışacak personele sahanın önemi hakkında brifingler verilerek bilinçleadirme çalışmaları yapılacaktır. Yukarıdaki madde kapsamında alanda görevlendirilecek olan Orman Mühendisi ve Biyoloğun alandaki görevleri ile ilgili oryantasyon eğitimi alması sağlanacaktır. Ülke çapında DKMP Genel Müdürlüğü tarafından gerçekleştirilecek Doğa Koruma ve benzeri konulu eğitimlerin gerçekleştirilmesinde Genel Müdürlükçe talep edilmesi halinde lojistik veya finansal destekler sağlanacaktır.
Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	Gürültü ve Titreşim (Patlatma, araç, personel vb.)	İnşaat ve İşletme Süresince	Gürültüyü gececil fauna türlerini rahatsız etmeyecek düzeye indirmek için saat 22.00- 06.00 arasında çalışmaya ara verilecektir. Tesisten çıkan hafriyat, hafriyat artığı malzemenin taşınması, boşaltımı ve yüklenmesi sırasında ve sonrasında "Çevresel Gürültünün Değerlendirilmesi ve Yönetimi Yönetmeliği

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			hükümlerine uyulması gerekmektedir.
Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	Toz ve CO_2 Emisyonu		Arazinin hazırlanması ve inşaat aşamasında oluşacak toz emisyonunun engellenmesi amacıyla kullanılan saha düzenli olarak sulanacaktır (spreylenecektir). İnşaat sırasında kullanılan motorlu taşıtlarda ve iş makinelerinde katalitik konvektör kullanımı, düzenli bakım ve denetimlerin yapılması gerekmektedir. Dolayısıyla ister tesisin hafriyatı, hafriyat artığı malzemenin taşınması, boşaltımı ve isterse yüklenmesi, sırasında ve sonrasında " Sanayi Kaynaklı Hava Kirliliği Kontrolü Yönetmeliği" hükümlerine uygun hareket edilecektir.
Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	Enerji Nakil Hatları		
Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	Hafriyat Depolama		Artan hafriyat söz konusu olduğunda gerek depolanacağı gerekse tasfiyesi sıkıntı söz konusu olmayacak şekilde ilgili idarenin belirleyeceği yere geçici olarak depolanabilecektir. İnşaat aşamasında ortaya çıkan hafriyat yaban hayatı geliştirme sahası yakınında bulunan sulak alanlara geçici veya daimi akarsu yatakları ile durgun su ortamlarına tasfiye edilemez.
Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	Yol Yapımı		
Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	Katı Sıvı Atıklar		Araç lastiklerinin kaplama maddeleri, motorun hareketli parçaları, yağlama yağlarının yanma ürünleri kontaminasyona yol açan bileşenler olduğundan, araçların bakım ve onarımı sırasında ortaya çıkan atıkların konteynırlarda biriktirilerek daha sonra bertaraf edilecektir.
Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	İlgili Mevzuat		Çevresel Etki Değerlendirme Yönetmeliği, Su Kirliliği Kontrol Yönetmeliği , Lağım Mecrası Mümkün Olmayan Yerlerde Yapılacak Çukurlara ait Yönetmelik, Katı Atıkların Kontrolü Yönetmeliği, Çevresel Gürültünün Değerlendirilmesi ve Yönetimi Yönetmeliği, Toprak Koruma ve Arazi Kullanım Kanunu, Patlayıcı, Parlayıcı, Tehlikeli ve Zararlı Maddelerle Çalışacak İş Yerlerinde ve İşlerde Alınacak Tedbirler Hakkında Tüzük, Atık

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			Yağların Kontrolü Yönetmeliği, Harfiyat Toprağı, İnşaat ve Yıkıntı Atıklarının Kontrolü Yönetmeliği, Ambalaj Atıklarının Kontrolü Yönetmeliği, Ömrünü tamamlamış Lastiklerin Kontrolü Yönetmeliği, Atık Pil ve Akümülatörlerin Kontrolü Yönetmeliği, Atık Yönetimi Genel Esaslara İlişkin Yönetmelik, İş Sağlığı ve Güvenliği Yönetmeliği, Tehlikeli Atıkların Kontrolü Yönetmeliği, Çevre Kanununca Alınması Gereken İzin ve Lisaslar Hakkında Yönetmelik, Toprak Kirliliği Kontrolü Yönetmeliği, Çevre Kanunu ve tüm bu kanun ve yönetmeliklerin değişiklikleri ile birlikte uyulması gerekmektedir.
Hassas Kullanım Bölgesi veya Sürdürülebilir Kullanım Bölgesi	Diğer		DKMP Genel Müdürlüğü, çalışma alanı, çalışma şekli, kayboldan habitatın ikamesi, habitat rehabilitasyonu, hedef türlerin izlenmesi ve beslenmesi gibi konularda yatırımcı kişi ya da kuruluşlara ek şartlar getirebilecektir.

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Bu taahhüt senedinde ve ekinde belirtilen hususların yerine getirilmediğinin idarece tespiti durumunda izinin re'sen iptal edileceğini biliyor ve belirtilen hususlara aynen uyulacağını kayıtsız ve şartsız olarak kabul ve taahhüt ediyorum.

TAAHHÜT EDEN

YALOVA RÜZGAR ENERJİSİNDEN ELEKTRİK ÜRETİM SANTRALI LİMİTED ŞİRKETİ'Nİ MÜNFERİDEN TEMSİLEN
ŞİRKET MÜDÜRÜ: GAYE DEMİRHAN BAŞBİLEN
BİRLİK MAHALLESİ 7 CADDE CEMKA II APT. NO:40/5 ÇANKAYA / ANKARA
Seğmenler Vergi Dairesi: 934 044 8103

Haricen tanzim edilip noterliğimize getirilen fotokopi yoluyla çoğaltılan işbu Onaylama işlem (N.K.90.md.) altındaki imzanın gösterdiği, Çankaya Nüfus Müdürlüğü'nden verilmiş 14.6.2006 tarih, 22578 kayıt, U08 seri ve 249178 numaralı fotoğraflı Nüfus Cüzdanına göre Mersin ili Erdemli ilçesi Şahna mahallesi / köyü 65 cilt, 30 aile sıra, 102 sıra numaralarında nüfusa kayıtlı olup, baba adı Ahmet, ana adı Elvan, doğum tarihi 10.8.1978, doğum yeri Kastamonu olan ve halen yukarıdaki adreste bulunduğunu, okur yazar olduğunu söyleyen, 52126250036 T.C. kimlik numaralı GAYE DEMİRHAN BAŞBİLEN, adlı kişiye ait olduğunu ve dairede huzurumda imzalandığını onaylarım. İkibinoniki yılı Nisan ayının onuncu günü 10.04.2012

ANKARA 53. NOTERİ
ZEYNEP BIYIK
Vekili İmzaya Yetkili Başkatip SONER ÜNVER

ASLINDA İMZA YETKİSİ

DAYANAK: T.C. Ankara 30. Noterliğinden onaylı 22/03/2011 tarih ve 8139 yevmiye numaralı imza sirküleri ile GAYE DEMİRHAN BAŞBİLEN'in şirketi münferit imzası ile temsil ve ilzama yetkili olduğu görülmüştür. İşbu dayanak Noterlik Yasasının 79.maddesine göre eklenmiştir.

ANKARA 53. NOTERİ
ZEYNEP BIYIK
Vekili İmzaya Yetkili Başkatip SONER ÜNVER

Türkiye Cumhuriyeti Yev.No :(A)

T.C. ANKARA 30.NOTERLİĞİ

ANKARA 30.NOTERİ

BELKIS KOÇAK

Cinnah cad. No:27/8 Çankaya/ANKARA Tel : 312-4274978 ankara30@tnb.org.tr

İşbu İmza Sirküleri (N.K.90.md.) altındaki imzaların gösterdiği, Yenimahalle Nüfus Müdürlüğü'nden verilmiş 8.7.2008 tarih, 19976 kayıt, K11 seri ve 62841 numaralı fotoğraflı Nüfus Cüzdanına göre Ankara ili Altındağ ilçesi Hacıbayram mahallesi / köyü 93 cilt, 1678 aile sıra, 1 sıra numaralarında nüfusa kayıtlı olup, baba adı Sedat, ana adı Bayram Zeliye, doğum tarihi 12.9.1946, doğum yeri Alsancak olan ve halen yukarıdaki adreste bulunduğunu, okur yazar olduğunu söyleyen, 12874009898 T.C. kimlik numaralı ZEKİ ATİLLA AKALIN, Çankaya Nüfus Müdürlüğü'nden verilmiş 14.6.2006 tarih, 22578 kayıt, U08 seri ve 249178 numaralı fotoğraflı Nüfus Cüzdanına göre Mersin ili Erdemli ilçesi Şahna mahallesi / köyü 65 cilt, 30 aile sıra, 102 sıra numaralarında nüfusa kayıtlı olup, baba adı Ahmet, ana adı Elvan, doğum tarihi 10.8.1978, doğum yeri Kastamonu olan ve halen yukarıdaki adreste bulunduğunu, okur yazar olduğunu söyleyen, 52126250036 T.C. kimlik numaralı GAYE DEMİRHAN BAŞBİLEN adlı kişilere ait olduğunu YALOVA RÜZGAR ENERJİSİNDEN ELEKTRİK ÜRETİM SANTRALI LİMİTED ŞİRKETİ adına işyerinden ayrıldıkları taktirde şirket işlerinin aksayacağından Ankara Kavaklıdere Kenedy caddesi No.155/5 adresinde mühallinde ve, huzurumda şirket adına imzalandığını onaylarım. İkibinonbir yılı Mart ayının yirmikinci günü 22.03.2011

ANKARA 30.NOTERİ
BELKIS KOÇAK Yetkili Katibi
Ali Dağdeviren

DAYANAK: Türkiye Ticaret Sicil Gazetesinin 11/03/2011 tarih ve 7770 nolu nüshasında yayınlanan ve Ankara Ticaret Sicil Memurluğunun 219939 sicil nosunda kayıtlı olan YALOVA RÜZGAR ENERJİSİNDEN ELEKTRİK ÜRETİM SANTRALI LİMİTED ŞİRKETİ 'ne ait 07/03/2011 TARİHİ VE 10.NOLU ortaklar kurulu kararın incelenmesinden adı geçen şirketi Şirket Müdürü ZEKİ ATİLLA AKALIN ve Şirket Müdürü GAYE DEMİRHAN BAŞBİLEN in beş yıl süre ile münferiden temsil ve ilzama yetkili olduğu görüldü.

İşbu dayanak Noterlik Yasası'nın 79.maddesine göre eklenmiştir.

ANKARA 30.NOTERİ
BELKIS KOÇAK Yetkili Katibi
Ali Dağdeviren

KDV, Harç, Damga Vergisi ve Değerli Kağıt bedeli makbuz karşılığı tahsil edilmiştir.
(TNB) A/S Ka=2433/0, A/S YAZI=3/0, A/S DeK.=2/0, DYNK.Sf.Ka.=.44.4

A-2/2

SÜDÜK DAMGA VARDIR 15 05 139

Türkiye Cumhuriyeti Yev.No :(A)

T.C. ANKARA 30.NOTERLİĞİ

ANKARA 30.NOTERİ

BELKIS KOÇAK

Cinnah cad. No:27/8 Çankaya/ANKARA Tel : 312-4274978 ankara30@tnb.org.tr

22 Mart 2011

İMZA SİRKÜLERİ

ŞİRKETİN UNVANI	**:YALOVA Rüzgar Enerjisinden Elektrik Üretim Santralı Limited Şirketi**
ŞİRKETİN ADRESİ	**:Birlik Mahallesi 7 Cadde Cemka II.Apt.No:40/5 Çankaya/Ankara**
VERGİ NOSU	**:Seğmenler Vd: 934 044 8103**
YETKİLİLER	**:ZEKİ ATİLLA AKALIN**
	:GAYE DEMİRHAN BAŞBİLEN
YETKİNİN KULLANIM ŞEKLİ	**:Müntferiden**
YETKİNİN SÜRESİ	**:07/03/2011 tarihinden itibaren 5(BEŞ) yıl.**
TİCARET SİCİL ADI	**:Ankara**
TİCARET SİCİL NO	**:219939**

Türkiye Ticaret Sicil Gazetesinin 11/03/2011 tarih ve 7770 sayısının 13.ncü şahifesinde Ankara Ticaret Sicil memurluğundan **08/03/2011 tarihinde tescil edildiği ilan olunan 07/03/2011 tarih ve 10 nolu** ortaklar kurulunun aşağıdaki kararında;
14/04/2011 tarihinde görev süresi sona erecek olan şirket Müdürü Zeki Atilla Akalın'ın **07/03/2011 tarihinden başlamak üzere 5(Beş) yıl süre ile yeniden Şirket Müdürlüğüne seçilmesine,Zeki Atilla Akalın'ın müdürlüğü süresince daha önce dışarıdan Şirket Müdürü atanmış ve yetki verilmiş olan** 607 sokak Yeşilkent sitesi No:61 Korukent mahallesi Yenimahale/Ankara adresinde mukim **GAYE DEMİRHAN BAŞBİLEN'in de Şirket Müdürlüğünün devam etmesine;**
MÜNFERİT İmzaları ile şirketi bilcümle bankalar, bakanlıklar, Kamu kurum ve kuruluşları, Resmi ve özel idareler, ihale makamları ile üçüncü şahıslar karşısında tam bir yetki ile **TEMSİL ve İLZAMA,şirket borç ve taahhüt altına sokmaya,genel olarak ahzu kabza,** şirket adına menkul ve gayrimenkul malların satımı, satımı, kiralanması veya kiraya verilmesi, şirket adına bilumum bankaların merkez veya şubelerinde açılmış veya açılacak hesap ve kredilerden dilediği kadar ve miktarda dileciği gibi paralar çekmeye, yatırmaya, ahzu kabza, şirket adına personel istihmadında bulunmaya, şirket adına çek, senet, bono, emre muhatter senet tanzim ve imzalamaya, sözleşme,sardşame, kefaletname, vs. sözleşmeleri imzalamaya,**ayrıca şirket iştigal konularında yapılabilecek tüm işlemlerde şirketi temsil ve ilzam etme sürelerinin uzatılmasına** oybirliği ile karar verilmiştir, denildiğinden imzalarımızın onaylanmpsını talep ederiz.

YALOVA Rüzgar Enerjisinden Elektrik Üretim Santralı Limited Şirketi
Şirket Müdürleri,
ZEKİ ATİLLA AKALIN T.C. No : 12874009898

1 2 3

GAYE DEMİRHAN BAŞBİLEN T.C. No : 52126250036

1 2 3

MÜSTEREK TEK İMZA YETKİSİ KULLANILMAZ

KDV, Harç, Damga Vergisi ve Değerli Kağıt bedeli makbuz karşılığı tahsil edilmiştir.

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EK.1

APIACEAE	Heracleum platytaenium	Endemik	LR (LC)	No 10726
CAMPANULACEAE	Campanula lyratas ubsp. lyrata	Endemik	LR (LC)	
FABACEAE	Lotus suaveolens Pers.	Endemik	VU	
FABACEAE	Trifolium pannonicum subsp. elongatum	Endemik	LR (LC)	
LAMIACEAE	Lavandula stoechas L.	Endemik	LR (NT)	
LAMIACEAE	Teucrium chamaedrys L. Subsp. tauricolum	Endemik	LR (LC)	
LAMIACEAE	Phlomis russeliana (Sims) Bentham	Endemik	LR (LC)	
POACEAE	Elymus farctus (Viv.) Runemark subsp. rechingeri	Endemik	VU	

ASLINDA İMZA VARDIR

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PRIMULACEAE	Cyclamen coum Miller var. coum		BERN

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No 10726

ASLINDA İMZA VARDIR

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Appendix 3:

T.C.
ORMAN VE SU İŞLERİ BAKANLIĞI
Doğa Koruma ve Milli Parklar Genel Müdürlüğü

Sayı : B.23.0.DMP.0.13.02-430.03-**13947** 26.03.2012
Konu: YHGS içerisinde RES izni

Yalova Rüzgar Enerjisinden Elektrik Üretim Santrali Ltd. Şti.
(Birlik Mah. 448. Cad. No:40 Da:5 Çankaya)
Ankara

İlgi : 19.12.2011 tarihli ve B.23.0.DHD.0.05-000-35874 sayılı yazı

Firmanız tarafından, Bursa İli Karacabey İlçesi sınırları içerisinde yer kalan Ovakorusu Yaban Hayatı Geliştirme Sahasında yapılması planlanan 27.9 MW kurulu gücündeki Karacabey RES projesine ait üç farklı üniversitenin hazırlamış olduğu bilimsel raporlar 4915 sayılı Kara Avcılığı Kanunu ve bu kanuna istinaden çıkarılan "Yaban Hayatı Koruma ve Yaban Hayatı Geliştirme Sahaları ile İlgili Yönetmelik" ve Ovakorusu YHGS Yönetim ve Gelişme Planı hükümleri çerçevesinde Genel Müdürlüğümüzce incelenmiştir.

İnceleme neticesinde, Karacabey RES projeniz inşaat ve işletme süresi boyunca, firmanızın yapmakla sorumlu olacağı hükümlerin belirtildiği ekte yer alan taahhüt senedinin noter onaylı 2 (iki) suretinin Genel Müdürlüğümüze sunulması, ayrıca taahhüt senedinde yer alan hükümlerin Karacabey RES Projesi Nihai ÇED Raporu hükümlerinde yer alması koşuluyla uygun görülmüştür.

Gereğini rica ederim.

Ahmet ÖZYANIK
Bakan a.
Genel Müdür

EKLER :
Ek.1- Taahhüt Senedi (2 nüsha)

Bu evrak 5070 sayılı Elektronik İmza Kanunu'na göre elektronik olarak imzalanmıştır.
Evrak doğrulama adresi: http://ebys.ormansu.gov.tr/Dogrulama.aspx?p=423418

Adres : Söğütözü Cad. No:14/E Beştepe 06560 Yenimahalle - ANKARA
Telefon : 312 207 6080
e-posta : btatar@cevreorman.gov.tr

Ayrıntılı Bilgi : B. TATAR Orman ve Su İşleri Uzmanı
Fax : 312 287 1178
Elektronik Ağ: www.ormansu.gov.tr

Appendix 4:

T.C.
KÜLTÜR ve TURİZM BAKANLIĞI
Bursa Kültür ve Tabiat Varlıklarını Koruma Bölge Kurulu Müdürlüğü

BURSA
4-12-2008

Sayı : B.16.0.KVM.4.16.00.02/ 720 / 3341
Konu : Bursa İli, Karacabey İlçesi, Kıranlar Köyü,
Karacabey Rüzgar Enerjisi Santrali

KAYARES
Yalova Rüzgar Enercisinden Elektrik Üretimi Santrali Limited Şirketi
7. cd. Cemka II Apt. No: 40/5 Birlik Mah. Çankaya/ANKARA

İlgi: Kültür Varlıkları ve Müzeler Genel Müdürlüğü'nün 20.10.2008 gün ve 190117 sayılı yazısı ve ekleri.

Bursa İli, Karacabey İlçesi, Kıranlar Köyü Mevkiinde, H20-B4 paftada, 1/25000'lik ekli haritada 752 ha toplam alanın 12,8 ha'lık kısmında kurulması planlanan 27.9 MW gücündeki Karacabey RES Rüzgar Enerjisi Santrali projesine ilişkin ilgi yazıda belirtilen alan Müdürlüğümüz Uzmanlarınca yerinde incelenmiştir.

Konuya ilişkin olarak hazırlanan raporda; 1/25000'lik ekli haritada belirtilen alanda yapılan yüzey incelemesinde 5226-3386 sayılı yasalarla değişik 2863 sayılı yasa kapsamında herhangi bir Kültür ve Tabiat varlığına rastlanılmadığı belirtilerek, başvuru eki 1/25000'lik ekli haritada 752 ha toplam alanın 12,8 ha'lık kısmında 27.9 MW gücündeki Karacabey RES Rüzgar Enerjisi Santralin kurulmasında mevzuatımız açısından sakınca bulunmadığı ifade edilmektedir.

Bilgilerinize rica ederim.

Serpil YIRIK
Müdür V

Dağıtım
-Kültür Varlıkları ve Müzeler Genel Müdürlüğü'ne/ANKARA
(Ek: Rapor ve eki)
-Kayares Yalova Rüzgar Enercisinden Elektrik Üretimi Santrali Limited Şirketi
7. cd. Cemka II Apt. No: 40/5 Birlik Mah. Çankaya/ANKARA

Adres: Osmangazi Cad. Orhangazi Çıkmazı No.22 Tophane 16050 Osmangazi/ BURSA
Tel-Fax : (224) 220 14 37-223 16 06 **e-posta:** bursakurul@ttnet.net.tr

Appendix 5:

Batı-II (Bursa) Bölge Müdürlüğü
Network Sistemleri Kurulum ve Operasyon Müdürlüğü
Merkez Santral Binası Kat:5 Gençosman 16104 BURSA
Tel : (224) 555 14 00 Faks: (224) 555 14 05

444 1 444 ‹ TURKTELEKOM.COM.TR ‹

15.08.2012

SAYI : TTŞ.4.16.00.03/320-99 247206
KONU : Karacabey Rüzgar Enerji Santrali (RES) Revizyon projesi

PPM KİRLİLİK ÖNLEME VE YÖNETİMİ DAN. MÜH.
İNŞ. SAN. VE TİC. LTD. ŞTİ.
(Mustafa Kemal Mah. Dumlupınar Bulvarı No:226, Tepe Prime İş Merkezi B-85)
Çankaya -ANKARA

İLGİ: 01.08.2012 tarih ve PPM.2012.154.07 sayılı yazınız.

Bursa-Karacabey Kıranlar Köyü Pelitdüzü, Çalbayır, Çataltepe mevkiinde kurulması planlanan "Karacabey RES" projesinin ÇED Gerekli değildir kararına yönelik olarak revize edilen Proje Tanıtım Dosyası incelenmiştir.

Ekteki (EK-3) belirtilen yazıya uygun şekilde optik görüş çizgilerinin dışındaki alanlara yerleştirilmiş olan Karacabey RES projesine ait 1/25.000 vaziyet planı ve ekindeki koordinat listesinin onaylanması Bölge Müdürlüğümüzce uygun bulunmuştur.

Bilgilerinize arz ederiz.

Hüseyin ÖZEN
Batı-II Bölge Müd. Yrd.

Hasbi ŞAHİN
Batı-II Bölge Müdürü Y.