Gold Standard Passport

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SECTION A. Project Title

60 MW Bandırma Wind Power Plant Project, Turkey

SECTION B. Project description

The purpose of the proposed VER Gold Standard project is to generate zero emission renewable energy from a 60 MW wind farm. Bandırma Enerji Yatırımları ve Elektrik Üretim A.Ş.. (Bandırma Enerji)[1] is the owner of the 60 MW Bandırma Wind Power Plant Project in Turkey. The project activity is developed as Gold Standard VER project.

The wind power plant includes a total of 20 VESTAS V 90 turbines at an installed capacity of 3 MW each, 60 MW in total. Technical feasibility, namely wind speed measurements and power output estimations site condition analysis was done between April 2007 and October 2008. Predicted mean wind speed is 8.6 m/sec, which qualifies the site as suitable for the erection and operation of a wind park.

The expected power generation for 60 MW installed capacity is 10.4 GWh/a for each turbine or 207.9 GWh/a (gross) for the entire wind park.[2] Net power generation is expected to be 182.7 GWh/a. The wind park will result in reducing CO_2 emissions in the range that the same amount of fossil fuel grid connected would be replaced. The calculated Combined Margin CO_2 emission factor is 0.6131 tCO_2/MWh. The annual expected net CO_2 emission reductions are **108,692 tCO_2.**

Before the project implementation started no energy generation from wind or any other energy source occurred at the proposed site. The project area is located 100% on forestry land. The land has been rented from the authority for 49 years. The area located in the project boundary but not used for turbines, transformer station and social buildings can still be used for forestry purposes. The proposed project activity will be connected to the national grid (Akcalar Transformer Station). 45 km new transmission line will be built to connect the wind park to the national grid system.

Development of the project started in 2006. At that time Borasco Enerji developed and owned the project. Two feasibility studies were conducted. Originally, the project was planned with 45 MW installed capacity (Garrad Hassan Feasibility Study dated April 2007). A second feasibility study considered apart of 45 MW also a design of 60 MW (Garrad Hassan Feasibility Study dated March 2008). In the same time, acquisition talks between Borasco Enerji and Borusan Enerji were held that resulted in April 2008 in a Board Decision from Borusan Enerji to buy Borasco Enerji. Consequently, Borusan Enerji bought Borasco Enerji in May 2008[3].

[1] The name of the license holder company was recently changed from Borasco Enerji ve Kimya Sanayi A.Ş. to Bandırma Enerji Yatırımları ve Elektrik Üretim A.Ş. with a court decision on 17/12/2010. Herewith in this report, only the name Bandırma Enerji will be used as the participant of the Bandırma Wind Power Plant project.

[2] Garrad Hassan Feasibility Study dated 20 March 2008 and Fichtner Feasibility Analysis of Bandirma Gökburun Wind Farm Energy Production Modelling Study, 28 November 2008

[3] See trade registry gazette dated 12 May 2008

Borusan Enerji decided to increase the installed capacity to 60 MW and therefore applied EMRA (Energy Market Regulatory Authority) for extension from 45 MW to 60 MW in June 2008. The official approval from EMRA has been obtained in April 2010.

In July 2009 Borusan Enerji established a Joint Venture with German company Energie Baden-Würtemberg AG (EnBW) to work together on the development and construction of power plant capacities in Turkey starting from the current portfolio including Bandırma Wind Power Plant Project.

The construction of the power plant started in October 2008. The project is being partially taken into operation since September 2009. Currently, the project is in operation with 57 MW capacity. Below are some pictures from the project during construction (Figure 1) and operation (Figure 2).

Figure 1 Pictures from the Bandırma WPP site during installation of turbines, July 2009

Figure 2 A picture from the Bandırma WPP project site, October 2010

SECTION C. Proof of project eligibility

C.1. Scale of the Project

Please tick where applicable:

Project Type	Large	Small
	☐	☐
	☐	☐
	☐	☐
	X	☐
	☐	☐

	☐

C.2. Host Country

Turkey
Turkey ratified Kyoto Protocol in February 2009 and does not have cap on GHGs yet.

C.3. Project Type

Project type	Yes	No
Does your project activity classify as a Renewable Energy project?	X	☐
Does your project activity classify as an End-use Energy Efficiency Improvement project?	☐	X

Please specify your project type:

The project is a 60 MW wind power plant project. Originally, the project was planned with 45 MW installed capacity in April 2007 by Borasco Enerji. However, a second feasibility study in March 2008 considered also a 60 MW design. In the same time, acquisition talks between Borasco Enerji and Borusan Enerji were held that resulted in May 2008 acquisition of 100% of Borasco Enerji by Borusan Enerji.

Borusan Enerji decided to increase the installed capacity to 60 MW and therefore applied EMRA (Energy Market Regulatory Authority) for extension from 45 MW to 60 MW in June 2008. The official approval from EMRA has been obtained in April 2010.

According to Annex C of Gold Standard Toolkit, no specific project type eligibility criteria are outlined for wind power projects for which compliance would need to be checked. Since the project is larger than 15 MW installed capacity, the project qualifies as a large wind power project.

Pre Announcement	Yes	No
Was your project previously announced?	☐	X
Explain your statement on pre announcement Please refer to official letter provided by Borusan Enerji attached to this Passport.		

C.4. Greenhouse gas

Greenhouse Gas	

Carbon dioxide	X
Methane	☐
Nitrous oxide	☐

C.5. Project Registration Type

[See Toolkit 1.2.f]

Project Registration Type	
Regular	☐

Pre-feasibility assessment	Retro-active projects (T.2.5.1)	Preliminary evaluation (T.2.5.2)	Rejected by UNFCCC (T2.5.3)
	X	☐	☐

The start date of the project activity is **15 April 2008**. On that date the supply and installation agreement between Borasco Enerji and Vestas for 45 MW wind turbines was signed. This represents a real action towards project implementation. Also the construction was started on October 22, 2008.

The project documentation was submitted to Gold Standard for pre-feasibility assessment on October 2009. The positive outcome was received from Gold Standard on May 2010.

SECTION D. Unique project identification

D.1. GPS-coordinates of project location

	Coordinates
Latitude	From 40° 21' 51.36 N to 40° 22' 27.05 N
Longitude	From 28° 07' 13.66 E to 28° 11' 22.57 E

Explain given coordinates

The proposed Bandirma Wind Power Plant Project is located 15 km east of the town and port of Bandirma and is situated along a highly complex ridge running east-west along the edge of Bandirma Bay. The sheet numbers of the project location are H20-A1, H20-A2, H20-A3 and H20-A4. The

project is located on forestry land. Nearest villages to the project site are Çakılköy(2500 m), Erikli (1800 m), Sahil Yenice(2500 m), Emre(3000 m) and Dedeoba(4000 m).

The site is located at the neighbourhood of Bares 2 WPP (in operation) and Sah WPP (at construction phase).

D.2. Map

Figure 3: Location of the Bandirma Wind Power Plant

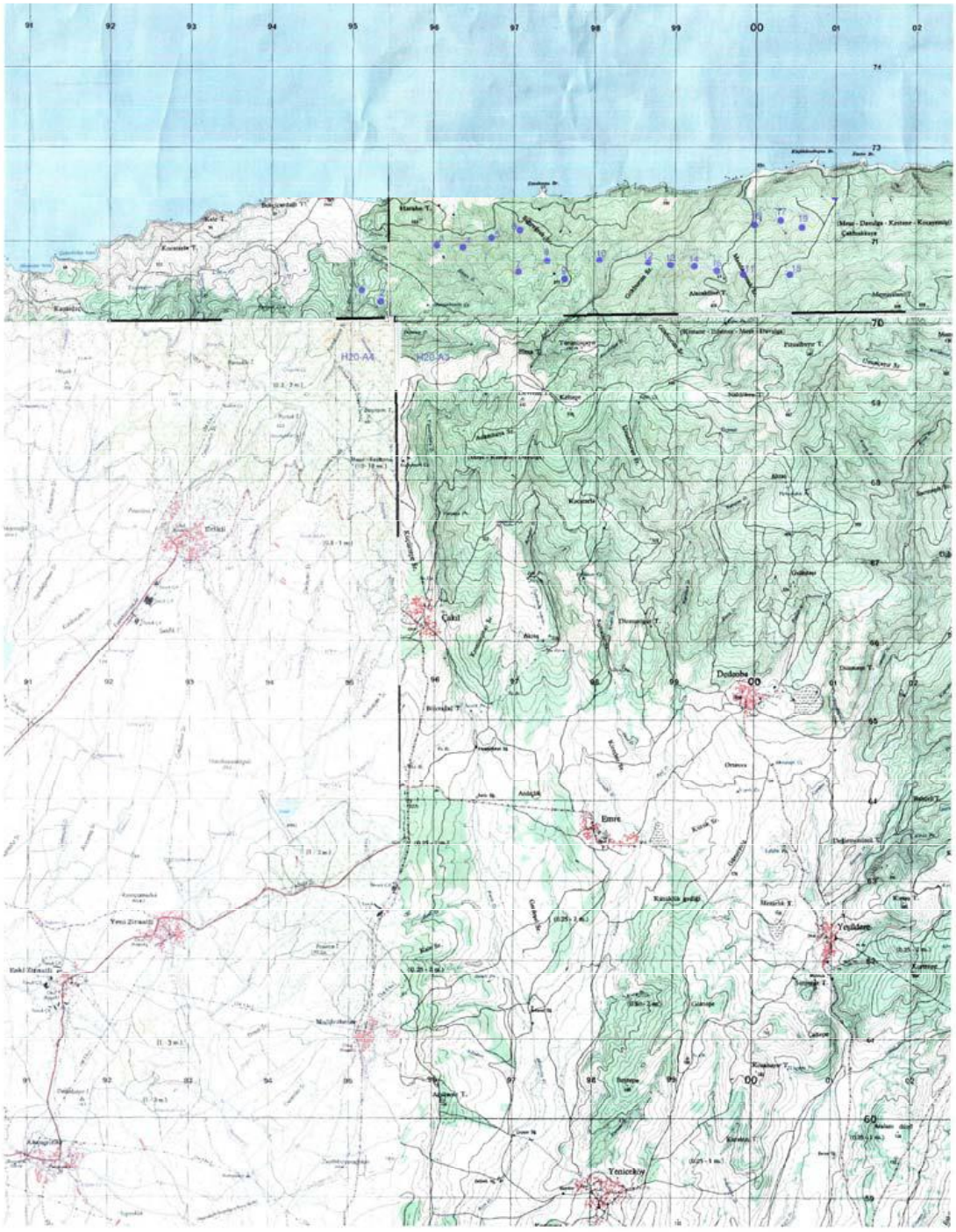

Figure 4 Map of project location and indication of individual numbers of wind turbines

SECTION E. Outcome stakeholder consultation process

E.1. Assessment of stakeholder comments

As a result of the Pre-Feasibility Assessment of Gold Standard, GS required to conduct a Stakeholder Feedback Round organized as a live meeting accompanied by a site visit. Therefore, Stakeholder Feedback Round meeting of the project was held on December 6, 2010 in the Bandırma Wind Power Plant project site, in Balikesir. Stakeholders were invited through invitation letters sent by mail, e-mail, hung invitation posters, newspaper announcements and through face to face visits.

Two service buses have been arranged for the stakeholders for transportation to the site. Availability of the transportation was also included in the announcements to attract the stakeholders to the meeting.

The meeting was held between 14:00 and 16:00 including a site visit and a presentation. According to the participant list signed in the beginning of the meeting, 41 people attended the meeting. The attendance was from the neighbourhood villages and Bandırma district and also a representative from Bandırma Forestry Operation Directorate attended.

Two rounds of meeting were conducted because of the number of the attendees. Half of the participants made a site visit with the employees of Bandırma Enerji whereas the rest attended the presentation made by Fichtner. A second round site visit and presentation was held afterwards for the other half of attendees.

The necessary Health and Safety instructions have been given to the participants by Bandırma Enerji before the visit to the site. Personal protective equipments (PPE) have been provided and the attendees were trained about how to use the PPEs. The site visit included an introduction about wind energy scheme near one of the turbines and continued with a visit to the switchyard. The rest of the consultation continued with a presentation. Firstly, the aim and the agenda of the meeting was described to the participants. The Non-technical Summary in Turkish has been distributed for broader view on the project. At that time, a participant list has been filled in to serve as a paper trail for the attendance. Participants were encouraged to fill in and sign the list by Bandırma Enerji.

The presentation included an introduction about global warming and climate change, wind energy scheme, general information about Bandırma WPP, photos taken in different steps of the project and a discussion over the project's environmental and social aspects. The participants were encouraged to ask questions and raise their concerns about the project. After clarification of the questions and comments, the sustainable development matrix was introduced and participants were asked to fill in each parameter in the matrix with what they understood from the presentation of the project and the project's environmental and social aspects. After the blind sustainable development matrix exercise, the parameters were discussed again over the matrix. The meeting was closed by giving information about the feedback round process and with the positive outcome of participants' comments.

Stakeholder comment	Was comment taken into account (Yes/ No)?	Explanation (Why? How?)
Does the project cause cancer?	No	Basically, the project depends on generating electricity by the movement of

		turbines with the wind. In this respect, the project does not possess a carcinogenic risk.
Does the project increase the velocity of the wind in the region?	No	The velocity of the wind depends on the weather conditions. The operation of the project will not have an effect on the velocity of the wind in the region.
Does the project have a negative effect on the fertileness of our trees?	No	There is no relation between the operation of a wind turbine and the fertileness of the trees in the neighbourhood. On the contrary, Bandırma Enerji will plant additional 25.000 trees to the neighbourhood which will result in increasing the soil quality.
How heavy is a turbine?		160 tonnes approximately.
What is the length of the turbine tower?		80 mt.
Does the project harm our cherry trees?		No, there won't be any effect to the cherry trees in the neighbourhood. There is no relation between the operation of a wind turbine and the fertileness of the trees .

The Stakeholder Feedback Round Meeting is described in detail in the Stakeholder Feedback Round Report.

E.2. Stakeholder Feedback Round

Please describe report how the feedback round was organised, what the outcomes were and how you followed up on the feedback.

The project is a retro-active project and therefore Gold Standard guidance provided in the pre-feasibility assessment is followed. As there is no Initial Stakeholder Consultation Meeting conducted before, Gold Standard required to organize a live meeting accompanied with a site visit and ensure that all the stakeholders are invited.

A live meeting has been held on December 6, 2010. During the meeting the participants were informed about the feedback period.

The project documents PDD, Gold Standard Passport, Gold Standard Local Stakeholder Consultation Report (both in Turkish and English) and Environmental and Social Impact Assessment Study were published on Fichtner's web site **between the dates 24.12.2010 and 01.03.2011** . *(http://www.fichtner.com.tr/2664.htm)*

The documents are also available on Gold Standard Registry since 27.12.2010. Besides, SFR period for the villages has been started by delivering Turkish Local Stakeholder Consultation Report. Start date of the SFR is 30.12.2010 for Sahil Yenice, Emre, Çakıl, Erikli Villages and 04.02.2011 for Dedeoba village.

The documents were be open for comments at least two months beginning from their start of SFR dates. The SFR has been ended on 04.04.2011 and no comments have been received by the stakeholders. Results of the stakeholder consultation reflect that there is no opposing view about the project

SECTION F. Outcome Sustainability assessment

F.1. 'Do no harm' Assessment

[See Toolkit 2.4.1 and Toolkit Annex H]

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium /high)	Mitigation measure
1. Human Rights			
The project respects internationally proclaimed human rights including dignity, cultural property and uniqueness of indigenous people. The project is not complicit in Human Rights abuses.	Bandırma Enerji works and operates under consideration of internationally proclaimed human rights including dignity, cultural property and indigenous of people. The Bandırma Wind Power Plant Project is not constructed and operated in contradiction to any applicable human rights.[4]	Not applicable	Not applicable
The project does not involve and is not complicit in involuntary resettlement.	The Bandırma Wind Power Plant Project does not result in any person's relocation. Bandırma Enerji works and operates that no involuntary resettlement will be	Not applicable	Not applicable

[4] Minutes of Meeting Borusan Enerji

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium /high)	Mitigation measure
	needed in the course of the company commercial targets. Land is rented from General Directorate of the Forestry for 45 years.		
The project does not involve and is not complicit in the alteration, damage or removal of any critical cultural heritage	The investigations executed during preparation of the ESIA showed that the project area is not located within an area of cultural, archeological, paleontological, historical or aesthetic value. In the unlikely event that cultural, archaeological, paleontological or historical findings will occur Bandırma Enerji and the appointed subcontractors will secure the dedicated area and will inform the respective responsible authorities without any unnecessary delay.	Not applicable	Not applicable
2. Labour Standard			
The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights	Employees' freedom of association and their right to collective bargaining and any restrictions of these freedoms and rights are respected by Bandırma Enerji. Turkey is a party to ILO Convention 87 Freedom of Association and Protection of the Right to Organise Convention. http://ua.mfa.gov.tr/detay.aspx?5305 http://ua.mfa.gov.tr/files.ashx?3204 http://ua.mfa.gov.tr/files.ashx?3205	Not applicable	Not applicable
The project does not involve and is not complicit in any form of forced or compulsory labour.	Bandırma Enerji and appointed subcontractors are not part and will not be part of any form of forced or compulsory labor for their projects. Turkey is a party to C29 Forced Labour Convention. http://www.ilo.org/ilolex/cgi-lex/ratifce.pl?C029	Not applicable	Not applicable
The project does not employ and is not complicit in any form of child labour	Bandırma Enerji and their sub-contractors comply with all relevant national laws. Bandırma Enerji will not employ children in any shape or form for their works. Turkey is also a member of IPEC (International Programme on the	Not applicable	Not applicable

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium /high)	Mitigation measure
	Elimination of Child Labour) and ratified ILO Conventions on child labour. http://webfusion.ilo.org/public/db/standards/normes/appl/appl-byConv.cfm?hdroff=1&conv=C182&Lang=EN http://webfusion.ilo.org/public/db/standards/normes/appl/appl-byConv.cfm?hdroff=1&conv=C138&Lang=EN		
The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis.	Gender, race, religion, sexual orientation or any other basis discrimination are reviled by Bandırma Enerji in Bandırma Wind Power Plant Project construction and operation phase. (see minutes of meetings) Turkey has ratified ILO convention 100 "Equal Remuneration Convention" and 111 "Discrimination (Employment and Occupation) Convention" http://www.ilo.org/ilolex/cgi-lex/ratifce.pl?C100 http://www.ilo.org/ilolex/cgi-lex/ratifce.pl?C111	Not applicable	Not applicable
The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments.	Potential risks during construction & operation	Low	Occupational Health and Safety Manuals for construction works are strictly considered during construction by subcontractors of Bandırma Enerji.[5] The respective commitment is part of the Contract between Bandırma Enerji and their subcontractors.

[5] HSE Procedures of Borusan Enerji

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium /high)	Mitigation measure
			Bandırma Enerji considers HSE requirements during construction and operation of the Bandırma Wind Power Plant project. Necessary trainings are being given for the plant staff.
3. Environmental Protection			
The project takes a precautionary approach in regard to environmental challenges and is not complicit in practices contrary to the precautionary principle.	The effects and the measures are defined in the ESIA Report of the Bandırma Wind Power Plant project. The attachment list of the ESIA includes the Flora and Fauna Study, the Socio-Economic Impact Assessment Study, Emission Measurements, Personnel Dust Exposure Measurements, Acoustical noise measurements and Modelling, Soil and Water samples Analysis Reports. The outcome of the ESIA confirms that the project hardly affects the environment. Bandırma Enerji takes mitigation measures for the few identified environmental challenges owing to the project. The project is located in forestry land. The land has been rented from the authority for 45 years. Certain amount of tree was cut for construction.	low	Necessary fee has been paid to the authority for financing planting of new trees. Furthermore, Bandırma Enerji promised to plant 25.000 additional trees to the region in order to improve the soil quality of the region.
The project does not involve and is not complicit in significant conversion or degradation of critical natural habitats, including those that are (a) legally protected, (b) officially proposed for protection, (c) identified by authoritative sources for their high conservation value, or (d) recognized as protected by traditional local communities.	Site surveys of flora and fauna investigations have been prepared in cooperation with Biology Department of the Balikesir University. According to the survey no environmentally sensitive zones or zones under protection in or near the project area are affected. Thus, there are no endangered species in or near the project site.	Not applicable	Not applicable

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium /high)	Mitigation measure
	The investigation results are confirming that the project area has no particularly high conservation value. The area is neither legally protected nor officially proposed for protection by authorities.		
4. Anti Corruption			
The project does not involve and is not complicit in corruption.	Bandirma Enerji concerns shareholders, employees and society on health, safety and environmental matters, and open for providing with relevant information and discussing related company policies and practices with all parties.	Not applicable	Not applicable

F.2. Sustainable Development matrix

Indicator	Mitigation measure	Relevance to achieving MDG	Chosen parameter and explanation	Preliminary score without mitigation measures / (anticipated score with mitigation measures)
Gold Standard indicators of sustainable development.	If relevant copy mitigation measure from "do no harm" –table, or include mitigation measure used to neutralise a score of '–'	**Check** www.undp.or/mdg **and** www.mdgmonitor.org Describe how your indicator is related to local MDG goals	Defined by project developer	Negative impact: score '-' in case negative impact is not fully mitigated score 0 in case impact is planned to be fully mitigated No change in impact: score 0 Positive impact: score '+'
Air quality	Watering roads to avoid dispersion of dust Covering trucks with canvas to avoid dispersion	MDG 7 target A "Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources"	Parameter: a) SO_2, NO_x , b) Dust emissions during construction of the project activity a) Compared with the baseline situation (generating electricity from fossil fuel power plants), the project will help to reduce SO_2, NO_x , emission in a local and global level. The reduction will be SO_2, NO_X emissions per 1 MWh electricity generation; 5,08 kg/MWh and 1,64 kg/MWh which is the current situation according to 2008 statistics. b) Dust emissions will only occur during a short period of construction	+

			stage. The calculated dust emission amount in the 0.3 kg/hr w hch is w ell below the national regulatory dust emission limits	
Water quality and quantity	No risk for the quality of the w ater resources in the region. The w aste w ater w ill be handled in accordance w ith the national legislation.	MDG 7 target C "Halve, by 2015, the proportion of people w ithout sustainable access to safe drinking w ater and basic sanitation."	Parameter: Amount of Wastew ater discharged to the environment Compared w ith the baseline situation, the project w ill not need usage of process water and thus w on't have contaminated w aste w ater.	0
Soil condition	Hazardous w astes (e. g. lubrication oil and other leakage) are collected and disposed by a licensed company in accordance w ith the "Hazardous Wastes Control Regulation" and "Regulation on Control of Waste Oils". Solid w astes will be collected and recycled in accordance w ith the 8th Article of the "Regulations on Solid Wastes Control". The project is located in forestry land. The land has been rented from the authority for 45 years. Certain amount of tree w as cut for construction how ever necessary fee has been paid to the authority for financing planting of new trees. Furthermore,	MDG 7 target A "Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources"	Parameter: Hazardous w aste, Solid w aste Different types of w aste w ill occur in certain amounts during construction and operation phases of the project in the project area. How ever, these w astes w ill be handled in accordance w ith the national regulation. Therefore uncontrolled disposal of w aste w ill be mitigated during project implementation. The project is located in the forestry area, certain amount of trees have to be cut how ever the area except the turbine locations w ill still be used in its ow n purposes.	0

	Bandırma Enerji promised to plant 25.000 additional trees to the region in order to improve the soil quality of the region.			
Other pollutants, e.g. noise emissions	No mitigation measures are necessary but preventive actions are taken, such as: Periodic maintenance will be carried out and silencer equipment will be implemented to the machinery.	MDG 7 target A "Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources"	Parameter: Level of noise Noise pollution will occur during construction and operation activities which may affect the resettlement area around the project site when compared with the nonexistence of the project activity. This parameter will be mitigated which will counteract the noise pollution.	0
Biodiversity	Planting new trees to offset tree logging effects during construction. Number and type of trees to be planted not yet decided. As Bandırma Enerji paid the fee the real implementation of afforestation is with the General Directorate of Afforestation and Erosion Control. The regular monitoring/control of the afforested area is also a governmental process. Bandırma Enerji also promised to plant 25.000 additional trees to the region in order to improve the soil quality of the region.	MDG 7 Target B "Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss"	Parameter: Number of affected plants, Impact on bird population The area for tree cutting is approx. 21 ha. Tree types affected are; maritime pine, black pine, calabrian pine, oak, beech, hornbeam and chestnut tree. Certain amount of tree will be replanted both by the authority and Bandırma Enerji. There is no impact on bird species. The project is not located on a bird migration route however site observations will be carried out by Bandırma Enerji to follow up this subject.	0

Quality of employment	Implementation of safety protocols by project owner. Bandırma Enerji enforces its internal HSE procedure to its contractors. The construction staff had been trained. Personal protective equipments are used when necessary. The HSE representative will make regular audits		Parameter: Labour conditions, Training certificates There will occur some risks especially during construction period. The health and safety system will be managed by BE carefully. The staff will be trained to achieve higher labour conditions and mitigate the possible risks.	0
Livelihood of the poor	No mitigation measures needed		Parameter: Changes in living standards The project will not affect the livelihood of the poor directly.	0
Access to affordable and clean energy services	No mitigation measures needed		Parameter: Energy use, Electricity consumption per capita, Traditional fuel consumption Currently, Turkey imports considerable amount of fossil fuel for electricity generation. The project will decrease the dependency on imported fossil fuel consumption in country level.	0
Human and institutional capacity	No mitigation measures needed		Parameter: Employment, Reconstruction in the district hospital, Improvement of the access road in the region There is an unemployment problem in Turkey. The project will create new job opportunities for local people. The project owner is trying to improve the region by doing social responsibility events like reconstruction in the district hospital and improvement of the access road in the region.	+

Quantitative employment and income generation	No mitigation measures needed	**MDG 1 target B** "Achieve full and productive employment and decent work for all, including women and young people"	Parameter: Creation of employment, Wages paid to employees There is an unemployment problem in Turkey. The project will create new job opportunities in the region.	+
Balance of payments and investment	No mitigation measure needed	**MDG 8 target A** "Develop further an open, rule-based, predictable, non-discriminatory trading and financial system"	Parameter: Amount of domestic investment, Amount of foreign direct investment Currently, Turkey imports considerable amount of fossil fuel for electricity generation. The project will decrease the dependency on imported fossil fuel consumption in country level.	+
Technology transfer and technological self-reliance	No mitigation measure needed	**MDG 8 target F** "In cooperation with the private sector, make available the benefits of new technologies, especially information and communications"	Parameter: Electro mechanic equipment supply(wind turbines) The technology is new in Turkey. Project will enable latest technology transfer to the country.	+
Further possible impacts	No mitigation measures needed		Parameter: Visual impact, light and illumination issues The project has residential area around. However, no negative impact is expected for visual impacts, light and illumination issues for the project region.	0
Justification choices, data source and provision of references				
Air quality	Fossil fuel power plants pose risks of SO_2, NO_X, mercury and PM emissions. Coal power plants are a major source of sulphur dioxide (SO_2), nitrogen oxides(NOx), mercury and particulate matter (PM). Also, the cleanest of the fossil fuels, natural gas, still results in the release of nitrogen oxides when burned.. National Greenhouse Gas Inventory of Turkey for 2008 shows the emission resulted from energy sector, mainly fuel combustion. SO_2 and NO_X emissions for Energy Industries is reported as 1007,78 Gg and 325,24 Gg in the National Inventory for Turkey for 2008 submitted to UNFCCC in 2010. [6] Considering that the			

6

http://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/zip/tur-2010-crf-15april.zip

	electricity generation in 2008 was 198418 GWh according to TEIAS statistics, SO_2 and NO_X emissions per 1 MWh electricity generation is; 5,08 kg/MWh and 1,64 kg/MWh [7] These risks of future emissions are clearly mitigated by implementing wind power plants instead of fossil fuel power plants. The implementation of a wind park will reduce the aforementioned emission and will therefore positively contribute on air quality. Further, dust emissions will only occur during a short period of construction stag like excavation and land preparation. The calculated dust emission amount is in the environmental study(PPF) 0.3 kg/hr which is well below the national regulatory dust emission limits. Project owner can take necessary actions like watering the roads or covering trucks with canvas to avoid dispersing of dust.
Water quality and quantity	Fossil fuel power plants pose possible risks of cooling water discharges and warming of surface water bodies. These risks are clearly mitigated by implementing wind power plants instead of fossil fuel power plants. The project activity, once fully implemented, does not have any risk of pollution of surface water, groundwater, coastal water or sea. Further, there are no water sources existing near the project site that could be affected. Certain amount of waste water will occur from workers in the site during construction and operation. Wastewater will be collected in a sealed septic tank and later discharged by the local authority as per the "Regulation on Control of Water Contamination".. The parameter can be justified from the ESIA report(p.42, 53).
Soil condition	The excavation work during the construction period was carried out according to the "Regulation on the Control of solid wastes from excavation soil, construction and wreckage". The soil remained from excavation work will be reused in landscaping or reclamation work. The solid wastes produced during construction phase (13 kg/day) will be collected in close containers and will be transported to the nearest landfill area. Hazardous waste such as lubrication oil that is used for maintenance of machinery or vehicles will accumulate at project site. In the ESIA no quantification was made, however, in consultation with local experts, the following is expected: - leakage from used grease: 30 kg/a per turbine - leakage from hydraulic system: 10 to 100 litre depending on turbine type - leakage of acid from rechargeable battery packs or rotor blade safety system during assembly and replacement (has to be fully avoided). During operation, risk is much lower since battery packs are stored in sealed containers and are continuously observed by the turbine control system - leakage of lubricants and fuels from assembly cranes and freight vehicles Although amounts will be small it has to be collected and disposed in accordance with national legislation "Hazardous Wastes Control Regulation" and "Regulation on Control of Waste Oils". Disposal will be done by a licensed company. During the construction phase solid wastes are being produced by construction personnel. The project is located in forestry land. The land has been rented from the authority for 45 years. Certain amount of tree was cut for construction however necessary fee has been paid to the authority for financing planting of new trees. Furthermore, Bandırma Enerji promised to plant 25.000 additional trees to the region in order to improve the soil quality of the region. The parameter can be justified from the ESIA report(p.54). There will be no negative effect to soil condition of the project site under the condition that mitigation measures are implemented

[7] http://www.teias.gov.tr/istatistik2008/13.xls

Other pollutants (e.g. noise emissions)	The noise pollution caused by the machinery used during the construction operations was within threshold values (70dbA for construction sites). Periodic maintenance will be carried out and silencer equipment will be implemented to the machinery. During operation, the generated sound by the turbines is 97 dbA according to the noise curve presented in the VESTAS contracts. The locations of the turbines are arranged by counting the distances from settlements. Both of these aspects are outlined in the PPF and acknowledged by MoEF. The noise modelling study for operation stage results that the Turkish noise limit values for day time and night time at residential areas (60 and 50 dBA) are complied with. According to the ESIA report there will be no aerodynamic noise beyond 300 m from the wind turbines. Hence, there will be no impacts on the nearest community since the nearest villages are about 1.8 km away from the project site. The mechanical noise from the turbines is kept as minimum as possible by means of insulation at the gearboxes and the generators. ESIA report for Bandırma WPP project prepared by Fichtner (p.56-60, p.68-72 and p.204-234)
Biodiversity	The General Directorate of Afforestation and Erosion Control (affiliate to Ministry of Environment and Forestry) manages the afforestation process. Furthermore, Bandırma Enerji will plant 25.000 additional trees to the region in order to improve the soil quality of the region. According to the environmental impact analysis (PPF) which was carried out for license application, and the Flora-Fauna Report prepared in February 2009; the project area does not have the characteristics of a wildlife habitat. There is a RAMSAR area in Balıkesir, Manyas Lake Kus RAMSAR Site no. 660) which is a habitat for migrating birds. The distance between the RAMSAR area and the project site is 15km. Thus, the project serves no possible risk on living species and/or migrating birds. Since the Bandırma Wind Power Plant Project is not located on a path for migrating birds, the area does not posses any risk of acting as a barrier to movements of birds. There are no environmentally sensitive zones or under protection zones in or near the project area. However there will be a certain amount of tree cutting due to the project. Any avoidable tree cuttings are reduced to a minimum by appropriate turbine placement. For turbine placement and tree cuttings issue, the Forestry Operations directorate is involved. For every tree that has to be cut, Borusan has to finance new tree plantings which will be carried out by the authority. The fee that is paid from Borusan is added to the fund of General Directorate Of Afforestation And Erosion Control. The Directorate announces the annual afforestation plans in their web site. According to the field study and the prepared Flora-Fauna Report, there are no endangered species in or near the project site ESIA report for Bandırma WPP project prepared by Fichtner (p.42-48, p.56, p.72 and p.86-136)
Quality of employment	There are some risks involved during construction as regards worker's health and safety, however, measures are taken by the project owner to neutralize the expected negative impact. Also during the construction and operational phase technical and security staff are trained regarding occupational health and safety and technical issues on turbine technology and maintenance. The project owner intends to employ local people in order to avoid moving or long travels for the employees. This information is also gained from the Social Impact Analysis Report (SIA) prepared as a result of the field study (January, 2009) to gain a deep understanding of concerning inhabitants' attitudes towards the project, possible impacts on social and economic life of the villages.
Livelihood of the poor	According to the field study and the prepared SIA report, it can be seen that the project will not affect poverty of people positively or negatively.
Access to affordable and clean energy services	Generating electricity from wind reduces dependency of fuel/energy imports which may lead to more sustainable and affordable energy services in Turkey and also decreases the risk of political conflicts caused by energy imports. However, improvement in the access to affordable and clean energy services does not affect the local public directly as the electricity is delivered to the grid and therefore cannot be monitored, a conservative score of zero is chosen for this indicator.

Human and institutional capacity	Based on the interviews with the project owner and local people, the local people will be informed about the project and certain amount of people were employed during construction as well as some during operation which made them to improve their skills. According to the internal publication of the project owner, Bandırma Enerji supported two social responsibility events; reconstruction in the district hospital and the asphalt road in the region.
Quantitative employment and income generation	The project creates local employment both during the construction phase and operational phase. Wages paid to employees represent the development in quantitative employment and income generation. These issues are also mentioned in the SIA report dated January 2009. Considering the unemployment rate of Turkey and the low employment opportunities in the region, the indicator has a positive score according to no project variant.
Balance of payments and investment	The project will reduce dependency on fossil fuel imports. If amount and cost of Natural Gas necessary to be imported to produce the same amount of electricity as the project is considered, project's positive impact on reducing import dependency, foreign currency savings and also on balance of payments can be measured.
Technology transfer and technological self-reliance	As the project developer is a Turkish company using the returns from the GS VER project to enable the realization of the wind farm, the Turkish capabilities, competencies and self-reliance regarding the introduction of innovative technologies are strengthened. Danish manufacturer VESTAS will import wind turbines to Turkey, so a foreign technology regarding maintenance will occur. Wind turbines represent a new technology development which is highly significant for sustainable development.
Further possible impacts (visual impacts, light and illumination issues)	According to the ESIA, a Socio-Economic research was conducted. As a result, no visual impacts are expected because people in the neighbourhood are familiar with wind turbine generators. During operation, the rotating blades of a wind turbine may cause a stroboscope effect, which causes shadow flicker. According to the ESIA report no negative impact is expected since the nearest house is approximately 1.8 km away from the project site. Effects of the shadow flicker are felt only within a radius of approx. 500 m around a wind turbine.

SECTION G. Sustainability Monitoring Plan

No		1
Indicator		Air Quality
Mitigation measure		Watering roads to avoid dispersion of dust Covering trucks with canvas to avoid dispersion
Chosen parameter 1		SO_2, NO_X
Current situation of parameter		SO_2 and NO_X emissions for Energy Industries is reported as 1007,78 Gg and 325,24 Gg in the National Inventory for Turkey for 2008 submitted to UNFCCC in 2010. [8] Considering that the electricity generation in 2008 was 198418 GWh according to TEIAS statistics, SO_2 and NO_X emissions per 1 MWh electricity generation is; 5,08 kg/MWh and 1,64 kg/MWh.[9]
Future target for parameter		Comparing it with the baseline scenario, operation of the wind power plant will result in certain reduction of SO_2 and NO_X per year.
Way of monitoring	How	Annual electricity generation of the plant
	When	Yearly
	By who	Project Proponents
Chosen parameter		Dust emissions during construction
Current situation of parameter		Dust emissions will only occur during a short period of construction stag like excavation and land preparation. The calculated dust emission amount is in the environmental study(PPF) 0.3 kg/hr which is well below the national regulatory dust emission limits.
Future target for parameter		There will not be dust emissions after construction
Way of monitoring	How	Site observation
	When	Yearly
	By who	Project Proponents

No		2
Indicator		Water quality and quantity
Mitigation measure		The waste water will be handled in accordance with the national legislation.
Repeat for each parameter		
Chosen parameter		Amount of Wastewater discharged to the environment
Current situation of parameter		No wastewater discharge to the environment in the project area
Future target for parameter		Continuation of current situation
Way of monitoring	How	Records of transfer of wastewater by sewage truck and statement of wastewater treatment plant
	When	Yearly
	By who	Bandırma Enerji

No	3
Indicator	Soil condition
Mitigation measure	Hazardous wastes (e.g. lubrication oil) produced during construction phase are collected and disposed by a licensed company in accordance with the national legislation "Hazardous Wastes Control and Regulation" and "Regulation on Control of Waste Oils".
Repeat for each parameter	

[8] http://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/zip/tur-2010-crf-15april.zip

[9] http://www.teias.gov.tr/istatistik2008/13.xls

Chosen parameter		Quantity and type of hazardous waste
Current situation of parameter		Danger that hazardous waste get released to the environment (ESIA).
Future target for parameter		No uncontrolled disposal of hazardous waste to the environment
Way of monitoring	How	• To observe the site if there are remainders of hazardous wastes on the construction site • Documentation of the site observation • To verify the collecting and disposal documents of the licensed company • Documentation of the document's verification
	When	Monthly, depends on the waste load
	By who	Bandırma Enerji
Chosen parameter		Solid waste is expected to be produced in the construction phase in the range of 13 kg/day
Current situation of parameter		Solid wastes produced during construction phase will be collected and recycled in accordance with the 8th Article of the "Regulations on Solid Wastes Control".
Future target for parameter		No uncontrolled waste disposal by discharging waste at dedicated landfill site
Way of monitoring	How	• To observe the site if there are remainders of solid wastes on the construction site once construction is completed • Documentation of the site observation • To observe the separate storage container if recyclable waste is collected in separate storage container • Documentation of correct waste disposal
	When	At the end of the construction phase
	By who	Bandırma Enerji
Chosen parameter		Land usage
Current situation of parameter		The project is located in forestry land. The land has been rented from the authority for 45 years. Certain amount of tree was cut for construction however necessary fee has been paid to the authority for financing planting of new trees. Furthermore, Bandırma Enerji promised to plant 25.000 additional trees to the region in order to improve the soil quality of the region.
Future target for parameter		Usage of remaning lands for forestry purposes by the villagers.
Way of monitoring	How	Checking of the site in a site visit and consulting the villagers
	When	Once during verification
	By who	Bandırma Enerji and DOE

No	4
Indicator	Biodiversity
Mitigation measure	Planting new trees to offset tree logging effects during construction
Repeat for each parameter	
Chosen parameter	Number of new trees planted

Current situation of parameter		Due to the project there will be a certain amount of tree cutting (ESIA) The affected area is approximately 21 ha.
Future target for parameter		Borusan Enerji paid an afforestation fee and implementation of afforestaion is thereafter responsibility of the General Directorate of Afforestation and Erosion Control (affiliate to Ministry of Environment and Forestry) that will decide on the number and types of trees planted. A monitoring of trees planted for a dedicated project by the General Directorate Of Afforestation And Erosion Control is not possible in Turkey. The only proof that activities have been done could be provided by means of fees paid by Borusan to the relevant authority taking care of reforestation measures. Additionally, Bandırma Enerji will voluntarily plant 25000 new trees in the project region with the assistance of Bandırma Forestry Operation Directorate.
Way of monitoring	How	• Forestry permissions obtained for land use of Bandırma WPP • Declaration of Bandırma Enerji for planting 25000 trees
	When	After reforestation measure has been completed by means of proof of payment of the fee and thereafter spot checks once a year in consultation with the relevant authority. Depends on the Bandırma Forestry Operation Directorate
	By who	General Directorate of Afforestation and Erosion Control in consultation with Bandırma Enerji, Bandırma Forestry Operation Directorate
Chosen parameter		Impacts on birds and bats
Current situation of parameter		The project is not on a bird migration route therefore no risk is assessed
Future target for parameter		No impact on the bird and population
Way of monitoring	How	Monthly operation reports of Bandırma Enerji which will include site visit observations
	When	Monthly
	By who	Bandırma Enerji

No		5
Indicator		Other pollutants
Mitigation measure		
Repeat for each parameter		
Chosen parameter		Noise during operation
Current situation of parameter		Natural noise from trees, wind, close railway and daily activities
Future target for parameter		Noise from wind turbines will not affect stakeholders negatively. The noise level will be below noise limits. The nearest settlement is 1800 m away which shows that there will be no risk by means of noise pollution.
Way of monitoring	How	Interview with the stakeholders about the noise level, in case of a negative outcome noise measurements can be done in the site
	When	Yearly
	By who	Bandırma Enerji

No		6
Indicator		Quality of employment
Mitigation measure		• Implementation of safety protocols by project owner. • Borusan Enerji enforces its internal HSE procedure to its contractors (this document dated March 30, 2009, can be made available to the validator) • The construction staff was trained. • Personal protective equipments are used when necessary.
Repeat for each parameter		
Chosen parameter		Training certificates
Current situation of parameter		n/a
Future target for parameter		Workers are instructed about personal protective equipment and applied training courses are executed.
Way of monitoring	How	• Documentation of the training of the staff • Bandırma EnerjiDocumentation that every worker is provided with personal protective equipment and is informed about its usage.
	When	Yearly
	By who	Borusan EnBW.

No		7
Indicator		Human and institutional capacity
Mitigation measure		No mitigation measures are required.
Repeat for each parameter		
Chosen parameter		reconstruction in the district hospital
Current situation of parameter		Bad conditions of the district hospital
Future target for parameter		Improvement in the district hospital to provide a better health service to the stakeholders
Way of monitoring	How	Report showing the social responsibilities of Bandırma Enerji supported with photos and other documentation
	When	Once after completion of the projects
	By who	Bandırma Enerji.
Chosen parameter		Improvement of the asphalt access road in the region
Current situation of parameter		Bad conditions of the road used to reach the project site
Future target for parameter		Improvement in the asphalt road
Way of monitoring	How	Report showing the social responsibilities of Bandırma Enerji supported with photos and other documentation
	When	Once after completion of the projects
	By who	Bandırma Enerji.

No	8
Indicator	Quantitative employment and income generation
Mitigation measure	No mitigation measures are required.
Repeat for each parameter	Number of employment
Chosen parameter	New employment opportunities in the region

Current situation of parameter		Unemployment in the region
Future target for parameter		New job opportunities during construction and operation of the project
Way of monitoring	How	Employment records
	When	Annually
	By who	Bandırma Enerji

No		9
Indicator		Balance of payments and investment
Mitigation measure		No mitigation measures are required.
Repeat for each parameter		
Chosen parameter		Amount of imported energy source
Current situation of parameter		789,4 GWh of electricity was imported in 2008 according to TEIAS statistics.10
Future target for parameter		182.7 GWh of electricity is expected to be replaced by Bandırma WPP
Way of monitoring	How	Annual electricity generation
	When	Annual
	By who	Project Proponents

No		10
Indicator		Technology transfer and technological self-reliance
Mitigation measure		No mitigation measures are required.
Repeat for each parameter		
Chosen parameter		Purchased equipments
Current situation of parameter		n/a
Future target for parameter		Extending the wind power technology in Turkey
Way of monitoring	How	Review of purchase agreements, operation of the WPP
	When	Yearly
	By who	Bandırma Enerji

Additional remarks monitoring

None

[10] http://www.teias.gov.tr/istatistik2008/52.xls

SECTION H. Additionality and conservativeness

This section is only applicable if the section on additionality and/or your choice of baseline does not follow Gold Standard guidance

H.1. Additionality

N/A

H.2. Conservativeness

N/A

ANNEX 1 ODA declarations

ANNEX 2 Pre-Announcement Statement

ANNEX 3 Official letter showing Borusan – Borasco relation

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