



CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-PDD)
Version 03 - in effect as of: 28 July 2006

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**SECTION A. General description of project activity****A.1 Title of the project activity:**

Project Title: *Alize Çamseki 20,8 MW Wind Farm Project, Turkey*

Document version: 2.0

Date: 03.07.2008

A.2. Description of the project activity:

The present *Alize Çamseki 20,8 MW Wind Farm Project - Turkey*, hereafter referred to as the Project, involves a grid-connected onshore wind farm project in the Çanakkale Province, consisting of 11 wind turbines with a total installed power generation capacity of 20,8 MW. The Project is developed and will be realized and operated by *Demirer Enerji* under the legal entity “Alize Enerji Elektrik Üretim Anonim Şirketi”. The Project aims to generate electricity from wind energy and feed it to the national electricity grid.

The Project involves 10 units of Enercon E82 (windclass II) wind turbines with a rated output of 2000 kW capacity and 1 unit of Enercon E48 wind turbine with a rated output of 800 kW, which will be all connected to a wind farm substation, where the voltage will be raised to 154 kV and the generated electricity will be supplied to the grid at the Ezine transformer station.

According to the technical feasibility study, the Project is estimated to generate a net electricity amount of 81.800 MWh per year, resulting in annual emission reductions of 51.955 metric tonnes CO₂ and a total reduction of 1.091.055 tCO₂ over the 21-year crediting period. The electricity generation is foreseen to start as of 01.02.2009. Given an expected operational life of 30 years, the Project Activity will continue to reduce emissions further after the end of the crediting period as well. As of 18.04.2007, the project has been licensed by EMRA for 45 years for power generation.

**Contribution to sustainable development:**

The project significantly contributes to regional sustainable development in following ways:

- Reduction of:
 - electricity imports of Turkey,
 - dependency on fossil fuels and associated risks due to price variations;
- Diversification and assurance of energy supply;
- Reduction of greenhouse gas emissions and air pollutants (e.g. particulates, sulphur dioxide, nitrogen oxides etc.) in Turkey by displacing electricity from fossil fuel based power plants;
- Creation of jobs in Turkey and in the region during construction and operation phases;
- Support to local economy by procuring available services (like subcontractors) and equipment (like cables, masts and transformer for the transmission line, turbine blades, general construction material, etc.) locally;
- Support to technology and know how transfer and development of the renewable energy sector in Turkey;

ADDITIONAL REQUIREMENTS FOR THE GOLD STANDARD:**Sustainable Development Screen:**

The project shows mainly positive scores according to the Gold Standard sustainability screen. No negative scores have been found. The total score of the Gold Standard sustainable development screen amounts to +5. For details please refer to the Annex 7.

A.3. Project participants:

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
Turkey (host)	Demirer Enerji Üretim Sanayi ve Ticaret A.Ş. (private entity)	No
Turkey (host)	Alize Enerji Elektrik Üretim A.Ş. (private entity)	No
Switzerland	South Pole Carbon Asset Management Ltd. (private entity)	No
Turkey (host)	Mavi Consultants – Sustainability Management Ltd. (private entity)	No



Demirer Enerji Üretim Sanayi ve Ticaret A.Ş. (private entity), hereafter referred as the *project owner*, owns 99,89% of the operating company *Alize Enerji Elektrik Üretim Anonim Şirketi* and is considered as the project participant. Contact details are given in Annex 1. Mavi Consultants and South Pole Carbon Asset Management Ltd. act as consultants for this project, whereas South Pole Carbon Asset Management shall be responsible for the transaction of the credits.

A.4. Technical description of the project activity:**A.4.1. Location of the project activity:****A.4.1.1. Host Party(ies):**

Turkey

ADDITIONAL REQUIREMENTS FOR THE GOLD STANDARD:**Host Country Eligibility Check:**

Turkey has not ratified the Kyoto Protocol. Therefore, the host country does not have any emission reduction obligations and is eligible as a host country for Gold Standard VER projects.

The host country has been involved in the stakeholder consultation process. Please see Annex 7 for more details.

A.4.1.2. Region/State/Province etc.:

Marmara region/Aegean region, Çanakkale Province.

A.4.1.3. City/Town/Community etc:

Ezine District, Çamseki Town, Üvecik Village¹.

¹ The local community's main occupation is livestock farming and the cultivation of tomato, wheat, cotton and sunflower.

A.4.1.4. Detail of physical location, including information allowing the unique identification of this project activity (maximum one page):



Figure 1. Project location

The geographical location of the Project is approximately $39^{\circ} 53' N$, $26^{\circ} 13' E$. Details about the geographical position of the Project Activity can be found in Annex 6. Please note that micro-siting planning is not finalized and the turbine locations mentioned in the PDD are preliminary. The project has a ca. 1 km distance from Üvecik village, 18 km from Ezine town and 40 km from Canakkale province.

**A.4.2. Category(ies) of project activity:**

As per UNFCCC definition of sectoral scopes for CDM projects, the Project Activity is included in the Sectoral Scope 1, category “Energy Industries - Renewable Sources”.

ADDITIONAL REQUIREMENTS FOR THE GOLD STANDARD:**Project activities eligible under the Gold Standard**

The project activity falls under category “A.1. Renewable Energy (Electricity/Heat)”, as specified in Appendix A of the Gold Standard VER Manual for Project Developers and is therefore eligible under the Gold Standard.

A.4.3. Technology to be employed by the project activity:

The Project Activity involves the generation of renewable energy from wind. It thereby displaces grid electricity that is partly generated from fossil fuel fired power plants. The wind-driven blades are connected to an electricity generator, which produces electrical energy and supplies it to the grid without storage.

Enercon, a German turbine manufacturer, has been selected as technology provider due to the quality of its products in terms of high reliability, grid friendliness, low maintenance requirements and low noise levels. The turbines will be delivered from Germany to the project site. Blades and masts will be produced in Turkey.

The Project will be composed of gearless, variable speed, variable pitch control wind turbines with a total installed capacity of 20,8 MW. The Project includes 10 units of E82 turbines with an output of 2000 kW and a rotor diameter of 82 m and 1 E48 unit with an output of 800 kW. The project activity is expected to export 81.800 MWh of net electricity per year to the national grid at the Ezine transformer station via a high voltage transmission line.

When the wind speed is low, the wind farm will draw some electricity from the grid, which has to be produced partly by fossil fuel fired power plants. Although power augmentation during wind fluctuations may be necessary, these amounts are negligible and are already accounted for by including only the net electricity generation of the Project.

ADDITIONAL REQUIREMENTS FOR THE GOLD STANDARD:

Gold Standard projects must result in technology transfer and/or knowledge innovation. Please refer to Annex 7 for Gold Standard information.

**A.4.4 Estimated amount of emission reductions over the chosen crediting period:**

The Project is estimated to export a net electricity amount of 81.800 MWh per year to the electricity grid, which will result in 51.955 tCO₂ of emission reductions annually.

Table 1. Emission reductions of the project activity over the crediting period

Year	Annual estimation of emission reduction [tCO ₂]
2009	47.625
2010	51.955
2011	51.955
2012	51.955
2013	51.955
2014	51.955
2015	51.955
2016	51.955
2017	51.955
2018	51.955
2019	51.955
2020	51.955
2021	51.955
2022	51.955
2023	51.955
2024	51.955
2025	51.955
2026	51.955
2027	51.955
2028	51.955
2029	51.955
2030	4.330
Total emission reductions [tCO ₂]	1.091.055 over 21 years
Total length of crediting period	21 years (3x7)
Annual average of estimated reductions over the crediting period [tCO ₂]	51.955



The amount of VERs actually generated by the Project Activity will be calculated after operational start and will depend on the measured power supply. The project is designed and planned according to 21 years crediting period. After the first crediting period of 7 years, project participants are planning to extend it 2 times more by undergoing a validation process again.

A.4.5. Public funding of the project activity:

There is no public funding and no Official Development Assistance (ODA) funding to be used for the project activity - **ADDITIONAL REQUIREMENTS FOR THE GOLD STANDARD:**
ODA Additionality Screen:

Please refer to Annex 7 for Gold Standard information.

SECTION B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the project activity:

The latest version of the approved CDM large-scale methodology ACM0002, Version 07 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (dated 14 December 2007) is applied for calculation of emission reductions. The ACM0002 methodology is hereafter referred to as the “baseline methodology”.

For baseline emission calculations, ACM0002, Version 07 refers to the “Tool to calculate the emission factor for an electricity system”, Version 01.

For additionality assessment, the “Tool for the demonstration and assessment of additionality”, Version 05 is used, which is hereafter referred to as the “additionality tool”.

All calculations in this section are performed in a conservative manner in order to avoid overestimation of generated emission reductions. The applied data is based on official publicly available data.



B.2 Justification of the choice of the methodology and why it is applicable to the project activity:

The ACM0002 baseline methodology has been chosen because of the following reasons:

- The project activity consists of the installation of wind turbines, which will export electricity to the national grid system;
- The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available;
- The Project supplies electricity to the national grid and thereby displaces electricity from fossil fuel based power plants connected to the grid.

B.3 Description of the sources and gases included in the project boundary

The greenhouse gases and emission sources included in or excluded from the Project boundary are:

Table 2. Emission sources included or excluded from the Project boundary.

Source		Gas	Included?	Justification / Explanation
Baseline	CO ₂ emissions that are displaced due to the Project Activity from electricity generation in fossil fuel fired power plants connected to national grid	CO ₂	Yes	Main emission source. The dominant emissions from power plants are in the form of CO ₂ , therefore CO ₂ emissions from fossil fuel fired power plants connected to the grid will be accounted for in baseline calculations.
		CH ₄	No	Minor emission sources. This is conservative.
		N ₂ O	No	
Project Activity	Emissions as a result of Project Activity	CO ₂	No	Minor emission source. As suggested by the baseline methodology, project emissions (PE _y) are assumed to be 0 and will not be considered.
		CH ₄	No	
		N ₂ O	No	

**B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario:**

The project activity consists of the installation of a new grid-connected renewable power plant. The respective baseline scenario would be the generation of grid-connected power, which would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.

The project activity is a green field investment, which does not modify or retrofit any existing electricity generation facility. The emission factors are calculated with the recent data available at the date of PDD compilation. The additionality methodology consists of the following steps;

- Identification of alternatives to the project activity;
- Investment analysis to determine that the proposed project activity is either: 1) not the most economically or financially attractive, or 2) not economically or financially feasible;
- Barriers analysis; and
- Common practice analysis

STEP 1. Identification of alternatives to the project activity consistent with current laws and regulations

This step involves the definition of realistic and credible alternatives to the project activity that can be part of the baseline scenario.

Sub-step 1a. Define alternatives to the project activity:

The Project involves the generation of electricity and sales of VER credits. It will help Turkey to stimulate and commercialise the use of grid connected renewable energy technologies and markets. The two alternatives identified to the project activity are;

Alternative A. The proposed project activity will be undertaken without the generation and sale of VER credits.

- The revenues derived from the sale of voluntary emission reductions have been included in the financial feasibility analysis and preliminary negotiations with the bank (see Annex 4), and the investment decision relies upon carbon trading. Since the project is not feasible for project participants without the sales of VER credits due to its low IRR, the Project will not be realized and this alternative cannot be considered as the baseline scenario. These statements will be further elaborated within the framework of a barrier analysis in Section B.5.

Alternative B. Continuation of the current situation: The project activity is not realized and investors do not take any actions.

- In this alternative, the same amount of electricity to be produced by the project activity will be generated by other power plants connected to grid, where the energy mix is dominated by fossil fuel fired power plants.

No realistic and credible alternative scenarios to the proposed project activity can be identified that deliver electricity with comparable quality, properties and application areas. Thus, no other alternatives other than both above mentioned alternatives have been considered as potential baseline scenarios.

Outcome of Step 1a: Identified realistic and credible alternative scenario(s) to the project activity

Alternative B is identified as the baseline scenario, since Alternative A is not applicable, which will be further elaborated in Section B.5. According to the baseline scenario, the electricity delivered to grid will continue to be fed by a power plant portfolio, which is highly fossil fuel dependent and CO₂ intensive (see figures below).

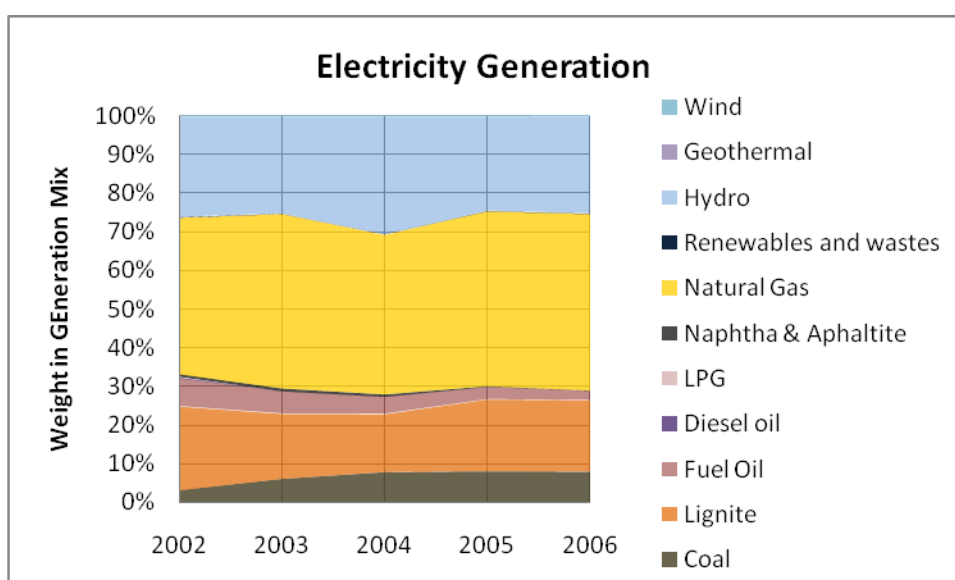


Figure 2. Electricity generation mix in Turkey²

Figure 2 shows the current practice of electricity generation in Turkey; the weight of fossil fuels in electricity generation has been around 70-75% for the last five years and is not expected to change much in the future as highlighted in Figure 2.

² Based on TEİAŞ data, <http://www.teias.gov.tr/istatistik2005/39.xls>, [http://www.teias.gov.tr/ist2006/36\(06\).xls](http://www.teias.gov.tr/ist2006/36(06).xls).

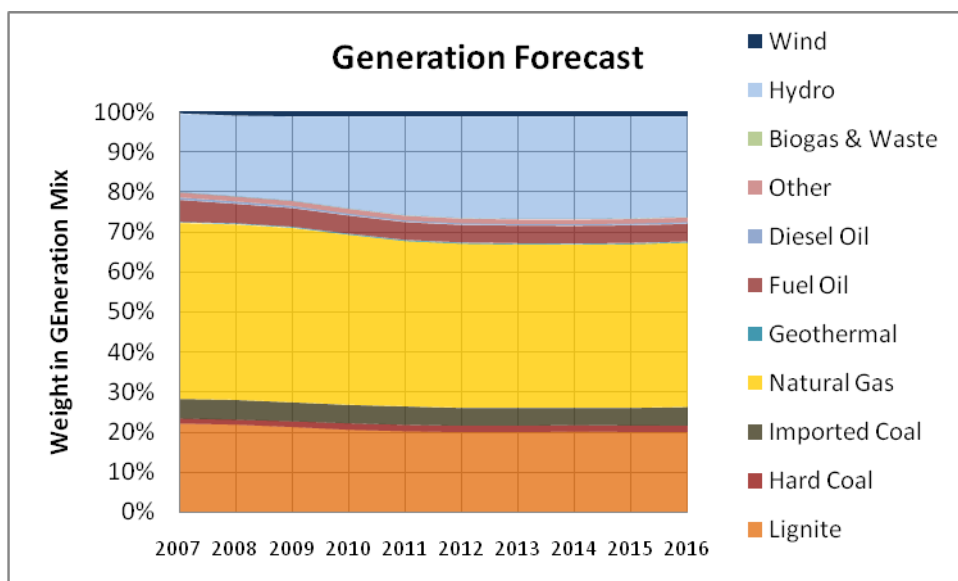


Figure 3. Electricity Generation Forecasts³

The official forecasts as displayed in Figure 3 suggest that in the future power generation in Turkey will be dominated by fossil fuel sources covering more than 70% of the overall electricity supply. In this framework, the continuation of the current situation (Alternative B) would mean carrying on this fossil fuel dominated trend.

The same forecasts show that wind energy is expected to cover around 1% of Turkey’s electricity demand during 2007-2016. Thus, wind farm projects most likely will not become business as usual in the near future.

Sub-step 1b. Consistency with mandatory laws and regulations

Both alternatives as well as the project activity are subject to the following laws;

Relevant Laws	Number / Enactment Date
Electricity Market Law	Nr. 4628 / 03.03.2001
Energy Efficiency Law	Nr. 5627 / 02.05.2007
Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy	Nr. 5346 / 18.05.2005
Environmental Law	Nr. 2827 / 11.08.1983

³ TEİAŞ capacity projection 2007-2016, p.30.
(<http://www.teias.gov.tr/projeksiyon/projeksiyon%20Temmuz2007.pdf>)



There are various regulations in connection with these laws as well. The mandatory preliminary permits have been obtained for the project activity, showing that it is in compliance with the current laws and regulations. Turkey did not ratify the Kyoto Protocol and has no national legal binding emission reduction goals for power plants. Hence, both alternatives, A and B, are consistent with the applicable legislation.

Outcome of Step 1b: As mentioned above, if the project activity is not feasible and will not be realized, project participants do not have an alternative investment plan that would generate electricity with a comparable quality and similar amount. Alternative A cannot be considered as a plausible scenario because of financial, investment, technological and prevailing practice barriers that would prevent the project activity from being implemented, which will be further elaborated under Section B.5. Therefore, the only plausible baseline scenario to the Project is Alternative B: the continuation of the current situation without realization of the proposed Project Activity.

B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):

For the demonstration of additionality, a barrier analysis or an investment analysis, or both can be conducted. Barrier analysis is applied.

STEP 2. Investment Analysis

The Investment Analysis is not applied.

STEP 3. Barrier Analysis

This analysis determines whether the proposed project activity faces barriers that:

- Prevent the implementation of this type of proposed project activity; and
- Do not prevent the implementation of at least one of the alternatives

Sub-step 3a. Identify barriers that would prevent the implementation of the proposed project activity:

Investment -, technical -, prevailing practice - and other barriers are explained below for the scenario identified as Alternative A, which assumes that the project activity being implemented without consideration of revenues from VER credits;



(a) Investment barriers

- As of PDD development date, no similar wind energy project has been taken into operation without VER credits in Turkey.
- Access to finance: Although being one of the leading and credited wind energy companies in Turkey, the project participants have experienced some difficulties in securing the finance for the Project because of the following reasons;
 - Country Risk: Turkey faces a relatively high volatility of its economy⁴. The associated country credit ratings of Turkey lead to higher interest rates for debt financing, since commercial risks affect expected returns. This perception results in elevated financing costs for wind projects and a more selective approach by banks for their financing decision.
 - Long Payback Period: As a result of higher debt interest rates and initial investment requirements, inter alia, wind farm investments in general have long payback periods, low IRR⁵ and ADSCR⁶. This creates difficulties in accessing finance for wind projects where their insufficient financial performance can be associated with low electricity prices, inter alia due to political reasons, competition with fully-depreciated old public power plants which do not reflect the real cost of electricity generation onto prices, etc..
 - Lack of Project Finance: Securing project financing -which is a common tool for financing wind farms- for a wind farm project in Turkey poses significant challenges and difficulties, which is related to poor financial parameters of wind energy projects (without the income from sales of VER credits) and lack of experience of local banks with project financing.
- Project-specific financial barriers:
 - Transmission Fee: The transmission line system usage fee, depends on the project location and can differ significantly. It constitutes a significant operating cost item for the Project, since this fee is the second highest⁷ among 23 distribution grids in Turkey, reducing the feasibility of this Project in particular. Furthermore, the expected privatization process of these distribution networks contains the risk of distribution fee increases.
 - Equipment Selection: The Enercon wind turbines, which are chosen for the Project, have higher prices than comparable turbines. This choice is justified by their high quality, reliability, extensive technical support, grid friendliness, low maintenance requirements and low noise. However, it amplifies the investment volume, thus posing another barrier.

⁴ As a result of relatively high foreign trade and current account deficits and high public debt to GDP ratio, inter alia.

⁵ Internal Rate of Return.

⁶ Annual Debt Service Cover Ratio.

⁷ The project is located in distribution zone Nr. 1. (<http://www.emra.org.tr/tarife/elektrik/iletim/1407/1407.html>)



(b) Technological barriers

- Technology Transfer: Turkey is a developing country and technology / know how transfers are significant factors for a sustainable development. Successful wind farm implementations in Turkey will enable a faster expansion of the local renewable energy market. However, since the wind energy market is underdeveloped in Turkey, the procurement of specific services and equipments in Turkey is difficult, at least at a desired level of quality. A significant portion of the required technology must therefore be imported.
- Transmission System: Electricity generation from wind is by its nature more variable depending on the wind speed, which creates supply fluctuations as opposed to conventional power plants, which have a more predictable and controllable generation pattern. The transmission system has to offset oversupply or shortage by wind farms and balance the electricity fed to the national grid regulating other power plants. Although the Renewable Energy Law Nr. 5346 privileges and prioritizes renewable energy projects for transmission line connection, the actual practice is different. TEİAŞ allocates low capacities for wind farms at transformer stations, which poses a significant barrier to wind projects.
- Lack of Infrastructure: Although normally TEİAŞ is required to construct the 21-km transmission line for the Project Activity, in practice the project developer builds the transmission line on its own cost. This incurred cost is later to be “compensated” by TEİAŞ, however the overall compensation procedure is not declared by TEİAŞ. The experience of the project developer is that TEİAŞ uses outdated compensation tariffs and that the real costs are much higher than these tariffs, resulting in a net loss on behalf of the project participants. This increases the investment amount to be raised by the project developer and affects the Project IRR negatively.
- Lack of Skilled Labour: Skilled and properly trained technical staff in the construction and operation of wind farms is unavailable in Turkey, which causes difficult maintenance and operation conditions and a considerable risk of underperformance. Experienced staff is crucial for wind farms, as any malfunctioning, disrepair or poor maintenance of wind turbines may result in long and costly interruptions in electricity generation.

(c) Prevailing Practice

- Complications in Construction: Shipping wind turbines to the project site properly, construction and installation of footings, wind turbines, blades and masts in Turkey pose some complications due to limited experience of local contractors and service providers. These difficulties may give rise to additional costs and risks.

(d) Other Barriers

- Legal and bureaucratic difficulties: The first licensing application for the Project has been submitted on 29.12.2003; however the license has been obtained in April 2007 (more than three years after the first application). After the application, all documents additionally requested by the Energy Market Regulatory Authority (EMRA) have been submitted until 21.01.2004. Following an inspection and examination period for more than 2 years, an information and permit update has been requested by EMRA on



31.05.2007. After 7 months following the submission of the updated documents, EMRA has issued the generation license (see Annex 5) on 18.04.2007. Apart from this aspect, a recent *stay of execution* judgement regarding a law concerning forestry areas resulted in an abrupt halt of some energy projects in Turkey, which shows the uncontrollable nature of legal, political and bureaucratic risks investors are faced with.

- Governmental Policies: Considering the foreseen electricity supply shortage³, the Turkish Government has set out some incentives for the promotion of power generation. Some of these incentives are particularly in favour of nuclear and fossil fuel-fired power plant investments, which constitute investment barriers for the Project as explained in Table 3 below;

Table 3. Some of new support mechanisms in favour of conventional energy sources

Applicability / Legal Reference	Law Clause Description	Explanation
<u>Nuclear power plants</u> (Law on Establishment and Operation of Nuclear Power Plants and Sales of Energy, Enactment date 20.11.2007)	Public-Private Partnership model	This clause enables private nuclear power plant investors to form PPP's and thus minimize their associated political and financial risks.
	Electricity purchase guarantee up to 15 years	This period is longer than the purchase guarantee period given to electricity generated by renewable resources, making nuclear energy investments more attractive.
	No sales price cap for the generated electricity	There is no upper price cap for nuclear energy (contrary to renewable resources), making nuclear power plant investments more attractive.
	Various supports other	Nuclear power plants are supported in terms of free land allocation, incentives for staff training and know how transfer etc., which are not available to power plants using renewable resources.
<u>Coal fired power plants</u> (Law on Establishment and Operation of Nuclear Power Plants and Sales of Energy, Enactment date 20.11.2007)	electricity purchase guarantee up to 15 years	This period is longer than the guarantee given to renewable resources and makes the financing of high-capacity coal fired power plants more attractive.



<u>Liquid fuel fired power plants</u> (planned - amendment draft for the Electricity Market Law Nr. 4628)	ÖTV ⁸ -exemption of liquid fuels used in power plants	If this amendment draft is accepted, it will lower the operational costs of liquid fuel fired power plants, making these investments more attractive.
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These laws show that the government does not prioritize electricity generation from renewable resources over others. There exist no official medium- or long-term strategies or any agenda for the development or support of renewable energies in Turkey, besides the renewable energy law of 2005, which in terms of investment incentives is particularly negligible in comparison to the laws described in Table 3. This uncertainty about future renewable energy policies creates significant risks and obstacles for potential investors.

- Project-specific licensing barriers: The generation license sets out that the project activity starts operation within 28 months, the first 16 months of this period being allowed for preparations. The Project has to start operation latest on August 28, 2009. If this schedule cannot be met, the license may be cancelled by EMRA. Taking into account the harsh climatic conditions at the project site and potential unforeseeable financial and organisational difficulties, this schedule sets up a considerable time pressure and certain risks.
- Logistic Barriers: Transportation of wind turbines and construction of wind farms require special machinery and equipment to be brought to the Project site, which is inaccessible under normal conditions by vehicle. The local infrastructure poses some challenges such as insufficient roads and difficult terrain for equipment transportation and construction, therefore new roads capable of carrying heavy trucks will be built. This may add up certain delays and associated costs. Construction of 2,2 km roads is planned in order to be able to carry the wind turbines.

Outcome of Step 3a: The identified barriers are sufficient grounds for demonstration of additionality since they prevent potential project proponents from carrying out the proposed project activity undertaken without being registered as a VER project activity. The barriers mentioned above prevent the realization of Alternative A (the proposed Project Activity undertaken without VER credits).

⁸ Excise tax.



Sub-step 3b. Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity)

Identified barriers explained in Sub-step 3a would not prevent the implementation of the Alternative B, which is mainly the continuation of fossil fuel and hydro power plant construction because of the following reasons:

- Investment Barriers: Investment barriers partly affect ongoing power plant investments; however as the current practice of financial institutions also shows, fossil fuel powered power plant investments often face considerably lower investment barriers as a result of:
 - Smaller initial investment volumes compared to similar-capacity renewable energy projects
 - Familiarity of financiers, investors and authorities
 - Support mechanisms (e.g. given in Table 3) specifically in favour of conventional power plants
- Technological Barriers: Large hydro - and fossil fuel fired thermal power plants, which constitute a big portion in the installed capacity forecasts, utilize conventional technologies, which are well known and mature. In Turkey there are technically competent equipment suppliers, technical planners, contractors, maintenance staff etc. regarding such investments. Therefore the continuation of the current situation does not involve any identifiable technological barriers.
- Prevailing Practice: This alternative already involves the current practice and is therefore not applicable.
- Other Barriers: In general, there is an oversupply of imported natural gas in Turkey because of Turkey's international take-or-pay purchase contracts. Therefore, the national energy policy supports the expansion of natural gas networks stimulating the demand. Furthermore, the Turkish energy policy is based on a strategy acting as an energy bridge between the Eastern and the Western oil and gas markets, thereby securing its own fossil fuel supply and gaining strategic position in the global energy market. This strategy prioritizes fossil fuels at political levels, whereby renewable resources and their strategic importance are seen as secondary.

These reasons stated above prevent Alternative B being affected by the barriers, whereas these barriers seriously affect the Alternative A.

STEP 3. Common Practice Analysis

Common Practice Analysis checks whether the proposed project type has already diffused in the relevant sector and region.

***Sub-step 4a. Analyze other activities similar to the proposed project activity***

As far as similar activities to the Project are concerned, wind power plants under IPP⁹ model with comparable installed capacities can be identified.

As of May 30th, 2008, EMRA has issued 79¹⁰ wind farm projects a generation license (total capacity 2.919,4 MW). 13 of them are in operation (total capacity 249,35 MW) and 4 of them are under construction (total capacity 226,8 MW). The progress of the remaining wind farm projects is unknown, and several licenses and license applications have been cancelled due to various reasons in the past by EMRA. This illustrates that there is a low correlation between wind power project license ownership and project implementation and that implementation of wind power projects in Turkey is rather difficult.

EMRA has prohibited wind power license applications for an unknown period of time for an unknown reason. On November 1, 2007, the prohibition on wind farm license applications has been lifted by EMRA only for one day, and a big volume in applications has been observed. However, there have been several multiple applications for the same locations. As fees and technical requirements for the license applications are minimal, this intensive interest of applicants can be associated with:

- Obtaining licenses by companies aiming to sell their license to third parties
- Creation of a project portfolio for a potential future use
- Precaution against future uncertainty by applying for non- or semi-developed projects
- Prevention of competitors reserving attractive wind farm locations

A tendering procedure is planned by EMRA (no specific date) for certain locations, which is expected to decrease applications and planned projects significantly. In the past, a significant percentage of applications and granted licenses have either been rejected or cancelled later, therefore the available licenses have a low realization implication. Based on these arguments, these recent license applications have not been considered to be significant.

Sub-step 4b. Discuss any similar options that are occurring

As discussed above, wind farms are not common practice in Turkey, as their share in overall electricity generation is and will be under 1% according to official projections. Although wind farm projects in Turkey face various barriers besides economic ones, their realization chance can be improved by the sales of VERs, which would offset some of their difficulties by means of better feasibility figures.

As of May 30th, 2008, the list of wind parks in operation and under construction is given below;

⁹ Independent Power Producer

¹⁰ EMRA Website, <http://www.epdk.gov.tr/lisans/elektrik/yek/yeklisansgenelablo.xls>.

**Table 4. Wind farms in operation¹¹**

Location	Company	Operational Start	Installed Capacity [MW]	Business Model
İzmir-Çeşme	Alize A.Ş.	1998	1,5	IPP*
İzmir-Çeşme	Güçbirliği A.Ş.	1998	7,2	BOT
Çanakkale-Bozcaada	Bores A.Ş.	2000	10,2	BOT
İstanbul-Hadımköy	Sunjüt A.Ş.	2003	1,2	Autoproducer
Balıkesir-Bandırma	Bares A.Ş.	I/2006	30	IPP-VER
İstanbul-Silivri	Ertürk A.Ş.	II/2006	0,85	IPP
İzmir-Çeşme	Mare A.Ş.	I/2007	39,2	IPP ¹² -VER
Manisa-Akhisar	Deniz A.Ş.	I/2007	10,8	IPP-VER
Çanakkale-İntepe	Anemon A.Ş.	I/2007	30,4	IPP-VER
Çanakkale-Gelibolu	Doğal A.Ş.	II/2007	14,9	IPP-VER
Hatay- Samandag	Deniz A.Ş.	I/2008	30	IPP-VER
Manisa- Sayalar	Dogal A.Ş.	I/2008	30,6	IPP-VER
İzmir- Aliaga	Innores A.Ş.	I/2008	42,5	IPP-VER
Total			249,35	

*former autoproducer

¹¹ Source: EMRA Website, <http://www.emra.gov.tr/lisans/elektrik/yek/ruzgarprojeleriningelisimi.xls>.¹² Independent Power Producer.

**Table 5. Wind farms under construction**

Location	Company	Operational Start	Installed Capacity [MW]	Business Model
İstanbul-Gaziosmanpaşa	Lodos A.Ş.	I/2008	24	IPP-VER
İstanbul-Çatalca	Ertürk A.Ş.	I/2008	60	IPP-VER
Balıkesir-Şamlı	Baki A.Ş.	I/2008	90	IPP-VER
Muğla-Datça	Dares A.Ş.	II/2008	28,8	IPP-VER
Total			226,80	

The first wind farms in operation have been realized under “BOT¹³” or “autoproducer” models. Autoproducers generate electricity primarily for their own electricity consumption, and they are allowed to feed a limited portion of their generation to the grid. The BOT model is not applicable in Turkey anymore. BOT projects have special contracts with the government and will be handed over to the government after a certain period of time. Since BOT projects are realized based upon governmental purchase guarantee containing project-specific conditions, they are not comparable to IPP projects, where liberal market conditions apply.

As BOT and autoproducer wind farms are not completely liberal electricity market players and are limited in terms of number and installed capacity, they are not considered as common practice nor similar projects.

After the “liberalization” of the electricity market, which is still in a transformation period, investors have been allowed to build and operate their own power plants for electricity production and sales to the national grid as IPPs. As of now, two wind farms (1,5 MW İzmir Çeşme and 0,85 MW İstanbul Silivri) are either operated or under construction without the sales of VERs, which can be considered as outliers in terms of number, business model (BOT) and scale. All the other wind farms in operation have undergone a VER procedure for facilitating additional revenues enabling the realization of projects.

Since wind energy constitutes a very limited portion of the Turkish electricity market, the Project Activity goes beyond a “business as usual” scenario and cannot be considered as a common practice. As a result, the Project is considered to be additional.

¹³ Build-Operate-Transfer

**ADDITIONAL REQUIREMENTS FOR THE GOLD STANDARD:****Gold Standard Additionality Screen**

In addition to the UNFCCC Additionality Tool, the Gold Standard Additionality Screen includes a Previous Announcement Check and ODA Additionality.

Please refer to Annex 8 for Gold Standard information.

B.6. Emission reductions:**B.6.1. Explanation of methodological choices:**

The Project mainly involves electricity capacity addition, which reduces CO₂ through the substitution of grid electricity generation with fossil fuel fired power plants by renewable electricity. According to the baseline methodology, the emission reduction ER_y by the project activity during a given year y is found as;

$$ER_y = BE_y - PE_y - LE_y \quad (1)$$

where BE_y is calculated as;

$$BE_y = (EG_y - EG_{baseline}) * EF_{grid,CM,y} \quad (2)$$

The operation margin refers to a cohort of power plants that reflect the existing power plants whose *electricity generation* would be affected by the proposed project activity. The build margin refers to a cohort of power plants that reflect the type of power units whose *construction* would be affected by the proposed project activity.

The combined emission factor EF_{grid,CM,y} for the project activity is calculated as a weighted average of Operating Margin emission factor and Build Margin emission factor as described in the baseline methodology;

$$EF_{grid,CM,y} = w_{OM} * EF_{grid,OM,y} + w_{BM} * EF_{grid,BM,y} \quad (3)$$

Definitions and explanations regarding the equations (1), (2) and (3) are given in Table 10.

**B.6.2. Data and parameters that are available at validation:**

Data / Parameter:	$GEN_{i,y}$
Data unit:	GWh
Description:	The gross electricity generation by fuel type i in year y (2002-2006)
Source of data used:	Turkish Electricity Transmission Company (TEİAŞ) website http://www.teias.gov.tr/istatistik2005/39.xls (2002-2005) http://www.teias.gov.tr/ist2006/36(06).xls (2006)
Value applied:	Table 6. Gross and Net Electricity Generation [GWh] in Turkey
Justification of the choice of data or description of measurement methods and procedures actually applied :	TEİAŞ annually publishes official data regarding electricity generation. Average share of each source in the overall generation has been calculated.
Any comment:	

Data / Parameter:	Net Electricity Generation_y
Data unit:	GWh
Description:	The difference between the total quantity of electricity generated by power plants/units and the auxiliary electricity consumption of power plants/units.
Source of data used:	Turkish Electricity Transmission Company (TEİAŞ) website http://www.teias.gov.tr/ist2006/30(84-06).xls (2002-2006)
Value applied:	Table 6. Gross and Net Electricity Generation [GWh] in Turkey
Justification of the	TEİAŞ annually publishes official data regarding <i>total</i> net electricity



choice of data or description of measurement methods and procedures actually applied :	generation, but its <i>breakdown</i> by fuel type is unavailable.
Any comment:	
Data / Parameter:	Net Delivery Ratio_y
Data unit:	-
Description:	The ratio of the total Net Electricity Generation to the total Gross Electricity Generation in year y.
Source of data used:	Net Electricity Generation and Gross Electricity Generation data from http://www.teias.gov.tr/ist2006/30(84-06).xls http://www.teias.gov.tr/istatistik2005/39.xls (2002-2005) http://www.teias.gov.tr/ist2006/36(06).xls (2006)
Value applied:	Table 6. Gross and Net Electricity Generation [GWh] in Turkey
Justification of the choice of data or description of measurement methods and procedures actually applied :	Electricity delivered to the grid by power plant/unit or by fuel source is unavailable. The Net Delivery Ratio _y is used for approximating the net electricity amount delivered to the grid by power plants/units except lc-mr sources (GEN _y)
Any comment:	This is a conservative assumption, since in general thermal power plants consume more energy for auxiliaries than e.g. hydro plants. It leads to higher net electricity amounts and lower emission reductions consequently.

Data / Parameter:	GEN_y
Data unit:	GWh
Description:	The net electricity delivered to the grid in year y
Source of data used:	Calculation (for each year y): 1. Gross electricity generation excluding lc-mr sources = Total gross electricity generation from all sources - total gross electricity generation from lc-mr sources 2. Net electricity generation excluding lc-mr sources = Gross electricity generation except lc-mr sources * Net Delivery Ratio



	3. Net electricity delivered to the grid except lc-mr sources = Net electricity generation except lc-mr sources + Imports
Value applied:	Table 13. Electricity Supply to Grid Equation (4)
Justification of the choice of data or description of measurement methods and procedures actually applied :	
Any comment:	
Data / Parameter:	$FC_{i,y}$
Data unit:	ton or 1000 m ³
Description:	Total amount of fossil fuel type i consumed by power plants/units in year y
Source of data used:	Turkish Electricity Transmission Company (TEİAŞ) website http://www.teias.gov.tr/istatistik2005/46.xls (2002-2005) http://www.teias.gov.tr/ist2006/43.xls (2006)
Value applied:	Table 14. NCVs and Emission Factors of Fuels
Justification of the choice of data or description of measurement methods and procedures actually applied :	Fuel consumption breakdown by power plant/unit is unavailable, total consumption amounts are published annually by TEİAŞ. These data are used together with $HV_{i,y}$ for calculating the NCV of each fuel type i.
Any comment:	The total amount of fossil fuels consumed by power plants/units also includes supplementary firing in cogeneration plants for seasonal heat generation. Since detailed information is unavailable, it could not have been filtered out. However, most power plants do not utilize excess heat and this effect can be neglected. Wood waste, liquid sulphur, black liquor, bitumen pyrite, sulphur cake, coke gas, coke oven gas, black furnace gas and refinery gas amounts are not included in the official data, which is a conservative approach as well.

Data / Parameter:	$HV_{i,y}$
Data unit:	Tcal
Description:	Heating values of fuels consumed in thermal power plants in Turkey by the electric utilities



Source of data used:	http://www.teias.gov.tr/istatistik2005/47.xls http://www.teias.gov.tr/ist2006/45.xls
Value applied:	Table 14. NCVs and Emission Factors of Fuels
Justification of the choice of data or description of measurement methods and procedures actually applied :	These data are used together with $FC_{i,y}$ for calculating the $NCV_{i,y}$.
Any comment:	The publicly available data do not sub-categorize the coal amount by type for 2006. For harmonization with guideline reference figures, “hard coal” is assumed as <i>sub-bituminous coal</i> and “imported coal” is assumed as <i>other-bituminous coal</i> , which have similar corresponding NCVs.

Data / Parameter:	$NCV_{i,y}$
Data unit:	TJ/kt or TJ/milion m ³
Description:	Net calorific value of fossil fuel type i in year y
Source of data used:	Net calorific values of fuels used for power generation are not provided directly, but they are calculated by dividing $HV_{i,y}$ by $FC_{i,y}$, both of which are officially published.
Value applied:	Table 14. NCVs and Emission Factors of Fuels
Justification of the choice of data or description of measurement methods and procedures actually applied :	Since NCVs can be calculated, IPCC guideline figures are not used.
Any comment:	2006 breakdown of fuel consumption data do not differentiate between coal types. 2006 hard coal consumption of IPPs and autoproducers are regarded as other-bituminous coal, which do not distort the NCV figures.

Data / Parameter:	$EF_{CO_2,i,y}$
Data unit:	tCO ₂ /TJ
Description:	CO ₂ emission factor of fossil fuel type i in year y
Source of data used:	The lower limits of the 95% confidence interval stated in the “2006 IPCC Guidelines for National Greenhouse Gas Inventories”, Volume 2, Chapter 1



	(energy) Table 1.4.
Value applied:	Table 14. NCVs and Emission Factors of Fuels Table 8. CO2 Emissions of Recent Capacity Additions by Fuel Type
Justification of the choice of data or description of measurement methods and procedures actually applied :	Emission factors are locally not available for Turkey, and there exist no national or regional average default figures, therefore industry guidelines are used instead.
Any comment:	

Data / Parameter:	EI_y
Data unit:	GWh
Description:	Net electricity imports delivered to the grid in year y
Source of data used:	Turkish Electricity Transmission Company (TEİAŞ) website http://www.teias.gov.tr/ist2006/23.xls
Value applied:	Table 13. Electricity Supply to Grid
Justification of the choice of data or description of measurement methods and procedures actually applied :	This is the total electricity imported and delivered to the national grid from connected electricity systems (neighbour countries).
Any comment:	

Data / Parameter:	Electricity Capacity Additions
Data unit:	-
Description:	Power plants which are most recently taken into operation
Source of data used:	Turkish Electricity Transmission Company (TEİAŞ) TEİAŞ Capacity Projection 2007-2016 Study http://www.teias.gov.tr/istatistik2005/7.xls http://www.teias.gov.tr/istat2004/7.xls



	http://www.teias.gov.tr/istatistik/7.xls
Value applied:	Table 17. Recent Capacity Additions 2003-2006
Justification of the choice of data or description of measurement methods and procedures actually applied :	Average generation values are used for hydro power plants. Since capacity additions between 2004-2006 are not sufficiently large, a natural gas / naphtha power plant has been included as well, which was taken into operation in year 2003.
Any comment:	As the methodology suggests, isolated and retrofitted power plants/units as well as performance revisions are not regarded.

Data / Parameter:	$\eta_{m,y}$
Data unit:	%
Description:	Average net energy conversion efficiency of power unit m in year y
Source of data used:	UNFCCC methodological tool “Tool to calculate the emission factor for an electricity system” Annex I
Value applied:	Table 8. CO2 Emissions of Recent Capacity Additions by Fuel Type
Justification of the choice of data or description of measurement methods and procedures actually applied :	There is no official efficiency values available based on each power plant or each fuel type in Turkey. Most natural gas power plants in Turkey are combined cycle, most coal power plants operate sub-critical and most liquid fuel power plants adopt an open cycle technology.
Any comment:	

B.6.3 Ex-ante calculation of emission reductions:

STEP 1. Identify the relevant electric power system

A *project electricity system* is defined by the *spatial extent* of the power plants that are physically connected through transmission and distribution lines to the project activity and that can be dispatched without significant transmission constraints.

There is no officially available and published delineation of the project electricity system and connected electricity systems for Turkey. In the Turkish electricity system, power plants can be dispatched without significant transmission losses. In this respect, the spatial extent of the Project Boundary is defined as the *national electricity grid* of Turkey.

Some power plants, which are not connected to the national grid and are operated stand-alone, are included in the project boundary, since no detailed data are available to filter them out. However the share of these stand-alone power plants in overall gross generation is negligibly small¹⁴. These are some of the so-called *autoproducers*, who mostly cover their own seasonal energy demand peaks with their own stand-alone thermal power plants.

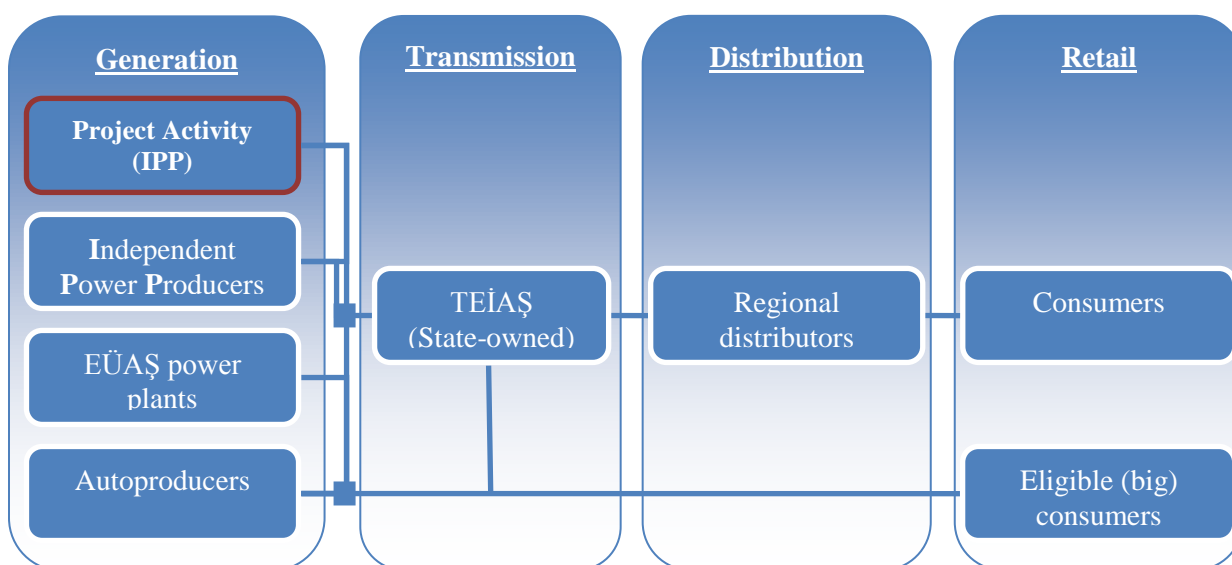


Figure 4. Overview of the Turkish electricity system

No recent or future addition to the national transmission capacity is reported or foreseen, which would enable Turkey to significantly increase its electricity imports. Therefore, a likely transmission line construction is not considered in BM emission factor calculations.

¹⁴ Around 0,2% for recent years (<http://www.teias.gov.tr/istat2004/44.xls>, <http://www.teias.gov.tr/istatistik2005/45.xls>, <http://www.teias.gov.tr/ist2006/41.xls>)



Turkey imports electrical power from and exports to neighbour countries¹⁵, which are defined as *connected electricity systems* for the Project. According to the baseline methodology, imports are regarded as a power source delivering electricity to the grid with an OM emission factor of 0 tCO₂, since electricity being imported is purchased from connected electricity systems located in other countries.

STEP 2. Select an operating margin (OM) method

There exists no nuclear power plant in Turkey, and there is no indication that coal or lignite are obviously used as must-run. Hydro, geothermal, wind power plants and other renewables are included as low-cost/must-run resources, hereafter referred as lc-mr, which turns out to be 26,5% of the total electricity generation on average between years 2002 and 2006:

Table 6. Gross and Net Electricity Generation [GWh] in Turkey

	2002	2003	2004	2005	2006	Avg. Share	
Coal	4.093	8.663	11.998	13.246	14.217	6,7%	
Lignite	28.056	23.590	22.450	29.946	32.433	18,0%	
Fuel Oil	9.505	8.153	6.690	5.121	4.232	4,6%	
Diesel oil	271	4	7	3	58	0,1%	
LPG	35	3	33	34	0	0,0%	
Naphtha & Asphaltite	933	1.036	940	326	50	0,5%	
Natural Gas	52.497	63.536	62.242	73.445	80.691	43,6%	
low cost-must run	Renew. & Wastes	174	116	104	122	154	0,1%
	Hydro	33.684	35.330	46.084	39.561	44.244	26,3%
	Geothermal	105	89	93	94	94	0,1%
	Wind	48	61	58	59	127	0,0%
Gross Total	129.400	140.581	150.698	161.956	176.300	100%	
Gross Total, excluding lc-mr resources	95.389	104.985	104.360	122.120	131.681	73,5%	
Net generation	123.727	135.248	145.066	155.469	169.543		

¹⁵ Since 2001: Exports to Georgia, Azerbaijan, Iraq, Syria. Imports from Bulgaria, Iran, Turkmenistan, Georgia. (add source)



Net Delivery Ratio [%]	95,6%	96,2%	96,3%	96,0%	96,2%	
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The baseline methodology allows a choice among four methods for the calculation of OM emission factor;

- (a) Simple OM, or
- (b) Simple adjusted OM, or
- (c) Dispatch Data Analysis OM, or
- (d) Average OM

There exist no publicly available data for the dispatch data analysis (c) or for the simple adjusted OM (b). Since the average share of electricity generation by lc-mr plants for five most recent years is found to be less than 50%, option (a) is chosen. The simple OM emission factor can be calculated using either of the two data vintages:

- *Ex-ante option*, where a 3-year generation-weighted average based on the most recent data is used. Monitoring and recalculation of the emission factor is not required, or
- *Ex-post option*, where the data of the year is used, in which the project activity displaces grid electricity. Yearly update of the emission factor is required.

The *ex-ante option* is selected to carry out the baseline methodology for the Project.

Official emission figures of Turkey submitted to UNFCCC are available for the time period 2002-2004¹⁶. No newer official emission figures have been published. Identification of the OM emission figures for a more recent time range requires calculations. Therefore, official 2004 CO₂ emissions data stemming from electricity generation are used directly, whereas 2005 - 2006 emissions are calculated.

STEP 3. Calculate the operating margin emission factor according to the selected method

The Simple OM emission factor is calculated as the generation weighted average CO₂ emissions per unit net electricity generation of all generating power plants serving the system, excluding lc-mr sources using one of the following approaches;

- Option A: Based on data on fuel consumption and net electricity generation of each power plant/unit, or
- Option B: Based on data on net electricity generation and the average efficiency of each power unit and the fuel types used in each power unit, or
- Option C: Based on data on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system.

¹⁶ UNFCCC 2006 National GHG Emission Inventory. (add download source)

Since power plant-specific data required by Options A and B are unavailable, Option C is selected. Option C can be used, as only renewable sources are considered as lc-mr power sources and the quantity of electricity supplied to the grid by these sources is known. According to the “Tool to calculate the emission factor for an electricity system”;

$$EF_{grid,OMsimple,y} = \frac{\sum_i FC_{i,y} * NCV_{i,y} * EF_{CO2,i,y}}{GEN_y} \quad (4)$$

Definitions and details to the parameters in Equation (4) are given in Table 11. As a result, the Simple OM emission factor is found as below;

Table 7. Calculation of the OM emission factor

Parameter	2004	2005	2006
CO ₂ Emissions [ktCO ₂]	76.185 ¹⁷	74.426	82.787
GEN _y [GWh]	100.923	117.864	127.208
EF _{grid,OMsimple,y} [tCO ₂ /MWh]	0,755	0,631	0,651
OM emission factor [tCO ₂ /MWh]	0,679		

STEP4. Identify the cohort of power units to be included in the build margin

In this step, a generation-weighted average emission factor is calculated based on a sample of power plants, which have been taken into operation recently. The sample group of power plants/units *m* used to calculate the build margin consists of either:

- The set of five power units that have been built most recently
- The set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently.

For conducting the calculations, option (b) is selected, because this option results in a larger electricity generation. In terms of vintage data, there are two options available:

Option 1: “For the first crediting period, calculate the build margin emission factor ex-ante based on the most recent information available on units already built for sample group *m* at the time of CDM-PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period,

¹⁷ Official 2004 emission figure stemming from electricity generation activities (Source: Statistical Year Book 2006, page 20). Used directly since the identified lc-mr sources do not generate CO₂ emissions.



the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.”

Option 2: *“For the first crediting period, the build margin emission factor shall be updated annually, ex-post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated ex-ante, as described in option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.”*

Option 1 is selected.

The data of the most recent commissioned power plants are being published by the Turkish Electricity Transmission Company (TEİAŞ) on an annual basis. For build margin calculations, the power plants/units taken into operation between 2003 and 2006 are included in the cohort of power units. Performance revisions as well as power plants, which have been modified, retrofitted, dismantled or are stand-alone have been excluded from the samples list for the build margin calculations.

Total capacity additions between the years 2004 -2006 are not sufficiently large to constitute 20% of the system generation; therefore a natural gas fired power plant from 2003 capacity additions is included as well for the sake of conservative calculation. The final sample group represents a total generation capacity addition of 35.329 GWh and exceeds 20% of the 2006 gross electricity generation, which is 176.300 GWh. Please see Annex 3 Table 17 for details.

STEP 5. Calculate the build margin emission factor

The build margin emission factor is the generation-weighted average emission factor (tCO₂/MWh) of all power units *m* during the most recent year *y* for which power generation data is available, calculated as follows;

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} * EF_{EL,m,y}}{\sum_m EG_{m,y}} \quad (5)$$

The $EF_{EL,m,y}$ is found as;

$$EF_{EL,m,y} = \frac{EF_{CO2,m,i,y} * 3,6}{\eta_{m,y}} \quad (6)$$

Definitions and explanations regarding Equations (5) and (6) are given in Table 12.

Table 8. CO₂ Emissions of Recent Capacity Additions by Fuel Type

Fuel Type	Generation of New Capacity Additions,	Average Efficiency, η	Emission Factor, tCO ₂ /TJ	CO ₂ Emissions, ktCO ₂
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	GWh			
Coal	1.462,5	39,0%	89,5	1.208
Lignite	11.440,0	39,0%	90,9	9.599
Fuel Oil	565,3	39,5%	75,5	389
Diesel oil	4,1	39,5%	72,6	3
LPG	0,0	60,0%	61,6	0
Naphtha & Aphaltite	322,9	39,5%	69,3	204
Natural Gas	19.592,0	60%	54,3	6.383
Renewables and wastes	127,0	0%	0	0
Hydro	1.754,9	0%	0	0
Geothermal & Wind	60,4	0%	0	0
Total	35.329			17.786
Build Margin EF	0,503			

Power plant-specific data are unavailable in Turkey; therefore CO₂ emissions are calculated based on fuel type consumed in sample power plants/units. As data regarding electricity generation efficiency rates in Turkey are not available either, industry guidelines are used¹⁸.

Using the Equation (5), the total CO₂ emissions (17.786 ktCO₂) of the sample power plants are divided by the total electricity generated (35.329 GWh), and the build margin emission factor EF_{grid,BM,y} is found to be **0,503 tCO₂/MWh**. Further information is available in Table 18.

STEP 6. Calculate the combined margin emissions factor

The combined margin emissions factor is calculated by using Equation (3);

$$EF_{\text{grid,CM,y}} = 0,679 \text{ tCO}_2/\text{MWh} * 0,75 + 0,503 \text{ tCO}_2/\text{MWh} * 0,25 = \mathbf{0,635 \text{ tCO}_2/\text{MWh}}$$

Emission Reduction

The emission reduction is thus found by using Equations (1) and (2);

$$ER_y = EG_y * EF_{\text{grid,CM,y}} = 81.800 \text{ MWh} * 0,635 \text{ tCO}_2/\text{MWh} = \mathbf{51.955 \text{ tCO}_2}$$

B.6.4 Summary of the ex-ante estimation of emission reductions:

The outcomes of baseline calculations are summarized below;

Parameter	Definition	Value
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¹⁸ This is a conservative approach, as “Best Available Techniques” may not always apply to recently built power plants. Furthermore, for power plants fuelled by multiple fuel types, the fuel type with lower emission factor has conservatively been assumed.



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$EF_{grid,OM,y}$	Operating Margin Emission Factor in year y	0,679 tCO ₂ /MWh
$EF_{grid,BM,y}$	Build Margin Emission Factor in year y	0,503 tCO ₂ /MWh
$EF_{grid,CM,y}$	Combined Margin Emission Factor in year y	0,635 tCO ₂ /MWh
EG_y	Net electricity delivered to grid by the Project	81.800 MWh/a
ER_y	Emission reduction in year y	51.955 tCO ₂

**Table 9. Emission reductions of the project activity over the crediting period**

Year	Annual estimation of emission reduction [tCO₂]
2009	47.625
2010	51.955
2011	51.955
2012	51.955
2013	51.955
2014	51.955
2015	51.955
2016	51.955
2017	51.955
2018	51.955
2019	51.955
2020	51.955
2021	51.955
2022	51.955
2023	51.955
2024	51.955
2025	51.955
2026	51.955
2027	51.955
2028	51.955
2029	51.955
2030	4.330
Total emission reductions [tCO ₂]	1.091.055 t CO₂
Total length of crediting period	3x7 years
Annual average of estimated reductions over the crediting period [tCO ₂]	51.955

**B.7 Application of the monitoring methodology and description of the monitoring plan:****B.7.1 Data and parameters monitored:**

Data / Parameter:	EG _y
Data unit:	MWh
Description:	Annual net electricity amount fed to the grid by the project activity
Source of data to be used:	Measured
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Estimated amount of annual electricity generation supplied to the grid is 81.800 MWh
Description of measurement methods and procedures to be applied:	There are two metering instruments (a primary and a backup) situated at the Ezine main switchgear station. These devices measure the net electricity supply to the national grid by the project activity, all losses before this point are on account of the project participant. Both metering instruments, which continuously monitor and measure the net electricity delivered by the project activity, are sealed and only accessible by TEİAŞ personnel.
QA/QC procedures to be applied:	Please see B.7.2
Any comment:	The annual emissions reductions will be updated by multiplying the ex-ante calculated baseline emission factor by the metering instrument readings.

ADDITIONAL REQUIREMENTS FOR THE GOLD STANDARD:**Data to be collected in order to monitor the project's performance on the sustainable development indicators:**

The actual project performance must be assessed against the projected outcomes of the sustainable development assessment as defined in Section 3.4 of the Gold Standard Project Developer's Manual.

Please refer to Annex 8 for Gold Standard information.

**B.7.2 Description of the monitoring plan:**

The monitoring plan involves the determination of the baseline emissions occurring within the project boundary during the crediting period. As the project boundary is defined as the national grid of Turkey, the baseline emissions from electricity generation activities in Turkey will be calculated and monitored based on national official data.

The leakage during crediting period will be negligibly small and will not be monitored, as fossil fuel consumption during construction and operation of the project activity is minimal. As no significant change in sustainable development indicators is expected or foreseen, they will not be monitored.

Hence, the monitoring plan only involves the net electricity generation by the project activity;

- The two measurement instruments, which are located at the high voltage side of the main switchgear station (154 kV), are in line with the relevant *Measurement Regulation of Turkey* (Turkish Standards, International Electro-technical Commission Standards), and are not accessible by the project participant or any other party except TEİAŞ. This prevents any intervention and assures the accuracy and quality of the measurements.
- The measurement instruments give two types of data; the total gross electricity generated and the total electricity consumed by the wind farm. The difference of these two data is the net electricity generated. Furthermore, TEİAŞ cuts a certain percentage of the generation to account for transmission losses. The net electricity generation, which is to be monitored and to be used for baseline emissions, is the net electricity generation, which is read by TEİAŞ for invoicing.
- At the end of each monitoring period, the data from the monthly meter readings will be added up to obtain the total monitoring period net electricity generation. This figure will be multiplied with the combined margin, which has been calculated ex-ante.

Annex 4 provides further information for monitoring.

B.8 Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies)

This monitoring methodology and baseline study application is completed on 03.07.2008. Mavi Consultants and South Pole Carbon Asset Management Ltd are the carbon consultants for the project activity.

Contact Information of the project participants is given in Annex 1.

Consultant: MAVI Sürdürülebilir Kalkınma Proje ve Danışmanlık Hizmetleri Ltd. Şti.

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**SECTION C. Duration of the project activity / crediting period****C.1 Duration of the project activity:****C.1.1. Starting date of the project activity:**

The Project Activity is expected to start operation on 01/02/2009.

C.1.2. Expected operational lifetime of the project activity:

The project is expected to run for 30 years.

C.2 Choice of the crediting period and related information:**C.2.1. Renewable crediting period**

The project will use a crediting period of 3x7 years.

C.2.1.1. Starting date of the first crediting period:

The first crediting period starts on 01/02/2009.

C.2.1.2. Length of the first crediting period:

10 years.

C.2.2. Fixed crediting period:**C.2.2.1. Starting date:**

N/A

C.2.2.2. Length:

N/A

**SECTION D. Environmental impacts****D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts:**

For wind energy projects, generally no significant environmental impacts are foreseen. No Environmental Impact Assessment (EIA) has been performed for the following reasons:

- For wind farms in Turkey, an Environmental Impact Assessment report is officially not required. The copy of the document showing that EIA is legally not needed for the Project Activity is given in Annex 5
- Environmental impacts of the project activity are not considered to be significant by the project participant, local stakeholders or the host country. No relevant comment suggesting potential negative environmental or social impacts has been expressed in the initial stakeholder consultation either. Please see Annex 8 for further details on the stakeholder consultation.

Therefore, no EIA is necessary and no relevant negative environmental or social impact is considered. For further details, please refer to the Gold Standard documentation in Annex 8.

**ADDITIONAL REQUIREMENTS FOR THE GOLD STANDARD:
EIA Requirements**

The Gold Standard prescribes an elaborate process in order to determine whether an Environmental Impact Assessment (EIA) needs to be undertaken.

Please refer to Annex 8 for Gold Standard information.

D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:

N/A



SECTION E. Stakeholders' comments

E.1. Brief description how comments by local stakeholders have been invited and compiled:

ADDITIONAL REQUIREMENTS FOR THE GOLD STANDARD:

Public Consultation Process

The Gold Standard Public Consultation Process requires at least two public consultations and provides guidance on the content and procedures for the consultation process.

Please refer to Annex 8 for information on the public consultation process.

E.2. Summary of the comments received:

Please refer to Annex 8 for information on the Gold Standard public consultation process.

E.3. Report on how due account was taken of any comments received:

Please refer to Annex 8 for information on the Gold Standard public consultation process.

**Annex 1****CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY**

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Direct tel:	
Personal E-Mail:	



Annex 2

INFORMATION REGARDING PUBLIC FUNDING

There is no public funding in the project.



BİRİKİM
YEMİNLİ MALİ MÜŞAVİRLİK

Sayı: YMM 1285-08.10 İstanbul, 03.06.2008

To Whom It May Concern,

Alize Enerji Elektrik Üretim A.Ş. has received a license for 20.8 MW for Çamseki wind farm project from Energy Market Regulation Authority. This project is situated in Çanakkale Province, Ezine District, Üvecik Village.

We would like to inform you that the Çamseki project did not receive any official development assistance support such as government donors, public funds or concessional loans.

The Alize Enerji Company is to implement the project under current market conditions with project financing to be received from private banks.

This letter is for your kind information

Yours sincerely,




Mr. Mustafa Metin KÖKAVCI
Sworn Financial Consultant

Figure 5. Sworn Financial Consultant statement about ODA

**Annex 3****BASELINE INFORMATION****Table 10. Definitions and Explanations regarding Equations (1), (2), (3)**

Parameter	Definition	Explanation
ER _y	Emission reductions in year y (tCO ₂ /yr)	Calculated using Equation (1)
BE _y	Baseline emissions in year y (tCO ₂ /yr)	Calculated using Equation (2)
PE _y	Project emissions in year y (tCO ₂ /yr) Project emissions involve direct emissions (such as fossil fuel consumption of construction equipment or vehicles for on-going operations and maintenance).	0 tCO ₂ /yr This is suggested by the baseline methodology, and the quantity of fossil fuels used for the Project Activity is negligibly small.
LE _y	Leakage emissions in year y (tCO ₂ /yr) Leakage is emissions arising due to activities such as power plant construction, fuel handling and land inundation.	0 tCO ₂ /yr The baseline methodology suggests not considering these emission sources as leakage.
EG _y	Electricity supplied by the project activity to the grid (MWh)	Net electricity generation estimation of Project developer is 81.800 MWh. The monitoring methodology involves actualization of this figure annually.
EG _{baseline}	Baseline electricity supplied to the grid in the case of modified or retrofit facilities (MWh)	0 MWh No modification or retrofitting.
EF _{grid,CM,y}	Combined Margin CO ₂ emission factor (tCO ₂ /MWh) for grid connected power generation in year y	Calculated using Equation (3)
EF _{grid,OM,y}	Operation Margin CO ₂ emission factor (tCO ₂ /MWh) for grid connected power generation in year y	Calculated based on the “Tool to calculate the emission factor for an electricity system” (EB 35)
EF _{grid,BM,y}	Build Margin CO ₂ emission factor (tCO ₂ /MWh) for grid connected power generation in year y	Calculated based on the “Tool to calculate the emission factor for an electricity system” (EB 35)
W _{OM}	Weighting of operation margin emissions factor (%)	75% (default value), as “Tool to calculate the emission factor for an electricity system” suggests
W _{BM}	Weighting of build margin emissions factor (%)	25% (default value), as “Tool to calculate the emission factor for an electricity system” suggests



Table 11. Definitions and Explanations regarding Equation (4)

Parameter	Definition	Explanation
$EF_{grid,OMsimple,y}$	Simple operating margin CO ₂ emission factor in year y (tCO ₂ /MWh)	Calculated using Equation (4) Data in Table 16
$FC_{i,y}$	Amount of fossil fuel type <i>i</i> consumed in the project electricity system in year y (ton or 000m ³)	
$NCV_{i,y}$	Net calorific value (energy content) of fossil fuel type <i>i</i> in year y (TJ/kt or TJ/mil m ³)	Data in Table 14
$EF_{CO_2,i,y}$	CO ₂ emission factor of fossil fuel type <i>i</i> in year y (tCO ₂ /TJ)	Data in Table 14
GEN_y	Net electricity generated and delivered to the grid by all power sources serving the system, not including lc-mr power plants/units, in year y (GWh)	Data in Table 13
<i>i</i>	All fossil fuel types combusted in power sources in the project electricity system in year y	

Table 12. Definitions and Explanations regarding Equations (5) and (6)

Parameter	Definition	Explanation
$EF_{grid,BM,y}$	Build margin CO ₂ emission factor in year y [tCO ₂ /MWh]	Calculated using Equation (5) Data in Table 8
$EG_{m,y}$	Net quantity of electricity generated and delivered to the grid by power unit <i>m</i> in year y [MWh]	Data in Table 17
$EF_{EL,m,y}$	CO ₂ emission factor of power unit <i>m</i> in year y [tCO ₂ /MWh]	
$EF_{CO_2,m,i,y}$	CO ₂ emission factor of fuel type <i>i</i> used in power unit <i>m</i> in year y (tCO ₂ /TJ)	Data in Table 14
$\eta_{m,y}$	Average net energy conversion efficiency of power unit <i>m</i> in year y (%)	Data in Table 8
<i>m</i>	Power units included in the build margin	
<i>y</i>	Most recent historical year for which power generation data is available	



Table 13. Electricity Supply to Grid

	2002	2003	2004	2005	2006
Net Generation, GWh	123.727	135.248	145.066	155.469	169.543
Net Delivery Ratio	95,6%	96,2%	96,3%	96,0%	96,2%
Imports, GWh	3.588	1158,0	463,5	635,9	573,2
Net Delivered to Grid, exc. le- mr	94.796	102.161	100.923	117.864	127.208

Table 14. NCVs and Emission Factors of Fuels

<u>NCV [TJ/kt or TJ/mil m³]</u>	2002	2003	2004	2005	2006	<u>Emission Factors [tCO₂/TJ]</u>
Hard Coal	15,1	14,4	15,1	13,6	14,9	92,8
Imported Coal	25,1	25,7	25,5	24,7	24,7	89,5
Lignite	7,5	7,5	7,6	5,9	6,9	90,9
Fuel Oil	40,1	40,1	39,9	40,2	40,2	75,5
Diesel Oil	42,8	43,3	42,4	42,8	42,7	72,6
Lpg	46,1	44,1	45,9	46,0	0,0	61,6
Naphta	44,9	40,0	44,0	44,3	43,9	69,3
Natural Gas	36,5	37,2	36,9	37,3	37,0	54,3

Table 15. CO₂ Emissions Breakdown by Fuel Type

<u>CO₂ Emissions, ktCO₂</u>	2002	2003	2004	2005	2006
Hard Coal	2.161	2.057	1.860	2.155	2.162
Imported Coal	1.145	4.986	7.388	7.858	8.963
Lignite	28.875	24.191	23.207	26.057	31.921
Fuel Oil	9.635	8.669	7.242	6.085	5.297
Diesel Oil	306	44	90	88	190
Lpg	27	2	36	37	0
Naphta	682	733	637	260	41
Natural Gas	22.882	25.455	26.687	31.886	34.212
Total Calculated	65.713	66.138	67.145	74.426	82.787
UNFCCC Data	74.056	74.196	76.185		



Table 16. Operation Margin EF Calculations

Operating Margin EF	2004	2005	2006
CO ₂ Emissions, ktCO ₂	76.185	74.426	82.787
Net electricity supplied to grid, GWh	100.923	117.864	127.208
OM Emission Factor, [ktCO ₂ /GWh]	0,755	0,631	0,651
EF_{OM} average 2004-2006, ktCO₂/GWh	0,679		

Table 17. Recent Capacity Additions 2003-2006

Year	Plant	Installed capacity (MW)	Average Generation (GWh)	Fuel Type	Commissionary date
2003	ENERJİ-SA(Mersin) GR GT	41,65	312	N.GAS+NAPHTA	05/10/2003
2004	TÜPRAŞ BATMAN GR V	1,5	4,1	D.OIL	2003
2004	ECZACIBAŞI BAXTER HAS.ÜRÜN.	1,0	5,8	N.GAS	13/01/2001
2004	ÇIRAĞAN SARAYI İŞL.	1,4	11,0	N.GAS	01/11/2002
2004	ANKARA D.G.(BAYMİNA) GR-I-II-III	798,0	6500,0	N.GAS	08/01/2004
2004	ENTEK GR-IV	31,1	255,7	N.GAS+NAPHTA	12/02/2004
2004	ATATEKS 2 GM	5,6	45,0	N.GAS	20/02/2004
2004	TANRIVERDİ 4 GM	4,7	38,7	N.GAS	24/03/2004
2004	VAN SANT (Dismantled)	(-26)	(-195,0)	FUEL OIL	06/04/2004
2004	ÇOLAKOĞLU(KAPASİTE ARTIRIMI)	45	337,5	IMPORTED COAL	05/05/2004
2004	TEKBOY TEXTILE 1 GM	2,2	16,0	N.GAS	18/05/2004
2004	GÜL ENERJİ GR-II	12,5	96,5	FUEL-OIL	03/06/2004
2004	KOMBASSAN KAĞIT GIDA VE TEKS	5,5	38,1	N.GAS	09/06/2004
2004	AYEN OSTİM ENERJİ ÜRETİM	31,1	264,1	N.GAS	11/06/2004
2004	BİS ENERJİ 2 GT	73,0	602,7	N.GAS	16/06/2004
2004	ENERJİ-SA ADANA 1 BT	49,8	322,9	NAPHTA	23/06/2004
2004	ŞAHİNLER ENERJİ 1 GM	3,2	22,2	N.GAS	29/06/2004
2004	BESLER GR-2, BT (5,2+7,5)	12,7	97,7	N.GAS	07/07/2004
2004	KAREGE (Revision)	(-7,7)	(-57,9)	N.GAS	08/07/2004
2004	ÇELİK ENERJİ ÜR.ŞTİ. 2 GM	2,4	18,6	N.GAS	09/07/2004
2004	ÇİNKUR (Dismantled)	(-30,0)	(-150)	FUEL OIL	20/07/2004
2004	ÖTOPRODÜKTÖR (Revision)	6,4	43,2		20/07/2004
2004	KOMBASSAN KAĞ.	5,5	35,7	N.GAS	24/09/2004



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	MATBAA GIDA				
2004	AYEN OSTİM ENERJİ ÜRETİM(BT)	9,9	84,0	N.GAS	01/10/2004
2004	HABAŞ ALIĞA GRUP I-II	89,2	713,9	N.GAS	08/10/2004
2004	STANDART PROFİL 3 GM	6,7	49,2	N.GAS	22/10/2004
2004	KARKEY-II 3+3 DGM	54,3	369,7	FUEL-OIL	12/11/2004
2004	HAKKARI I	(-15,3)	(-114,8)	MOBILE	30/11/2004
2004	EÜAŞ Revision (ADALAR)	(-8,2)	0	D.OIL	09/12/2004
2004	ALTINMARKA GIDA GR I-II-III	3,6	28,8	N.GAS	17/12/2004
2004	ERE(BİR KAPILI HES) GRUP-I	48,5	170,6	RUN OF RIVER	11/03/2004
2004	ELTA ELK(DODURGA) GR-I-II-III-IV	4,1	12,3	RUN OF RIVER	26/04/2004
2004	İSKUR TEKSTİL(SÜLEYMANLI) GR I-II	4,6	17,86	RUN OF RIVER	28/04/2004
2004	BEREKET EN.(Feslek Hes) Gr-1-2	9,5	41	RUN OF RIVER	05/08/2004
2005	ÇAN GR I	160,0	1.040,0	LIGNITE	15/02/2005
2005	ÇAN GR II	160,0	1.040,0	LIGNITE	15/03/2005
2005	ELBİSTAN-B GR I	360,0	2.340,0	LIGNITE	15/02/2005
2005	AKBAŞLAR GR II (Isolated)	8,8	73	N.GAS	24.06.2005
2005	AKÇA ENERJİ GR-III	8,7	65,4	N.GAS+NAPHTHA	14/12/2005
2005	AYKA TEKSTİL GR-I	5,5	40,0	N.GAS	24/09/2005
2005	BAYDEMİRLER GR IV-V-VI	6,2	51,4	N.GAS	04/02/2005
2005	BOSEN GR-III	50,0	350,0	N.GAS	30/12/2005
2005	BOSEN (Revision)	(-6,5)	(-45,5)	N.GAS	30/12/2005
2005	ÇUMRA ŞEKER	16,0	40,0	N.GAS+LIGNITE	01/01/2005
2005	ETİ MAD.(BAN.ASİT) Dismantled	(-3,8)	(-28,5)	RENEW.+WASTE S	15/07/2005
2005	ETİ MAD.(BAN.ASİT)GR-I	11,5	85,0	RENEW.+WASTE S	15/07/2005
2005	EVYAP GR I-II	5,1	30,0	N.GAS	27/08/2005
2005	GRANİSER GRANİT GR-I	5,5	42,0	N.GAS	14/11/2005
2005	HABAŞ ALIĞA GR III	47,7	381,6	N.GAS	02/06/2005
2005	HABAŞ ALIĞA GR IV	47,7	381,6	N.GAS	21/09/2005
2005	HABAŞ ALIĞA GR-V	24,6	196,8	N.GAS	24/11/2005
2005	HABAŞ ALIĞA (Revision)	6,2	49,3	N.GAS	24/11/2005
2005	HAYAT KAĞIT GR-I	7,5	56,0	N.GAS	27/05/2005
2005	İÇDAŞ ÇELİK GR-I	135,0	1.080,0	IMPORTED COAL	30/11/2005
2005	KAHRAMANMARAŞ KAĞIT GR-I	6,0	45,0	IMPORTED COAL	08/12/2005
2005	KORUMA KLOR GR I-II-III	9,6	77,0	N.GAS	03/12/2005
2005	KÜÇÜKÇALIK TEKSTİL GR I-II-III-IV	8,0	64,0	N.GAS	27/11/2005



2005	MERCEDES BENZ TURK GR I-II-III-IV	8,3	68,0	N.GAS	04/02/2005
2005	MODERN ENERJİ GR-III	8,4	62,9	N.GAS	14/06/2005
2005	MODERN ENERJİ (Revision)	(-10,0)	(-75)	N.GAS	14/06/2005
2005	MODERN ENERJİ GR-II	6,7	50,4	N.GAS+LPG	14/06/2005
2005	MOSB GR I-II-III (Dismantled)	(-54,3)	(-407,3)	F.OIL	01/05/2005
2005	MOSB GR I-II-III-IV-V-VI-VII	84,8	434,0	N.GAS	01/03 - 01/08/2005
2005	ORS RULMAN	12,4	99,4	N.GAS	25/08/2005
2005	PAK GIDA(Kemalpaşa) GR-I	5,7	45,0	N.GAS	07/12/2005
2005	TEZCAN GALVANİZ GR I-II	3,7	29,0	N.GAS	27/05/2005
2005	YONGAPAN(KAST.ENTG) GR-II	5,2	32,7	N.GAS	25/05/2005
2005	ZEYNEP GİYİM SAN. GR-I	1,2	9,0	N.GAS	07/07/2005
2005	OTOP Revision	0,0	0,0	RENEW. + WASTE S	
2005	OTOP Revision	(-0,2)	0,0	N.GAS	
2005	OTOP Revision	(-7,2)	(-55,2)	N.GAS+LIQUID	
2005	OTOP Revision	(-1,0)	(-6,0)	F.OIL	
2005	OTOP Revision	2,1	5,2	SOLID+LIQUID	
2005	OTOP Revision	0,1	0,0	LIGNITE	
2005	OTOP Revision	(-0,3)	0,0	NAPHTHA	
2005	OTOP Revision	0,6	1,8	D.OIL	
2005	AK ENERJİ(K.paşa) GR- III	40,0	256,9	N.GAS	09/11/2005
2005	AK ENERJİ(K.paşa) GR I-II	87,2	560,1	N.GAS	30/04/2005
2005	ALTEK ALARKO GR I-II	60,1	420,0	N.GAS	14/10/2005
2005	BİS ENERJİ GR VII	43,7	360,8	N.GAS	18/03/2005
2005	CAN ENERJİ GR-I	3,9	28,0	N.GAS	25/08/2005
2005	ÇEBİ ENERJİ BT	21,0	164,9	N.GAS	27/08/2005
2005	ÇEBİ ENERJİ GT	43,4	340,1	N.GAS	23/08/2005
2005	ENTEK ELK.A.Ş.KOÇ ÜNİ.GR I-II	2,3	19,0	N.GAS	07/02/2005
2005	KAREGE GR IV-V	18,1	141,9	N.GAS	07/04/2005
2005	KARKEY(SİLOPİ-4) GR-IV	6,2	47,2	F.OIL	30/06/2005
2005	KARKEY(SİLOPİ-4) GR-V	6,8	51,9	F.OIL	23/12/2005
2005	METEM ENERJİ(Hacışiramat) GR I-II	7,8	58,0	N.GAS	29/01/2005
2005	METEM ENERJİ(Peliklik) GR I-II-III	11,7	89,0	N.GAS	29/01/2005
2005	NOREN ENERJİ GR-I	8,7	70,0	N.GAS	24/08/2005
2005	NUH ENERJİ-2 GR I	47,0	319,7	N.GAS	24/05/2005
2005	ZORLU ENERJİ KAYSERİ GR-I-II-III	149,9	1.144,1	N.GAS	22/07/2005
2005	ZORLU ENERJİ KAYSERİ GR-IV	38,6	294,9	N.GAS	26/10/2005



2005	ZORLU ENERJİ YALOVA GR I-II	15,9	122,0	N.GAS	26/11/2005
2005	TEKTUĞ(Kargılık) GR I-II	23,9	83,0	RUN OF RIVER	25/04/2005
2005	İÇTAŞ ENERJİ(Yukarı Mercan) GR I-II	14,2	44,0	RUN OF RIVER	22/05/2005
2005	MURATLI GR I-II	115,0	444,0	DAM	03/06/2005
2005	BEREKET EN.(DALAMAN) GR XIII-XIV-XV	7,5	35,8	RUN OF RIVER	16/07/2005
2005	YAMULA GRUP I-II	100,0	422,0	DAM	31/07/2005
2005	SUNJÜT(RES) GR I-II	1,2	2,4	WIND	23/04/2005
2006	EKOTEN TEKSTİL GR-I	1,9	14	N.GAS	16/02/2006
2006	ERAK GİYİM GR-I	1,4	10	N.GAS	22/02/2006
2006	ALARKO ALTEK GR-III	21,9	158	N.GAS	23/02/2006
2006	AYDIN ÖRME GR-I	7,5	60	N.GAS	25/02/2006
2006	NUH ENERJİ-2 GR II	26,1	180	N.GAS	02/03/2006
2006	MARMARA ELEKTRİK (Çorlu) GR I	8,7	63	N.GAS	13/04/2006
2006	MARMARA PAMUK (Çorlu) GR I	8,7	63	N.GAS	13/04/2006
2006	ENTEK (Köseköy) GR IV	47,6	378	N.GAS	14/04/2006
2006	ELSE TEKSTİL (Çorlu) GR I - II	3,2	25	N.GAS	15/04/2006
2006	BARES IX. GRUP	13,5	43	WIND	20/04/2006
2006	SÖNMEZ ELEKTRİK (Çorlu) GR I – II	17,5	126	N.GAS	03/05/2006
2006	DENİZLİ ÇİMENTO (Revision)	0,4		N.GAS	04/05/2006
2006	MENDERES ELEKTRİK GR I	8,0	56	GEOTHERMAL	10/05/2006
2006	KASTAMONU ENTEGRE (Balıkesir) GR I	7,5	54	N.GAS	24/05/2006
2006	ÇIRAĞAN SARAYI (Deleted by the Ministry)	(-1,4)		N.GAS	24/05/2006
2006	BARES X. ve XX GRUPLAR	16,5	52	WIND	26/05/2006
2006	BOZ ENERJİ GR I	8,7	70	N.GAS	09/06/2006
2006	ADANA WASTEWATER TREATMENT PLANT	0,8	6	BIOGAS	09/06/2006
2006	AMYLUM NIŞASTA (ADANA)	(-6,2)		F.OIL	09/06/2006
2006	AMYLUM NIŞASTA (ADANA)	14,3	34	N.GAS	09/06/2006
2006	ŞIK MAKAS (Çorlu) GR I	1,6	13	N.GAS	22/06/2006
2006	ELBİSTAN B GR III	360,0	2340	LIGNITE	23/06/2006
2006	ANTALYA ENERJİ GR I - II - III - IV	34,9	245	N.GAS	29/06/2006
2006	HAYAT TEM. VE SAĞLIK GR I - II	15,0	108	N.GAS	30/06/2006



CDM – Executive Board

2006	EKOLOJİK EN. (Kemerburgaz) GR I	1,0	6	LANDFILL GAS	31/07/2006
2006	EROĞLU GİYİM (Çorlu) GR I	1,2	9	N.GAS	01/08/2006
2006	CAM İŞ ELEKTRİK (Mersin) GR I	126,1	1008	N.GAS	13/09/2006
2006	ELBİSTAN B GR II	360,0	2340	LIGNITE	17/09/2006
2006	YILDIZ ENT. AĞAÇ (Kocaeli) GR I	6,2	40	N.GAS	21/09/2006
2006	ÇERKEZKÖY ENERJİ GR I	49,2	390	N.GAS	06/10/2006
2006	ENTEK (Köseköy) GR V	37,0	294	N.GAS	03/11/2006
2006	ITC-KA EN. MAMAK TOP.M. GR I-II-III	4,2	30	LANDFILL GAS	03/11/2006
2006	ELBİSTAN B GR IV	360,0	2340	LIGNITE	13/11/2006
2006	MARE MANASTIR RÜZGAR (X GRUP)	8,0	12	WIND	08/12/2006
2006	ÇIRAĞAN SARAYI GR I	1,3	11	N.GAS	01/12/2006
2006	ERTÜRK ELEKTRİK Tepe RES GR I	0,9	2	WIND	22/12/2006
2006	AKMAYA (Lüleburgaz) GR I	6,9	50	N.GAS	23/12/2006
2006	BURGAZ (Lüleburgaz) GR I	6,9	54	N.GAS	23/12/2006
2006	VAN 2	(-24,7)	0	F.OIL	
2006	KARACAÖREN II	(-0,8)		HYDRO	20/02/2006
2006	SEYHAN I-II	0,3	1,7	HYDRO	20/02/2006
2006	ŞANLIURFA GR I-II	51,8	124	HYDRO	01/03/2006
2006	BEREKET ENERJİ GÖKYAR HES 3 Grup	11,6	43,3	HYDRO	05/05/2006
2006	MOLU EN. Zamantı Bahçelik GR I - II	4,2	16,7	HYDRO	31/05/2006
2006	SU ENERJİ (Balıkesir) GR I - II	4,6	20,7	HYDRO	27/06/2006
2006	BEREKET EN.(Mentaş Reg) GR I - II	26,6	108,7	HYDRO	31/07/2006
2006	EKİN (Başaran Hes) (Nazilli)	0,6	4,5	HYDRO	11/08/2006
2006	ERE(Sugözü rg. Kızıldüz hes) GR I - II	15,4	31,6	HYDRO	08/09/2006
2006	ERE(AKSU REG.ve ŞAHMALLAR HES) GR I-II	14,0	26,7	HYDRO	16/11/2006
2006	TEKTUĞ(Kalealtı) GR I - II	15,0	52	HYDRO	30/11/2006
2006	BEREKET EN.(Mentaş Reg) GR III	13,3	54,4	HYDRO	13/12/2006
Total		5.017	35.436		

**Table 18. Electricity Generation of Selected Recent Capacity Additions by Fuel Type**

Capacity Additions by Fuel Type	Average Generation, GWh				Total
	2003	2004	2005	2006	
Coal	0	337,5	1.125,0	0,0	1.462,5
Lignite	0	0,0	4.420,0	7.020,0	11.440,0
Fuel Oil	0	466,2	99,1	0,0	565,3
Diesel oil	0	4,1	0,0	0,0	4,1
LPG	0	0,0	0,0	0,0	0,0
Naphtha & Aphaltite	0	322,9	0,0	0,0	322,9
Natural Gas	312,0	8.827,2	6.995,4	3.457,4	19.592,0
Renewables and wastes	0	0,0	85,0	42,0	127,0
Hydro	0	241,8	1.028,8	484,3	1.754,9
Geothermal & Wind	0	0,0	2,4	58,0	60,4
Total	312	10.199	13.755	11.061	35.329

**Annex 4****MONITORING INFORMATION**

The Project Activity will be connected to the 154 kV high voltage national grid at the Ezine transformer station. 10 wind turbines with a rated output of 2,1 MW each will be connected to the measurement instruments through a 154/22 kV transformer. The switchgear station, where the measurement instruments are read periodically by TEİAŞ, is only accessible to trained TEİAŞ staff. On the last day of each month, the TEİAŞ staff performs the reading, upon which the invoicing will be based.

There are two measurement instruments monitoring the generated electricity continuously. Furthermore, a SCADA system monitors and stores various data including the electricity generation of each wind turbine separately. The project participant is able to monitor the electricity generation data read by the SCADA system as well as the two measurement instruments from distance, however it has no control over or access to the measurement devices and cannot perform any type of maintenance or calibration.

The net electricity generated and delivered to the grid can be monitored from TEİAŞ invoices, from the Market Financial Settlement Centre (MFSC) website¹⁹ or the SCADA system.

¹⁹ <http://www.teias.gov.tr/mali/maliuz.htm>.



Annex 5

RELEVANT DOCUMENTS

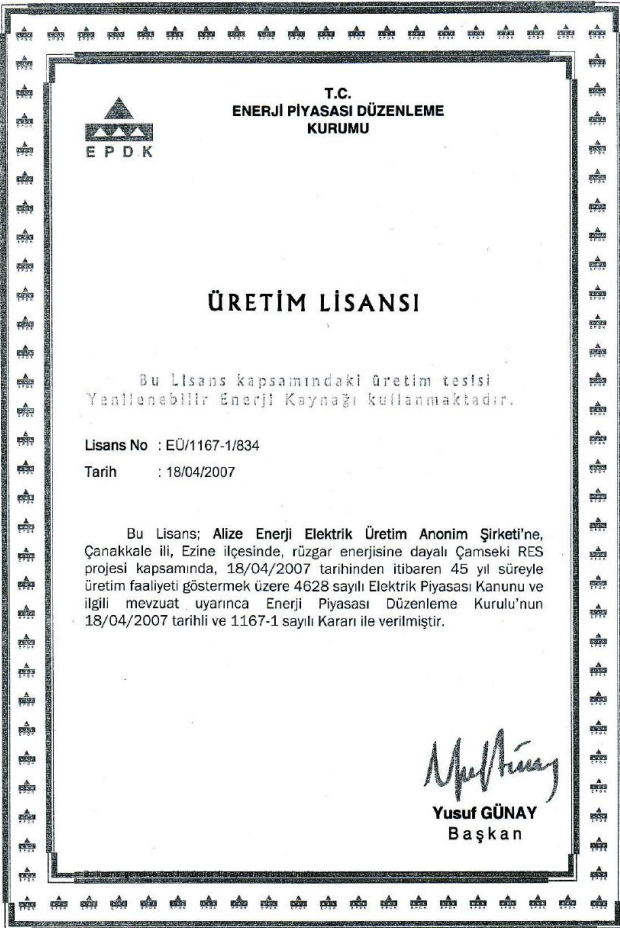
 <p>ÜRETİM LİSANSI</p> <p>Bu Lisans kapsamındaki üretim tesisi Yenilenebilir Enerji Kaynağı kullanmaktadır.</p> <p>Lisans No : EÜ/1167-1/834 Tarih : 18/04/2007</p> <p>Bu Lisans; Alize Enerji Elektrik Üretim Anonim Şirketi'ne, Çanakkale ili, Ezine ilçesinde, rüzgar enerjisine dayalı Çamseki RES projesi kapsamında, 18/04/2007 tarihinden itibaren 45 yıl süreyle üretim faaliyeti göstermek üzere 4628 sayılı Elektrik Piyasası Kanunu ve ilgili mevzuat uyarınca Enerji Piyasası Düzenleme Kurulu'nun 18/04/2007 tarihli ve 1167-1 sayılı Kararı ile verilmiştir.</p> <p><i>Yusuf Günay</i> Yusuf GÜNAY Başkan</p>	<p>REPUBLIC OF TURKEY ENERGY MARKET REGULATORY AUTHORITY</p> <p>GENERATION LICENSE</p> <p>This power plant uses renewable energy sources.</p> <p>License Nr: EÜ/1167-1/834 Date: 18/04/2007</p> <p>This license has been granted to Alize Enerji Elektrik Üretim Anonim Şirketi for the Çamseki Wind Park project located in the province of Çanakkale, city of Ezine for a period of time of 45 years for electricity generation activities, with this very decision of Energy Market Regulatory Authority Nr. 1167-1 on the date 18/04/2007, based on the Electricity Market Law Nr. 4628 and related regulations.</p> <p>Yusuf Günay Director</p>
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Figure 6. Generation License

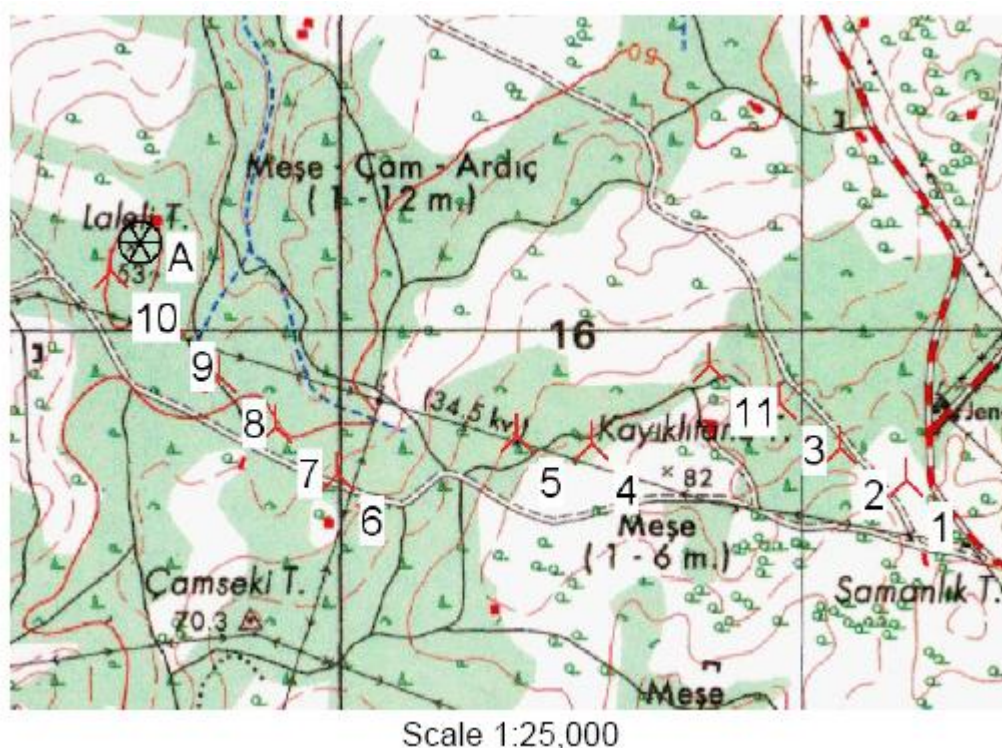


<p>ALİZE ENERJİ ELEKTRİK ÜRETİM A.Ş. YÖNETİM KURULU KARARI</p> <p>Karar Tarihi : 06/07/2007 Karar No : 24 Toplantıya Katılanlar : Yalçın Erol Demire, Önder Demire, Salih Uysal</p> <p>GÜNDEM:</p> <p>Çamseki RES ve Çataltepe RES Projelerinin fizibilite değerlendirilmesi</p> <p>KARAR:</p> <p>Çanakkale İli, Ezine İlçesi, Üvecik Mevkiinde kurulacak olan Çamseki RES projesi ve Balıkesir İli, Havran İlçesinde kurulacak olan Çataltepe RES projesi ile ilgili yapmış olduğumuz kredi çalışmaları çerçevesinde bankanın öngördüğü rasyonun sağlanması, nakit akışların dengelenmesi ve oluşabilecek öngörülmeven giderlere karşı diğer gelir kalemi olarak dikkate alınmış olan VER sertifikası, karbon kredisi vb. gelirlerin gerçekleştirilebilmesi için ulusal veya uluslararası firmalar veya kuruluşlar nezdinde çalışmalar yapılmasına oy birliği ile karar verilmiştir.</p> <p><u>Yönetim Kurulu Başkanı</u> Yalçın Erol Demire</p> <p><u>Yönetim Kurulu Başkan Yardımcısı</u> Önder Demire</p> <p><u>Üye</u> Salih Uysal</p>	<p>ALİZE ENERJİ ELEKTRİK ÜRETİM ANONİM ŞİRKETİ BOARD RESOLUTION</p> <p>Resolution date : 06/07/2007 Resolution no : 24 Participants : Yalçın Erol Demire, Önder Demire, Salih Uysal</p> <p>AGENDA:</p> <p>Evaluation of Çamseki and Çataltepe wind power plant project feasibilities</p> <p>RESOLUTION:</p> <p>It is unanimously decided to take actions by national and international companies and institutions in order to realize the incomes such as carbon credits and VER certificates, which has already been taken into account as the other income item and which will be necessary to achieve the ratios the bank envisages for debt financing, to balance the cash flow and to secure the project against unpredictable costs regarding the Çamseki Wind Power Plant (Çanakkale Province, Ezine Town, Üvecik Region) and the Çataltepe Wind Power Plant (Balıkesir Province, Havran Town).</p> <p>Chairman Yalçın Erol Demire</p> <p>Vice Chairman Önder Demire</p> <p>Board Member Salih Uysal</p>
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Figure 7. Early Consideration: Board Resolution of the Project Participant regarding VER financing

Annex 6**LOCATIONS OF WIND TURBINES**

Turbine Number	E	N
ÜVECİK 1	431234	4415670
ÜVECİK 2	431089	4415740
ÜVECİK 3	430960	4415836
ÜVECİK 4	430552	4415750
ÜVECİK 5	430392	4415765
ÜVECİK 6	430003	4415684
ÜVECİK 7	429870	4415783
ÜVECİK 8	429746	4415893
ÜVECİK 9	429636	4416015
ÜVECİK 10	429512	4416122
ÜVECİK 11	430807	4415918

**Figure 8. Approximate Location of the Project Activity**





Annex 7

GOLD STANDARD INFORMATION

Alize Çamseki Üvecik Wind Farm Project

Additional PDD Annex as required for Gold Standard validation

Version 1.1 March 27th 2008

Contact person: Lale Capalov, Mavi Consultants, lale.capalov@maviconsultants.com, +90 212 327 09 22

Introductory Notes

This document contains the PDD Annex to validate the Project Alize Camseki Uvecik Wind Farm against the Gold Standard.

The project activity comprises the installation of 10 units of 2 MW and one unit of 0,8 MW turbines with a total capacity of 20.8 MW. The project activity implies a series of sustainable development aspects including technology transfer, environmental and social benefits.

In the scope of the project, local roads will be repaired and improved, an additional transmission line will be built. A significant amount of equipment except the wind turbines (generator tower, blades, cable, transformer etc.) will be procured in Turkey, which will contribute to local development as well. In addition to environmental and social benefits the project will trigger locally, it will increase the share of renewable and clean energies in the Turkish electricity market, will reduce the dependency in foreign sources and will fuel the development of a wind energy sector in Turkey. The Project, located in the less developed area of Turkey, will also contribute to regional economic development and generate direct jobs during the operation of the plant and temporary jobs during the construction of the plant.



Project Type Eligibility Screen

GS Manual for VER Project Developers: Section 3.2

Wind energy projects fall into the renewable energy categories outlined in the pre-assessment section Box 1 in Chapter 2.2 of the Gold Standard Manual for CDM Project Developers as eligible project types.

Host Country Eligibility

GS Manual for VER Project Developers: Section 3.2.2

A Gold Standard voluntary offset project can be located in any country that does not have quantitative reduction target under the Kyoto Protocol. Turkey is one of the countries, which didn't sign the Kyoto Protocol. Turkey's position can be described as follows:

As of today, Turkey is an Annex I country. Annex I countries are potential carbon credit buyers. Turkey has however not set any emission reduction target; hence it is not listed as an Annex B country of the Kyoto Protocol and cannot participate to the Clean Development Mechanism (CDM) nor to the EU Emissions Trading Scheme (EU-ETS). Under these circumstances, the non-Kyoto market, which involves Voluntary Emission Reductions (VERs), is emerging in the country.

As of today, there is no DNA in Turkey. The National Focal Point of Turkey is the Ministry of Environment and Forestry. The Turkish National Focal Point has been involved in the consultation process as described in the section 3.4.3. for the Gold Standard Voluntary Project Development, which significantly raised the awareness in the government about the issues around climate change and carbon trading. It is known that the subject is under discussion in Ankara now.

Gold Standard Additionality Screen

Previously announced projects screen

GS Manual for VER Project Developers: Section 3.3.1

There has been no public announcement of the project going ahead without the VER, prior to any payment being made for the implementation of the project.

Prior to the implementation of the project activity, the management of the project developer has concluded a decision about VER development on 06.07.2007. The project developer has also sent a letter to the Turkish National Focal Point stating its intention to register the project activity under GS VER in order to inform the Turkish National Focal Point about the project and asked for comments.



UNFCCC Tool for the demonstration and assessment of additionality (Version 04, EB 36, Annex 13)
GS Manual for CDM Project Developers: Section 3.3.2

Steps 1 to 3 of the “Tool for the demonstration and assessment of additionality” (Version 04)²⁰ are equivalent to Steps 1 to 3 of the “Combined tool to identify the baseline scenario and demonstrate additionality” (Version 02.1)²¹, which are featured in Section B.4 of the PDD. Therefore, only Step 4 of the “Tool for the demonstration and assessment of additionality” is carried out in this section.

STEP 4. Common Practice Analysis

Common Practice Analysis checks whether the proposed project type has already diffused in the relevant sector and region.

Sub-step 4.a Analyze other activities similar to the proposed project activity:

As far as similar activities to the Project are concerned, wind power plants under IPP²² model with comparable installed capacities can be identified.

As of May 30th, 2008, EMRA has issued 79²³ wind farm projects a generation license (total capacity 2.919,4 MW). 13 of them are in operation (total capacity 249,35 MW) and 4 of them are under construction (total capacity 226,8 MW). The progress of the remaining wind farm projects is unknown, and several licenses and license applications have been cancelled due to various reasons in the past by EMRA. This illustrates that there is a low correlation between wind power project license ownership and project implementation and that implementation of wind power projects in Turkey is rather difficult.

EMRA has prohibited wind power license applications for an unknown period of time for an unknown reason. On November 1, 2007, the prohibition on wind farm license applications has been lifted by EMRA only for one day, and a big volume in applications has been observed. However, there have been several multiple applications for the same locations. As fees and technical requirements for the license applications are minimal, this intensive interest of applicants can be associated with:

- Obtaining licenses by companies aiming to sell their license to third parties
- Creation of a project portfolio for a potential future use
- Precaution against future uncertainty by applying for non- or semi-developed projects
- Prevention of competitors reserving attractive wind farm locations

²⁰ http://cdm.unfccc.int/methodologies/PAMethodologies/AdditionalityTools/Additionality_tool.pdf

²¹ http://cdm.unfccc.int/methodologies/Tools/EB28_repan14_Combined_tool_rev_2.1.pdf

²² Independent Power Producer

²³ EMRA Website, <http://www.epdk.gov.tr/lisans/elektrik/yek/yeklisansgeneltable.xls>.



A tendering procedure is planned by EMRA (no specific date) for certain locations, which is expected to decrease applications and planned projects significantly. In the past, a significant percentage of applications and granted licenses have either been rejected or cancelled later, therefore the available licenses have a low realization implication. Based on these arguments, these recent license applications have not been considered to be significant.

Sub-step 4b. Discuss any similar options that are occurring

As discussed above, wind farms are not common practice in Turkey, as their share in overall electricity generation is and will be under 1% according to official projections. Although wind farm projects in Turkey face various barriers besides economic ones, their realization chance can be improved by the sales of VERs, which would offset some of their difficulties by means of better feasibility figures.

As of 30.05.2008, the list of wind parks in operation and under construction is given below;

Table 19. Wind farms in operation²⁴

Location	Company	Operational Start	Installed Capacity [MW]	Business Model
İzmir-Çeşme	Alize A.Ş.	1998	1,5	IPP*
İzmir-Çeşme	Güçbirliği A.Ş.	1998	7,2	BOT
Çanakkale-Bozcaada	Bores A.Ş.	2000	10,2	BOT
İstanbul-Hadımköy	Sunjüt A.Ş.	2003	1,2	Autoproducer
Balıkesir-Bandırma	Bares A.Ş.	I/2006	30	IPP-VER
İstanbul-Silivri	Ertürk A.Ş.	II/2006	0,85	IPP
İzmir-Çeşme	Mare A.Ş.	I/2007	39,2	IPP ²⁵ -VER

²⁴ Source: EMRA Website, <http://www.emra.gov.tr/lisans/elektrik/yek/ruzgarprojeleriningelismisi.xls>.

²⁵ Independent Power Producer.



Manisa-Akhisar	Deniz A.Ş.	I/2007	10,8	IPP-VER
Çanakkale-İntepe	Anemon A.Ş.	I/2007	30,4	IPP-VER
Çanakkale-Gelibolu	Doğal A.Ş.	II/2007	14,9	IPP-VER
Hatay- Samandag	Deniz A.Ş.	I/2008	30	IPP-VER
Manisa- Sayalar	Dogal A.Ş.	I/2008	30,6	IPP-VER
İzmir- Aliaga	Innores A.Ş.	I/2008	42,5	IPP-VER
Total			249,35	

*former autoproducer

Table 20. Wind farms under construction

Location	Company	Operational Start	Installed Capacity [MW]	Business Model
İstanbul-Gaziosmanpaşa	Lodos A.Ş.	I/2008	24	IPP
İstanbul-Çatalca	Ertürk A.Ş.	I/2008	60	IPP-VER
Balıkesir-Şamlı	Baki A.Ş.	I/2008	90	IPP-VER
Muğla-Datça	Dares A.Ş.	II/2008	28,8	IPP-VER
Total			226,80	

The first wind farms in operation have been realized under “BOT²⁶” or “autoproducer” models. Autoproducers generate electricity primarily for their own electricity consumption, and they are allowed

²⁶ Build-Operate-Transfer



to feed a small fraction of their generation to the grid. The BOT model is not applicable in Turkey anymore, as these projects have special contracts with the government and will be handed over to the government after a certain period of time. As BOT and autoproducer wind farms are not completely liberal electricity market players and are limited in terms of number and installed capacity, they are not considered as common practice nor similar projects.

After the “liberalization” of the electricity market, which is still in a transformation period, investors have been allowed to build and operate their own power plants for electricity production and sales to the national grid as IPPs. As of now, two wind farms (1,5 MW İzmir Çeşme and 0,85 MW İstanbul Silivri) are either operated or under construction without the sales of VERs, which can be considered as outliers in terms of number, business model (BOT) and scale. All the other wind farms in operation have undergone a VER procedure for facilitating additional revenues enabling the realization of projects.

Since wind energy constitutes a very limited portion of the Turkish electricity market, the Project Activity goes beyond a “business as usual” scenario and cannot be considered as a common practice. As a result, the Project is considered to be additional.

ODA Additionality Screen

GS Manual for VER Project Developers: Section 3.3.3

Project financing for this project activity will not use any public funding nor Official Development Assistance (ODA) Funds as defined in the Gold Standard Manual for Project Developers. There are no loans or grants being provided by International Finance Institutions, which include ODA.

Conservative Approach

GS Manual for VER Project Developers: Section 3.3.3

The baseline scenario selection and the calculation of green house gas emission reductions have been carried out in a conservative manner:

- Project proponents have used approved methodologies by the CDM Executive Board (ACM0002, Version 07 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” and the “Tool to calculate the emission factor for an electricity system”) in order to determine the baseline scenario and calculate emission reductions.
- When no appropriate data is available, the assumptions are made conservatively by making choices which lead to the lowest emission reductions for the sake of conservatism.
- All calculations are based on official and publicly available data. Data sources have all been referenced in the PDD. Calculations have been done in a transparent manner providing full documentation and references to data sources to the DOE.



Please refer to the PDD Sections B.3, B.4, B.5 and B.6 for more details on project boundary definition, baseline scenario selection and emission reductions calculation.

Sustainable Development

Sustainable Development Assessment

GS Manual for CDM Project Developers: Section 3.4.1

The matrix below is based on a comparison of the project activity versus the baseline scenario described in the PDD, which is basically the continuation of the current situation. The Sustainable Development Matrix draft has been discussed during the Initial Stakeholder Meeting with the stakeholders in order to finalise the scoring of the 12 indicators. Results from the initial stakeholder consultation have also been considered when defining the scores for the indicators below.

Component Indicators	Score (-2 to +2)	Explanation
Local / Regional / Global Environment		
<ul style="list-style-type: none"> Water quality and quantity 	0	As compared to the baseline, no significant change in this indicator is expected.
<ul style="list-style-type: none"> Air quality (emissions other than GHG) 	+1	<p>Air quality is improved substantially as compared to the emission levels of fly ash, SO_x and NO_x related to the thermal energy generation. As compared to the baseline scenario, the project also significantly contributes to an improvement of odour emissions.</p> <p>Regulation of Air Quality Control Official Journal: 19269, Date: 2.11.1986, Annex 8, List A & B</p>
<ul style="list-style-type: none"> Other pollutants (including, where relevant, toxicity, radioactivity, POPs, stratospheric ozone layer depleting gases) 	+1	<p>Apart from water, soil and air pollutants mentioned in this matrix, metal compounds as Co, Cd, Zn, Pb and Cu in the flue gas as well as in the waste ash will be prevented.</p> <p>Justification: Regulation of Hazardous</p>



		Wastes Control Official Journal: 25755, Date: 14.3.2005, Annex 7 section 10
• Soil condition (quality and quantity)	0	As compared to the baseline, no significant change in this indicator is expected.
• Biodiversity (species and habitat conservation)	0	As compared to the baseline, no significant change in biodiversity is expected.
<i>Sub Total</i>	+2	
Social Sustainability and Development		
• Employment (including job quality, fulfilment of labour standards)	+1	Some permanent full time positions are foreseen for operation and maintenance of the wind power plant. The exact number is unknown, as it depends on the final turbine locations and the requirements of TEİAŞ. Several temporary jobs will be generated during the construction of the project activity. The employment of the skilled staff has a significant impact on job quality in the rural context of the project.
• Livelihood of the poor (including poverty alleviation, distributional equity, and access to essential services)	0	As compared to the baseline, no significant change is expected.
• Access to energy services	0	As compared to the baseline, no significant change in this indicator is expected.
• Human and institutional capacity (including empowerment, education, involvement, gender)	0	As compared to the baseline, no significant change is expected.
<i>Sub Total</i>	+1	



Economic and Technological Development		
• Employment (numbers)	+1	Several temporary jobs were generated during the construction of the project activity. The employment of the skilled staff has a significant impact on job quality in the rural context of the project.
• Balance of payments (sustainability)	0	As compared to the baseline, no significant change in this indicator is expected.
• Technological self reliance (including project replicability, hard currency liability, institutional capacity, technology transfer)	+1	Improvement of technical adequacy of companies working in the wind energy sector and creation of high quality technical labour force. Justification: Recent development of wind energy equipment (tower, blades, etc.) production and services after wind park installations in Turkey. In-house trainings will be given to the employees of the project activity which includes instructions regarding technical, environment and security issues as well as operation and maintenance. Moreover, TEIAS will train the staff regarding the switchgear station.
<i>Sub Total</i>	+2	
<i>Total</i>	+5	

As can be seen from the matrix above the project activity shows a positive performance in all sustainable development categories. The project activity fulfils all Gold Standard criteria since none of the indicators above have a score of -2, there is no negative sub-total, and the total score is positive.

EIA requirements

*GS Manual for CDM Project Developers: Section 3.4.2*

EIA Gold Standard Requirements according to section 3.4.2 in the Gold Standard Manual apply to the project activity as follows:

1. Host country EIA requirements
It is not mandatory in Turkey to conduct an EIA for this type of project activity.
2. Gold Standard Initial Stakeholder Consultation
The Gold Standard Initial Stakeholder Consultation was held in the village café of Üvecik on November 29th, 2007. The results of the Gold Standard Initial Stakeholders Consultation did not show any significant environmental and/or social impact (see Initial Stakeholder Consultation report below).
3. None of the indicators in the Sustainable Development Assessment Matrix scores -1.

By reducing fossil fuel consumption indirectly, the Project Activity will help in decreasing pollutants, which are being generated by thermal power plants, resulting in improved air quality.

*Public consultation procedures**GS Manual for VER Project Developers: Section 3.4.3****Initial Stakeholder Consultation***

The initial stakeholder consultation was held in Üvecik village café on November 29th, 2007. The meeting was attended by representatives from the local authorities, local residents, local media, local entrepreneurs and employees of the project activity. In addition to the local meeting, Gold Standard supporting NGOs in Turkey have been invited by email to send their comments on the project activity.

The overall response to the project, from all invited stakeholders, was encouraging and positive. It is evident from the stakeholder consultation process, that the project is perceived as a good example for the energy generation in Turkey and that it contributes to sustainable development of the country. No major environmental concerns were raised during the entire initial stakeholder consultation process. No adverse reaction, comments or clarifications related to socio-economic aspects have been received during the Initial Stakeholder Consultation process.

A detailed report on the Initial Stakeholder Consultation is available in **Annex 8** to this document.



Main Stakeholder Consultation

The Gold Standard Main Stakeholder Consultation is based on a set of additional criteria in addition to UNFCCC requirements. Full documentation of the project activity will be made publicly available for two months prior to conclusion of validation at www.maviconsultants.com and www.southpolecarbon.com/goldstandard.htm, including:

- The original and complete PDD
- A non-technical summary of the project design document (in appropriate local language)
- Relevant supporting information

During the consultation period, stakeholders are invited to submit their comments and questions related to the project activity. About giving a comment, the websites www.maviconsultants.com and www.southpolecarbon.com/goldstandard.htm provide further information. The project stakeholders are invited on March 31st, 2008 through E-mail and fax notification to provide their comments. Furthermore, the draft PDD and the non-technical PDD in local language have been provided on the websites mentioned above. The process has been closed on May 31st, 2008. During the Main Stakeholder Consultation process, no comments have been provided by stakeholders.

Gold Standard Monitoring Criteria

GS Manual for VER Project Developers: Section 3.5.1

According to the Gold Standard Manual for CDM Project Developers, Gold Standard monitoring requirements in addition to regular CDM monitoring procedures are defined based on the outcomes of the stakeholder consultation meeting and the Sustainable Development Assessment conducted above. The Sustainable Development Assessment Matrix shows that there are no indicators, which would be critical for a positive contribution of the project to Sustainable Development or that are particularly sensitive since there is no indicator scoring below zero.

Local stakeholders have indicated no issues of potentially significant importance related to questions from the Gold Standard Public Consultation Checklist (Appendix E to the Gold Standard Manual for VER Project Developers) during the initial stakeholder consultation. A detailed report of the issues raised and the answer provided by the project owner are provided in the Initial Stakeholder Consultation Report (Attachment 1 to this Annex).

From the Attachment 1 to this Annex it can be concluded that the indicated issues of potentially significant importance during the stakeholder consultation cannot be converted into additional monitoring requirements because:

- the monitoring requirements already prescribe monitoring of all relevant parameters, or
- the indicated issues cannot be influenced by the project owner during the operation of the plant (e.g. risk of seismic activities), or



- the indicated issues are considered to be positive (social impact) or neutral (visibility of the project).

Therefore, no additional Gold Standard specific monitoring criteria have been added to the regular monitoring plan.

**Annex 8****INITIAL STAKEHOLDER CONSULTATION REPORT**

The full Initial Stakeholder Consultation report can be found under the web-pages http://www.maviconsultants.com/download_eng.html, or http://www.southpolecarbon.com/goldstandard_consultations.htm.

PURPOSE OF THE CONSULTATION

The objective of the Gold Standard initial stakeholder consultation is to enable potentially affected and concerned institutions and individuals to express their point of view on the proposed carbon offset project and to consider general concerns and recommendations on the project activity.

Two stakeholder consultations must be held during the project cycle in order to fulfill the criteria of the Gold Standard, which stands for environmental, economic and social integrity of carbon offset projects. An initial consultation in the early stages of documentation preparation and a main consultation after completion of the final project documentation have to be carried out.

Although the Turkish legislation exempts wind energy projects from the obligation to perform an Environmental Impact Assessment and accordingly a stakeholder meeting, an initial stakeholder consultation meeting has been conducted according to Gold Standard criteria in order to identify and evaluate the opinions and comments in favour of and against the project. In parallel, the conducted consultation aimed also at discovering potential Corporate Social Responsibility activities in the region.

The following stakeholders must be invited to participate in both consultation processes: Local policy makers, local people impacted by the project, (if applicable) local NGOs, local and national NGOs that have endorsed the Gold Standard and the Gold Standard itself.

PROCEDURE OF THE INITIAL STAKEHOLDER CONSULTATION

The Gold Standard initial stakeholder consultation consisted of a public meeting, E-mails as well as face to face and phone consultations with the stakeholders. According to the Gold Standard requirements, local stakeholders were identified including local people, local and national NGOs, project developers, members of a local university and entities involved in implementation and operation of the project activity.

Local people have been invited by an announcement published in two local newspapers (“Olay” on 22.11.2007 and “Sonsöz” on 21.11.2007) and a written invitation has been put on the wall of the village café. Moreover, the village headman has invited local people personally, which is the most effective way regarding cultural habits. The announcements and their translation are attached to this report.

The E-Mails to stakeholders were sent on 22.11.2007 and then again for assurance on 26.11.2007. Although the Initial Stakeholder Consultation was widely announced, it was exclusively attended by local stakeholders. For those, who were not able to come to the meeting, the questionnaire was sent along with the project documentation via e-mail on 26.12.2007 (Ms. Hilal Atıcı, Greenpeace Turkey) and 03.01.2008 (Ms. Filiz Demirayak, WWF Turkey and Mr. Prof. Dr. Osman Demircan, Canakkale University).



CONSULTATION MEETING

Two consultation meetings –separately for men and women- have been conducted at the same day for local stakeholders as they wished separate meetings for each gender:

	Meeting for women	Meeting for men
Date	November 29, 2007	November 29, 2007
Duration	16:00 to 17:00 pm	14.30 to 16:00 pm
Place	Primary School, Üvecik.	Village café, Üvecik.

Language: Documentation and meeting was held in Turkish.

Mr. Nail Dinçkal, the headman of Üvecik village was present during the meeting as the representative of the locals.

Mr. Ahmet Aracman from Demirer Holding has made an oral presentation about the project and its environmental impacts including information about causes and effects of global warming and climate change. The women have preferred to be gathered separately due to traditional habits. Therefore, female attendants have met at the primary school and the same meeting has been carried out for them separately. In this meeting, Ms. Cagla Balci Eris from Demirer Holding and Ms. Lale Capalov from Mavi Consultants have together made the same oral presentation as Mr. Ahmet Aracman. The challenge was to explain about the reason of the meeting, which was unknown to the farmer women. Basic information has been given to make the project understandable.

Participant List	
Female Participants	
1. Nurdan Kurt	2. Buse Kurt
3. Ayten Altıparmak	4. Serfe Bozkurt
5. Cahide Aykut	6. Nurcan Soydemir
7. Dilek Tumor	8. Fatma Gezgen
9. Nurdan Koroğlu	10. Zerrin Şaşkın
11. Gönül Oskan	12. Kevser Bayır
13. Gülbiye Aydoğan	
Male Participants	
14. Mehmet Bayer	15. Rüstem Kıray



16. Ziya Taş	17. Ahmet Avcı
18. Kemal Avcı	19. Hüsnü Hoşgör
20. Hasan Çepel	21. Abdurrahman Gözüaçık
22. Engin Yalçın	23. Ünal Gürel
24. Nuri Güder	25. Ferit Gürel
26. Seyhan Gündemir	27. Sami Kurt
28. Ercan Acun	29. Mehmet İlbars
30. Muammer Gündemir	31. Alaattin Talayhan
32. Şahin Bayır	33. Kenan Çepel
34. İsmail Özcan	35. Rafet Acar
36. Erdoğan Acun	37. Muzaffer Yüksel
38. Süleyman Dinçkal	39. İsmail Ülker
40. Recep Aykut	41. Ufuk Aykut
42. Seçkin Karalar	43. Nail Dinçkal
44. Rifat Duman	45. Nuri Demirsoy

The following documents have been distributed to the participants:

- Project Information
- Check list on environmental and social impacts
- An article about global warming by Prof. Dr. Osman Demircan

The participants have been asked to fill in the check list, if they have any comments on the social and environmental aspects. Only oral comments have been received.

The female participants at the village meeting did not have any negative comments on the project. As a CSR project, a concept idea has been shared with attendants which involves the sales of local products with women initiative cooperative. Some attendants have found the idea interesting and some of them unrealistic. A part of the attendants have said that they would answer after speaking with their husbands, and some of them told that they have no idea about the subject. January 4, 2008 has been set as a deadline to identify the interested women who would take part in a women cooperative developed and established with the support of Alize Rüzgar Enerji Santrali San. ve Tic. A.Ş.

SITE VISIT

Before and after the initial stakeholder meeting, the project site was visited with the village headman.



E-MAIL AND PHONE CONSULTATIONS

In addition to the meeting for local stakeholders, the Gold Standard supporting NGOs Greenpeace and WWF in Turkey, the local NGO GÜMÇED and the University of Canakkale have also been consulted by E-Mail because they were not able to attend the initial stakeholder meeting. The E-Mail consultation started in December 26, 2007 and closed in January 26, 2008. The mentioned stakeholders received a project description, the checklist provided in the Gold Standard Manual and an invitation to assess the project.

The Regional Environmental Center (REC Turkey), which is also the National Focal Point for REEEP, has also been invited per E-mail. After receiving no feedback, they have been invited per phone on December 27, 2007. Mr. Yunus Arıkan from REC Turkey stated that principally they do not participate in such meetings and give comments on this subject, as they are not an NGO themselves and as they regard their position between NGOs and the Turkish government.

Stakeholders that affirmed the receipt of the documents are:

Organisation	Contact Person	Comments sent
Greenpeace	Hilal Atici	Supporting letter
WWF	Filiz Demirayak	No comments
GUMCED	Sunay Obuz	Supporting letter
Gold Standard	Meinrad Bürer	Receipt confirmation
University of Canakkale	Prof. Dr. Osman Demircan	Check list

SUMMARY OF THE COMMENTS RECEIVED

The people consulted by E-Mail did not have any adverse comments. The response was rather positive and supporting. As a GS-supporting organization, Greenpeace has sent a supporting letter as well as the local NGO GÜMÇED.



Questions Raised	Answers Given by Mr. Ahmet Araçman
Is this a so windy place that you can generate electricity ?	Yes, the region is one of the most windy places in Turkey.
Would this investment affect livestock breeding?	No. There is no wire fence along the wind park. Animals walk around the turbines.
What kind of staff is needed during the operations?	2-3 security guards and electricity technicians.
Would the turbulence damage the vegetation around?	The turbines make 36 cycles per minute, which is very slow. It cannot be spoken of any damages.
Could you please give information about the size of the turbines?	The hub height is 79 m. The diameter of the blade is 80 m.
Can we buy the generated electricity then cheaper ?	Unfortunately not. The generated electricity will fed to the national transmission line. We don't sale it to the final user.
How much noisy will it be?	In case of the storm, let's assume 50-60 km/hr, the noise would be 39 dsBel in 100 m far from the turbine. Sleeping room standard is 41 dsBel.
Where are the transformer stations?	Ezine
What would be the width of the new ways?	7m
Will the village directly buy the electricity?	As I've said before, it is not possible due to electricity regulations.
How many wind turbines will erected? And what is the distance between the turbines?	Ten turbines will be erected.
What kind of turbines will be erected?	Enercon (a German wind turbine manufacturer) turbines with 2,1 MW of installed capacity each will be erected.
We don't have any concern about the wind parks as we know that it is good for the world. The question is, what kind of benefits would the village gain directly from the company?	We will need staff during construction and operation phase. As many as possible, we prefer the ones from the region. The location of the village is also considered for a tower plant. But we didn't decide yet. Furthermore, we are in contact with the village head to find out potential CSR activities. Bozcaada wind farm has become very touristy which can be also the case here in Üvecik.



INFORMATION LETTER TO THE DNA

There is no DNA in Turkey. A letter has been sent to the National Focal Point of Turkey, the Ministry of Environment and Forestry, to inform them about the project.

SUSTAINABLE DEVELOPMENT ASPECTS OF THE PROJECT

The Gold Standard foundation requires that the project activity is evaluated based on some sustainable development indicators. The results indicate that the project complies with the requirements outlined in the sustainable development matrix and assures a positive overall effect. The indicators have been discussed with stakeholders potentially affected by the project during the initial stakeholder meeting. The sustainable development indicators are scored above.

The Gold Standard foundation further requires that the total and each sub total of the components must score positively, and none of the indicators should score -2 . It has been observed that the project's sustainable development dimensions satisfy these requirements.

Specific characteristics of the project, which contribute to sustainable development, can be summarized as follows;

- Reducing electricity imports of Turkey and its dependency on fossil fuel sources
- Securing energy supply, reducing dependency on foreign sources and associated price variations
- Reducing greenhouse gas emissions in Turkey by replacing the electricity generated from fossil fuels and reducing pollutants stemming from combustion of fossil fuels (e.g. particulates, sulphur dioxide, nitrogen oxides etc.)
- Creating jobs in the region in the construction and operation phases
- Supporting the local economy by procuring available services (like subcontractors) and equipment (like cables, masts and transformer for the transmission line, turbine blades, general construction material, etc.) locally
- Supporting technology and know how transfer and development of the renewable energy sector in Turkey, whereby Enercon, the turbine supplier, will also provide training and technical knowledge to the project staff about maintenance, safety and operation
- Carrying out sustainable development project(s) in the region