



# Verified Carbon Standard

## ALAÇATI WIND POWER PROJECT, TURKEY

<b>Project title</b>	Alaçatı Wind Power Project, Turkey
<b>Project ID</b>	1437
<b>Monitoring period</b>	01/03/2021 – 29/02/2024
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# PROJECT DETAILS

## 1.1 Summary Description of the Implementation Status of the Project

The Alaçatı Wind Power Project, Turkey (hereafter referred to as the “Project” or “Alaçatı WPP”), which is developed by Egenda Ege Enerji Üretim A.Ş. (hereafter referred to as the “project owner”) is a wind power plant in İzmir Province of Turkey.

The Project has been implemented and operated by Egenda Ege Enerji Üretim A.Ş. The project aims to generate electricity from wind energy and feed it to the national electricity grid.

Total installed power generation capacity of the project is 16 MW, consisting of 8 wind turbines, with an estimated power supply to the grid of 49,822 MWh of net electricity generation per annum. The project is connected to 380 kV Çeşme Havza TM's OG and then Çeşme is connected to the 380 kV Çeşme Havza TM. The estimated amount of GHG emission reduction is 29,062 tonnes CO<sub>2</sub>e per year in the registered PDD. During its operation during this monitoring period, the actualized net electricity generation is 149,403.86 MWh. The actual emission reduction has been calculated as 87,145 tonnes CO<sub>2</sub> for this monitoring period.

The project has produced positive environmental benefits as displacing the electricity generated by fossil fuel fired power plants by utilising the renewable resources so as to avoid environmental pollution and GHG emissions.

The project includes 8 units of Enercon E82 E2 type turbines, each having a capacity of 2 MW.<sup>1</sup>

The start date of the project activity is 03/06/2016 as the date of commissioning date of the project.<sup>2</sup>

Please see the vintage-based comparison of expected and achieved emission reductions for this monitoring period:

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<sup>1</sup> The Ministry Acceptance Protocol is available to the VVB.

<sup>2</sup> The Ministry Acceptance Protocol is available to the VVB.

## 1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
Validation	03/06/2016 – 02/06/2026	VCS	Bureau Veritas Certification SAS – Burcu MUTMAN BORAN	Ten years
Verification	03-06-2016 / 28-02-2021	VCS	re-carbon Ltd. – Anıl SÖYLER	Five years
Verification	01-03-2021 / 29-02-2024	VCS	Rina Services S.p.A – Mehmet Erdoğan	Four years

## 1.3 Sectoral Scope and Project Type

Sectoral scope <sup>3</sup>	1
Project activity type	“Energy industries (renewable - / nonrenewable sources)”

## 1.4 Project Proponent

Organization name	Egenda Ege Enerji Üretim A.Ş.
Contact person	Mr. Fatih Çandır
Title	Energy Trade and Corporate Relations Department
Address	Şehit Nevres Bulvarı, No:10, Kat:7, Deren Plaza, Monrö / İzmir
Telephone	+90 232 463 98 11
Email	fatih.candir@endaenerji.com.tr

## 1.5 Other Entities Involved in the Project

Organization name	Sekans Danışmanlık
Role in the project	Consultant
Contact person	Sıla Duran
Title	Consultant
Address	Konaklar Mah. 34330,4. Levent - Istanbul

<sup>3</sup> Projects, activities, or methodologies may be developed under any of the 16 VCS sectoral scopes: <https://verra.org/programs/verified-carbon-standard/vcs-program-details/#sectoral-scopes>

Telephone	+90 532 438 30 29
Email	sil@sekansdanismanlik.com

### 1.6 Project Start Date

Project start date	03/06/2016
Justification	The date is the start date of the commissioning of the project.

### 1.7 Project Crediting Period

Crediting period	<input type="checkbox"/> Seven years, twice renewable <input checked="" type="checkbox"/> Ten years, fixed <input type="checkbox"/> Other (state the selected crediting period and justify how it conforms with the VCS Program requirements)
Start and end date of first or fixed crediting period	03/06/2016 – 02/06/2026

### 1.8 Project Location

The wind power plant is located about 5.8 km southeast of Çeşme Town of İzmir Province in Turkey.

The Aegean Sea is located 2.4 km north of the project, Ovacık and Alaçatı are located respectively 2.8 km and 2 km east of the project, 1.1 km south of the project is Çeşme-İzmir road.

The closest settlement to the project site is Ilıca which is about 1.6 km away to the north of the wind farm and Reisdere Neighbourhood which is about 1.3 km away to the north of the plant.



Figure 1. Location of Alaçatı Wind Power Project

Table 1 – Geographical coordinates of the wind turbines of the project activity<sup>4</sup>

Wind Turbine No	Latitude (N)	Longitude (E)
1	442997	4238651
2	442866	4238287
3	442803	4237919
4	443005	4237510
5	442756	4237510
6	442880	4237153

<sup>4</sup> Generation license is available to the VVB.

7	442800	4236763
8	443029	4238000

## 1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	ACM0002	Largescale Consolidated Methodology - Grid-connected electricity generation from renewable sources	16.0
Tool	Tool-07	Tool to calculate the emission factor for an electricity system	04.0
Tool	Tool-01	Tool for the demonstration and assessment of additionality	07.0
Tool	Tool-02	Combined tool to identify the baseline scenario and demonstrate additionality	05.0
Tool	Tool-03	Tool to calculate project or leakage CO2 emissions from fossil fuel combustion	02.0
Tool	Tool-10	Tool to determine the remaining lifetime of equipment	01

## 1.10 Double Counting and Participation under Other GHG Programs

### 1.10.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program?

Yes  No

### 1.10.2 Registration in Other GHG Programs

Is the project registered or seeking registration under any other GHG programs?

Yes  No

## 1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions

### 1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the *VCS Program Definitions* for definitions of emissions trading program and binding emission limit.

Yes  No

### 1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the *VCS Program Definitions* for definition of GHG-related environmental credit system.

Yes  No

### 1.11.3 Supply Chain (Scope 3) Emissions

Do the project activities affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

Yes  No

## 1.12 Sustainable Development Contributions

**Table 1: Sustainable Development Contributions**

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
1)	7.2	7.2.1 Renewable energy share in the total final energy consumption	Implemented activities to increase	Prevented 149,403.86 MWh electricity generation from fossil fuels.	Prevented the generation of 377,062.17 MWh electricity generation from fossil fuels.
2)	8.2	Job creation for local people in a high value added sector	Implemented activities to increase	<p>During construction and operational period, the project has created employment opportunities for the local community. The project contributes to the economic development of the region by providing sustainable energy resources.</p> <p>Job has been created for 8 employees.</p>	As contributing to SGD 8 Decent Work and Economic Growth, one Plant Manager and one chief technician are responsible for all five projects of the project owner. Besides this, six control operators are working in shifts for the Project Activity. However, 8 employees are recorded under the Project Activity.
3)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	By producing electricity from wind energy, the project activity has prevented the release of 87,145 tonnes of carbon into the atmosphere during the reporting period.	Prevented the release of 219,935 tonnes of carbon into the atmosphere.



### 1.13 Commercially Sensitive Information

No commercially sensitive information has been excluded from the public version of the project description.

## 2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

### 2.1 Stakeholder Engagement and Consultation

#### 2.1.1 Stakeholder Identification

The stakeholder structure has not changed since validation. Details of the stakeholder structure are given in section 2.1.2.

#### 2.1.2 Stakeholder Consultation and Ongoing Communication

<p><b>Ongoing consultation</b></p>	<p>The contact information of the plant responsible exists at the Mukhtar, the project owner and local community are always in touch. The project owner regularly checks with the Mukhtar if any complaint or a request exists. Any complaint or need from the local community could directly be received by the project owner and appropriate contributions or improvements are made to the local community.</p>
<p><b>Date(s) of stakeholder consultation</b></p>	<p>08/11/2012  The last site-visit was on 15/02/2024.</p>
<p><b>Communication of monitored results</b></p>	<p>Stakeholders can directly reach the plant business manager if they have any complaints/opinions. In cases where stakeholders needed to be informed, the project owner informed the stakeholders through the headman.</p>
<p><b>Consultation records</b></p>	<p>At the end of the stakeholder meeting, signatures were taken from the stakeholders. In case of any request/complaint, stakeholders can forward this issue to the Mukhtar or directly to the Business Manager.</p> <p>This submitted request/complaint is documented. No complaints occurred during this monitoring period.</p>

<b>Stakeholder input</b>	Generally, the stakeholders were pleased with the project. Since they have informed regarding the project at the first stakeholder consultation process, they have no negative comments on the project.
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### 2.1.3 Free, Prior, and Informed Consent

<b>Consent</b>	Relevant permits were obtained during the validation period.
<b>Outcome of FPIC</b>	The project activity did not damage land, did not relocate people without their consent, and did not forcibly physically or economically displace people.

### 2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome
No negative inputs have been received during this monitoring period.	The grievance mechanism is in place, and this was also confirmed by the interviewed local villagers and Barbaros Village Mukhtar (Village Head) during the site visit of the last verification. In addition, the contact information of the plant responsible is available in Mukhtar; any complaints or requests can be forwarded to the Project Owner.

### 2.1.5 Public Comments

Summary of comments received	Actions taken
There hasn't been any public consultation during this monitoring period.	N/A

## 2.2 Risks to Stakeholders and the Environment

	Risk identified	Mitigation or preventative measure taken
<b>Risks to stakeholder participation</b>	No risk identified	Stakeholders are involved in every stage of informing about the project activity. The

		complaint mechanism is fully functioning.
<b>Working conditions</b>	No risk identified	All necessary training regarding the health and safety of employees is provided. Child labor as defined in the ILO Minimum Age Convention is not permitted. The Project Developer ensures that there is no forced labor, and that all employment complies with national occupational and occupational health and safety laws, obligations under international law, and the principles and standards and essential conventions of the International Labor Organization (ILO).
<b>Safety of women and girls</b>	No risk identified	The project does not endanger the safety of girls and women.
<b>Safety of minority and marginalized groups, including children</b>	No risk identified	The project does not jeopardize the safety of minorities and isolated groups, including children.
<b>Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)</b>	No risk identified	The project is a wind energy project. By evaluating the environmental impacts of the project activity, "EIA Not Required Certificate" was received from the Ministry of Environment and Urbanization on 29/05/2008.

## 2.3 Respect for Human Rights and Equity

### 2.3.1 Labor and Work

<b>Discrimination and sexual harassment</b>	<p>The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis.</p>
<b>Management experience</b>	<p>No new organization was involved in the project design and implementation.</p>
<b>Gender equity in labor and work</b>	<p>The project does not reduce access to or control of resources for women. The project does not involve in any form discrimination in any kind of form. The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights.</p>
<b>Human trafficking, forced labor, and child labor</b>	<p>Child labour, as defined by the ILO Minimum Age Convention, is not allowed. The Project Developer ensures that there is no forced labour, and that all employment is in compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions.</p>

### 2.3.2 Human Rights

Turkey is a party to European Convention on Human Rights since 18.May. 1954.<sup>5</sup>

The project owner respects internationally proclaimed human rights including dignity, cultural property and uniqueness of indigenous people. The project is not complicit in Human Rights abuses.

### 2.3.3 Indigenous Peoples and Cultural Heritage

There is no resettlement issue associated with the Project. There was no house in the project area, thus the project did not cause any resettlement.

### 2.3.4 Property Rights

All permits for the project site were obtained during the validation period.

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<sup>5</sup> Please See Official Website of Ministry of Foreign Affairs of Turkey: <http://www.mfa.gov.tr/the-european-convention-on-human-rights.en.mfa>

Disputes over rights to territories and resources	N/A
Respect for property rights	N/A

### 2.3.5 Benefit Sharing

There is no benefit sharing in the project activity.

## 2.4 Ecosystem Health

“EIA not Required Certificate” from Ministry of Environment and Urbanization was taken on 29/05/2008 as assessing the environmental impacts of the project activity.

	Risk identified	Mitigation or preventative measure taken during the monitoring period
Impacts on biodiversity and ecosystems	No risk identified	The project is a wind energy project.
Soil degradation and soil erosion	No risk identified	The project is a wind energy project.
Water consumption and stress	No risk identified	The project is a wind energy project.
Usage of fertilizers	No risk identified	The project is a wind energy project.

### 2.4.1 Rare, Threatened, and Endangered species

Species or habitat	There aren't any endangered species identified as potentially present within the Project boundary (including those that may route through the area). The Project does not potentially impact other areas where endangered species may be present through transboundary affects.
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### 2.4.2 Introduction of species

N/A

### 2.4.3 Ecosystem conversion

The project is not an “Afforestation, Reforestation and Revegetation” (ARR), “Agricultural Land Management” (ALM), “Wetlands Restoration and Conservation” (WRC) or “Avoided Conversion of Grasslands and Shrublands” (ACoGS) project.

## 3 IMPLEMENTATION STATUS

### 3.1 Implementation Status of the Project Activity

The description of the implementation and operational status of the project and the installed technology(ies), technical process and equipment are detailed in Section 1.1.

The Egenda Ege Enerji Üretim A.Ş. is the owner of the Project. Shareholder structure has been changed a few times. The latest structure change was on 20/05/2019 as the main shareholder Enda Enerji Holding A.S.

Other entity involved in the project was Lifeenerji Ltd. Şti. in the project description. However, it's been changed as Sekans Danışmanlık during the 1<sup>st</sup> Monitoring Period.

### 3.2 Deviations

#### 3.2.1 Methodology Deviations

There are no methodological deviations applied during this monitoring period.

#### 3.2.2 Project Description Deviations

The first 10-year crediting period was planned as from 1st of June 2016 to 31st of May 2026 as in registered PD. But the project started its operation in 03/06/2016, since the project processes took more time than it was expected. Thus, the project start date is 03/06/2016. And the Project's crediting period is: 03/06/2016 – 02/06/2026, currently.

The Egenda Ege Enerji Üretim A.Ş. is the owner of the Project. Shareholder structure has been changed a few times. The latest structure change was on 20/05/2019 as the main shareholder Enda Enerji Holding A.S.

Other entity involved in the project was Lifeenerji Ltd. Şti. in the project description. However, it's been changed as Sekans Danışmanlık during the 1<sup>st</sup> Monitoring Period.

### 3.3 Grouped Projects

The project activity is not a grouped project.

### 3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

Yes

No

## 4 DATA AND PARAMETERS

### 4.1 Data and Parameters Available at Validation

<b>Data / Parameter</b>	<b>Gross electricity generation</b>
<b>Data unit</b>	MWh
<b>Description</b>	Gross Electricity supplied to the grid by relevant sources (2009-2011)
<b>Source of data</b>	Turkish Electricity Transmission Company (TEİAŞ), Annual Development of Turkey's Gross Electricity Generation of Primary Energy Resources (1975-2011) TEİAŞ <a href="https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletimistatistikleri">https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletimistatistikleri</a>
<b>Value applied</b>	Please refer to Table 13 in the PDD
<b>Justification of choice of data or description of measurement methods and procedures applied</b>	TEIAS annually publishes official data regarding electricity generation. Average share of each source in the overall generation has been calculated.
<b>Purpose of Data</b>	Data used for emission reduction calculation
<b>Comments</b>	-

<b>Data / Parameter</b>	<b>EF<sub>grid, CM, y</sub></b>
<b>Data unit</b>	tCO <sub>2</sub> /MWh
<b>Description</b>	Combined margin CO <sub>2</sub> emission factor for the project electricity system in year 2011
<b>Source of data</b>	As per "Tool to calculate the emission factor for an electricity system"
<b>Value applied</b>	0.5833 tCO <sub>2</sub> /MWh
<b>Justification of choice of data or description of measurement methods and procedures applied</b>	As per "Tool to calculate the emission factor for an electricity system" Calculated from data provided by the TEIAS for Turkish Power Sector; Operating Margin = 0.6542 KgCO <sub>2</sub> e/kWh Build Margin = 0.3707 KgCO <sub>2</sub> e/kWh Combined Margin = 0.5833 KgCO <sub>2</sub> /kWh

<b>Purpose of Data</b>	Used for baseline emissions
<b>Comments</b>	-

<b>Data / Parameter</b>	<b>Eg<sub>y</sub></b>
<b>Data unit</b>	MWh
<b>Description</b>	Net electricity generated by project electricity system in year 2009, 2010 and 2011
<b>Source of data</b>	Turkish Electricity Transmission Company (TEIAS), Annual Development of Electricity Generation- Consumption and Losses in Turkey (1984-2011) TEIAS <a href="https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletimistatistikleri">https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletimistatistikleri</a>
<b>Value applied</b>	Please refer to Table 14 and Table 15 in the PDD
<b>Justification of choice of data or description of measurement methods and procedures applied</b>	TEIAS annually publishes official data regarding total net electricity generation, but its breakdown by fuel type is unavailable.
<b>Purpose of Data</b>	Data used for emission reduction calculation
<b>Comments</b>	-

<b>Data / Parameter</b>	<b>EF<sub>CO2,i,y</sub></b>
<b>Data unit</b>	tCO <sub>2</sub> /GJ
<b>Description</b>	CO <sub>2</sub> emission factor of fuel type i used in power unit m in year 2011
<b>Source of data</b>	PCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the IPCC Guidelines on National GHG Inventories. <a href="http://www.ipccnggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf">http://www.ipccnggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf</a>
<b>Value applied</b>	Please refer to Table 18 and Table 21 in the PDD
<b>Justification of choice of data or description of measurement</b>	No plant specific and national emission factor data is available in Turkey. So, IPCC default data is used.

<b>methods and procedures applied</b>	<p>For Fuel Oil Power Plants: 'Gas/Diesel Oil' data is used for conservativeness.</p> <p>For Coal Power Plants: In the 205<sup>th</sup> page of official document given in the link below, it is stated that Çolakoğlu and İçdaş utilizes 'Taşkömürü' (Hardcoal). And at the Table-2 in page 157 of the same document, Taşkömürü is divided in two groups: Bituminous and Anthracite. Since Sub-Bituminous Coal is under Brown Coal in the same table and since Other Bituminous Coal has lower EF than Anthracite in 1.4 of IPCC Guidelines, EF for 'Other Bituminous Coal' is used. See: <a href="http://www.dpt.gov.tr/DocObjects/Icerik/4225/Enerji_Hammad_deleri_(Linyit_Taşkömuru-Jeotermal)">http://www.dpt.gov.tr/DocObjects/Icerik/4225/Enerji_Hammad_deleri_(Linyit_Taşkömuru-Jeotermal)</a></p>
<b>Purpose of Data</b>	Data used for emission reduction calculation
<b>Comments</b>	-

<b>Data / Parameter</b>	<b>Sample Group for BM emission factor</b>
<b>Data unit</b>	Name of the plants, MW capacities, fuel types, annual electricity generations and dates of commissioning.
<b>Description</b>	Most recent power plants which compromise 20% of total generation
<b>Source of data</b>	<p>Annual Development Of Fuels Consumed In Thermal Power Plants In Turkey By The Electric Utilities, TEIAS: <a href="http://www.epdk.org.tr/yayin_rapor/elektrik/yayin/uretim_KapasiteProjeksiyonu.pdf">http://www.epdk.org.tr/yayin_rapor/elektrik/yayin/uretim_KapasiteProjeksiyonu.pdf</a></p> <p><a href="http://www.epdk.org.tr/yayin_rapor/elektrik/yayin/uretimKapasiteProjeksiyonu2008_2017.pdf">http://www.epdk.org.tr/yayin_rapor/elektrik/yayin/uretimKapasiteProjeksiyonu2008_2017.pdf</a></p> <p><a href="http://www.teias.gov.tr/projeksiyon/KAPASITEPROJEKSİYONU2009.pdf">http://www.teias.gov.tr/projeksiyon/KAPASITEPROJEKSİYONU2009.pdf</a></p> <p><a href="http://www.teias.gov.tr/projeksiyon/KAPASITE%20PROJEKSİYONU%202010.pdf">http://www.teias.gov.tr/projeksiyon/KAPASITE%20PROJEKSİYONU%202010.pdf</a></p> <p><a href="http://www.epdk.org.tr/documents/10157/8edb1470-7667-4ce1-8ce5-21d1ce4e4761">http://www.epdk.org.tr/documents/10157/8edb1470-7667-4ce1-8ce5-21d1ce4e4761</a></p> <p><a href="http://www.teias.gov.tr/KAPASITEPROJEKSİYONU2012.pdf">http://www.teias.gov.tr/KAPASITEPROJEKSİYONU2012.pdf</a></p>
<b>Value applied</b>	Please refer to table 23 in the PDD
<b>Justification of choice of data or description of</b>	The Turkish Electricity Distribution Company.

<b>measurement methods and procedures applied</b>	TEIAS is the national electricity transmission company, which makes available the official data of all power plants in Turkey. The latest data available during PDD preparation was for 2011.
<b>Purpose of Data</b>	Data used for emission reduction calculation
<b>Comments</b>	-

<b>Data / Parameter</b>	$\eta_{i,y}$
<b>Data unit</b>	-
<b>Description</b>	Average energy conversion efficiency of power unit m in year y
<b>Source of data</b>	Annex I the “Tool to calculate the emission factor for an electricity system”
<b>Value applied</b>	Please refer to table 18 in the PDD
<b>Justification of choice of data or description of measurement methods and procedures applied</b>	For efficiency rates of Coal and Lignite Power Plants See Annex-1 of the Tool (highest rate is applied to be conservative) For Natural Gas and Oil plants efficiencies, default value given in the tool is applied: <a href="http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v2.pdf">http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v2.pdf</a>
<b>Purpose of Data</b>	Data used for emission reduction calculation
<b>Comments</b>	-

<b>Data / Parameter</b>	$HV_{i,y}$
<b>Data unit</b>	Mass or volume unit
<b>Description</b>	Heating Values of fuels consumed for electricity generation in the years of 2009, 2010 and 2011
<b>Source of data</b>	TEIAS (Turkish Electricity Transmission Company) <a href="http://www.teias.gov.tr/istatistikler.aspx">http://www.teias.gov.tr/istatistikler.aspx</a>
<b>Value applied</b>	Please refer to Table 19 in the PDD
<b>Justification of choice of data or description of measurement methods and procedures applied</b>	TEİAŞ is the national electricity transmission company, which makes available the official data of all power plants in Turkey. There is no national NVC data in Turkey. However, TEİAŞ announces Heating values of fuels. This data is used to calculate annual NCVs for each fuel type.
<b>Purpose of Data</b>	Data used for emission reduction calculation

<b>Comments</b>	-
<b>Data / Parameter</b>	<b>FC<sub>i,y</sub></b>
<b>Data unit</b>	Mass or volume unit
<b>Description</b>	Amount of fuel type i consumed by relevant power plants in Turkey in the years of 2009, 2010 and 2011
<b>Source of data</b>	TEIAS (Turkish Electricity Transmission Company) <a href="http://www.teias.gov.tr/istatistikler.aspx">http://www.teias.gov.tr/istatistikler.aspx</a>
<b>Value applied</b>	Please refer to Table 20 in the PDD
<b>Justification of choice of data or description of measurement methods and procedures applied</b>	TEİAŞ is the national electricity transmission company, which makes available the official data of all power plants in Turkey.
<b>Purpose of Data</b>	Data used for emission reduction calculation
<b>Comments</b>	-

<b>Data / Parameter</b>	<b>NCV<sub>i,y</sub></b>
<b>Data unit</b>	TJ/kton, TJ/million m <sup>3</sup>
<b>Description</b>	Net calorific value (energy content) of fuel type i in years of 2009, 2010 and 2011
<b>Source of data</b>	Calculated by using HVi,y to FCi,y as Net Calorific Values of fuel types are not directly available in Turkey.
<b>Value applied</b>	Please refer to section Table 21 in the PDD
<b>Justification of choice of data or description of measurement methods and procedures applied</b>	According to “Turkish Statistics Law and Official Statistics Program” TEIAS, the Turkish Electricity Transmission Company is the official source for the related data, hence providing the most up-to-date and accurate information available. Calculation of NCVs from national HVi,y and FCi,y data is preferred to default IPCC data as these are more reliable.
<b>Purpose of Data</b>	Used to calculate the combined margin emission factor
<b>Comments</b>	-

## 4.2 Data and Parameters Monitored

<b>Data / Parameter</b>	<b>EG<sub>facility,y</sub></b>										
<b>Data unit</b>	MWh/yr										
<b>Description</b>	Quantity of net electricity generation supplied to the grid in year y										
<b>Source of data</b>	The data from the Electricity Meters are the basis for the settlement notification of EPIAS <sup>6</sup> . Data are gathered electronically from the meters by TEIAS and stored in secured website of EPIAS, which is accessible to project developer with a private password. For monitoring, the monthly settlement notification of EPIAS shall be used as source of data.										
<b>Description of measurement methods and procedures to be applied</b>	Alaçatı Wind Power Project, Turkey is connected to 380 kV Çeşme TM's OG and then Çeşme is connected to the 380 kV Çeşme Havza TM. There are two metering instruments (power meters). 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 TEIAS personnel. Official TEIAS data from the EPIAS web site was used for calculating EG <sub>y</sub> .										
<b>Frequency of monitoring/recording</b>	Continuously monitoring and monthly readings										
<b>Value monitored</b>	42,253.03 MWh for 2021 (01/03/2021 – 31/12/2021) 53,831.13 MWh for 2022 43,877.90 MWh for 2023 10,441.80 MWh for 2024 (01/01/2024 – 29/02/2024)										
<b>Monitoring equipment</b>	<p>Both exported and imported electricity are measured continuously by a power meter at the grid interface and recorded monthly.</p> <p>Power meters:</p> <table border="1"> <thead> <tr> <th></th> <th><b>Main Meter</b></th> <th><b>Spare Meter</b></th> </tr> </thead> <tbody> <tr> <td><b>Name</b></td> <td>Ana Sayaç</td> <td>Yedek Sayaç</td> </tr> <tr> <td><b>Brand</b></td> <td>EMH</td> <td>EMH</td> </tr> </tbody> </table>			<b>Main Meter</b>	<b>Spare Meter</b>	<b>Name</b>	Ana Sayaç	Yedek Sayaç	<b>Brand</b>	EMH	EMH
	<b>Main Meter</b>	<b>Spare Meter</b>									
<b>Name</b>	Ana Sayaç	Yedek Sayaç									
<b>Brand</b>	EMH	EMH									

<sup>6</sup> PMUM has been replaced by EPIAS as of 01/09/2015 in Turkey. Retrospective data is accessible via EPIAS

	<b>Serial Number</b>	11800269	11800270
	<b>Accuracy Class</b>	0.2S	0.2S
	<b>Latest Test Date of the Meter</b>	05/11/2022	06/12/2022
<p>Power meters that were changed:</p>			
		<b>Main Meter</b>	<b>Spare Meter</b>
	<b>Name</b>	Ana Sayaç	Yedek Sayaç
	<b>Brand</b>	EMH	EMH
	<b>Serial Number</b>	4213173	4213174
	<b>Accuracy Class</b>	0.2S	0.2S
	<b>First Index Protocol date of the Meter</b>	04/06/2016	04/06/2016
	<b>Latest Test Date of the Meter</b>	19/09/2020	19/09/2020
	<b>Change Date of the Meter</b>	05/11/2022	06/12/2022
	<b>QA/QC procedures to be applied</b>	<ul style="list-style-type: none"> <li>• A spare meter is used for crosschecking the accuracy and both meters are calibrated if required.</li> <li>• EPIAS records are considered as the main source for net electricity and the values are crosschecked with the Meter Reading Forms.</li> <li>• The periodical calibration or maintenance is under the responsibility of TEİAŞ. The calibration of meters is done every ten years. The meter tests are carried out every two years. Since TEİAŞ meters are sealed by TEİAŞ, the project proponent cannot intervene with the devices.</li> </ul>	
<b>Purpose of the data</b>	Calculation of net electricity supplied to the grid and thus baseline emissions		
<b>Calculation method</b>	Direct continuous measurement		
<b>Comments</b>	-		

### 4.3 Monitoring Plan

The Project Proponent is responsible for the overall management of the monitoring procedures including recording, data collection, calculating emission reductions and project emissions.

Please see below the management structure for the plant operation:

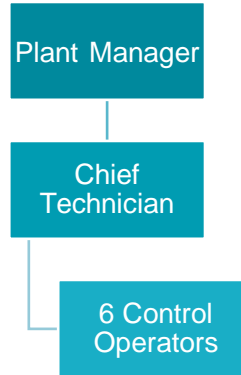


Figure 2. The management structure for the plant operation

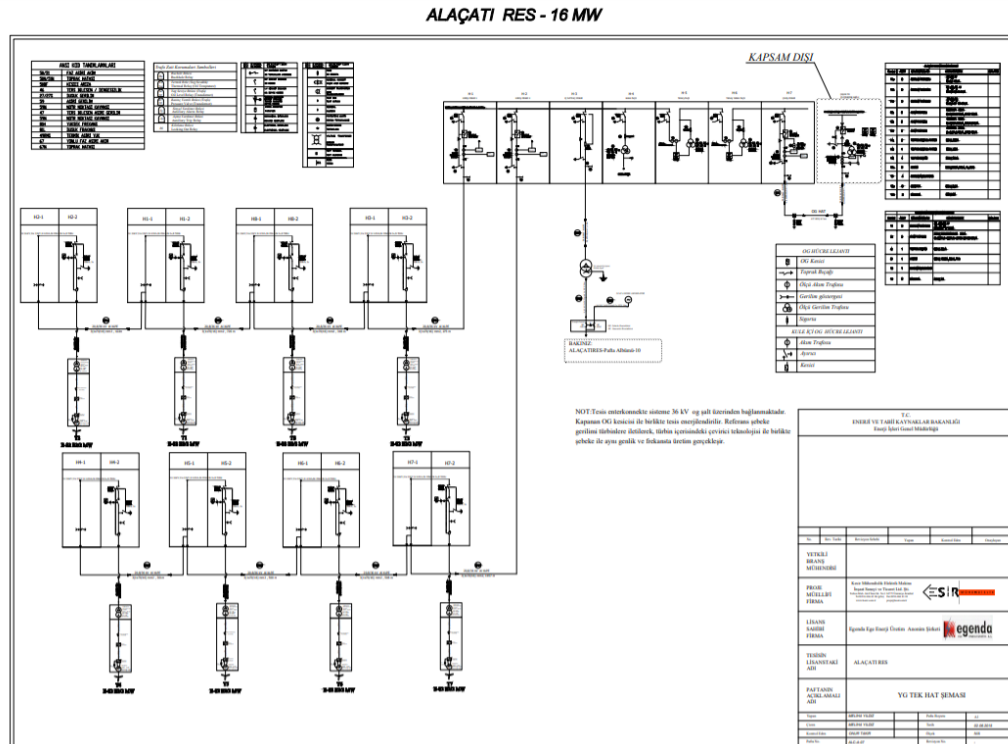


Figure 3. The Single Line Diagram of Alaçatı Wind Farm Project

One Plant Manager and one chief technician are responsible for all five projects of the project owner. Besides this, six control operators are working in shifts for the Project Activity. Project Manager is responsible for all issues related to project and operation of the plant. Chief Technician is responsible for daily operational processes of the plant, management of the plant personnel, and other technical and management issues for the plant. Control Operators are responsible for monitoring of the plant and turbines for all day and night in the control room.

Two power meters are installed at the grid interface of the project. One is the main meter, and the other is spare meter of the main meter for cross-checking. Both meters are jointly inspected and sealed in order to be protected from interference by any of the parties. Both the main and secondary meters are owned and installed by the grid operator (TEIAS). The grid operator is the only one authorized to deal with fixing, calibrating, or changing the meters, which were done either by the grid operator or by a company authorized by the grid operator.

The periodical calibration or maintenance is under the responsibility of TEIAS. The calibration of meters is done every ten years. The meter tests are carried out every two years. Since TEİAŞ meters are sealed by TEİAŞ, the project proponent cannot intervene with the devices.

During this monitoring period, there were no records of meter failure. In case of any urgent case TEIAS contacts the Plant Manager. Since the meters are within TEIAS' province, TEIAS executes all the procedures for handling non-conformities. Therefore, the Project Participant does not have any internal auditing for this purpose.

TEIAS is performing remote reading of the meters and monthly power meter readings are the basis for monitoring net electricity fed into the grid. A measuring protocol is prepared including day, peak and night hour electricity generation by the project owner and approved by governmental officers at the end of each month.

The primary source is the EPIAS records. Net electricity exported is crosschecked with Meter Reading Forms. EPIAS is the financial settlement center of TEIAS<sup>7</sup>. The Meter Reading Forms are filled by the project owner and approved by the governmental officers. Additionally, the remote reading by the governmental body is also available. The website of EPIAS is accessible to Project Proponent with their unique user ID and password. Once accessed, the Project Proponent is able to call electricity generation and consumption reports of their own projects. The same reports are used by the Project Proponent for invoicing TEIAS. The electricity generation data is reported monthly basis.

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<sup>7</sup> PMUM has been replaced by EPIAS as of 01/09/2015 in Turkey during the verification period. Retrospective data is accessible via EPIAS.

# 5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

## 5.1 Baseline Emissions

The baseline emission BE<sub>y</sub> (tCO<sub>2</sub>e) during the monitoring period results from:

$$BE_y = EG_{PJ, y} * EF_{grid, CM, y}$$

where:

BE <sub>y</sub>	Baseline emissions in year y (tCO <sub>2</sub> e/y)
EG <sub>PJ,y</sub>	Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)
EF <sub>grid,CM,y</sub>	Combined margin CO <sub>2</sub> emission factor for grid connected power generation in year y calculated by using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO <sub>2</sub> /MWh)

$$BE_y = EG_{PJ, y} * EF_{grid, CM, y} \tag{Equation (1)}$$

### Project Emissions

Since the project activity is a wind project, PE<sub>y</sub>=0

### Leakage

In accordance with the ACM0002. (Version 16.0), leakage is taken as zero since the project is a new power plant is taken as zero, LE<sub>y</sub>= 0

### Emission Reductions

$$ER_y = BE_y - PE_y - LE_y \tag{Equation (2)}$$

Table 2 - Baseline emissions

Month	(A) Electricity supplied to the grid [MWh]	(B) Electricity consumed from the grid [MWh]	(C) = (A) - (B) EG (ID 8) Net electricity supplied to the grid [MWh]	EF [tCO <sub>2</sub> /MWh]	Baseline emission: ER = EG * EF [t CO <sub>2</sub> -eq]
Mar-21	5,036.10	0.71	5,035.39	0.5833	2,937
Apr-21	5,014.42	1.43	5,012.98	0.5833	2,924
May-21	2,788.50	1.30	2,787.20	0.5833	1,626
Jun-21	2,530.17	0.73	2,529.44	0.5833	1,475
Jul-21	5,026.50	1.08	5,025.42	0.5833	2,931
Aug-21	3,684.21	1.15	3,683.06	0.5833	2,148
Sep-21	4,247.73	0.97	4,246.76	0.5833	2,477
Oct-21	3,470.66	1.26	3,469.40	0.5833	2,024
Nov-21	4,060.17	2.75	4,057.42	0.5833	2,367
Dec-21	6,406.42	0.45	6,405.97	0.5833	3,737
Jan-22	5,327.17	0.63	5,326.54	0.5833	3,107
Feb-22	4,191.74	1.32	4,190.41	0.5833	2,444
Mar-22	6,248.76	0.90	6,247.85	0.5833	3,644
Apr-22	3,262.42	1.70	3,260.72	0.5833	1,902
May-22	2,627.25	2.50	2,624.75	0.5833	1,531
Jun-22	4,724.43	1.21	4,723.22	0.5833	2,755
Jul-22	6,752.91	0.68	6,752.23	0.5833	3,939
Aug-22	3,209.06	2.14	3,206.92	0.5833	1,871
Sep-22	3,880.72	2.02	3,878.70	0.5833	2,262
Oct-22	4,602.06	1.02	4,601.04	0.5833	2,684
Nov-22	4,142.47	1.03	4,141.44	0.5833	2,416
Dec-22	3,880.91	3.60	3,877.31	0.5833	2,262
Jan-23	3,480.20	2.27	3,477.93	0.5833	2,029
Feb-23	5,322.50	0.78	5,321.73	0.5833	3,104
Mar-23	4,695.71	1.54	4,694.17	0.5833	2,738
Apr-23	3,825.02	1.44	3,823.58	0.5833	2,230
May-23	2,368.29	1.64	2,366.65	0.5833	1,380
Jun-23	2,597.98	1.60	2,596.39	0.5833	1,514
Jul-23	4,329.97	1.63	4,328.34	0.5833	2,525
Aug-23	2,330.01	3.85	2,326.16	0.5833	1,357
Sep-23	3,295.91	0.68	3,295.22	0.5833	1,922
Oct-23	2,933.30	1.54	2,931.76	0.5833	1,710
Nov-23	4,820.83	1.45	4,819.38	0.5833	2,811
Dec-23	3,898.57	1.97	3,896.60	0.5833	2,273
Jan-24	6,311.67	0.87	6,310.80	0.5833	3,681
Feb-24	4,131.78	0.78	4,131.00	0.5833	2,410

<b>2021 Vintage (01.03.2021- 31.12.2021)</b>	42,264.87	11.84	42,253.03	0.5833	24,646
<b>2022 Vintage (01.01.2022- 31.12.2022)</b>	52,849.88	18.75	52,831.13	0.5833	30,816
<b>2023 Vintage (01.01.2023- 31.12.2023)</b>	43,898.29	20.39	43,877.90	0.5833	25,593
<b>2024 Vintage (01.01.2024- 29.02.2024)</b>	10,443.45	1.65	10,441.80	0.5833	6,090
<b>Total</b>	149,456.49	52.63	149,403.86	0.5833	87,145

## 5.2 Project Emissions

In accordance with the methodology ACM0002, Version 16.0, no project emissions need to be considered. Project emissions apply only for geothermal power plants, solar thermal power plants and for some hydro power plants.

Therefore,  $PE_y = 0$ .

## 5.3 Leakage Emissions

No leakage is to be accounted by the Project Activity. This is in line with the registered PD and applicable methodology ACM0002, Version 16.0.

Therefore, the leakage from the Project Activity is zero.

## 5.4 GHG Emission Reductions and Carbon Dioxide Removals

The baseline emission  $BE_y$  (tCO<sub>2</sub>e) during the monitoring period results from:

$$BE_y = EG_{PJ, y} * EF_{grid, CM, y}$$

where:

$BE_y$

Baseline emissions in year y (tCO<sub>2</sub>e/y)

$EG_{PJ,y}$	Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)
$EF_{grid,CM,y}$	Combined margin CO <sub>2</sub> emission factor for grid connected power generation in year y calculated by using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO <sub>2</sub> /MWh)

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

According to ACM0002, emission reductions are calculated as:

$$ER_y = BE_y - PE_y - LE_y$$

where:

$ER_y$  = Emission reductions in year y (t CO<sub>2</sub>/yr)

$BE_y$  = Baseline emissions in year y (t CO<sub>2</sub>/yr)

$PE_y$  = Project emission in year y (t CO<sub>2</sub>/yr)

$LE_y$  = Leakage emissions in year y (t CO<sub>2</sub>/yr)

$$EF_{grid,OM,y} = 0.6542 \text{ tCO}_2/\text{MWh}$$

$$EF_{grid,BM,y} = 0.3707 \text{ tCO}_2/\text{MWh}$$

$$EF_{grid,CM,y} = w_{OM} * EF_{grid,OM,y} + w_{BM} * EF_{grid,BM,y}$$

According to the wind energy production tool:  $w_{OM} = 0.75$  and  $w_{BM} = 0.25$ .

$$EF_{grid,CM,y} = 0.6542 \text{ tCO}_2/\text{MWh} * 0.75 + 0.3707 \text{ tCO}_2/\text{MWh} * 0.25$$

$$EF_{grid,CM,y} = 0.5833 \text{ tCO}_2/\text{MWh}$$

$$BE_y = 149,403.86 \text{ MWh} * 0.5833 \text{ tCO}_2/\text{MWh} = 87,145 \text{ tCO}_2$$

**Emission Reductions**

$$ER_y = BE_y - PE_y - LE_y$$

$$ER_y = 87,145 - 0 - 0$$

$$ER_y = 87,145 \text{ tCO}_2$$

Vintage period	Baseline emissions (tCO <sub>2e</sub> )	Project emissions (tCO <sub>2e</sub> )	Leakage emissions (tCO <sub>2e</sub> )	Reduction VCU <sub>s</sub> (tCO <sub>2e</sub> )	Removal VCU <sub>s</sub> (tCO <sub>2e</sub> )	Total VCU <sub>s</sub> (tCO <sub>2e</sub> )
01-Mar-2021 to 31-Dec-2021	24,646	0	0	24,646	0	24,646
01-Jan-2222 to 31-Dec-2022	30,816	0	0	30,816	0	30,816
01-Jan-2023 to 31-Dec-2023	25,953	0	0	25,953	0	25,953
01-Jan-2024 to 29-Feb-2024	6,090	0	0	6,090	0	6,090
<b>Total</b>	<b>87,145</b>	<b>0</b>	<b>0</b>	<b>87,145</b>	<b>0</b>	<b>87,145</b>

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
01/Mar/2021 to 31-Dec-2021	24,364	24,646	1.2%	This marginal spread from the estimation is probably due to weather conditions.
01-Jan-2222 to 31-Dec-2022	29,062	30,816	6.0%	
01-Jan-2023 to 31-Dec-2023	29,062	25,593	-11.9%	
01-Jan-2024 to 29-Feb-2024	4,777	6,090	27.5%	
<b>Total</b>	<b>87,266</b>	<b>87,145</b>	<b>-0.1%</b>	

# APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

Section	Information	Justification