



International
Carbon
Registry

Albay Çiğiltepe WPP Capacity Addition Project

Project design description

Abstract

Albay Çiğiltepe WPP is situated in Dinar District of Afyon Province, Türkiye and has been established and operated by Olgu Enerji Yatırım Üretim ve Ticaret A.Ş. The project initially developed to have 115 MW_m / 115 MW_e and annual generation was estimated as 402,500 MWh. With the capacity addition of 85.25 MW_m / 57.60 MW_e, total capacity became 200,25 MW_m and estimated annual generation increased by 201,600 MWh and became 604,100 MWh, according to the generation license. This PDD only covers the capacity addition part.



Olgu Enerji Yatırım Üretim ve Ticaret A.Ş.

Project design description (PDD)

Basic Information	
ID of project	223
Project name	Albay Çiğiltepe WPP Capacity Addition Project
Project proponent	Olgu Enerji Yatırım Üretim ve Ticaret A.Ş.
Representative	Sıla DURAN Sekans Danışmanlık Ltd. Şti., Consultant sila@sekansdanismanlik.com +90 (532) 438 30 29
Statement by the project proponent	The Olgu Enerji Yatırım Üretim ve Ticaret A.Ş. states that he is responsible for the preparation and fair presentation of this PDD and all accompanying documentation provided
Pre-registration date	28/12/2023
Version number of the PDD	45.0
Date of version	09/08/2024 22/01/2025
Methodology(ies) applied and version number	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, ACM0002: Grid-connected electricity generation from renewable sources - Version 22.0
Criteria for validation	<input type="checkbox"/> ICR requirement document v.4 <input checked="" type="checkbox"/> ICR requirement document v.5 <input checked="" type="checkbox"/> ISO 14064-2 <input checked="" type="checkbox"/> Applied methodology, ACM0002, v22.0 <input type="checkbox"/> Other, please specify.
Host country(ies)	Türkiye
Host country approval	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sectoral scope of project activity	Scope 1 - Energy industries (renewable - / non-renewable sources)
Multiple project activities	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Methodology(ies) applied and version number	ACM0002: Grid-connected electricity generation from renewable sources - Version 22.0
Type (CDR, avoidance, hybrid)	<input type="checkbox"/> CDR <input checked="" type="checkbox"/> Avoidance <input type="checkbox"/> Hybrid
MRV cycle:	Once for generation up to first verification, every 2 years thereafter.
Estimated annual average GHG emission mitigation (t CO ₂ -e)	127,915

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1. Project description

1.1 Purpose, objectives, and general description of the project

The Albay Çiğiltepe WPP Capacity Addition Project (hereafter referred as “Project”) is an increase capacity addition wind power plant, located in Afyonkarahisar Province, Türkiye owned by Olgu Enerji Yatırım Üretim ve Ticaret A.Ş. The generation license of the project was issued by the Energy Market Regulatory Authority (EMRA) on 16/03/2011 for 49 years. The project initially developed to have 115 MW_m / 115 MW_e with 50 turbines and annual generation was estimated as 402,500 MWh. With the capacity addition of 31 turbines with installed capacity of 85.25 MW_m / 57.60 MW_e, total capacity became 200.25 MW_m / 172.6 MW_e and estimated annual generation increased by 201,600 MWh and became 604,100 MWh, according to the generation license. This PDD only covers the capacity addition part.

The project is a greenfield power plant; the project activity is the installation of a new grid-connected renewable power plant; no renewable power plant was implemented/operated before the implementation of the project activity. The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system.

In the baseline scenario, the electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants. Since Türkiye’s grid mainly consists of thermal power plants, this would have resulted in GHG emissions. However, in the project scenario, the project whose characteristics are summarized below will generate electricity from wind power and will result in emission reductions in parallel with its electricity generation.

The purpose of the Project is to produce renewable electricity using wind as the power source and to contribute to Türkiye’s growing electricity demand through a sustainable and low carbon technology. The project will displace the same amount of electricity generated by the grid dominated with fossil fired power plants. The annual emission reduction estimated by the project is 127,915 tonnes of CO₂. During the entire crediting period 1,279,149 tonnes of CO₂ are expected to be reduced.

The project has been developed to have 50 Siemens SWT-2.3-108 turbines with an installed capacities of 2.3 MW_m / 2.3 MW_e. With the capacity addition, 31 GE 2.75-120 type turbines added to the project, each having a capacity of 2.75 MW_m/1.858 MW_e. The electricity is transmitted to substation Dinar TM via a 14.781 km, 154 kV transmission line.

The first part of the project has started its commercial operation through the ministry acceptance of 7 turbines with total installed capacity of 16.1 MW on 22/12/2012. The capacity addition part started the operation with 17 turbines with the total installed capacity of 46.75 MW_m/31.586 MW_e on 06/12/2016. Rest of the units were commissioned, and ministry acceptance completed on 16/02/2017. Commissioning dates of the turbines is shown in the table below:

Table 1. Commissioning Dates and Installed Powers of the turbines

Turbine No	First Part / Capacity Addition	Installed Power (MW _e)	Commissioning Date
T1	First Part	2.3 MW	22/03/2013
T2	First Part	2.3 MW	22/03/2013
T3	First Part	2.3 MW	22/03/2013

T4	First Part	2.3 MW	22/03/2013
T5	First Part	2.3 MW	22/03/2013
T6	First Part	2.3 MW	19/07/2013
T7	First Part	2.3 MW	22/03/2013
T8	First Part	2.3 MW	08/02/2013
T9	First Part	2.3 MW	08/02/2013
T10	First Part	2.3 MW	08/02/2013
T11	First Part	2.3 MW	08/02/2013
T12	First Part	2.3 MW	08/02/2013
T13	First Part	2.3 MW	22/03/2013
T14	First Part	2.3 MW	22/12/2012
T15	First Part	2.3 MW	22/12/2012
T16	First Part	2.3 MW	22/12/2012
T17	First Part	2.3 MW	08/02/2013
T18	First Part	2.3 MW	22/12/2012
T19	First Part	2.3 MW	22/12/2012
T20	First Part	2.3 MW	22/12/2012
T21	First Part	2.3 MW	22/12/2012
T22	First Part	2.3 MW	08/02/2013
T23	First Part	2.3 MW	29/11/2013
T24	First Part	2.3 MW	29/11/2013
T25	First Part	2.3 MW	29/11/2013
T26	First Part	2.3 MW	29/11/2013
T27	First Part	2.3 MW	29/11/2013
T28	First Part	2.3 MW	29/11/2013
T29	First Part	2.3 MW	29/11/2013
T30	First Part	2.3 MW	29/11/2013
T31	First Part	2.3 MW	29/11/2013
T32	First Part	2.3 MW	29/11/2013
T33	First Part	2.3 MW	29/11/2013
T34	First Part	2.3 MW	29/11/2013
T35	First Part	2.3 MW	22/08/2014
T36	First Part	2.3 MW	22/08/2014
T37	First Part	2.3 MW	22/08/2014
T38	First Part	2.3 MW	22/08/2014
T39	First Part	2.3 MW	22/08/2014
T40	First Part	2.3 MW	22/08/2014
T41	First Part	2.3 MW	22/08/2014
T42	First Part	2.3 MW	22/08/2014
T43	First Part	2.3 MW	22/08/2014
T44	First Part	2.3 MW	22/08/2014
T45	First Part	2.3 MW	22/08/2014
T46	First Part	2.3 MW	22/08/2014
T47	First Part	2.3 MW	22/08/2014
T48	First Part	2.3 MW	22/08/2014
T49	First Part	2.3 MW	22/08/2014

T50	First Part	2.3 MW	22/08/2014
T51	Capacity Addition	1.858 MW	06/12/2016
T52	Capacity Addition	1.858 MW	06/12/2016
T53	Capacity Addition	1.858 MW	06/12/2016
T54	Capacity Addition	1.858 MW	30/12/2016
T55	Capacity Addition	1.858 MW	06/12/2016
T56	Capacity Addition	1.858 MW	27/01/2017
T57	Capacity Addition	1.858 MW	06/12/2016
T58	Capacity Addition	1.858 MW	06/12/2016
T59	Capacity Addition	1.858 MW	06/12/2016
T60	Capacity Addition	1.858 MW	06/12/2016
T61	Capacity Addition	1.858 MW	06/12/2016
T62	Capacity Addition	1.858 MW	06/12/2016
T63	Capacity Addition	1.858 MW	06/12/2016
T64	Capacity Addition	1.858 MW	06/12/2016
T65	Capacity Addition	1.858 MW	06/12/2016
T66	Capacity Addition	1.858 MW	06/12/2016
T67	Capacity Addition	1.858 MW	30/12/2016
T68	Capacity Addition	1.858 MW	30/12/2016
T69	Capacity Addition	1.858 MW	27/01/2017
T70	Capacity Addition	1.858 MW	27/01/2017
T71	Capacity Addition	1.858 MW	27/01/2017
T72	Capacity Addition	1.858 MW	30/12/2016
T73	Capacity Addition	1.858 MW	27/01/2017
T74	Capacity Addition	1.858 MW	16/02/2017
T75	Capacity Addition	1.858 MW	16/02/2017
T76	Capacity Addition	1.858 MW	16/02/2017
T77	Capacity Addition	1.858 MW	16/02/2017
T78	Capacity Addition	1.858 MW	16/02/2017
T79	Capacity Addition	1.858 MW	06/12/2016
T80	Capacity Addition	1.858 MW	06/12/2016
T81	Capacity Addition	1.858 MW	06/12/2016

The project will produce positive environmental and economic benefits through the following aspects:

- Displacing the electricity generated by fossil fuel fired power plants by utilizing the renewable resources so as to avoid environmental pollution and GHG emissions,
- Contributing the economic development of the region by providing sustainable energy resources,
- Increasing the income and local standard of living by providing job opportunities for the local people

1.2 Project type and sectoral scope

Sectoral scope	1
Project type	Avoidance

1.3 Project

- Single location/area or installation
- Bundled project (multiple locations/areas or installations)
- Grouped project (locations/areas or installations added post validation)
- Bundled and grouped project.

1.3.1 Eligibility criteria for grouped project

Not applicable since Albay Çiğiltepe WPP is not a grouped project.

1.4 Location

The Albay Çiğiltepe WPP project is located within the borders of Dinar District of Afyonkarahisar Province, in the Aegean Region.

Address	Afyonkarahisar Province, Dinar Town, Kekliceck and Bülüçalani Villages
County/province	Afyonkarahisar
Country	Türkiye
Region	Aegean Region
Geographic location	
Latitude	38 ° 07 ' 20.84 " N / 38.122456° N
Longitude	30 ° 09 ' 15.48 " N / 30.1543° E
Map link	https://maps.app.goo.gl/39Q9fcroyjrRdWXo9

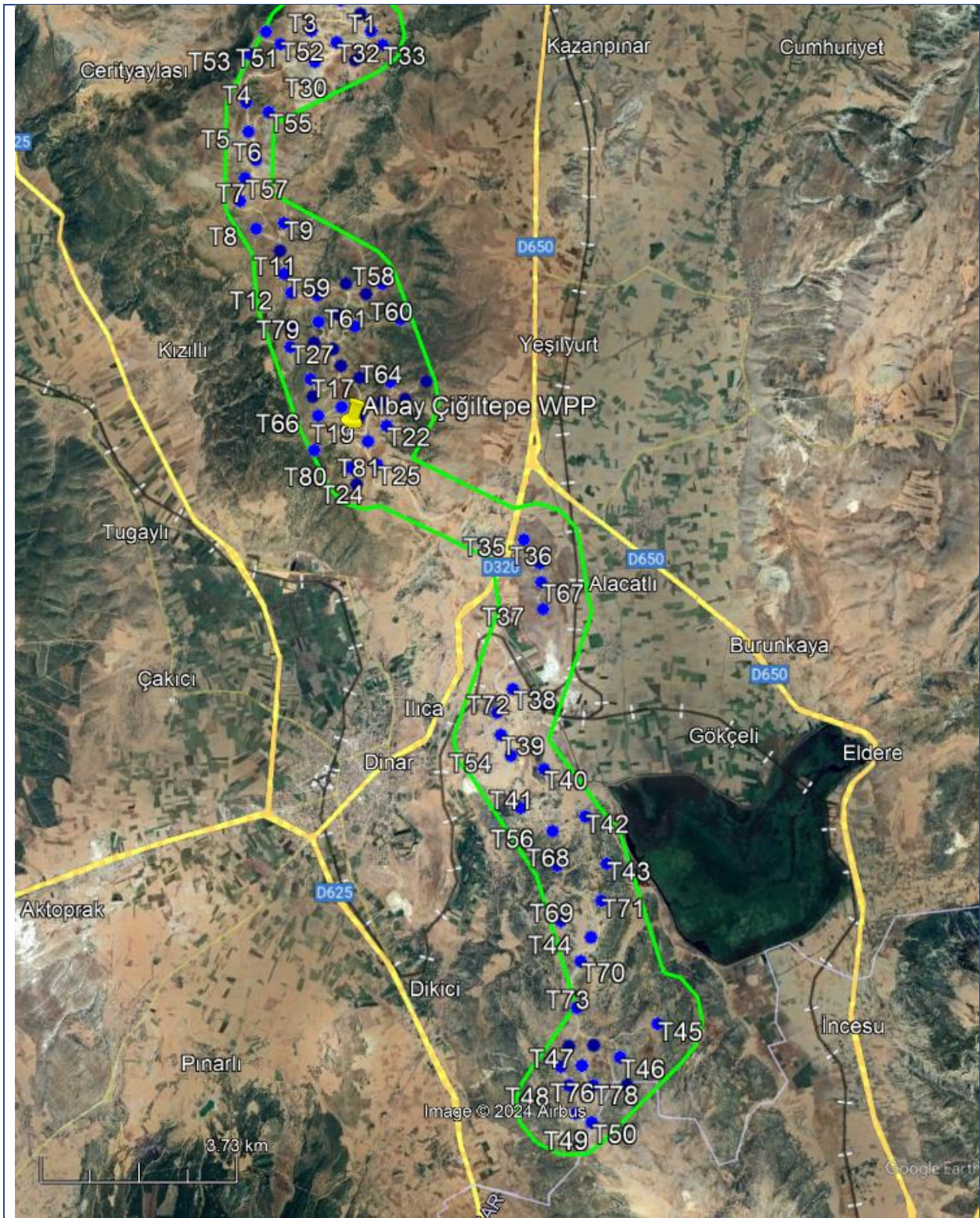


Figure 1. Project Layout

Table 2. Turbine Coordinates

Turbine No	Latitude (N)	Longitude (E)
#51	38.1917°	30.1289°
#52	38.1899°	30.1322°
#53	38.1872°	30.1259°
#54	38.0700°	30.1958°
#55	38.1778°	30.1309°
#56	38.0577°	30.2062°
#57	38.1657°	30.1272°
#58	38.1496°	30.1591°
#59	38.1465°	30.1453°
#60	38.1439°	30.1636°
#61	38.1415°	30.1541°
#62	38.1402°	30.1401°
#63	38.1336°	30.1704°
#64	38.1326°	30.1627°
#65	38.1299°	30.1663°
#66	38.1255°	30.1480°
#67	38.1005°	30.1994°
#68	38.0520°	30.2077°
#69	38.0431°	30.2094°
#70	38.0368°	30.2142°
#71	38.0468°	30.2179°
#72	38.0772°	30.1920°
#73	38.0290°	30.2142°
#74	38.0234°	30.2183°
#75	38.0229°	30.2130°
#76	38.0199°	30.2161°
#77	38.0172°	30.2260°
#78	38.0169°	30.2188°
#79	38.1416°	30.1462°
#80	38.1198°	30.1474°
#81	38.1219°	30.1591°

1.5 Conditions prior to implementation

Before the capacity increase, the project was a 115 MW project with 50 Siemens SWT-2.3-108 turbines. With the capacity increase, 31 GE 2.75-120 turbines were added to the project, increasing the total capacity by 57.6 MW to 172.6 MW.

The project is a greenfield power plant; the project activity is the installation of a new grid-connected renewable power plant; no renewable power plant was implemented/operated before the implementation of the project activity.



Figure 2. Location of the project activity before implementation, 2010

1.6 Technology applied

The Project Scenario entails the installation of 31 GE 2.75-120 type turbines, each of them having a capacity of 2.75 MWm/1.858 MWe. The turbines are 3 bladed with a horizontal axis. The turbine blades have the ability to change angles according to wind direction. Turbines are connected to the Dinar Transformer Station via a 14.781 km, 154 kV electricity transmission line to the Turkish National Grid. The metering has been done at Dinar TM before electricity is fed into the grid.

Table 3. Key technical specifications¹ of wind turbines

Parameter	Values
Brand	General Electric
Model	GE 2.75-120
Number of units	31 (T51-T81)
Rated power of a unit	2.75 MWm/1.858 MWe
Rotor diameter	120 m
Number of blades	3
Hub Height	85 m
Technical Lifetime	25 years ²

¹ Provisional Acceptance Documents

² Default value of onshore wind turbines, Tool 10 v1.0

Table 4. Key technical specifications of generators

Parameter	Values
Brand	Winergy
Type	Asynchronous
Phase	3
Rated power	2875 / 3125 kVA
Voltage (Stator/Rotor)	6000 / 690 V
Frequency	47-52 Hz
Current (Stator/Rotor)	281 / 975 A

Table 5. Key technical specifications of transformers

Parameter	Values			
Brand	General Electric	Ormazabal	Ormazabal	Hainan Jinpan
Type	2.75-120	2.75-120	2.75-120	2.75-120
Phase	3	3	3	3
Rated power	2750 kVA	2750 kVA	3380 kVA	3380 kVA
Nominal Voltage	34500-6000-690 V	34500-6000-690 V	34500-6000-690 V	34500-6000-690 V
Frequency	50 Hz	50 Hz	50 Hz	50 Hz
Nominal Current	39.33-1966.34 A	39.33-1966.34 A	39.33-1966.34 A	39.33-1966.34 A
Turbine	T51/T53 & T55 & T57/T66 & T79/T81	T54 & T67 & T68 & T72	T56 & T69 & T70 & T71 & T73	T74/T78

Albay Çiğiltepe WPP was initially established with 50 Siemens SWT-2.3-108 turbines with an installed capacities of 2.3 MWm / 2.3 MWe each and total installed capacity of 115 MWm / 115 MWe. The first part of the project uses ABB Asynchronous generators and BEST Hermetic transformers.

The measurements for the capacity addition part will be performed by two measuring devices, which are the main (primary) measuring device and the backup (secondary) measuring device. The measuring frequency of both devices is continuous. The meters are placed at the Powerhouse, connected to the Transformer-C.

Table 6. Technical specifications of meters

Meter	Type	Accuracy	Serial Number	Calibration Date
Main Meter	ITRON	0.2S	73055365	09/03/2022
Backup Meter	ITRON	0.2S	73055366	09/03/2022

The first part of the project uses different meters than the capacity addition part. These meters are also placed at the Powerhouse, connected to the Transformer-A and Transformer-B. Meters of this

part are replaced with another on 09/03/2022. Both current and replaced meters information are given below:

Table 7. Technical specifications of the meters of first part of the project

Meter	Type	Accuracy	Serial Number	Calibration / Replacement Date
Main Meter-1	EMH LZQJ-XC	0.2S	10773484	09/03/2022
Backup Meter-1	EMH LZQJ-XC	0.2S	10773485	09/03/2022
Main Meter-2	EMH LZQJ-XC	0.2S	10773486	09/03/2022
Backup Meter-2	EMH LZQJ-XC	0.2S	10773487	09/03/2022
Main Meter-1 (Replaced)	ACTARIS SL761A071	0.2S	53099629	09/03/2022
Backup Meter-1 (Replaced)	ACTARIS SL761A071	0.2S	53099630	09/03/2022
Main Meter-2 (Replaced)	ACTARIS SL761A071	0.2S	65005954	09/03/2022
Backup Meter-2 (Replaced)	ACTARIS SL761A071	0.2S	65005955	09/03/2022

The baseline scenario has been defined as the generation of the same amount of electricity by the national grid which is dominated by thermal power plants. The main emission source of electricity generation in fossil fuel fired power plants that are connected to Turkish National Grid is CO₂ as in baseline scenario. Compared to that baseline scenario, the project activity has positive influences on sustainable development in Türkiye.

The project activity utilizes long-term potential of wind energy, efficient technology to reduce GHG emissions as well as to diversify and increasing security of the local energy supply and contributing to a sustainable development. The project contributes to technology and know-how transfer from since the electricity generation technologies in Türkiye are currently dominated by fossil fuel power plants.

1.7 Roles and responsibilities

1.7.1 Project proponent(s)

Organization Name	Olgu Enerji Yatırım Üretim ve Ticaret A.Ş.
Role in the project	Project Proponent
Contact person	Zeynep Yarga
Title	Technical Office Engineer
Address	Ankara St. No:222 Gaziosmanpaşa District Gölbaşı/Ankara

Telephone	+90 312 484 05 70
Email	zyarga@guris.com.tr

1.7.2 Others involved in the project

Organization name	Sekans Danışmanlık Ltd. Şti.
Role in the project	Project Representative / Consultancy
Contact person	Sıla Duran
Title	Managing Partner
Address	Emniyet Evleri District Eski Büyükdere St. No: 1/1 Apartment No: 1B04 Kağıthane/İstanbul
Telephone	+90 532 438 30 29
Email	sila@sekansdanismanlik.com

1.8 Chronological plan/implementation

<ol style="list-style-type: none"> 1. Project Start Date: 06/12/2016 2. Baseline Period: 06/12/2016 – 05/12/2026 3. Termination of the project: 05/12/2026 4. Frequency of Monitoring and Reporting: Every 2 years after the first report 5. Crediting Period: 10 years 6. Validation and Verification Activities: In less than 1 year period after the submission.

1.9 Eligibility

<p>The project activity meets the eligibility criteria as per Section 3.3, 3.4.2 and 3.8 of ICR Requirement Document, v5.0³. The project activity leads to mitigation of climate change by generating and supplying clean and renewable electricity to the grid.</p> <p>As per para 2 of Section 3.3 of the mentioned document, “All projects with a start date after 1. January 2013 are eligible for registration with ICR. Projects with a start date before 1. January 2020 shall demonstrate historical additionality from its implementation and continuance of additionality at validation.”. Since the project start date is 06. December 2016, project is eligible for this criteria. Also, historical additionality has been demonstrated in Section 5.</p> <p>As per para 3 of Section 3.3 of the mentioned document, “Projects with a start date before 1. January 2020 shall pre-register the project, have signed a contract with an approved VVB for validation/verification, and start the validation process before 31. December 2023”. The project’s start date is 06. December 2016. The project is pre-registered and contract with an approved VVB for validation/verification is signed and validation process started on 28 December 2023.</p>
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³ <https://documentation.carbonregistry.com/documentation/icr-program/criteria>

As per Section 3.4.2 of the mentioned document, “Crediting period for project activities is a conservative estimate of the technical lifetime of the installed technologies or implemented measures and associated impacts with a maximum of 10 years with no option of renewing the crediting period.”. Since the project’s crediting period is determined as 10 years with no renewal, the project is eligible for this criteria.

As per Section 3.8 of the mentioned document:

1. “Projects registered with ICR shall not issue instruments for the same GHG emission mitigations with another GHG program or scheme, e.g. renewable energy certificates”: The project does and will not issue GHG instruments with another GHG program or scheme.
2. “Projects registered with other GHG programs may apply for transfer registration to ICR or be jointly registered. When registering with ICR, all previous documentation regarding the project activities shall be made available for ICR and the VVB and the project shall complete a gap validation. The project shall not issue ICCs for the same monitoring period as issued in the corresponding GHG program or scheme. The ICR process requirements discuss requirements for transitioning from other GHG programs”: The project has not been registered with other GHG programs.
3. “If the project boundary overlaps with a project of a similar nature registered with the ICR program or another GHG program, the project proponent shall demonstrate that there is no double counting of impacts.”: The project boundary defined as “the project power plant and all power plants connected physically to the electricity system”. As the project boundary includes the project power plant, no overlap with another project is expected.
4. “The project proponent shall not account for any GHG emission mitigations resulting for the project activities for any ICCs retired by another organization for their own GHG reporting. The project proponent shall report the baseline emissions, but may report separately on any instruments issued from the project activities. If the project proponent wants to report publicly actual GHG emissions he shall retire ICCs if they want report and account for the benefit associated with the project implementation”: There was no GHG reporting within the scope of the project activity. In the event of such reporting in the future, ICCs for the GHG emissions subject to reporting will be retired.
5. “Where GHG emission mitigations will be used for reporting purposes under the accounting rules set out by the Paris Agreement or other emission trading programs (such as CORSIA) operating under the accounting framework of the Paris Agreement (international trading), they shall conform to all relevant requirements of that market, including measures to prevent double claiming, i.e. corresponding adjustment. Project proponents shall provide evidence that the GHG emission mitigations generated by their project, and used for reporting, have fully conformed (or will conform) with all relevant market requirements. This evidence shall be utilized to designate ICCs that meet the specific market criteria.”: If GHG emission mitigations of the project would be used for reporting purposes under the accounting rules set out by the Paris Agreement or other emission trading programs, the project proponent will provide evidence that the mitigations generated by this project will conform with all relevant market requirements.~~The project complies with CORSIA requirements.~~

1.10 Funding

The project activity does not have any public or ODA (Official Development Assistance) fundings. The project is financed by the project owner.

1.11 Ownership

The project owner (Olgu Enerji Yatırım Üretim ve Ticaret A.Ş.) has full and uncontested legal ownership of the emission reductions that are generated under this ICR project and has legal rights concerning changes in use of resources required to service the project. Evidence of ownership have been demonstrated in Appendix I.

1.12 Other certifications

~~The first part of the project is registered to Gold Standard with 78.2 MW capacity⁴.
The capacity addition part of the project has not registered to any other GHG related program and was not issued any GHG related credits/certificates from any other program. The project has no other certifications.~~

1.13 Double counting, issuance and claiming

The project is exclusively seeking registration under the ICR. Therefore, there will be no double counting of emission reductions or claims.

1.13.1 Other registration and double issuance

Is the project registered or intends to be registered with another GHG program?

- Yes,
 No

Has the project been rejected by another GHG program

- Yes,
 No

GHG program	N/A
Project ID	N/A
Link	N/A
Status	N/A

⁴<https://registry.goldstandard.org/projects/details/79>

1.13.2 Double claiming and other instruments

Are the project activities also included in a GHG emissions trading program or subject to binding emission limit?

- Yes,
 No

Has the project activity applied for, received, or is planning to receive instruments from another GHG-related environmental crediting system, e.g. IREC or Guarantees of Origin.

- Yes,
 No

GHG program	N/A
Project ID	N/A
Link	N/A
Status	N/A

Do project activities affect GHG emissions accounted for within a value chain (goods/service, i.e. scope 3 emissions and the project proponent or Authorized representative a buyer or a seller of such goods/services)?

- Yes,
 No

1.14 Other benefits

The project is expected to contribute 3 SDGs which are SDG 7, 8 and 13.

SDG 7 – Affordable and Clean Energy: The project increases the renewable energy share in Türkiye’s electricity generation by providing 201,600 MWh clean energy to the Turkish National Grid annually.

The project contributes to the goal 7.2 and indicator 7.2.1.

SDG 8 – Decent Work and Economic Growth: The project activity has created 18 job opportunities in the renewable energy sector and contribute to the local economy. The project contributes to the goal 8.5 and indicator 8.5.1.

SDG 13 – Climate Action: The project contributes to improve the environmental quality as avoiding fossil fuel-based electricity generation by producing clean renewable energy from wind power. The project activity contributes to the goal by eliminating 127,915 tCO₂ through generating clean energy and it to the Turkish National Grid. The project contributes to the following target 13.3. and following indicator 13.3.2.

Identification of SDG contributions			
SDG target	Indicator (text from the SDG indicator)	Net impact (activities to increase or decrease)	Contributions
7. Affordable and clean energy	7.2.1 Renewable energy share in the total final energy consumption.	Increasing the renewable energy share in Türkiye’s total electricity generation mix.	201,600 MWh/year Türkiye aims to increase renewable energy sources in primary energy consumption by 20.4% by 2030 ⁵ . The establishment of Albay Çiğiltepe WPP contributes to this goal.
8. Decent work and economic growth	8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities	Creating job opportunities in renewable energy sector in local area.	The project activity has created 18 job opportunities in the renewable energy sector and contribute to the local economy. Within the scope of the National Rural Development Strategy ⁶ , Türkiye aims to increase the employment of citizens living in rural areas. The establishment of Albay

⁵ <https://iklim.gov.tr/db/turkce/dokumanlar/turkiye-cumhuriyeti--8230-102-20230512125223.pdf>

⁶ <https://www.tarimorman.gov.tr/TRGM/Belgeler/UKKS-Strateji-Belgesi.pdf>

			<p>Çiğiltepe WPP and providing local employment contributes to this goal of the country.</p>
<p>13. Climate action</p>	<p>13.2.2 Total greenhouse gas emissions per year</p>	<p>Eliminating carbon emissions by generating clean energy</p>	<p>127,915 tCO₂e / year</p> <p>Albay Çiğiltepe WPP contributes to the emission reduction NDC declared within the Paris Agreement by generating renewable energy and reducing Türkiye's emissions in electricity generation.</p>

1.15 Host country attestation

~~Among the CORSIA requirements is the submission of the Host Country Letter of Authorization (HCLOA) for Double Counting. No HCLOA is required for carbon credits issued between April 26, 2018 and December 31, 2020.~~ There is currently no mandatory mechanism for this situation in Türkiye. However, if there is a regulation regarding this in the future, HCLOA will be submitted during the verification period for ~~carbon credits~~ICCs to be obtained after January 1, 2021.

- Host country attestation
- No host country attestation

1.16 Additional information

The project complies with the mandatory laws and regulations listed below:

- Electricity Market Law (Enacted on 14/03/2013)
- Law on Utilization of Renewable Energy Resources for the Purpose of Generation Electricity (Enacted on 10/05/2005)
- Energy Efficiency Law (Enacted on 18/04/2007)
- Environment Law (Enacted on 09/08/1983)
- Forest Law (Enacted on 31/08/1956)

1.16.1 Confidential/sensitive information

There is not any confidential/sensitive information in the project design description.

2. Crediting

2.1 Project start date

Project start date	06/12/2016
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2.2 Expected operational lifetime or termination date

The project is licensed on 16/03/2011. As it is stated in the generation license issued by Energy Market Regulatory Authority, this license is valid for 49 years from the date of issue, until 2060. Considering the project start date of 2016, the expected operational lifetime of the project activity is estimated as 46 years.

2.3 Crediting period

Start date of crediting	06/12/2016
Crediting period	<input type="checkbox"/> Five years, renewable twice. <input checked="" type="checkbox"/> Ten years, fixed. <input type="checkbox"/> Fifteen years, renewable twice (CDR only). <input type="checkbox"/> Other, provide information on how that conforms with ICR requirement document.

2.4 Calander year of crediting

Calendar year of crediting	Estimated GHG emission mitigations (t CO ₂ -e)
06/12/2016 to 31/12/2016	9,111
01/01/2017 to 31/12/2017	127,915
01/01/2018 to 31/12/2018	127,915
01/01/2019 to 31/12/2019	127,915
01/01/2020 to 31/12/2020	127,915
01/01/2021 to 31/12/2021	127,915

01/01/2022 to 31/12/2022	127,915
01/01/2023 to 31/12/2023	127,915
01/01/2024 to 31/12/2024	127,915
01/01/2025 to 31/12/2025	127,915
01/01/2026 to 05/12/2026	118,803
Total estimated GHG emission mitigations during the crediting period (t CO2-e)	1,279,149
Total number of years (yrs)	10
Annual average (t CO2-e)	127,915

3. Safeguards

3.1 Statutory requirements

The project complies with the mandatory laws and regulations listed below:

- Electricity Market Law (Enacted on 14/03/2013)
- Law on Utilization of Renewable Energy Resources for the Purpose of Generation Electricity (Enacted on 10/05/2005)
- Energy Efficiency Law (Enacted on 18/04/2007)
- Environment Law (Enacted on 09/08/1983)
- Forest Law (Enacted on 31/08/1956)

3.2 Potential negative environmental and socio-economic impacts

Approval from Ministry of Environment and Urbanization was taken on 23/08/2016 as assessing the environmental impacts of the project activity.

Additionally, Noise Impact Assessment was conducted, and it was concluded that no negative impact was considered.

Regarding impact on bird and bats carcasses and nests Ornithological and Ecological Evaluation Report was prepared. Within the scope of the study, the observations made in projects site and its vicinity. The scientific data obtained from the observations and research carried out for different reasons in the past periods were also used. In support of field observations, face-to-face interviews were conducted with the local residents living in the project area, and extensive literature reviews were also carried out. There is no protection priority in terms of vegetation and plant species spreading in the area. Considering the areas where the turbines are installed, the feeding and sheltering habitats are far away from the project activity. The fact that the facilities within the scope of project activity are located in a very small area there won't be any negative impact on the breeding ecology of any species. There are no sensitive or naturally protected areas within the project site and around 10 km. No local endemic or rare species specific to the area were encountered in the project site. It's been reported that no negative impact was considered by the project activity.

3.3 Consultation with interested parties and communications

In scope of EIA, a local stakeholder meeting was performed. To inform the local people in the nearest settlements likely to be affected by the project and to get their opinions and suggestions, a Local Stakeholder Consultation was held on 02.06.2015 at 14:00 in Dinar Municipality Meeting Hall, under the chairmanship of Afyonkarahisar Governorship Provincial Directorate of Environment and Urbanization.

Information and announcements about the meetings were made by placing advertisements in "Milliyet" and "Umut" Newspapers on 17/05/2015 and 19/05/2015, respectively. Also, the announcement letters were sent to the mukhtars of the nearby settlements and presented in the mukhtars' offices.

The meetings consisted of a presentation that included the Project information and a record of comments. Project brochures were shared with the chairmen to ensure the communication of the

meeting. The project was introduced to the local people and the questions of the participants were answered.

Agenda:

- Introduction of Project Representatives
- Introduction of the project activity
- Assessment of Impact of Project on Sustainability
- Q&A Session and Feedbacks

Local stakeholders were also informed on environment and social impacts on SDG elements of the project during the meetings.

At the meeting, a slide show was made on the presentations prepared and detailed information was provided to the public about the project. During the meeting, the public's questions about the project were answered by our representatives of the operating and authorized companies. There was no negative comments from the local people regarding the capacity increase project. At the meeting, some local people living in the nearby settlements expressed their views that they had some problems in entering the project area. In the examination carried out on this issue together with the institutions in the project area, it was observed that the villagers entered the area easily and the local people grazed their animals comfortably in the project area.

It is important for the Project Owner to monitor the on-going stakeholder engagement process to ensure that consultation and disclosure efforts are effective, and stakeholders delivering grievances have been meaningfully consulted throughout the process. Therefore, a Stakeholder Engagement Plan is executed by the Project Owner. The contact information of the plant responsible exists at the Mukhtars, the project owner and local community are always in touch. The project owner regularly checks with the Mukhtars 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.

3.3.1 Stakeholders and consultation

Stakeholder	Local people living around the power plant
Legal rights	Local stakeholders have land rights over the areas that the power plant can affect.
Diversity	Since most of the people working in the construction or operation of the power plant are employed from the surrounding community, it cannot be said that there is diversity between the project proponent and local stakeholders.
Location	All stakeholders reside in the villages around the power plant in Dinar/Afyonkarahisar
Effects	Stakeholders considered clear signs of climate change in the region in recent years. The common outcome of the stakeholder consultation was positive, and stakeholders were in favour of the Project. Local people were employed during construction and are being employed during operation. Contribution to local economy and lead to improvement in living standards were also supported by the stakeholders. There was no negative comment from the participants during the meeting

Date of consultation	02/06/2015
Stakeholder engagement	Local stakeholders were reached through the headman's office.
Consultation	Stakeholders were contacted and their negative opinions were discussed.
Stakeholder input	There was no negative comment from the stakeholders. The common outcome of the stakeholder consultation was positive.
Free prior informed consent	N/A
Conclusion	As a result of the meeting, it was concluded that the stakeholder's perspective on the project was positive and they did not have any negative comments.
Ongoing consultation	The contact information of the plant responsible was shared with the stakeholders and it was stated that the project owner and local community would always be in touch. Additionally, the local community can communicate with power plant employees through headmen of their village.

3.3.1 Public comments

Comments received	Action taken
Local people living in the nearby settlements expressed their views that they had some problems in entering the project area	In the examination carried out on this issue together with the institutions in the project area, it was observed that the villagers entered the area easily and the local people grazed their animals comfortably in the project area.

3.4 Environmental impact assessment

Approval from Ministry of Environment and Urbanization was taken on 23/08/2016 as assessing the environmental impacts of the project activity. Additionally, Noise Impact Assessment was conducted, and it was concluded that no negative impact was considered.

Regarding impact on bird and bats carcasses and nests Ornithological and Ecological Evaluation Report ⁷ was prepared. Within the scope of the study, the observations made in projects site and its vicinity. The scientific data obtained from the observations and research carried out for different reasons in the past periods were also used. In support of field observations, face-to-face interviews were conducted with the local residents living in the project area, and extensive literature reviews were also carried out. There is no protection priority in terms of vegetation and plant species spreading in the area. Considering the areas where the turbines are installed, the feeding and sheltering habitats are far away from the project activity. The fact that the facilities within the scope of project activity are located in a very small area there won't be any negative impact on the breeding ecology of any species.

⁷ Akdeniz University Faculty of Science Biology Department, May 2013

There are no sensitive or naturally protected areas within the project site and around 10 km. No local endemic or rare species specific to the area were encountered in the project site. It's been reported that no negative impact was considered by the project activity.

3.5 Risk assessment

There are no major risks associated with the project operation and GHG mitigations.

The operation of the project is carried out in accordance with Türkiye's laws and regulations. Possible negative risks and their respective mitigation measured are shown in the table below:

The values to be used in GHG emission calculations will be the official values in Türkiye. Since the emission factor is determined by the ministry, there is no risk of miscalculation of this value. Since the generation values of the power plant will be taken through the EPIAŞ system, which is an official institution in Türkiye, there is no risk of miscalculating the generation.

	<u>Risks Identified</u>	<u>Mitigation measures</u>
<u>Risks to project operation and GHG calculation</u>	<u>No risk identified</u>	<u>The operation of the project is carried out in accordance with Turkish laws and regulations.</u> <u>The values to be used in GHG emission calculations are the official values published by the Ministry of Energy and Natural Resources of the Republic of Türkiye. Therefore, there is no risk of miscalculating the emission factor. The production values of the power plant are taken through the EPIAŞ system, which is the official institution in Türkiye, and there is no risk of miscalculation of production.</u>
<u>Risks to stakeholder participation</u>	<u>No risk identified</u>	<u>Stakeholders are involved in every stage of informing about the project activity. The complaint mechanism is fully functioning.</u>
<u>Working conditions</u>	<u>No risk identified</u>	<u>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).</u>
<u>Safety of women and girls</u>	<u>No risk identified</u>	<u>The project does not endanger the safety of girls and women.</u>

<u>Safety of minority and marginalized groups, including children</u>	<u>No risk identified</u>	<u>The project does not jeopardize the safety of minorities and isolated groups, including children.</u>
<u>Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)</u>	<u>No risk identified</u>	<u>The project is a wind energy project. By evaluating the environmental impacts of the project activity, "EIA Approval" was received from the Ministry of Environment and Urbanization on 08/09/2016.</u>
<u>Natural disturbances</u>	<u>No risk identified</u>	<u>There is an emergency action plan for natural disturbances that may occur in the project area and its surroundings. In addition, as part of the occupational health and safety training given to employees every year, training is also provided on what employees in the site area should do when faced with such situations.</u>
	Risks-identified	Mitigation-measures
	N/A	N/A

3.5.1 Additional information on risk management

N/A

4. Methodology

Please provide details in the following sections if a methodology is applied to the project.

4.1 Reference to applied methodology and applied tools

The United Nations approved consolidated baseline methodology applicable to this project is ACM0002: Grid-connected electricity generation from renewable sources --- Version 22.0⁸.

ACM0002 refers to the following tools:

- TOOL 01: Tool for the demonstration and assessment of additionality, version 07.0.0⁹
- TOOL 07: Tool to calculate the emission factor for an electricity system, version 07.0¹⁰
- TOOL 24: Common Practice, version 03.1¹¹
- TOOL 27: Investment Analysis, version 14.0¹²

Type (methodology, tool, module)	Reference ID	Version	Title
Methodology	ACM0002	22.0	Grid-connected electricity generation from renewable sources
Tool	TOOL01	07.0.0	Tool for the demonstration and assessment of additionality
Tool	TOOL07	07.0	Tool to calculate the emission factor for an electricity system
Tool	TOOL24	03.1	Common Practice
Tool	TOOL27	14.0	Investment Analysis

4.2 Applicability of methodology

The 85.25 MWh / 57.60 MWe Albay Çiğiltepe WPP is a wind power type, greenfield, renewable, grid connected electricity generation project. Since the total installed capacity is above 15 MW, large scale methodology “ACM0002: Grid-connected electricity generation from renewable sources --- Version 22.0” has been used. Applicability criterias and how the project meets these criterias are given in below:

Methodology ID	Applicability condition	Justification
ACM0002	This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units;	The project activity involves a new installation of a wind power plant. Hence, the methodology is applicable.

⁸ <https://cdm.unfccc.int/UserManagement/FileStorage/R0IJ1X9LQ7W2GOYHSMBFCPE3VKZ685>

⁹ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-01-v7.0.0.pdf>

¹⁰ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v7.0.pdf>

¹¹ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-24-v1.pdf>

¹² <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-27-v14.pdf>

	<p>(d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or</p> <p>(e) Involve a replacement of (an) existing plant(s)/unit(s)</p>	
ACM0002	<p>In case the project activity involves the integration of a BESS, the methodology is applicable to grid-connected renewable energy power generation project activities that:</p> <p>(a) Integrate BESS with a Greenfield power plant;</p> <p>(b) Integrate a BESS together with implementing a capacity addition to (an) existing solar photovoltaic¹ or wind power plant(s)/unit(s);</p> <p>(c) Integrate a BESS to (an) existing solar photovoltaic or wind power plant(s)/unit(s) without implementing any other changes to the existing plant(s);</p> <p>(d) Integrate a BESS together with implementing a retrofit of (an) existing solar photovoltaic or wind power plant(s)/unit(s).</p>	<p>The project does not involve the integration of a BESS.</p>
ACM0002	<p>The methodology is applicable under the following conditions:</p> <p>(a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;</p> <p>(b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects) the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this</p>	<p>a) The project is a wind power plant.</p> <p>b) The project does not involve capacity additions, retrofits, rehabilitations or replacements.</p> <p>c) The project does not involve the integration of a BESS.</p> <p>d) The project does not involve the integration of a BESS.</p>

	<p>minimum historical reference period and the implementation of the project activity;</p> <p>(c) In case of Greenfield project activities applicable under paragraph 5 (a) above, the project participants shall demonstrate that the BESS was an integral part of the design of the renewable energy project activity (e.g. by referring to feasibility studies or investment decision documents);</p> <p>(d) The BESS should be charged with electricity generated from the associated renewable energy power plant(s). Only during exigencies 2 may the BESS be charged with electricity from the grid or a fossil fuel electricity generator. In such cases, the corresponding GHG emissions shall be accounted for as project emissions following the requirements under section 5.4.4 below. The charging using the grid or using fossil fuel electricity generator should not amount to more than 2 per cent of the electricity generated by the project renewable energy plant during a monitoring period. During the time periods (e.g. week(s), months(s)) when the BESS consumes more than 2 per cent of the electricity for charging, the project participant shall not be entitled to issuance of the certified emission reductions for the concerned periods of the monitoring period.</p>	
ACM0002	<p>In case of hydro power plants, one of the following conditions shall apply:</p> <p>(a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or</p> <p>(b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density,</p>	<p>The project is a wind power plant, hence this condition is not applicable.</p>

	<p>calculated using equation (3)¹³, is greater than 4 W/m²; or</p> <p>(c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3)¹⁴, is greater than 4 W/m².</p> <p>(d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m², all of the following conditions shall apply:</p> <p>(i) The power density calculated using the total installed capacity of the integrated project, as per equation (8), is greater than 4 W/m² ;</p> <p>(ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity;</p> <p>(iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be: a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project.</p>	
ACM0002	<p>In the case of integrated hydro power projects, project participants shall:</p> <p>(a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or</p> <p>(b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of</p>	<p>The project is a wind power plant, hence this condition is not applicable.</p>

¹³ Please see power density equation in Section 8.1.2.

¹⁴ Please see power density equation in Section 8.1.2.

	reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum of five years prior to the implementation of the CDM project activity.	
ACM0002	The methodology is not applicable to: (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units.	The project does not involve switching from fossil fuels to renewable energy sources and is not a biomass fired power plant.
ACM0002	In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.	The project does not involve retrofits, rehabilitations, replacements, and it’s not a capacity addition.

For the applicability of “Tool to calculate the emission factor for an electricity system, ver 07.0”, following conditions are met:

Tool ID	Applicability condition	Justification
07	This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid	The project is a wind power plant providing clean energy to the Turkish National Grid.

	(e.g. demand-side energy efficiency projects).	
07	Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in “Appendix 1: Procedures related to off-grid power generation” should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	The project is a grid connected power plant.
07	In case of CDM projects, the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	As the project is not a CDM project and the ICR program accepts projects from worldwide, this condition is not applicable.
07	Under this tool, the value applied to the CO2 emission factor of biofuels is zero.	As the project does not involve biofuels, this condition is not applicable.

For the applicability of “Tool for the demonstration and assessment of additionality, Version 07”, following conditions are met:

Tool ID	Applicability condition	Justification
01	The use of the “Tool for the demonstration and assessment of additionality” is not mandatory for project participants when proposing new methodologies. Project participants may propose alternative methods to demonstrate additionality for consideration by the Executive Board.	Since this tool's application is required in the approved methodology, it is used in this project

	They may also submit revisions to approved methodologies using the additionality tool.	
01	Once the additionally tool is included in an approved methodology, its application by project participants using this methodology is mandatory.	Since the additionally tool is included in the approved methodology, it is used in this project

For the applicability of “Common Practice, Version 03.1”, following conditions are met:

Tool ID	Applicability condition	Justification
24	This methodological tool is applicable to project activities that apply the methodological tool “Tool for the demonstration and assessment of additionality”, the methodological tool “Combined tool to identify the baseline scenario and demonstrate additionality”, or baseline and monitoring methodologies that use the common practice test for the demonstration of additionality.	Since this tools application is required in the approved methodology, it is used in this project
24	In case the applied approved baseline and monitoring methodology defines approaches for the conduction of the common practice test that are different from those described in this methodological tool, the requirements contained in the methodology shall prevail.	Since this tools application is required in the approved methodology, it is used in this project

For the applicability of “Investment analysis, Version 14.0”, following conditions are met:

Tool ID	Applicability condition	Justification
27	This methodological tool is applicable to project activities that apply the methodological tool “Tool for the demonstration and assessment of additionality”, the methodological tool “Combined tool to identify the baseline scenario and demonstrate additionality”, the guidelines “Non-binding best practice examples to demonstrate additionality for SSC project activities”, or baseline and monitoring methodologies that use the	Since this tools application is required in the “Tool for the demonstration and assessment of additionality”, it is used in this project.

	investment analysis for the demonstration of additionality and/or the identification of the baseline scenario.	
27	In case the applied approved baseline and monitoring methodology contains requirements for the investment analysis that are different from those described in this methodological tool, the requirements contained in the methodology shall prevail.	Applied methodologies in this project does not contain requirements that are different from TOOL 27.

4.3 Deviation from applied methodology

There were no deviations in the methodologies used.

Methodology ID	Requirement	Deviation	Justification
N/A	N/A	N/A	N/A

4.4 Other Information relating to methodology application

N/A

5. Additionality

TOOL01: Tool for the demonstration and assessment of additionality, Version 07 is used to demonstrate the additionality of the project in the following sub sections.

5.1 Level 1 - ISO 14064-2 GHG emissions additionality

It is stated in ICR Requirement Document v5.0 as “GHG emission mitigations shall be additional to the baseline scenario. ISO 14064-2 addresses additionality as the project proponent shall select or establish, justify, and apply criteria and procedures for demonstrating that the project results in GHG emissions mitigations that are additional to what would occur compared to the determined GHG baseline.”

According to this document, ACM0002 v22.0 is used to address the GHG mitigations of the project activity in comparison with the baseline scenario.

Using this methodology satisfies the Level 1 additionality criteria. Sections 6,7 and 8 and ER calculation sheets demonstrates the GHG reductions of the project activity.

5.2 Level 2a – Statutory additionality

The project is not enforced by any laws or regulations. Applicable laws and regulations are listed below:

- Electricity Market Law (Enacted on 30/03/2013)
- Law on Utilization of Renewable Energy Resources for the Purpose of Generation Electricity (Enacted on 18/05/2005)
- Energy Efficiency Law (Enacted on 02/05/2007)
- Environment Law (Enacted on 25/11/2014)
- Forest Law (Enacted on 08/09/1956)

As a result, the project activity satisfies Level 2a additionality.

5.3 Level 2b – Non-enforcement additionality

Project activity is not subject to statutory requirements in Türkiye.

5.4 Level 3 – Technology, institutional, common practice additionality

Common Practice Analysis

The section provides the Common Practice Analysis as step 4 of the “Tool for the demonstration and assessment of additionality, version 7.0.0” and “Common Practice, version 03.1”.

Step 1: Calculate applicable capacity or output range as +/- 50% of the total design capacity or output of the proposed project activity:

Since the installed capacity is 57.60 MWe, the total capacity of power plants which will be included in the analysis will be between 28.80 MWe – 86.40 MWe.

Step 2: Identify similar projects (both CDM and non-CDM) which fulfill all of the following conditions:

- a) The projects located in applicable geographic area,
- b) The projects apply the same measure as the proposed project activity,
- c) The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity,
- d) The plants in which the projects are implemented produce goods or services with comparable quality, properties, and applications areas as the proposed project plant,
- e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1,
- f) The projects started commercial operation before the project design document is published for global stakeholder consultation or before the start date of the proposed project activity, whichever is earlier for the proposed project activity.

Regarding the conditions:

- Applicable geographical area has been selected as Türkiye.
- Wind energy projects have been selected regarding the same energy source type of projects.
- The selected plants deliver the same service (electricity generation).

Applicable output range has been determined from Electricity Production License Database by EMRA for 2020 which is the latest available year before the start date of the project activity. There are total of 91 projects.

Table 8. Operational Wind Energy Power Plants Within the Scope of Common Practice

Project	Installed Capacity (MWe)
Kürek Dağı RES	32,50
Manastır-Esenköy RES	30,45
Kırkağaç RES	45,00
Petkim RES	38,00
Tire RES	50,00
Mut RES	50,00
Poyraz RES	30,00
Şile RES	50,00

Harmanlık RES	50,00
Yeniköy RES	48,00
Mersinli RES	55,00
Kıyıköy RES	45,00
Airres-4 RES	55,00
Edincik RES	77,40
Kınık RES	50,00
Çerçikaya RES	57,00
Hasanoba RES	51,00
Fuatres RES	30,00
Sadıllı RES	33,00
Bergres RES	69,95
Geres RES	30,00
Kavaklı RES	50,00
Gökres-2 RES	35,00
Ulu RES	44,80
Koru RES	50,00
Yamaçtepe-2 RES	30,00
Sibelres RES	80,00
Yahyalı RES	52,50
Havza RES	48,00
Kartal RES	39,00
Yalova RES	50,00
Geyve RES	50,00
İçdaş Biga RES	60,00
Fatma RES	70,00
Kurtkayası RES	45,00
Yahyalı RES	82,50
Bağarası RES	46,00
Poyrazgözü RES	42,00

Çanta RES	50,00
Denizli RES	66,00
Karova RES	30,00
Bafa RES	35,00
Kirazlı RES	50,00
Tayakadın RES	50,00
Kartaldağı RES	63,00
Ödemiş RES	42,00
Umurlar RES	36,40
Balabanlı RES	61,40
Kandıra RES	49,00
Bereketli RES	30,00
Süloğlu RES	60,00
Mutlu RES 5 RES	44,00
Kaniye RES	48,00
Amasya RES	42,00
Uluborlu RES	60,00
Meryem RES	30,00
Zonguldak RES	78,29
Şenbük RES	38,10
Dağpazarı RES	39,00
Killik RES	85,00
Ardıçlı RES	50,00
Sarpıncık RES	32,00
Mordoğan RES	30,75
Şenköy RES	29,79
Bandırma III RES	41,80
Çanakkale RES	29,90
Kozbeyli RES	34,55
Samurlu RES	43,90

Söke-Çatalbük RES	30,00
Aksu RES	80,00
Bandırma RES	50,00
Kuyucak RES	50,10
Mersin RES	56,85
Datça RES	41,60
Düzova RES	51,50
Sarıkaya RES	28,80
Keltepe RES	29,90
Çamseki RES	63,10
Seyitali RES	36,00
Poyraz RES	66,90
Akbük RES	31,50
Kapıdağ RES	34,85
Belen RES	48,00
Mazı 3 RES	30,00
Mazı I RES	56,20
Akhisar RES	55,00
Sebenoba RES	60,00
Yuntdağ RES	60,00
Sayalar RES	57,20
İntepe RES	55,70
Alibey RES	30,00

Step 3: Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number

When projects registered as carbon reduction projects and projects under validation are excluded, the new list entails 7 projects which are using renewable energy as a source. Satisfying the steps 2 and 3, Nall is 1.

Step 4: Within similar projects identified in Step 3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number N_{diff} .

There is no different technology applied in the proposed project activity. $N_{diff}=0$

Step 5: calculate factor $F=1-N_{diff}/N_{all}$ representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

- $F = 1 - 0/1 = 1$

- $N_{all} - N_{diff} = 1 - 0 = 1$

Since the proposed project activity would be common practice only both of the following conditions apply.

$$F > 0.2 \text{ and } N_{all} - N_{diff} > 3$$

Outcome of Step 5:

Since $N_{all} - N_{diff} = 1$ the project activity is **not common practice and therefore the project is additional.**

5.5 Level 4a – Financial additionality I

Methodological tool: “Investment analysis, Version 14.0 (Tool 27)” is taken into account when applying this step.

The investment analysis below aims to show that “the project activity is not (a) the most economically and financially attractive”.

Sub-step 2a - Determine appropriate analysis method

There are three options for investment analysis method:

- Simple Cost Analysis
- Investment Comparison Analysis and
- Benchmark Analysis

As the project gains revenue from the sale of generated electricity, Simple Cost Analysis is not applicable. Investment Comparison Analysis is also not applicable as no alternative investment is point at issue. Therefore, Benchmark Analysis will be used for the evaluation of the project investment.

Sub-step 2b - Option III-Apply benchmark analysis

For the purpose of benchmark analysis Project IRR after tax has been chosen as the indicator.

There are no available benchmarks for wind power plant projects in Türkiye. The credibility of a particular project is evaluated on the basis of several factors including cost recovery period, risk of postponed commissioning and credibility of the project owner.

Local Commercial Lending Rates

As the tool implies local commercial lending rate is appropriate benchmarks for a project IRR, therefore it could be chosen as a benchmark.

The lending rates for medium term investments are provided by Turkish Development Bank (TKB) to State Planning Organization.

The State Planning Organization publishes “Main Economic Indicators” on a monthly basis. The lending rates for January-December 2015 have been given in Table-3.

Table 9. Loan Interest rates for medium term investment loans¹⁵

Turkish Development Bank (TKB) Interest rates for credits		
Date	Month	Medium Term Investment Rate (%)
2015	1	11.5
	2	11.5
	3	11.5
	4	11.5
	5	11.5
	6	11.5
	7	11.5
	8	11.5
	9	11.5
	10	11.5
	11	11.5
	12	11.5

The investment decision¹⁶ was taken in December 2015. Therefore, the benchmark for this project is applied as 11.5%, which is the local commercial lending rate at the time of the investment decision.

Sub-step 2c - Calculation and comparison of financial indicators

The following table summarizes the financial figures for the project operation:

¹⁵ Lending And Deposit Interest Rates by Development Investment Bank of Türkiye (https://www.sbb.gov.tr/wp-content/uploads/2020/07/13-faiz_orani-1.xls)

¹⁶ Turbine Agreement Date

Table 10. Summary of financial data

Parameter	Unit	Value	Source
Energy Generation per year	MWh/year	201,600	Generation License
Investment Amount of Civil Works	USD	8,894,216	Feasibility Study
Investment Amount of Electromechanical Works	USD	85,090,787	Feasibility Study
Other Investment Expenses	USD	11,840,087	Feasibility Study
Total Investment Amount	USD	105,825,090	Feasibility Study
Operational Costs	USD/year	2,937,600	2015 Cost of Wind Energy Review – NREL: https://www.nrel.gov/docs/fy17osti/66861.pdf
Revenues	USD/year	15,684,480 : First 6 years 10,291,680 : After years	Generation License & Electricity Tariff
Electricity Tariff	USD/MWh	77.80 : First 6 years 51,05 : After 6 years	Finalized RES List 2015: https://www.epdk.gov.tr/Detay/DownloadDocument/0Bh0p4XwxRo= After 6 years: PTF of 2015 - https://seffaflik.epias.com.tr/electricity/electricity-markets/day-ahead-market-dam/market-clearing-price-mcp
Depreciation Period	Year	40 years : Civil Works 10 years: EM Works 30 years: Other Works	Depreciated economic assets, Turkish Revenue Administration: https://www.gib.gov.tr/sites/default/files/fileadmin/user_upload/Yararli_Bilgiler/amortisman_oranlari.pdf
Income Tax Rate	%	20	Tax Regulation for 2015: https://www.vergidegundem.com/pb_kurumlar_vergisi_oranlari
Technical Lifetime	Year	25	TOOL10, v1.0: https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-10-v1.pdf

The after-tax Project Internal Rate of Return (IRR) for the project is calculated as 7.52 % without the ER revenue.

The revenue acquired from the operation of the power plant is not financially attractive to do the investment. Therefore, it is contended that the ACC revenues are required to make the project more financially attractive.

Sub-step 2d - Sensitivity analysis

The sensitivity analysis is applied in order to show that investment decision is not the most attractive alternative financially.

- Investment Cost
- Operating Cost
- Electricity Price after 6 years¹⁷
- Generation Value

For a range of $\pm 10\%$ fluctuations in parameters above as advised in “Tool for the demonstration and assessment of additionality”, Table-5 below has been obtained.

Table 11. Sensitivity analysis for the project IRR

IRR w/o carbon	-10%	-5%	5%	10%
Investment Cost	9.08%	8.26%	6.84%	6.21%
Operational Cost	7.92%	7.72%	7.31%	7.11%
Electricity Price	6.82%	7.18%	7.84%	8.16%
Generation Value	5.65%	6.59%	8.42%	9.32%

The project IRR becomes 9.32% with a 10% rise in generation and 9.08% with a 10% decrease in investment costs. As a result, the project could be competitive either a rise in price of electricity occurs or the investment cost decrease.

The investment cost should decrease by 23% to reach 11.5%. As can be seen from the sensitivity analysis, it is unlikely that the benchmark will be breached. According to the realized investment values, the actual investment amount of the project is 1% less than the estimated amount. Since the investment has been realized, there is no possibility of further decrease in the investment amount.

The operational cost should decrease by 99% to reach 11.50%, which is a very unlikely scenario. When the project's realized operational values of 2023 is examined, it is seen that operational expenses have increased by 13.01%. In the remainder of the 20-year IRR period, it seems unlikely

¹⁷ As the first 6 years of electricity sales price is fixed, only price after 6 years is considered in sensitivity analysis.

that operational expenses will result in 99% less than the estimated value.

The energy generation should increase by 23% to reach 11.50%. When the power plant's actual electricity generation data is compared with the estimated generation data, it is seen that it generated 29% less electricity in 2017, 26% less in 2018, 23% less in 2019, 2020 and 2022 and 22% less in 2023. When we consider that 2023 is 7th year of the operational period and the project generated %24 less electricity than the estimations in average so far, is not expected that the benchmark will be exceeded due to the increase in generation for the 20-year of operational period.

The tariff price after 6 years should increase by 77% to reach 11.50%. The tariff price after 6 years was determined by taking the 2015 weighted average market price from EPIAŞ's Transparency Platform. The 10-year fixed tariff price period for electricity generated from the power plant has ended, and sales have started at market prices as of 2024. The weighted average market price for 2024 has been 68.2 USD/MWh, which is 34% more than expected. When the market prices for each year given on the "Revenues" page in Excel are examined, it is seen that this price has almost tripled in 2022 due to the economic instability in the host country but has entered a downward trend again in 2023 and 2024. Therefore, it would be a correct approach to assume that this downward trend will continue for the following years and that prices may reach the level before 2022. Nevertheless, even if we assume that the market price is 34% higher in the rest of the IRR period, the IRR value remains below the benchmark, and an average increase of 77% is not considered a possible scenario..

Considering the realized parameters; even if we consider the most conservative scenario where the investment amount decreases by 1 %, the generation value of all years decreases by 7%, the tariff price after 6 years increases by %34, and operational expenses increase by 13%, it is seen that the project IRR can only reach 7.92%.

Outcome of Step 2:

The investment and sensitivity analysis shows that the carbon revenues will improve the project IRR and make the project more attractive for investors. Considering that figures above do not precisely reflect the investment risk (systematic and unsystematic risks) the role of the carbon income is significant to enable the project to proceed and for a favourable investment decision to be taken. Based on the analysis and information above, it is concluded that investing in the project is not the most attractive option considering the alternative investment opportunities. Therefore, Project can be considered as additional to the baseline scenario.

Without the carbon revenue the Internal Rate of Return of the project cannot get close to the benchmark of 11.50%, with a project internal rate of return of 7.52%.

5.6 Level 4b – Financial additionality II

N/A

5.7 Level 5 – Policy additionality

~~The Albay Çiğiltepe WPP is not a mandatory activity enforced by laws or regulations in Türkiye. The project was established to provide clean and renewable energy to the Turkish National Grid and thereby mitigate the effects of the climate crisis and global warming. As explained in detail above, the project is not financially attractive for the project owner. Nevertheless, since the project contributes to Türkiye's electricity generation by generating clean and renewable energy, its impact on the environment is significant.~~

According to Turkey's National Determined Contribution (NDC)¹⁸, one of the country's energy sector targets is to reach approximately 18 GW of wind-installed power capacity by 2030. In this context, the implementations of YEKDEM (Renewable Energy Resources Support Mechanism), YEKA (Renewable Energy Resource Areas Regulation) and YEK (Renewable Energy Law) have contributed significantly to the increase in the country's renewable energy investments.

The project complies with Turkey's climate policies, contributes to the country's NDC targets and related laws and regulations. The establishment of this project contributes to this goal of the country; therefore, it is considered that the implementation of the project lies within the scope of the climate action strategy towards the NDC of the host country. Given that project is not financially attractive and not enforced by laws or regulations in Türkiye, the project meets the requirement of policy additionality by its GHG emission reductions and other environmental benefits.

¹⁸ https://unfccc.int/sites/default/files/NDC/2023-04/T%C3%9CRK%C4%B0YE_UPDATED%201st%20NDC_EN.pdf

6. Baseline scenario

“ACM0002: Grid-connected electricity generation from renewable sources --- Version 22.0”, a large scale UNFCCC methodology has been used in this project, along with the “Tool for the demonstration and assessment of additionality, version 07.0.0”, “Tool to calculate the emission factor for an electricity system, version 07.0”, “Common Practice, version 03.1”, “Investment Analysis, version 14.0” methodologies.

According to the methodology baseline scenario has been identified as “the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources.”

As an advanced developing country, Türkiye has an increase in demand for electricity as seen in Figure 3, and it is expected continue in near future¹⁹. Electricity generation has mainly done by thermal power plants.

Figure 4 below shows the comparison of electricity generation capacity share between years 2010-2020. As it is seen in the chart, thermal power plants make up a large part of Türkiye’s electricity generation along with the hydro power plants²⁰. In order to meet this energy demand, many high-capacity thermal power plants were established in Türkiye. In the absence of this project, thermal power plants would be built to meet the demanded energy, thus increasing the GHG emissions in energy generation.

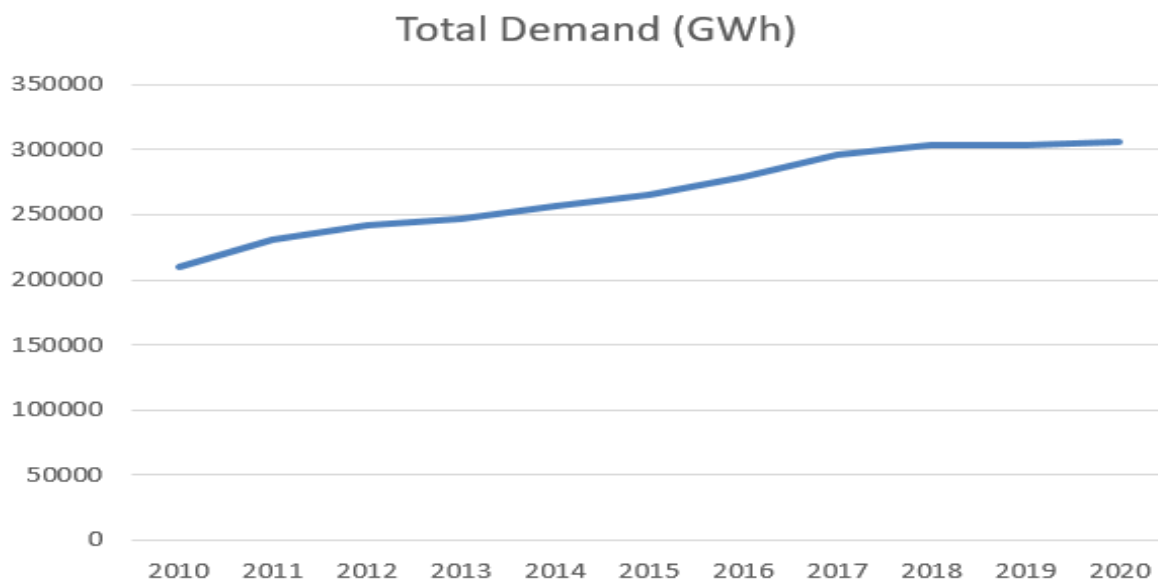
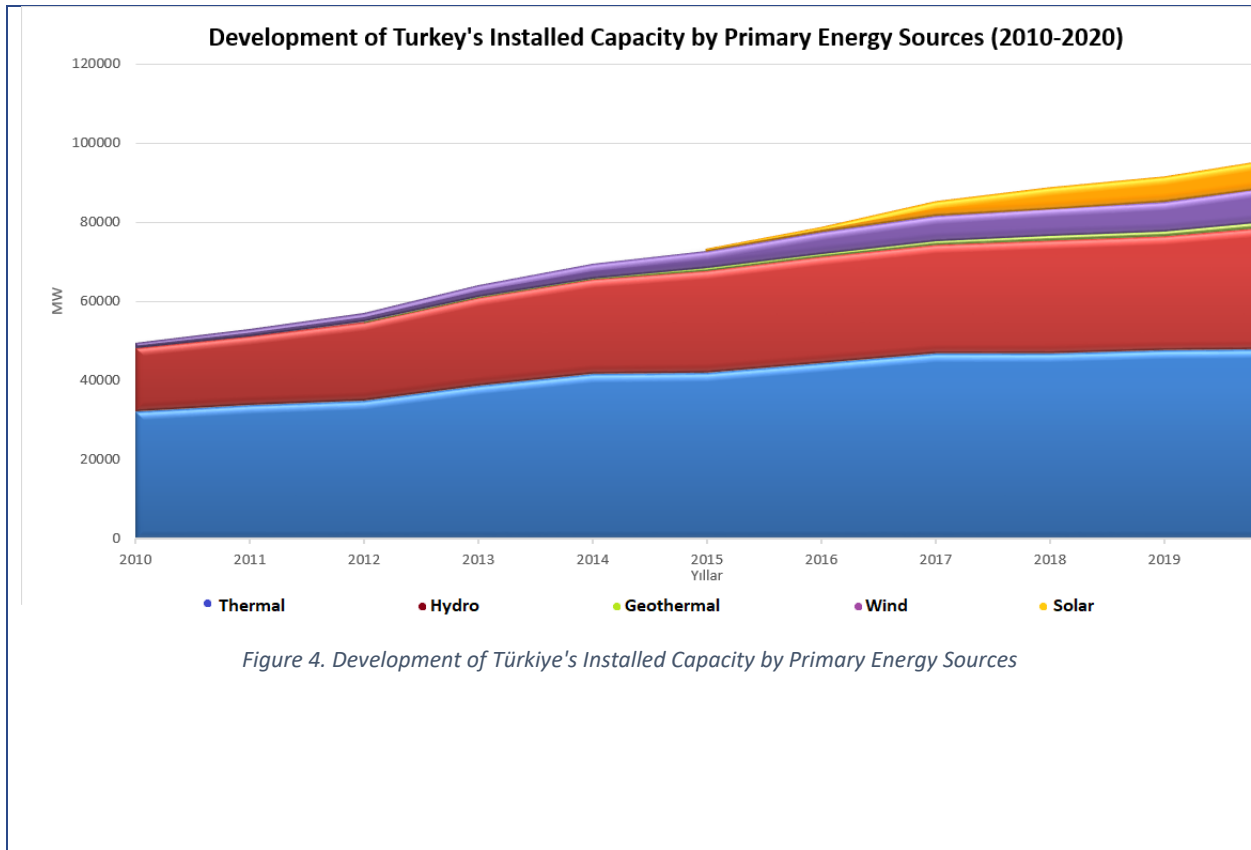


Figure 3. Türkiye's Total Electricity Demand, 2010 - 2020

¹⁹ <https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletim-istatistikleri>

²⁰ <https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletim-istatistikleri>



7. Project boundary

The project boundary is considered as the National Electricity Grid of Türkiye. As the electricity generated by the power plant supplied to the national grid, the project boundary defined as the national grid. The National Grid includes the project site and all grid-connected power plants to the National Grid.

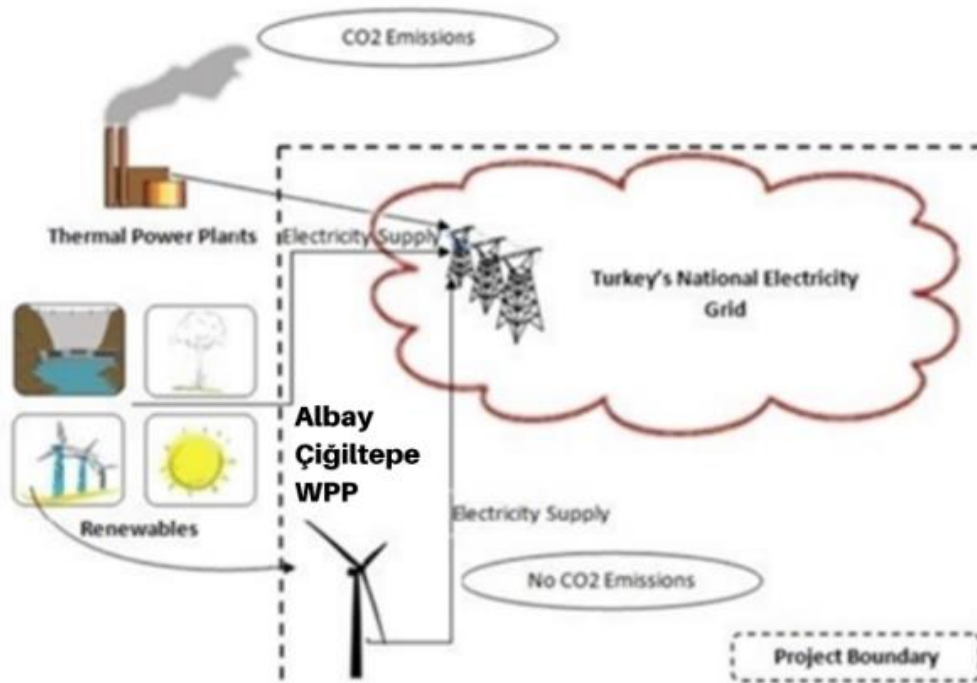


Figure 5. A simple diagram of the project boundary

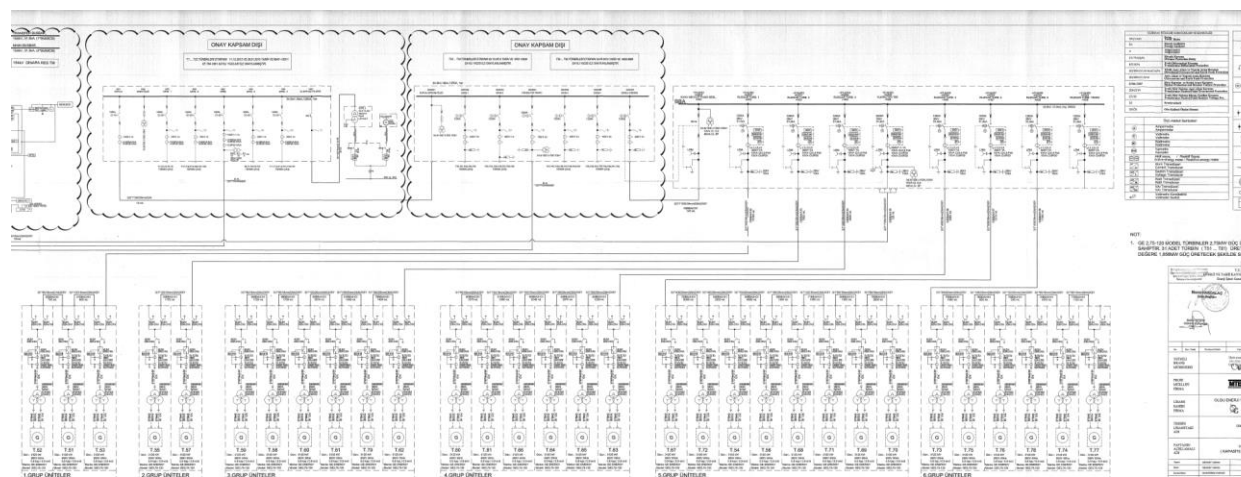


Figure 6. Single line diagram of the project activity

Table 12 Identification of GHG SSRs

SSR		Controlled/ related/ affected	GHGs	Included? Y/N	Justification/ explanation	Coordinates
Baseline	CO ₂ emissions caused by fossil-fuel based power plants for electricity generation	Affected	CO ₂	Yes	Main source. The main emissions from power plants in Turkish National Grid are in the form of CO ₂ , therefore CO ₂ emissions caused by fossil-fuel based power plants connected to the grid will be accounted for baseline calculations.	Turkish National Grid
		N/A	CH ₄	No	Minor emission source. Excluded for simplification.	N/A
		N/A	N ₂ O	No	Minor emission source. Excluded for simplification.	N/A
Project	Emissions as a result of Project Activity	N/A	CO ₂	No	Minor emission source. Excluded for simplification	38.1917° N - 30.1289° E 38.1899° N - 30.1322° E 38.1872° N - 30.1259° E 38.0700° N - 30.1958° E 38.1778° N - 30.1309° E 38.0577° N - 30.2062° E 38.1657° N - 30.1272° E 38.1496° N - 30.1591° E 38.1465° N - 30.1453° E 38.1439° N - 30.1636° E 38.1415° N - 30.1541° E 38.1402° N - 30.1401° E 38.1336° N - 30.1704° E 38.1326° N - 30.1627° E 38.1299° N - 30.1663° E 38.1255° N - 30.1480° E 38.1005° N - 30.1994° E 38.0520° N - 30.2077° E 38.0431° N - 30.2094° E

						38.0368° N - 30.2142° E 38.0468° N - 30.2179° E 38.0772° N - 30.1920° E 38.0290° N - 30.2142° E 38.0234° N - 30.2183° E 38.0229° N - 30.2130° E 38.0199° N - 30.2161° E 38.0172° N - 30.2260° E 38.0169° N - 30.2188° E 38.1416° N - 30.1462° E 38.1198° N - 30.1474° E 38.1219° N - 30.1591° E (Project Site)
		N/A	CH ₄	No	Minor emission source. Excluded for simplification.	Project Site
		N/A	N ₂ O	No	Minor emission source. Excluded for simplification.	Project Site

8. Quantification of GHG emission mitigations

8.1 Criteria and procedures for quantification

8.1.1 Baseline emissions

The baseline emissions are to be calculated as follows:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y} \quad \text{Equation (1)}$$

where;

BE_y = Baseline Emissions in year y (tCO₂e)

EG_{PJ,y} = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)

EF_{grid,CM,y} = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system”(tCO₂/MWh)

For greenfield power plants, quantity of net electricity generation is:

$$EG_{PJ,y} = EG_{facility,y}$$

Where:

EG_{PJ,y} = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)

EG_{facility,y} = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh)

Calculation of Combined Margin

Operating, Build and Combined Margin Emission Factors of the Turkish National Grid have been published by the Ministry of Energy and Natural Resources on 18.03.2024. The Ministry has calculated the factors using the “Tool 07: Tool to calculate the emission factor for an electricity system v07.0”. Since it’s the latest available data, published by the ministry, these factors have been considered.

Calculation of the Operating Margin Emission Factor

It’s been published as **0.7279 tCO₂/MWh** by the Ministry of Energy and Natural Resources.

Calculation of the Build Margin Emission Factor

It’s been published as **0.3541 tCO₂/MWh** by the Ministry of Energy and Natural Resources.

Calculating of the Combined Margin Emission Factor

It’s been published as **0.6345 tCO₂/MWh** by the Ministry of Energy and Natural Resources. .

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

EF_{grid,BM,y} = Build margin CO₂ emission factor in year y (tCO₂/MWh)

$EF_{grid,OM,y}$ = Operating margin CO2 emission factor in year y (tCO₂/MWh)

W_{OM} = Weighting of operating margin emissions factor (%)

W_{BM} = Weighting of build margin emissions factor (%)

According to the Tool, for wind power generation project activities;

$W_{OM} = 0.75$ and $W_{BM} = 0.25$

Then:

$EF_{grid,CM,y} = 0.7279 \text{ tCO}_2/\text{MWh} * 0.75 + 0.3541 \text{ tCO}_2/\text{MWh} * 0.25 = 0.6345 \text{ tCO}_2/\text{MWh}$

The combined margin is calculated ex-ante and has been fixed for the crediting period.

Projects estimated annual baseline emission reduction is calculated as follow:

$$\begin{aligned}
 BE_y &= EG_{facility,y} \times EF_{grid,CM,y} \\
 &= 201,600 \times 0.6345 \\
 &= 127,915 \text{ tCO}_2\text{e / year}
 \end{aligned}$$

8.1.2 Project emissions

As it is stated in ACM002 (Version 22.0), renewable energy power generation project emissions considered 0.

$$PE_y = 0$$

8.1.3 Leakage

In accordance with the ACM002 (Version 22.0), leakage is taken as zero since the project is a new power plant.

$$LE_y = 0.$$

8.2 Quantification of Net-GHG emissions and/or removals

According to ACM002 v22.0 methodology, emission reductions related to project activities is estimated as follows:

$$ER_y = BE_y - PE_y - LE_y$$

where:

ER_y = Emission reductions in year y (tCO₂/yr)

BE_y = Baseline emissions in year y (tCO₂/yr)

PE_y = Project emissions in year y (tCO₂/yr)

LE_y = Leakage emissions in year y (tCO₂/yr)

$$ER_y = BE_y - PE_y - LE_y$$

Equation (2)

$$ER_y = 835,414 - 0 - 0$$

$$ER_y = 835,414 \text{ tCO}_2$$

Table 13: Aggregated GHG Emission Mitigations

Year	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Estimated leakage (tCO ₂ e)	Reductions (tCO ₂ e)	Removals (tCO ₂ e)	Total GHG emission mitigations (tCO ₂ e)
06/12/2016 to 31/12/2016	9,111	0	0	9,111	0	9,111
01/01/2017 to 31/12/2017	127,915	0	0	127,915	0	127,915
01/01/2018 to 31/12/2018	127,915	0	0	127,915	0	127,915
01/01/2019 to 31/12/2019	127,915	0	0	127,915	0	127,915
01/01/2020 to 31/12/2020	127,915	0	0	127,915	0	127,915
01/01/2021 to 31/12/2021	127,915	0	0	127,915	0	127,915
01/01/2022 to 31/12/2022	127,915	0	0	127,915	0	127,915
01/01/2023 to 31/12/2023	127,915	0	0	127,915	0	127,915
01/01/2024 to 31/12/2024	127,915	0	0	127,915	0	127,915
01/01/2025 to 31/12/2025	127,915	0	0	127,915	0	127,915
01/01/2026 to 05/12/2026	118,803	0	0	118,803	0	118,803
Total	1,279,149	0	0	1,279,149	0	1,279,149
Annual average	127,915	0	0	127,915	0	127,915

8.3 Risk assessment for permanence

Any operational risks have been minimized by adhering to relevant laws and regulations and applying routine maintenance activities.

Permanence risk (%)	0
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9. Management of data quality

The amount of emission reduction that the project activity will provide will be determined by using the electricity supplied by the power plant to the grid and the emission factor data calculated by the Turkish Ministry of Energy and Natural Resources. The Project Owner is responsible for the overall management of the monitoring procedures including recording, data collection and storage. The project owner is also responsible for the administration of the data, setting up a carbon team who is responsible for monitoring all data required to estimate emission reductions. The emission reductions based on these monitored data will also be calculated by the Project Owner.

The electricity generated in the power plant is measured by the meters whose information is given in Section 10. The calibration, maintenance and intervention authority of these meters belongs to the relevant distribution company. According to the methodology applied, the electricity supplied to the national grid by the project and the electricity consumed by the project activity shall be monitored. The net electricity is the difference between the electricity supplied and consumed by the project and shall be taken into account for emission reduction calculations.

Paragraph b) of the Article 9 of the 'Regulation of Metering and Testing of Metering Systems'²¹(Regulation) of Ministry states that: ' b) Periodic tests of meters of electricity, water, coal gas, natural gas and current and voltage transformers are done every 2 years.' Therefore, periodic calibration of the meters will be done every 2 years according to the regulation.

There is a main meter and a backup meter for each unit. These meters are constantly cross-checked to determine whether there is a problem with the meters. Reading a different value on the meters means that there is an error in one of the two meters, and in this case, the distribution company comes to the switchboard site and calibrates the meters.

Electricity generation of licensed power plants can be followed from transparency platform of EXIST²². Also, the meter readings are checked periodically by the O&M Head and discussed thoroughly with the supervisor. The readings of the meters are also stored by the PO company electronically for at least 2 years.

²¹ <https://www.mevzuat.gov.tr/anasayfa/MevzuatFihristDetayIframe?MevzuatTur=7&MevzuatNo=6381&MevzuatTertip=5>

²² <https://seffalik.epias.com.tr/home>

10. Monitoring

10.1 Monitoring plan

The necessary monitoring plan procedure has been established in order to measure the real calculable emission value of the project.

Net electricity generation is measured and recorded via meters sealed by TEIAS for billing purposes. Therefore, no additional monitoring plan is needed for monitoring emission reduction.

Net generation data collected during crediting period will be submitted to “Sekas Enerji Ltd. Şti.” for calculation of real emission reductions. Net generation data will be used for monitoring report to determine the production of the project activity.

Team	Responsibilities
O&M Head	<ul style="list-style-type: none"> • Reviewing and keeping data of monthly and annual generation statistics • Evaluating the GHG performance of the project activity
The plant manager	<ul style="list-style-type: none"> • Responsible for the operation of the plant and complying with the ICC monitoring plan <ul style="list-style-type: none"> • Ensuring calibration of monitoring equipment • To ensure that the wastes generated in the field are disposed of in accordance with the laws and regulations. • Addressing grievance related to project activity
Project Representative	<ul style="list-style-type: none"> • Calculating the emission reductions • Preparing the monitoring report • Carry out the verification process

Data Measurement

The measurement of electricity generated from project activity is to be measured continuously using meters in site areas. Meter readings are taken by the O&M team through a system called OSOS (Otomatik Sayaç Okuma Sistemi/Automatic meter reading system). Monthly readings of the meter are taken by PO officials in the presence of project representative based on which the monthly invoices are raised. The invoices can be used for cross-checking the meter readings.

Data collection and archiving

The meter readings are checked periodically by the O&M Head and discussed thoroughly with the supervisor. The readings of the meters, which are monitored through the OSOS system, are stored by the PO company for at least 2 years.

Emergency preparedness

The project activity will not result in any unidentified activity that can result in substantial emissions from the project activity. No need for emergency preparedness in data monitoring is visualized.

Instructions are laid out and followed diligently by employees while operating the wind power plant.

Employee Trainings

According to the "Regulation on the Procedures and Principles of Employee's OHS Training"²³, OHS training should be provided at least once a year in workplaces classified as very dangerous. Since the wind power plant is within the scope of "very dangerous workplace class", it is mandatory for the project owner to provide OHS training to its employees every year. In addition to OHS trainings, the project owner provided job-related training for the employees whenever necessary. Certificates of the trainings will be stored electronically during the operation period. Besides the mandatory OHS trainings, some personnel have received extra trainings. These trainings are mostly about the use of technical equipment used in wind power plants, trainings such as working at heights have also been provided, and some employees have been provided with sustainability trainings, and trainings such as calculating and reporting greenhouse gas emissions at the institution level.

The installation and operation of the meters were carried out according to the regulations of TEİAŞ (Turkish Electricity Transmission Corporation). Two calibrated meters, one main and one backup, are used for monitoring the electricity generation of the power plant. While the main meter is used to read how much electricity is generated, backup meter used for comparison only. Data from metering devices is recorded by TEİAŞ monthly.

Paragraph b) of the Article 9 of the 'Regulation of Metering and Testing of Metering Systems' (Regulation) of Ministry states that: ' b) Periodic tests of meters of electricity, water, coal gas, natural gas and current and voltage transformers are done every 2 years.' Therefore, periodic test of the meters will be done every 2 years according to the regulation.

The meters should comply with EMRA (Energy Market Regulatory Authority) regulations which define the accuracy class of the meters as 0.2 or 0.5 depending on the capacity of the circuit (0.2S in this project). EPIAS (EXIST - Energy Exchange Istanbul) records will be taken into consideration while calculating net electricity generation by the plant. ISVM (Electricity fed to the grid) and UECM (Electricity consumed from the grid) data given in the EPIAS records will be used for emission reduction calculations. Meters at the site will be used for crosscheck.

All data is kept for at least two years after the end of crediting period or two years after the last issuance whichever is later for QA/QC purposes.

²³ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=18371&MevzuatTur=7&MevzuatTertip=5>

The measurements for the capacity addition part will be performed by two measuring devices, which are the main (primary) measuring device and the backup (secondary) measuring device. The measuring frequency of both devices is continuous. The meters are placed at the Powerhouse, connected to the Transformer-C.

Table 14. Technical specifications of meters

Meter	Type	Accuracy	Serial Number	Calibration Date
Main Meter	ITRON	0.2S	73055365	09/03/2022
Backup Meter	ITRON	0.2S	73055366	09/03/2022

The first part of the project uses different meters than the capacity addition part. These meters are also placed at the Powerhouse, connected to the Transformer-A and Transformer-B. Meters of this part are replaced with another on 09/03/2022. Both current and replaced meters information are given below:

Table 15. Technical specifications of the meters of first part of the project

Meter	Type	Accuracy	Serial Number	Calibration / Replacement Date
Main Meter-1	EMH LZQJ-XC	0.2S	10773484	09/03/2022
Backup Meter-1	EMH LZQJ-XC	0.2S	10773485	09/03/2022
Main Meter-2	EMH LZQJ-XC	0.2S	10773486	09/03/2022
Backup Meter-2	EMH LZQJ-XC	0.2S	10773487	09/03/2022
Main Meter-1 (Replaced)	ACTARIS SL761A071	0.2S	53099629	09/03/2022
Backup Meter-1 (Replaced)	ACTARIS SL761A071	0.2S	53099630	09/03/2022
Main Meter-2 (Replaced)	ACTARIS SL761A071	0.2S	65005954	09/03/2022
Backup Meter-2 (Replaced)	ACTARIS SL761A071	0.2S	65005955	09/03/2022

10.2 Data and parameters remaining constant

Data / Parameter	$EF_{grid,CM,y}$
Unit	tCO ₂ / MWh
Description	Combined Margin Emission Factor of the Turkish National Grid. It's been published by Turkish Ministry of Energy and Natural Sources for 2021 on 18/03/2024

Origin of data	Turkish Ministry of Energy and Natural Sources. See: https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisyonFktr/Belgeler/TUESEF_Bilgi_Formu.pdf
Value applied	0.6345
Justification of choice of data or description of measurement methods and procedures applied	Official data published by Host Country's Ministry of Energy and Natural Sources.
Purpose of Monitoring	<input checked="" type="checkbox"/> Calculation of baseline emissions <input type="checkbox"/> Calculation of project emissions <input type="checkbox"/> Calculation of leakage
Comments	To demonstrate project activity's the contribution to SDG 13

Data / Parameter	$EF_{grid,BM,y}$
Unit	tCO ₂ / MWh
Description	Build Margin Emission Factor of the Turkish National Grid. It's been published by Turkish Ministry of Energy and Natural Sources for 2021 on 18/03/2024
Origin of data	Turkish Ministry of Energy and Natural Sources. See: https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisyonFktr/Belgeler/TUESEF_Bilgi_Formu.pdf
Value applied	0.3541
Justification of choice of data or description of measurement methods and procedures applied	Official data published by Host Country's Ministry of Energy and Natural Sources.
Purpose of Monitoring	<input checked="" type="checkbox"/> Calculation of baseline emissions <input type="checkbox"/> Calculation of project emissions <input type="checkbox"/> Calculation of leakage
Comments	To demonstrate project activity's the contribution to SDG 13

Data / Parameter	$EF_{grid,OM,y}$
Unit	tCO ₂ / MWh
Description	Operating Margin Emission Factor of the Turkish National Grid. It's been published by Turkish Ministry of Energy and Natural Sources for 2021 on 18/03/2024

Origin of data	Turkish Ministry of Energy and Natural Sources. See: https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisyonFktr/Belgeler/TUESEF_Bilgi_Formu.pdf
Value applied	0.7279
Justification of choice of data or description of measurement methods and procedures applied	Official data published by Host Country's Ministry of Energy and Natural Sources.
Purpose of Monitoring	<input checked="" type="checkbox"/> Calculation of baseline emissions <input type="checkbox"/> Calculation of project emissions <input type="checkbox"/> Calculation of leakage
Comments	To demonstrate project activity's the contribution to SDG 13

10.3 Data and parameters monitored

Table 16 Data and parameters to be monitored

Data / Parameter	EG_{p,y} (SDG7)
Unit	MWh/year
Description	Quantity of the net electricity generation supplied to the grid by the project in year y
Origin of data	Direct Measurement
Value applied	The annual electricity fed to the grid is estimated as 201,600 MWh as indicated in generation license
Justification of choice of data or description of measurement methods and procedures applied	<p>The net electricity value supplied to the grid is continuously measured by on-site power meters and recorded monthly. EPIAŞ (which is an association of TEİAŞ) records provide the exact electricity value delivered to the grid. These values are cross-checked with the on-site meter records.</p> <p>The generation data is recorded by two metering devices continuously. ISVM (Electricity fed to the grid) and UECM (Electricity consumed from the grid) are measured. Net generation is calculated by subtracting UECM from ISVM.</p>
Monitoring frequency	Monthly
Purpose of data	<input checked="" type="checkbox"/> Calculation of baseline emissions <input type="checkbox"/> Calculation of project emissions <input type="checkbox"/> Calculation of leakage
Quality assurance and control	According to the Article 2 of the Communiqué of Meters in Electricity Sector ²⁴ : 'The meters to be used in the electricity market shall be compliant with the standards of Turkish Standards Institute or IEC and have obtained "Type and

²⁴ <https://www.epdk.gov.tr/Detay/DownloadDocument?id=+6B2PMv4N4A=>

	<p>System Approval” certificate from the Ministry of Trade and Industry.’ Therefore, Ministry of Trade and Industry (Ministry) is responsible from control and calibration of the meters. Also, according to Article 11 of this Communiqué, meters shall be in class of 0.5 or 0.2, which means error interval for measuring is in +-0.5% range which is well acceptable according to rules.</p> <p>Paragraph b) of the Article 9 of the 'Regulation of Metering and Testing of Metering Systems'²⁵ (Regulation) of Ministry states that: ‘ b) Periodic tests of meters of electricity, water, coal gas, natural gas and current and voltage transformers are done every 2 years.’ Therefore, periodic calibration of the meters will be done every 2 years according to the regulation.</p> <p>Initial calibrations of the electricity meters are done by the distribution company, then distribution company will sole authority to do periodic calibration of the electricity meters as per the regulations. Apart from this, if an inconsistency is noticed in the main and backup meters, calibration is performed by the distribution company in order to eliminate this inconsistency.</p> <p>Pursuant to the second paragraph of Article 11 of the "Communiqué on meters to be used in the Electricity Market" published in the Official Gazette by EMRA (Energy Market Regulatory Authority), on April 22, 2011The reason for this obligation, which meter is used in which situation and its provisions are stated as follows in article 6 (page 4) of the Agreement on Connection to the Distribution System for Unlicensed Electricity Producers implemented by EMRA.</p> <p>As above mentioned, the data acquisition and management and quality assurance procedures that are anyway in place, no additional procedures have to be established for the monitoring plan.</p>
Comments	-

Data / Parameter	Quantitative Employment (SDG 8)
Unit	Number of Employment
Description	The project activity increases rural welfare by employing local people.
Origin of data	Employment Records
Value applied	18 people are employed in project site.
Justification of choice of data or description of measurement methods and procedures applied	Checking the employment records to confirm the number of employment.

²⁵ <https://www.mevzuat.gov.tr/anasayfa/MevzuatFihristDetayIframe?MevzuatTur=7&MevzuatNo=6381&MevzuatTertip=5>

Monitoring frequency	Annually
Purpose of data	To assess to contribution to SDG8.
Quality assurance and control	N/A
Comments	-

Data / Parameter	CO₂ Emissions (SDG 13)
Unit	tCO ₂ / year
Description	Reduction of CO2 emissions due to implementation of the project activity
Origin of data	Yearly generation of Albay Çiğiltepe WPP and the emission factor of the Turkish National Grid.
Value applied	127,915 tCO ₂ e / year
Justification of choice of data or description of measurement methods and procedures applied	The net electricity value supplied to the grid is continuously measured by on-site power meters and recorded monthly by EPIAŞ and will be kept by the project owner.
Monitoring frequency	Monthly
Purpose of data	<input checked="" type="checkbox"/> Calculation of baseline emissions <input type="checkbox"/> Calculation of project emissions <input type="checkbox"/> Calculation of leakage
Quality assurance and control	Backup meters are used for crosschecking the accuracy and both meters are calibrated if required. In addition, periodic calibrations of the meters are done every two years.
Comments	N/A

Appendix I – Evidence of Ownership

