



**Project design document form for
CDM project activities
(Version 05.0)**

Complete this form in accordance with the Attachment "Instructions for filling out the project design document form for CDM project activities" at the end of this form.

PROJECT DESIGN DOCUMENT (PDD)

Title of the project activity	Soma III Wind Farm
Version number of the PDD	~~14~~ 98.0
Completion date of the PDD	~~0210/0811~~ /201 ~~9~~ 5
Project participant(s)	Soma Enerji Elektrik Üretim A.Ş.
Host Party	Turkey
Sectoral scope and selected methodology(ies), and where applicable, selected standardized baseline(s)	- Sectoral scope 1 "Energy industries" - ACM000~~21~~ version 1~~9~~5.0 - Gold Standard v2.2
Estimated amount of annual average GHG emission reductions	~~244,067~~ 155,810

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

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Summary:

Soma III Wind Farm Project, which has been developed by Soma Enerji Elektrik Üretim A.Ş. (hereafter referred as the project participant), ~~plans to develop and operate Soma III Wind Farm Project (hereafter referred as the proposed project activity)~~ is located in Savaştepe District of Balıkesir Province and Soma District of Manisa Province in Turkey. The proposed project activity involves installation of 50 wind turbines with a total installed capacity of 100 MW. The capacity of the proposed project activity ~~will be~~ has been added to the existing Soma Project, which has been already been registered under the GS and issuing credits since 2009 (GS ID:398). The existing project (Soma I&II) is consisting of 119 turbines with an installed capacity of 140.1 MW. Soma I&II has been registered as a GS project activity on 17.11.2010 and has been issuing GS VER credits since then. The Project Participant ~~plans to develop~~ ed and registered the proposed project activity (Soma III) also under Gold Standard rules. Soma I, II and III ~~will behave~~ been operating under the same generation license obtained from the EMRA.

The commissioning dates of the project activity may be seen through Table 1:

Table 1- Commissioning dates of turbines

<u>Date</u>	<u>Comissioning of Turbines</u>
<u>28/11/2014</u>	<u>Commissioning of 16 turbines</u>
<u>25/12/2014</u>	<u>Commissioning of 12 turbines</u>
<u>07/02/2015</u>	<u>Commissioning of 3 turbines</u>
<u>20/03/2015</u>	<u>Commissioning of 9 turbines</u>
<u>09/04/2015</u>	<u>Commissioning of 6 turbines</u>
<u>26/06/2015</u>	<u>Commissioning of 4 turbines</u>

The Project Participant decided to investigate the feasibility of a capacity extension and decided to aim for the addition of 12 turbines as applying to EMRA for license revision. The generation license has been revised on 04/10/2018 as having the capacity of these turbines to be added which totals to 48 MW. Soma I, II and III will be going on operating under the same generation license obtained from the EMRA.

The proposed project activity is estimated to generate approximately 261,348 ~~M~~ GWh per annum. The electricity generated will be delivered to the national grid at via high voltage transmission line. The proposed project activity is expected to reduce 155,810 tCO₂eq emission reductions per year. With the new capacity, 148 MW, the project activity is estimated to generate approximately 429,828 MWh per annum and it's expected to reduce 244,067 tCO₂eq emission reductions per year.

The project activity aims to reduce GHGs by replacing electricity generation from the Turkish national grid system with electricity generation from wind energy, which has zero emissions. In accordance with the applicable methodology ACM0002 "Consolidated baseline methodology for grid connected electricity generation from renewable sources" v.195, the baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants.

Contribution to Sustainable Development:

Renewable wind energy is an energy source that offers various environmental benefits. It does not result in emissions of pollutants into the atmosphere, nor does it emit residuals that can have an

impact on soil and water. The net result is a reduction of fossil fuel consumption that would occur in power stations connected to the national grid so as to produce an equivalent amount of energy. At the same time, wind energy is a renewable source. So, it does not endanger the supply of energy for future generations.

The project contributes significantly to the region's sustainable development in the following ways:

- Wind energy is a renewable energy source. Unlike fossil fuels, it does not reduce the availability of energy for future generations.
- Reduction of greenhouse gas emissions and other pollutants in Turkey by replacing electricity otherwise generated by the Turkey's national grid, which has a large share of 71.43% of fossil fuel power generation¹¹.
- The project also reduces other emissions than GHG such as emissions of sulfur dioxide, nitrogen oxides, and particulates. In turn it contributes to local improvement of air quality.
- The project will enable the use of renewable energy in Turkey and attract foreign and private investment into the Turkey's power sector.
- The project strengthens the involvement of Turkey in renewable energies and low carbon power production through the use of market mechanisms.
- Creation of local employment both during the construction and operational phase. Based on 2013 figures, the unemployment rate is within 5%-6% range in Balıkesir and Manisa Province²².
- Technology and know-how transfer.
- Power supply improvement to the national grid both for domestic and commercial consumers.
- Diversification of electricity generation technologies in Turkey, which is currently dominated by natural gas fired power plants.

Additionally, no major negative impacts are expected as confirmed by the Local Stakeholders Consultation Meeting.

Important Milestones of the project activity are summarized as follows:

Table 2- Milestones of the project activity

Date	Event
15.07.2013	Board Decision on VERs
27.11.2013	Turbine contract agreement
20.03.2014	Local Stakeholders Consultation Meeting
31.03.2014	Forestry Permit
30.06.2014	Bank Loan Agreement
28.11.2014	Commissioning of 16 turbines
25.12.2014	Commissioning of 12 turbines
07.02.2015	Commissioning of 3 turbines
<u>04.10.2018</u>	<u>Revision of Generation License by EMRA</u>
<u>08.03.2019</u>	<u>Board Decision on VERs for the Capacity Extension³</u>
<u>30.04.2019</u>	<u>Construction Agreement for the Capacity Extension</u>
<u>10.05.2019</u>	<u>Turbine Agreement for the Capacity Extension</u>
<u>16.07.2019</u>	<u>Local Stakeholders Consultation Meeting for the Capacity Extension</u>
<u>01.08.2019</u>	<u>Bank Loan Agreement for Capacity Extension</u>

¹ <http://www.teias.gov.tr/sites/default/files/2018-10/59%282000-2017%29.xls>

² http://www.tuik.gov.tr/PreIstatistikTablo.do?istab_id=2278

³ Board decision is available to the DOE.

A.2. Location of project activity**A.2.1. Host Party**

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Republic of Turkey

A.2.2. Region/State/Province etc.

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Aegean Region, Balıkesir and Manisa Province

A.2.3. City/Town/Community etc.

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The proposed project activity is planned to be built within Balıkesir Province, Central District and Manisa Province Kırkağaç District

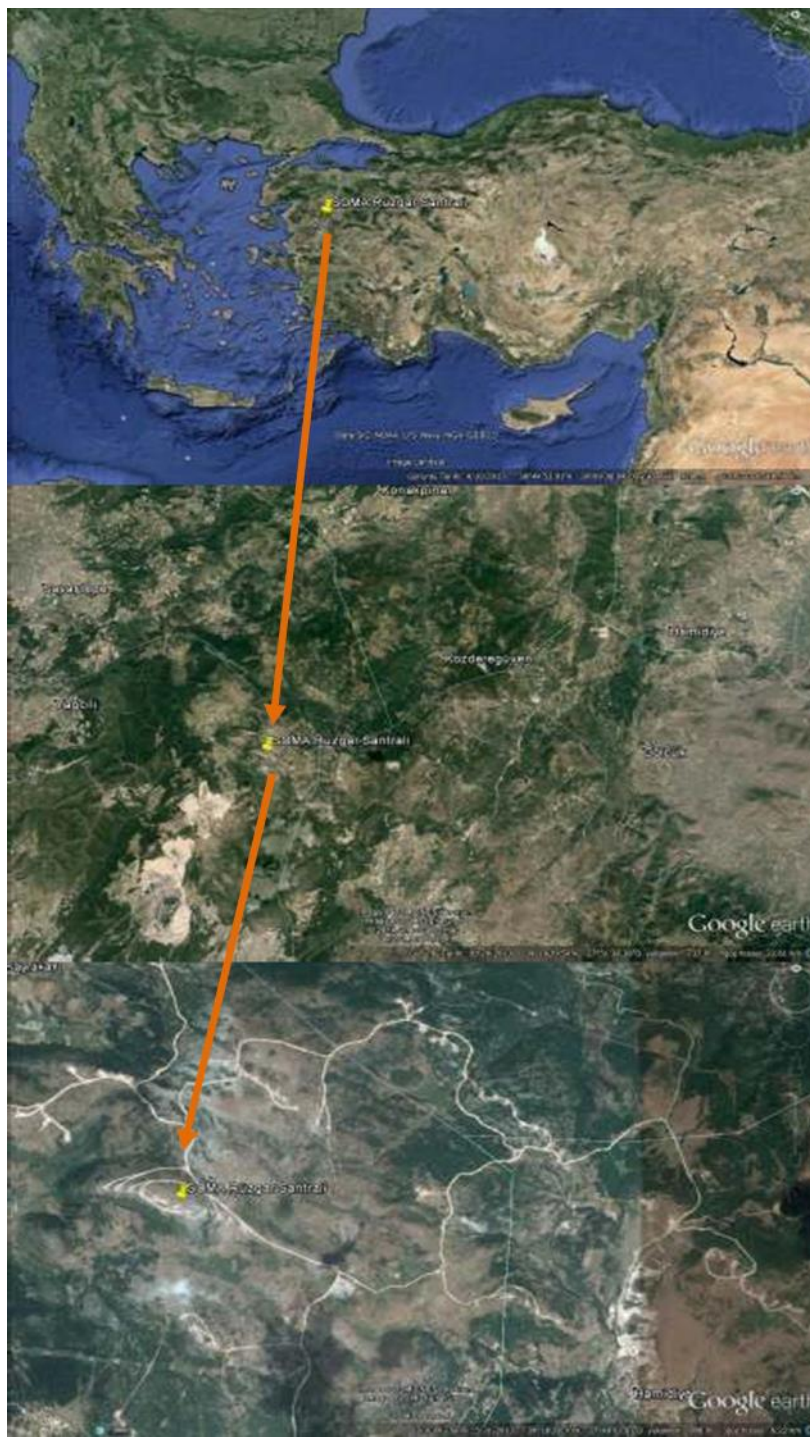
A.2.4. Physical/Geographical location

Figure 1. Location of the project activity

Please see below the map showing the locations of the turbines in the project area:

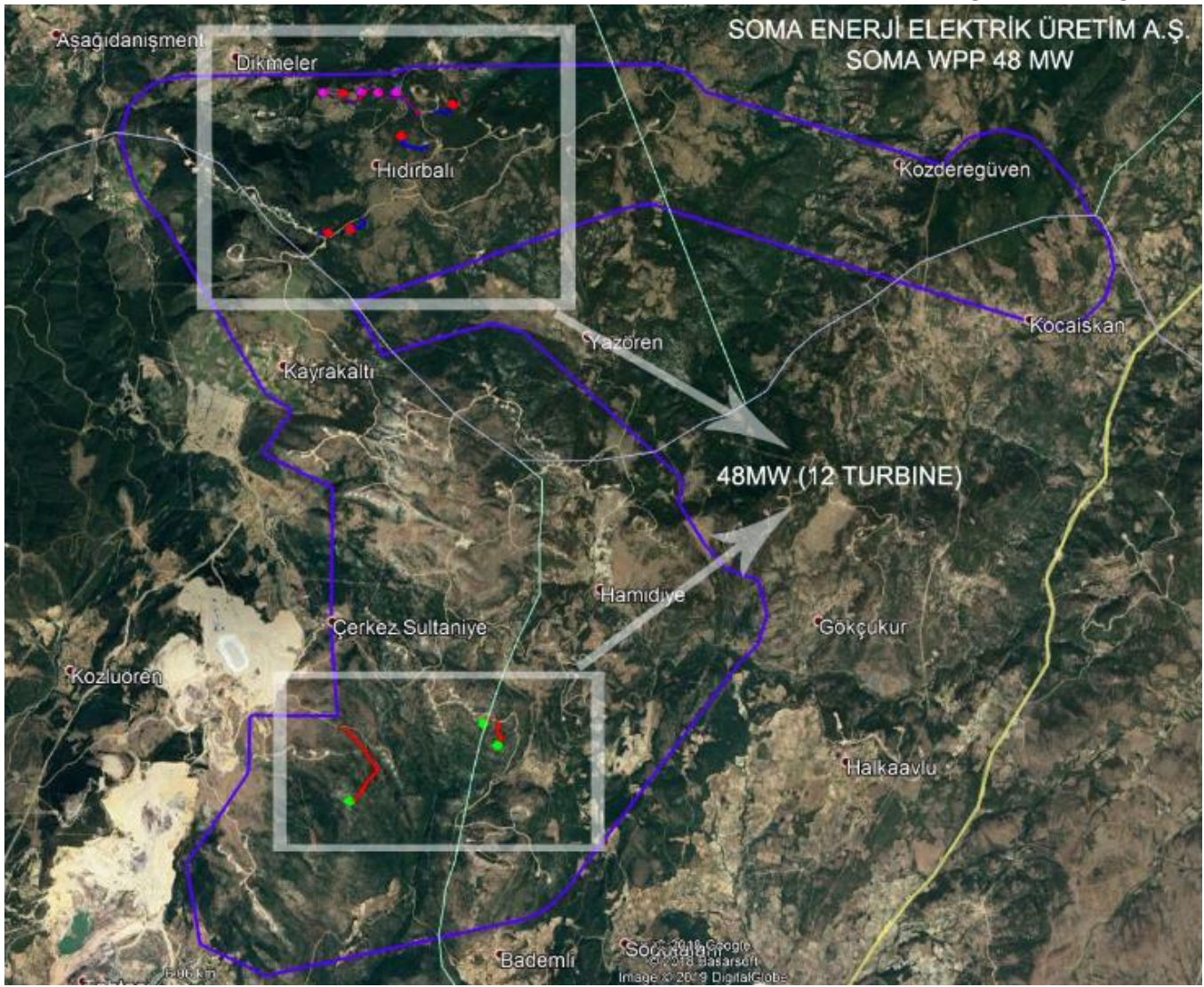


Figure 2. Location of the turbines including capacity extension to be installed

The turbines to be added within the capacity extension may be seen through the square marked in Figure 2.

A.3. Technologies and/or measures

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The proposed project activity involves the installation of 50-62 units of ~~additional~~ wind turbines with a total installed capacity of 14800 MW. The project activity is expected to generate approximately 261-429,828 MWh/year of net electricity. The total capacity addition will be reached by installation of Enercon Ee-70 and E126 gearless turbines. The key technical specifications of the turbines are as follows:

Table 31. Key technical specifications of wind turbines

Parameter	Value	
	<u>Existing Capacity (100 MW, E-70)</u>	<u>Capacity Extension (48 MW, E-126)</u>
Rated Power	2MW	<u>4MW</u>
Rotor Diameter	71-m	<u>127m</u>
Rotor Type	Upwind rotor with active pitch control	
Turbine Concept	<u>Gearless, variable speed, single blade adjustment</u>	<u>Gearless, variable speed, single blade adjustment</u>
Number of blades	3	<u>3</u>

Swept Area	3959 m ²	<u>12,668 m²</u>
Hub Height	64 m	<u>116m</u>
Blade Material	GRP (epoxy resin); built in lightning protection	<u>GRP (epoxy resin); built in lightning protection</u>
Rotational speed	Variable, 6-21 rpm	<u>Variable, 6-21 rpm</u>
Pitch Control	Enercon single blade pitch system; one independent pitch system per rotor blade with allocated emergency supply	<u>Enercon single blade pitch system; one independent pitch system per rotor blade with allocated emergency supply</u>
Generator	Enercon direct drive annular generator	<u>Enercon direct-drive annular generator</u>
Brake Systems	- 3 independent pitch control systems - Rotor brake - Rotor lock	- <u>3 independent pitch control systems with emergency power supply</u> - <u>Rotor brake</u>
Yaw System	Active via yaw gear, load dependent damping	<u>Active via yaw gear, load-dependent damping</u>
Cut out wind speed	28-34m/s	<u>28 - 34 m/s</u>

A.4. Parties and project participants

Party involved (host) indicates host Party	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Republic of Turkey (Host)	Soma Enerji Elektrik Üretim A.Ş.	No

Soma Enerji Elektrik Üretim A.Ş. is a special purpose company established under Polat Enerji Sanayi ve Ticaret A.Ş.⁴³.

Ömer Akyürek (Oak Danışmanlık) is the carbon consultant for the registration of the installed capacity 100 MW and Sekans Danışmanlık is the carbon consultant for the capacity extension of 48 MW. Full contact information for the project participants are provided in Annex 1.

A.5. Public funding of project activity

No public funding from the Annex I countries is provided to the proposed project.

SECTION B. Application of selected approved baseline and monitoring methodology and standardized baseline

B.1. Reference of methodology and standardized baseline

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Applied approved baseline and monitoring methodologies:

- Large scale consolidated methodology ACM0002 “Grid-connected electricity generation from renewable sources”, version 19.0 ~~15.0 EB79 Annex 11~~

Used tools:

- “Tool for the demonstration and assessment of additionality”, version 7.0.0 EB70 Annex 8
- ~~“Tool to calculate the emission factor for an electricity system”, version 07.0 ~~04.0 EB75-Annex 15~~~~

For more information regarding the methodology and applicable tools please refer to:

<https://cdm.unfccc.int/methodologies/DB/VJI9AX539D9MLOPXN2AY9UR1N4IYGD>

<https://cdm.unfccc.int/methodologies/DB/M0CSBFOF8RQG5I84XU5Y4WX0I5LHS1>

B.2. Applicability of methodology and standardized baseline

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The project activity involves capacity addition by installation of new wind turbines additional to the existing power plant and units. The existing power plant/units will continue to operate after the implementation of the proposed project activity. The applicability of the methodology and tools has been discussed below.

Applicability of ACM0002 version 19.0

The methodology ACM0002 “Grid-connected electricity generation from renewable sources” is applicable to grid-connected renewable power generation project activities that;

- Install a Greenfield power plant;
- Involve a capacity addition to (an) existing plant(s);
- Involve a retrofit of (an) existing operating plants/units;
- Involve a rehabilitation of (an) existing operating plants/units; or
- Involve a replacement of (an) existing operating plants/units

Since the proposed project activity involves grid connected renewable power generation that involve a capacity addition, ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” version 19.0 is applicable. The applicability criteria and conditions are discussed in more detail as follows:

Table 42. Applicability of ACM0002 v19.0

Ref.	Applicability Criteria	Justification
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.	The project activity involves capacity addition of an existing wind power plant by installation of new wind power units.
B)	~~In case of capacity additions, retrofits or replacements (except for wind, solar~~	Since the proposed project is the capacity addition to a wind power plant, this criteria is

~~wave and tidal power capacity addition projects) the existing plant started commercial operation prior to the start of minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.~~ <u>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 minimum historical reference period and the implementation of the project activity.</u>	not applicable to the proposed project activity.
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C)	In case of hydro power plants, one of the following conditions <u>shall</u> apply: - The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of reservoirs; or - ~~The project activity is implemented in an existing single or multiple reservoirs, where the volume of <u>any of the</u> reservoir(s) is increased and the power density <u>calculated using</u>~~ - ~~equation (3), is greater than 4 W/m²~~ - ~~; or of each reservoir, as per definitions given in the Project Emissions sections under the methodology, is greater than 4W/m²; or~~ - ~~The project activity results in new single or multiple reservoirs and the power~~ - ~~density, calculated using equation (3), is greater than 4 W/m²~~ - ~~; or The project activity result in new single or multiple reservoirs and the power density as per definitions given in the Project Emissions sections under the methodology, is greater than 4W/m².~~ - The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/ m².	Since the proposed project is the capacity addition to a wind power plant, this criteria is not applicable to the proposed project activity.
D)	The methodology is not applicable to the following: - Project activities that involve switching from fossil fuels to renewable energy ~~resources~~ at the site of project activity, since in this case the baseline may be the continued use of fossil fuels at the site; - Biomass fired power plants; - ~~Hydro power plants that result in new reservoirs or increase in existing reservoirs where the power density of the power plant~~	The proposed project is the capacity addition to a wind power plant and not involving switching from fossil fuels to renewable energy resources neither involved in biomass fired power plants.

	~~is less than 4W/m².~~	
E)	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 proposed project is the capacity addition and the most plausible 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”.

Based on the above arguments it could be concluded that the methodology ACM0002 “Grid-connected electricity generation from renewable sources” version 195.0 is applicable to the proposed project activity.

In addition, the methodologies also refer to several tools described under section B.1 “Title and reference of the approved baseline and monitoring methodology applied to the project activity”. The applicability of these tools has been discussed below:

Applicability of “Tool for the demonstration and assessment of additionality” v 7.0:

The tool for demonstration and assessment of additionality provides a general framework demonstrating and assessing additionality and is applicable to a wide range of project types. As referred in ACM0002, the additionality tool is applicable for the proposed project activity.

Applicability of “Tool to calculate the emission factor for an electricity system” v 074.0:

This methodological tool determines the CO₂ emission factor for displacement of electricity generated by power plants in an electricity system, by calculating the “combined margin” emission factor (CM) of the electricity system. This tool maybe applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity. As the proposed project activity supplies electricity to the national grid, the “Tool to calculate the emission factor for an electricity system” v 074.0 is applicable to the project activity.

B.3. Project boundary

Spatial Extent of the Project Boundary:

As per ACM0002 version 195.0, the spatial extent of the proposed project boundary includes the project power plant and all power plants connected physically to the electricity system, which the proposed project activity is connected to.

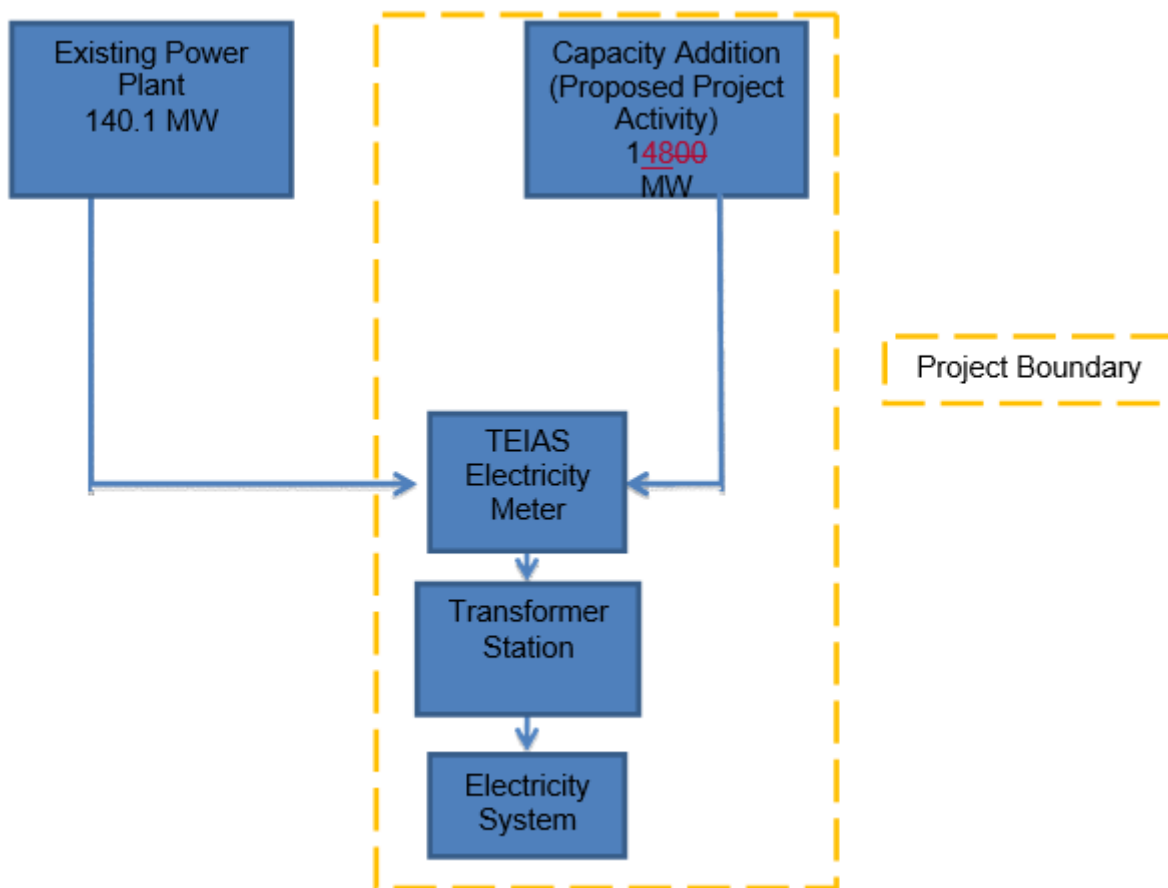


Figure 3. Project boundary

The greenhouse gases and emission sources included in or excluded from the project boundary are shown in the Table 5 below:

Table 5 - The greenhouse gases and emission sources

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	CO ₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity	CO ₂	Yes	Main emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source
Project scenario activity	~~For dry or flash steam geothermal power plants, emissions of CH₄ and CO₂ from noncondensable gases contained in geothermal steam~~	CO ₂	No	Not applicable to proposed project type
	~~For geothermal power plants, fugitive emissions of CH₄ and CO₂ from non-condensable gases contained in geothermal steam.~~	CH ₄	No	Not applicable to proposed project type
	~~For geothermal power plants, fugitive emissions of CH₄ and CO₂ from non-condensable gases contained in geothermal steam.~~	N ₂ O	No	Not applicable to proposed project type
	~~CO₂ emissions from combustion of fossil fuels from electricity generation in solar thermal power plants and geothermal power plants~~	CO ₂	No	Not applicable to proposed project type
	~~For binary geothermal power plants, fugitive emissions of CH₄ and CO₂ from noncondensable gases contained in geothermal steam~~	CH ₄	No	~~Not applicable to proposed project type~~ Minor emission source
	~~For binary geothermal power plants, fugitive emissions of CH₄ and CO₂ from noncondensable gases contained in geothermal steam~~	N ₂ O	No	~~Not applicable to proposed project type~~ Minor emission source
	~~For binary geothermal power plants, fugitive emissions of hydrocarbons such as n-butane and isopentane (working fluid) contained in the heat exchangers~~	~~CO₂~~ ~~CH₄~~ ~~N₂O~~	~~No~~ ~~No~~ ~~No~~	Not applicable to proposed project type
	~~For hydro power plants, emissions of CH₄ from the reservoir~~	~~Low GWP hydrocarbon/refrigerant~~	~~No~~	
	<u>CO₂ emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants</u>	<u>CO₂</u>	<u>No</u>	<u>Not applicable to proposed project type</u>
		<u>CH₄</u>	<u>No</u>	<u>Not applicable to proposed project type</u>
		<u>N₂O</u>	<u>No</u>	<u>Not applicable to proposed project type</u>

	<u>For hydro power plants, emissions of CH₄</u>	<u>CO₂</u>	<u>No</u>	<u>Not applicable to proposed project type</u>
		<u>CH₄</u>	<u>Yes</u>	<u>Not applicable to proposed project type</u>
		<u>N₂O</u>	<u>No</u>	<u>Not applicable to proposed project type</u>

B.4. Establishment and description of baseline scenario

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The proposed project activity is a capacity addition to an existing grid-connected renewable power plant/unit. The baseline scenario in accordance with ACM0002 v195.0 is defined as followed:

The baseline scenario is the electricity delivered to the grid by the added capacity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "TOOL07: Tool to calculate the emission factor for an electricity system".

B.5. Demonstration of additionality

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The baseline methodology ACM0002 "Grid-connected electricity generation from renewable sources" version 195.0, requires the use of the latest "Tool for demonstration and assessment of additionality" agreed by the CDM Executive Board to demonstrate and assess the additionality of the proposed project.

The tool provides for a step-wise approach to demonstrate and assess additionality. These steps include:

- (a) Demonstration whether the proposed project activity is the first of its kind;
- (b) Identification of alternatives to the project activity consistent with current laws and regulations;
- ~~(c)~~ Investment analysis to determine that the proposed project activity is either 1) not the most economical or financial attractive, or 2) not economically or financially feasible without the revenue from the sale of emission reductions.;

- (d)(c) Barrier analyses; and
 (e)(d) Common practice analysis.

Step 0. Demonstration whether the proposed project activity is the first of its kind

This step has not been applied to the proposed project activity

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

The Project Participant is an Energy Company, involved in only investing and operating in Wind Power Plants⁵. The baseline scenario is pre-fixed in accordance with the requirements of ACM0002 "Grid-connected electricity generation from renewable sources" version 195.0. The baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources.

According to Validation and Verification Standard⁶ (version 07.0), the PDD shall identify credible alternatives to the project activity in order to determine the most realistic baseline scenario, unless the approved methodology that is selected by the proposed CDM project activity prescribes the baseline scenario and no further analysis is required. Alternatives to the proposed project is not needed to be identified as the baseline scenario has been prescribed according to ACM0002 (v195.0) under section B.4.

Step 2. Investment analysis

According to "Tool for the demonstration and assessment of additionality" version 7.0, it shall be demonstrated that the proposed project activity is not;

- (a) The most economically or financially attractive; or
- (b) Economically or financially without taking into consideration the VER revenues. It should be noted that the guidance provided by the Executive Board on investment analysis has been taken into account⁷. The following sub-steps are conducted in order to do the investment analysis.

Sub-step 2a. Determination of an appropriate analysis method:

According to "Tool for the demonstration and assessment of additionality" version 7.0, simple cost analysis can only be applied to projects that do not generate any other financial benefits than the VER related incomes. Considering that the electricity produced by the proposed project will be sold to the national grid and is expected to create revenues, the simple cost analysis is discarded.

A benchmark analysis (option III) has been chosen as the appropriate analysis method.

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

The following benchmark analysis applies the equity IRR as financial indicator. The Equity IRR is considered to be a suitable and widely used financial indicator to determine the attractiveness of equity investments.

When analyzing a potential project, investors compare the equity IRR of the project against their required rate of return.

The approach to determine the benchmark against which the equity IRR shall be evaluated is

⁵ Please refer to www.polatenerji.com for further details.

⁶ Reference: Validation and Verification Standard, Section 17.8.2.3 paragraph 119

⁷ Reference: "Guidelines on The Assessment of Investment Analysis" version 5, EB 62 Annex 5.

option (a) from the “Tool for the demonstration and assessment of additionality” (Version 7.0): “Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data; ...”

In line with the requirements of “Tool for the demonstration and assessment of additionality” the expected return on equity is determined as 15%. According to the Project Appraisal Document of World Bank to TSKB (Turkish Industrial Development Bank), a typical developer of wind investment expects equity IRRs of 15%⁸.

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

The main financial indicators are presented in the below table:

Table 63 Key parameters applied in the calculation of the proposed project's equity IRR:

Parameter	Unit	Value
Total investment	USD	~~223,000,000~~ 168,000,000
Loan	%	80
Equity	%	20
General Overheads	USD / year average	4,378,616534,403 ⁹¹⁰
Yearly electricity Generation	MWh/year	~~261,348~~ 429,828
Installed capacity	MW	~~14800~~
Electricity feed in tariff	\$cent/kWh	7.3 \$cent/kWh

The key assumptions for the calculation of the equity IRR are as follows:

- The calculation of the equity IRR of the proposed project activity includes all relevant costs and revenues¹⁰¹¹.
- The revenue from yearly electricity generation is based on the guaranteed feed in tariff applicable at the time of the investment decision¹¹¹². According to the Law, the guaranteed feed in tariff for electricity generated from wind energy is 7.3 \$cent/kWh for the first 10--year period. For the remaining years a conservative market price of 7.3\$cent/kWh has been applied as well.
- Only the portion of investment costs which is financed by equity have been considered as the net cash outflow and the portion of the investment cost which is financed by debt have not been considered as a cash outflow.
- There is a board decision taken by the PP on 15.07.2013, which provides a strong evidence on prior consideration and awareness. Regarding the capacity extension, the board decision dated on 08.03.2019 provides an evidence on prior consideration.
- Depreciation wind farm is considered as 10 years with a 0.1 rates¹²¹³.

Based on the financial analysis the equity IRR has been calculated as 103% over 20 years of assessment period. It could be seen that the equity IRR of the project activity over the 20--year assessment period is below the financial benchmark of 15 % and cannot be considered to be a financially attractive alternative. With the introduction of expected revenues from VERs, although

⁸ Reference: World Bank Document http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2009/05/11/000333037_20090511030724/Rendered/PDF/468080PAD0P112101OfficialUseOnly1.pdf

⁹ The O&M costs are based on actual figures. The O&M figures are conservative taking into account the average O&M for a similar capacity wind power plant is 5.1 M£/year (approximately 7.7 M\$/year). Reference: <https://www.renewablesfirst.co.uk/windpower/windpower-learning-centre/how-much-does-a-wind-turbine-cost-to-operate/>

¹⁰ The full financial calculation is available to the DOE.

¹¹ Reference: EMRA (Electricity Market Regulatory Authority) Law on Utilization of Renewable Energy Resources http://www.epdk.gov.tr/documents/elektrik/mevzuat/kanun/Elk_Kanun_Yek_Kanun.doc

¹² https://www.gib.gov.tr/fileadmin/user_upload/Yararli_Bilgiler/amortisman_oranlari.pdf

the equity IRR is still below the benchmark, the feasibility is increases, which has a positive impact on access to finance and has been the bases of the investment decision.

Sub-step 2d: Sensitivity Analysis

The objective of the sensitivity analysis is to show whether the conclusion regarding the financial attractiveness is robust to reasonable variations in the critical assumptions. According to the Annex 5 of EB 62 “Guidelines on the assessment of Investment analysis” version 5, only variables including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation.

In line with the guidelines, important parameters for the feasibility of the proposed project activity are defined as total investment, electricity price, electricity generation and general overheads. The mentioned parameters have been tested with a range of $\pm 10\%$ for the sensitivity analysis.

The following table demonstrates the results for a $\pm 10\%$ deviation of selected parameters which increase the equity IRR.

Table 7—Sensitivity Analysis of the equity IRR with variations in total investment, electricity price, electricity generation, investment and general overheads.

Parameter	Value Applied	Equity IRR Reached
Electricity Price	8.03 \$cent/kWh (+10%)	<u>146</u> %
Electricity Generation	~~287,483~~ <u>472,811</u> MWh/year (+10%)	<u>814</u> %
General Overheads	~~4,2963,940,755~~ <u>008</u> \$/year average (-10%)	<u>114</u> %
Total investment	~~180,630,000~~ <u>151,200,000</u> million \$ (-10%)	<u>137</u> %

Discussion on the probability of the deviations:

Electricity Price:

One of the most important parameters that has an impact to the equity IRR of the project is the electricity sales price. For the sensitivity analysis the electricity price-was increased 10% from the guaranteed price of 7,3 to 8,03 USDcent/kWh for the whole assessment period and observed that the equity IRR reaches to 146%, which is still below the benchmark value.

The Law on Utilization of Renewable Energy Resources, provides a guaranteed electricity tariff of 7.3 USDcent/kWh to the electricity generated from wind energy resources, which is applicable for a 10-year period. In addition to this guaranteed price, the Law also introduces an additional incentive to projects benefiting from local equipment in their project activity. According to the Law, wind energy projects using local equipment could be rewarded by a plus incentive as indicated under Table II of the Law on top of the guaranteed price of 7,3 USDcent/kWh.

Electricity Generation:

Another important parameter that has an impact on the equity IRR is the net electricity generation delivered to the electricity system. For the sensitivity analysis, the electricity generation is increased by 10% from the value of ~~261,348~~429,828 MWh/year to ~~472,811~~ 287,483 ~~MG~~Wh/year and observed that the equity IRR reaches to 148%, which is still below the benchmark value.

General Overheads:

The impact of a deviation in general overheads is relatively insignificant compared to changes in other parameters. For the sensitivity analysis, the general overheads are decreased by 10% from

the value of 4,378,616,534,403 \$/year average to approximately 4,296,008,394,755 \$/year average and observed that the equity IRR reaches to 114%, which is still below the benchmark value.

Total Investment:

For the sensitivity analysis, the total investment costs are decreased by 10% from the value of 168 223 million \$ to 151,2180.6 million \$ and observed that the equity IRR reaches to 713%, which is still below the benchmark value. According to EİE, Head of Renewable Energy Resources Department Mr. Mustafa Çalışkan, the average investment cost is around 1.2 Million Euro (1.65 Million USD). (Reference: <http://www.tucsa.org/images/yayinlar/sunumlar/mustafa-caliskan.pdf>). There are also other international references that point out the same range of costs (<http://www.wind-energy-the-facts.org/index-43.html>) Therefore the used investment cost is conservatively within the range of average values.

Summary of sensitivity analysis

The result of financial indicator (Equity IRR) against changes in financial parameters are summarized as follows:

Table 8- IRR against changes in financial parameters

Change	-10%	-5%	0%	5%	10%
Electricity Price	71%	82%	103%	125%	146%
Electricity Generation	17%	81%	103%	512%	814%
Investment	137%	125%	103%	92%	81%
Production Expenses	114%	114%	103%	103%	102%

Outcome of Step2:

The sensitivity analysis shows that the equity IRR of the proposed project does not overcome the financial benchmark despite favourable conditions.

The sensitivity analysis further substantiates that the project activity is not a financially attractive alternative and therefore additional.

Step 3. Barrier analysis

This step has not been applied to the proposed project activity.

Step 4: Common practice analysis

As per the "Tool for the demonstration and assessment of the additionality" version 07.0, the above additionality test shall be complemented with an analysis of the extent to which the proposed project type has already diffused in the relevant sector and region. In line with the requirement of the tool, "common practice" has been identified and discussed through the following steps.

Sub-step 4 a: The proposed project activity(ies) applies measure(s) that are listed in the definitions section under the "Tool for the demonstration and assessment of the additionality" version 07.0.0.

This step is not applicable since the proposed project activity applies wind energy.

Step 4b. The proposed project activity(s) does not apply any of the measures that are listed in the definitions section under the "Combined tool to identify the baseline scenario and demonstrate additionality" version 07.0.

As per the “Tool for the demonstration and assessment of the additionality” version 07.0, an analysis of any other activities that are operational and that are similar to the proposed project activity must be provided. The common practice analysis has been conducted based on the latest up-to-date publicly available data at the time of first submission (1322.078.20194). Projects are considered similar if they are in the same country/region and/or rely on a broadly similar technology, are of similar scale, and take place in a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc.

Step 1:

In line with the descriptions of the tool, the similar range or the design capacity of the proposed capacity is determined as **50-74 MW – 222150 MW¹³¹⁴**.

Step 2:

In line with the requirements of the tool, plants that deliver the same output or capacity within the applicable range and applicable geographical area¹⁴¹⁵ are determined as follows:

Table 94- Plants within the range of common practice analysis, that delivers same output range¹⁵¹⁶

<u>PLANT NAME</u>	<u>CAPACITY (MW)</u>	<u>FURTHER NOTES</u>
<u>DİNAR RES</u>	<u>200,3</u>	<u>GS VER project activity currently listed under GS Registration</u>
<u>GEYCEK RES</u>	<u>168,0</u>	<u>GS VER project activity currently listed under</u>
<u>KANGAL RES</u>	<u>155,3</u>	<u>GS VER project activity currently listed under</u>
<u>BALIKESİR RES</u>	<u>142,5</u>	<u>GS VER project activity currently listed under</u>
<u>SOMA RES I-II</u>	<u>140,0</u>	<u>GS VER project activity currently listed under</u>
<u>OSMANİYE RES</u>	<u>135,0</u>	<u>GS VER project activity currently listed under</u>
<u>ALİAĞA RES</u>	<u>120,0</u>	<u>GS VER project activity currently listed under</u>
<u>KARABURUN RES</u>	<u>120,0</u>	<u>GS VER project activity currently listed under</u>
<u>SOMA RES</u>	<u>120,0</u>	<u>GS VER project activity currently listed under</u>
<u>ŞAMLI RES</u>	<u>114,0</u>	<u>GS VER project activity currently listed under</u>
<u>ŞAH RES</u>	<u>105,0</u>	<u>GS VER project activity currently listed under</u>
<u>SOMA RES III</u>	<u>100,0</u>	<u>GS VER project activity currently listed under</u>
<u>ÇATALCA RES</u>	<u>93,0</u>	<u>GS VER project activity currently listed under</u>
<u>BANDIRMA RES</u>	<u>87,0</u>	<u>GS VER project activity</u>

¹³ The capacity of the proposed Project activity is 148 MW. Therefore a +/-50% range is calculated as 74 MW – 222 MW

¹⁴ Turkey is considered as the applicable geographical area, which is the most conservative approach.

¹⁵ Reference: Turkish Electrical Energy Generation Capacity Projection for 10 Years 2012-2021, Annex I Current System (Section IX / Wind), <https://www.eigm.gov.tr/tr-TR/Sayfalar/Enerji-Yatirimlari>

		<u>currently listed under</u>
<u>YAHYALI RES</u>	<u>82,5</u>	<u>GS VER project activity</u> <u>currently listed under</u>
<u>FATMA RES</u>	<u>80,0</u>	<u>GS VER project activity</u> <u>currently listed under</u>
<u>AKSU RES</u>	<u>80,0</u>	<u>GS VER project activity</u> <u>currently listed under</u>
<u>EDİNCİK RES</u>	<u>77,4</u>	<u>GS VER project activity</u> <u>currently listed under</u>
<u>KAYADÜZÜ RES</u>	<u>76,0</u>	<u>GS VER project activity</u> <u>currently listed under</u>
<u>ZİYARET RES</u>	<u>76,0</u>	<u>GS VER project activity</u> <u>currently listed under</u>
<u>KAYADÜZÜ RES</u>	<u>75,5</u>	<u>GS VER project activity</u> <u>currently listed under</u>
<u>SUSURLUK RES</u>	<u>75,0</u>	<u>GS VER project activity</u> <u>currently listed under</u>

Plant Name	Capacity	Further Notes
~~Bergama (Aliağa) RES~~	~~90 MW~~	~~GS VER project activity~~ ~~currently listed under GS~~ ~~Registration.~~
~~Borasko Bandırma~~	~~60 MW~~	~~GS VER project activity~~ ~~currently listed under GS~~ ~~Registration.~~
~~Rotor Osmaniye RES~~	~~135 MW~~	~~GS VER project activity~~ ~~currently listed under GS~~ ~~Registration.~~
~~Baki Elektrik Şanlı RES~~	~~114 MW~~	~~GS VER project activity~~ ~~currently listed under GS~~ ~~Registration.~~
~~Ertürk Elektrik (Çatalca)~~	~~60 MW~~	~~GS VER project activity~~ ~~currently listed under GS~~ ~~Registration.~~
~~Innores Elektrik Yuntdağ~~	~~52.5 MW~~	~~GS VER project activity~~ ~~currently listed under GS~~ ~~Registration.~~
~~Soma RES~~	~~116.1 MW~~	~~GS VER project activity~~ ~~currently listed under GS~~ ~~Registration.~~
~~Soma RES Bilgin~~	~~90 MW~~	~~GS VER project activity~~ ~~currently listed under GS~~ ~~Registration.~~
~~Şah RES Galata Wind~~	~~93 MW~~	~~GS VER project activity~~ ~~currently listed under GS~~ ~~Registration.~~
~~Ziyaret RES~~	~~57,5~~	~~GS VER project activity~~ ~~currently listed under GS~~ ~~Registration.~~

Step 3:

Among the power plants under table 4, all are listed under Gold Standard as GS VER project activities. Based on the above information it is clear that there are no similar project activities in Turkey, which are not developed with a business model excluding VER revenues. Therefore $N_{all}=0$

Step 4:

All identified similar project activities use same technology. $N_{diff}=0$

Step 5: Since 0/0 is mathematically undefined this step is not applicable.

Outcome: Since there are no similar project activities in Turkey, which are not developed with a business model excluding VER revenues, it can be concluded that wind projects are not a common practice and the technology has not yet diffused in Turkey.

B.6. Emission reductions

B.6.1. Explanation of methodological choices

The emission reductions for the proposed project activity are calculated according to ACM0002 “Grid-connected electricity generation from renewable sources” version 195.0.

Emission Reductions

The emission reductions are calculated based on the following formula:

$$ER_y = BE_y - PE_y \quad (17)$$

Where:

ER_y	Emission reductions in year y (tCO ₂ e/year)
BE_y	Baseline emissions in year y (tCO ₂ e/year)
PE_y	Project emissions in year y (tCO ₂ e/year)

Project Emissions

In accordance with the methodology ACM0002 “Grid-connected electricity generation from renewable sources”, no project emissions need to be considered. Project emissions apply only for geothermal power plants, solar thermal power plants and for some hydro power plants. Therefore

$$PE_y = 0$$

Baseline Emissions

According to the methodology baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are calculated as follows:

$$BE_y = EG_{PJ,y} \cdot EF_{grid,CM} \quad (112)$$

Where:

BE_y Baseline emissions in year y (tCO₂/year)

$EG_{PJ,y}$ 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/yr)

$EF_{grid,CM}$ Combined margin CO₂ emission factor for grid connected power generation calculated using the latest version of the "TOOL 07: Tool to calculate the emission factor for an electricity system". The combined margin is calculated ex-post and has been fixed for the first crediting period.

Calculation of $EG_{PJ,y}$

The calculation of $EG_{PJ,y}$ is different for (a) greenfield plants; (b) retrofits and replacements and; (c) capacity additions. Since the proposed project activity falls under the description capacity addition, the following method has been adopted.

Capacity addition to wind, solar, wave or tidal plant

In case of wind energy, it is assumed that the addition of new capacity does not significantly affect the electricity generated by existing power plant(s) or unit(s). In this case, the electricity fed into the grid by the added power plant(s) or unit(s) could be directly metered and used to determine $EG_{PJ,y}$.

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

(3)

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 ~~VER-CDM~~ project activity in year y (MWh/yr)
- $EG_{PJ_ADD,y}$ Quantity of net electricity generation supplied to the grid in year y by the project plant/unit that has been added under the project activity (MWh/yr)

If the project activity is a capacity addition, project participants may use one of the following options to determine $EG_{PJ,y}$:

Leakage

In line with the requirements of ACM0002 “Grid-connected electricity generation from renewable sources”, no leakage emissions are considered. The main emissions potentially giving rise to leakage in context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing and transport). These emission sources are neglected.

Calculation of $EF_{grid,CM}$

As referred in ACM0002 “Grid-connected electricity generation from renewable sources”, $EF_{grid,CM}$ is calculated according to the “Tool to calculate the emission factor for an electricity system”.

In accordance with the methodological “Tool to calculate the emission factor for an electricity system” version 074.0, the “combined margin” emission factor is calculated through the following six steps:

- STEP (1): Identify the relevant electricity system~~s~~;
- STEP (2): Choose whether to include off-grid power plants in the project electricity system (optional);
- STEP (3): Select a method to determine the operating margin (OM);
- STEP (4): Calculate the operating margin emission factor according to the selected method;
- STEP (5): Calculate the build margin (BM) emission factor;
- STEP (6): Calculate the combined margin (CM) emission factor.

STEP 1: Identify the relevant electricity system

According to the applicable methodology, the relevant project electricity system has to be identified. A project electricity system is defined by the spatial extent of the power plants that are physically connected through transmission and distribution lines to the project activity and that can be dispatched without significant transmission constraints.

Similarly, a connected electricity system, e.g. national or international, is defined as an electricity system that is connected by transmission lines to the project electricity system. Power plants within the connected electricity system can be dispatched without significant transmission constraints but transmission to the project electricity system has significant transmission constraint.

The transmission lines in Turkey are operated by TEİAŞ (Turkish Electricity Transmission CO), which is a state-owned company. The grid is 66,285km long and constitutes of 727 transformer stations with a total transformer capacity of 163,181MVA and 11 interconnections to neighbour countries~~-. The interconnected grid system is operated continuously and there are no electricity price differences throughout the regions.~~ Therefore, the relevant electric power system is defined as the national grid system of Turkey.

STEP 2: Choose whether to include off-grid power plants in the project electricity system (optional)

According to the applicable tool, Project Participants may choose between the following two

options to calculate the operating margin and build margin emission factor:

Option I: Only grid power plants are included in the calculation.

Option II: Both grid power plants and off-grid power plants are included in the calculation.

The Project Participant chooses Option I and therefore only grid power plants are included in the calculation.

STEP 3: Select a method to determine the operating margin (OM)

According to the applicable methodological tool, the operating margin emission factor ($EF_{grid, OM, y}$) is based on one of the following methods:

- a) Simple OM; or
- b) Simple adjusted OM; or
- c) Dispatch data analysis OM; or
- d) Average OM.

The project participant has selected option (a) Simple OM method for calculation of the operating margin emission factor. This choice is applicable since low-cost/must-run resources constitute less than 50% of total grid generation in average of five most recent years. The low-cost/must-run resources include hydro, geothermal, wind, low-cost biomass, nuclear, and solar power generation.

Option (a) Simple OM method has been selected for calculation of the operating margin emission factor. The option is applicable since low-cost/must-run resources constitute less than 50% of total grid generation. The low-cost/must-run resources include power generation from renewable resources. Breakdown by sources of the electricity generation from the grid may be seen in Table 10:

~~The share of the installed capacity of renewable energy sources excluding hydro power is 1.2% of the total electricity generation and the electricity generation from hydro power is 20.3% of the total electricity generation in average of five most recent years. The total share of renewable energy resources add up to 21.5%, which is below the threshold for applicability of the simple OM method. There is no indication that coal is used as a must run and no nuclear energy plants are located in Turkey. Therefore the requirements for the use of the Simple OM calculations are satisfied.~~

Table 10- Share of primary sources in electricity generation, 2013-2017¹⁶

<u>YEAR</u>	<u>THERMAL RATIO (%)</u>	<u>HYDRO RATIO (%)</u>	<u>GEOTHERM + WIND + SOLAR RATIO (%)</u>
<u>2013</u>	<u>71.6</u>	<u>24.7</u>	<u>3.7</u>
<u>2014</u>	<u>79.5</u>	<u>16.1</u>	<u>4.3</u>
<u>2015</u>	<u>68.5</u>	<u>25.6</u>	<u>5.8</u>
<u>2016</u>	<u>67.7</u>	<u>24.5</u>	<u>7.8</u>
<u>2017</u>	<u>71.4</u>	<u>19.6</u>	<u>9.1</u>

~~**Table 5- Annual development of Turkey's electricity generation by share of Primary energy resources¹⁹**~~

<u>Years</u>	<u>Total Thermal</u>	<u>Total Hydro</u>	<u>Geothermal and</u>
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Regarding the requirements for satisfying simple OM method, Approach 1 has been chosen:

¹⁶ <http://www.teias.gov.tr/sites/default/files/2018-10/59%282000-2017%29.xls>

$$Share_{LCMR} = average\left[\frac{EG_{LCMR\ y-4}}{total_{y-4}}, \dots, \frac{EG_{LCMRy}}{total_y}\right] \quad (1)$$

$$^{17}Share_{LCMR} = average\left[\frac{68,342}{240,154}, \frac{51,546}{251,963}, \frac{82,417}{261,783}, \frac{88,610}{274,408}, \frac{85,139}{297,278}\right]$$

$$Share_{LCMR} = average[0.285, 0.205, 0.315, 0.323, 0.286]$$

¹⁷ <http://www.teias.gov.tr/sites/default/files/2018-10/59%282000-2017%29.xls>

			Wind
2007	81.0%	18.7%	0.3%
2008	82.8%	16.8%	0.5%
2009	80.6%	18.5%	1.0%
2010	73.8%	24.5%	1.7%
2011	74.8%	22.8%	2.4%
Average	78.6%	20.3%	1.2%

For the simple OM, the emission factor can be calculated using either of the two following data vintages:

- **Ex ante option:** If the *ex ante* option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required. For grid power plants a 3-year generation-weighted average, based on the most recent data available at the time of submission of the VER-PDD to the DOE for validation.
- **Ex post option:** If the *ex post* option is chosen, the emission factor is determined for the year in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring.

For the proposed project activity, the **ex-ante option** is selected. Data for calculating the three - year average is obtained from the period 2015-2017 ~~2009—2011~~ which are the most recent data available at the time of submission of the PDD¹⁸ ~~to DOE~~.

STEP 4: Calculating the operating margin emission factor according to the selected method

The simple OM emission factor is calculated as the generation-weighted average CO₂ emissions per unit net electricity generation (tCO₂e/MWh) of all generating power plants serving the system, not including low-cost / must-run power plants / units. It may be calculated:

Option A: –Based on the net electricity generation and a CO₂ emission factor of each power unit; or

Option B: _Based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system.

As the fuel consumption and the average efficiency data for each power plant / unit is not available Option B is used for simple OM calculation^{19, 24}

Option B: Calculation based on total fuel consumption and electricity generation of the system

As Option B is used, the simple OM emission factor is calculated based on the net electricity supplied to the grid by all power plants serving the system, not including low-cost/must run power plants/units, and based on the fuel type(s) and total fuel consumption of the project electricity system as follows:

$$EF_{grid,OMsimple,y} = \frac{\sum_i FC_{i,y} \times NCV_{i,y} \times EF_{CO_2,i,y}}{EG_y} \quad (34)$$

Where:

EF_{grid,OMsimple,y} Simple operating margin CO₂ emission factor in year y (tCO₂/MWh)
FC_{i,y} Amount of fossil fuel type i consumed in the project electricity system in year y (mass or volume unit)

¹⁸ <https://www.teias.gov.tr/tr/turkiye-elektrik-uretim-iletim-istatistikleri>

¹⁹ Only renewable power generation are considered as low-cost/must-run power sources and the quantity of electricity supplied to the grid by these sources is known.

NCV _{i,y}	Net calorific value (energy content) of fossil fuel type i in year y (GJ / mass or volume unit)
EF _{CO₂, i,y}	CO ₂ emission factor of fossil fuel type i in year y (tCO ₂ /GJ)
EG _y	Net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost/must run power plants/units, in year y (MWh)
i	All fossil fuel types combusted in power sources in the project electricity system in year y
y	The three most recent years for which data is available at the time of submission of the PDD to the DOE for validation (ex-ante option)

For this approach (simple OM) to calculate the operating margin, subscript m refers to the power plants/units delivering electricity to the grid, not including low-cost/must run power plants/units, and including electricity imports to the grid.

STEP 5. Calculation of the build margin emission factor

In terms of vintage of data, project participants can choose between one of the following two options:

Option 1: For the first crediting period, calculate the build margin emission factor ex ante based on the most recent information available on units already built for sample group m at the time of VER PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

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

For the proposed project activity, the Project Participant chooses **Option 1** in terms of vintage of data.

The sample group of power units m used to calculate the build margin should be determined as per the following procedure, consistent with the data vintage selected above:

- (a) Identify the set of five power units, excluding power units registered as VER project activities, that started to supply electricity to the grid most recently (SET_{5-units}) and determine their annual electricity generation (AEG_{SET-5-units}, in MWh).
- (b) Determine the annual electricity generation of the project electricity system, excluding power units registered as VER project activities (AEG_{total}, in MWh). Identify the set of power units, excluding power units registered as VER project activities, that started to supply electricity to the grid most recently and that comprise 20% of total AEG_{total} (if 20% falls on part of the generation of a unit, the generation of that unit is fully included in the calculation) (SET_{>20%}) and determine their annual electricity generation (AEG_{SET>20%}, in MWh);
- (c) From SET_{5-units} and SET_{>20%} select the set of power units that comprise the larger annual electricity generation (SET_{sample});

Option 1 has been chosen in terms of vintage of data for the project activity.

Data from the period 2015-2017 has been obtained from the main information sources for the Turkish electricity system: TEİAŞ (www.teias.com.tr) and Ministry of Energy and Natural

Resources (www.etkb.gov.tr). The period, 2015-2017, is the most recent data available at the time of submission of the PDD.

~~Identify the date when the power units in SET_{sample} started to supply electricity to the grid. If none of the power units in SET_{sample} started to supply electricity to the grid more than 10 years ago, then use the SET_{sample} to calculate the build margin.~~

The most recent information available belongs to 2011 and based on TEİAŞ statistics which is the official information source for the grid. According to TEİAŞ figure, the annual electricity generation of the project electricity system excluding power units registered as VER project activities (AEG_{total}) is 229,395,100 MWh²². Based on the AEG_{total} , the set of power units, excluding power units registered as VER project activities, that started to supply electricity to the grid most recently and that comprise 20% of total AEG_{total} , have been defined and the $AEG_{SET>20\%}$ is determined as 41,250,851 MWh and includes 309 units of power plants under $SET_{>20\%}$. Without the need of any further assessment it can be concluded that the $SET_{5-units} \ll SET_{>20\%}$ and therefore the $SET_{>20\%}$ is selected as SET_{sample} ²³ for the calculation of the build margin (BM).

The built margin (BM) emission factor is the generation-weighted average emission factor (tCO_2/MWh) of all power units m during the most recent year y for which power generation data is available²⁴, calculated as follows:

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

Where:

- $EF_{grid,BM,y}$ — Build margin CO_2 emissions factor in year y (tCO_2/MWh)
- $EG_{m,y}$ — Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
- $EF_{EL,m,y}$ — CO_2 emission factor of the power unit m in year y (tCO_2/MWh)
- m — Power units included in the build margin
- y — Most recent historical year for which power generation data is available

As per the “Tool to calculate the emission factor for an electricity system” version 04.0., the CO_2 emission factor of each power unit m ($EF_{EL,m,y}$) should be determined as per the guidance from the tool in step 4 for simple OM, using options A1, A2 or A3, using for y the most recent historical year for which power generation data is available, where m is the power units included in the build margin.

As plant specific fuel consumption data is not available for Turkey, option A2 has been selected for the calculation of the CO_2 emission factor of each power unit m ($EF_{EL,m,y}$) as follows:

$$EF_{EL,m,y} = \frac{EF_{CO_2,i,y} \cdot 3.6}{\eta_{m,y}} \quad (6)$$

Where:

- $EF_{EL,m,y}$ — CO_2 emission factor of the power unit m in year y (tCO_2/MWh)
- $EF_{CO_2,m,i,y}$ — Average CO_2 emission factor of fuel type i used in power unit m in year y (tCO_2/GJ)
- $\eta_{m,y}$ — Average net energy conversion efficiency of power unit m in year y (ratio)
- m — All power units serving the grid in year y except low-cost/must-run power units
- y — The most recent year for which power generation data is available at the time of submission of the VER PDD to the DOE for validation (ex-ante option)

STEP 6: Calculation of the combined margin emission factor

According to the applicable methodological tool, the calculation of the combined margin (CM) emission factor ($EF_{grid, CM}$) is based on one of the following methods:

- (a) Weighted average CM; or
- (b) Simplified CM.

In line with the requirements of the applicable tool, the Project Participant chooses option (a), weighted average CM.

The combined margin emissions factor is calculated as follows:

$$EF_{grid, CM, y} = EF_{grid, OM, y} \cdot w_{OM} + EF_{grid, BM, y} \cdot w_{BM} \quad (716)$$

Where:

$EF_{grid, CM, y}$: Combined Margin emission factor (tCO₂/MWh)

$EF_{grid, OM, y}$: Operating margin emission factor (tCO₂/MWh)

$EF_{grid, BM, y}$: Build margin emission factor (tCO₂/MWh)

w_{OM} : Weight of the operating margin emission factor

w_{BM} : Weight of the build margin emission factor

As stated in the "Tool to calculate the emission factor for an electricity system" version 074.0, the default weights for the operating margin and build margin emission factors for the proposed project type is defined as:

$$w_{OM}=0.75 \quad w_{BM}=0.25$$

for the first crediting period²⁰.

Changes required for the methodology implementation in 2nd and 3rd crediting periods

At the start of the second and third crediting period the Project Proponents will address two issues as required by the applicable methodology:

- Assess the continued validity of the baseline; and
- Update the baseline as defined above

B.6.2. Data and parameters fixed ex ante

<u>Data / Parameter</u>	<u>ID.1 / EG_{gross}</u>
<u>Unit</u>	<u>MWh</u>
<u>Description</u>	<u>Gross electricity generated by all power plants connected to the national grid including low-cost must run power plants between years (2015-2017)</u>
<u>Source of data</u>	<u>TEIAS (Turkish Electricity Transmission Company)</u> <u>https://www.teias.gov.tr/tr/turkiye-elektrik-uretim-iletim-2017-yili-istatistikleri</u>
<u>Value(s) applied</u>	<u>Please see calculations of emission factor (Section B.6.3.)</u>

²⁰ For the second and third crediting period, $w_{OM}=0.25$ and $w_{BM}=0.75$ will be used unless otherwise specified in the methodology. Project participant may submit alternative weights if the weightage does not reflect their situation.

<u>Choice of data or Measurement methods and procedures</u>	<u>According to “Turkish Statistics Law and Official Statistics Program”²¹ TEIAS, the Turkish Electricity Transmission Company is the official source for the related data, hence providing the most up-to-date and accurate information available.</u>
<u>Purpose of data</u>	<u>Used to calculate the combined margin emission factor</u>
<u>Additional comment</u>	<u>-</u>

<u>Data / Parameter</u>	<u>ID.2/ $EG_{net,y}$</u>
<u>Unit</u>	<u>MWh</u>
<u>Description</u>	<u>Net electricity generated by all power plants connected to the national grid excluding low-cost must run power plants between years (2015-2017)</u>
<u>Source of data</u>	<u>TEIAS (Turkish Electricity Transmission Company) https://www.teias.gov.tr/tr/turkiye-elektrik-uretim-iletim-2017-yili-istatistikleri</u>
<u>Value(s) applied</u>	<u>Please see calculations of emission factor (Section B.6.3.)</u>
<u>Choice of data or Measurement methods and procedures</u>	<u>According to “Turkish Statistics Law and Official Statistics Program” TEIAS, the Turkish Electricity Transmission Company is the official source for the related data, hence providing the most up-to-date and accurate information available</u>
<u>Purpose of data</u>	<u>Used to calculate the combined margin emission factor</u>
<u>Additional comment</u>	<u>-</u>

<u>Data / Parameter</u>	<u>ID.2/ EG_v</u>
<u>Unit</u>	<u>MWh</u>
<u>Description</u>	<u>Net electricity generated by all power plants connected to the national grid excluding low-cost must run power plants between years (2015-2017)</u>
<u>Source of data</u>	<u>TEIAS (Turkish Electricity Transmission Company) https://www.teias.gov.tr/tr/turkiye-elektrik-uretim-iletim-2017-yili-istatistikleri</u>
<u>Value(s) applied</u>	<u>Please see calculations of emission factor (Section B.6.3.)</u>
<u>Choice of data or Measurement methods and procedures</u>	<u>According to “Turkish Statistics Law and Official Statistics Program” TEIAS, the Turkish Electricity Transmission Company is the official source for the related data, hence providing the most up-to-date and accurate information available</u>
<u>Purpose of data</u>	<u>Used to calculate the combined margin emission factor</u>
<u>Additional comment</u>	<u>-</u>

<u>Data / Parameter</u>	<u>ID.3/ $FC_{i,y}$</u>
<u>Unit</u>	<u>tonnes/m3</u>
<u>Description</u>	<u>Fossil fuel consumed by thermal power plants between years 2015-2017</u>
<u>Source of data</u>	<u>TEIAS (Turkish Electricity Transmission Company) https://www.teias.gov.tr/tr/turkiye-elektrik-uretim-iletim-2017-yili-istatistikleri</u>

²¹ https://www.teias.gov.tr/sites/default/files/2017-07/Resmi_istatistik_Programi_2012-2016%28Rev.1%29_0.pdf

<u>Value(s) applied</u>	<u>Please see calculations of emission factor (Section B.6.3.)</u>
<u>Choice of data or Measurement methods and procedures</u>	<u>According to "Turkish Statistics Law and Official Statistics Program" TEIAS, the Turkish Electricity Transmission Company is the official source for the related data, hence providing the most up-to-date and accurate information available</u>
<u>Purpose of data</u>	<u>Used to calculate the combined margin emission factor</u>
<u>Additional comment</u>	<u>-</u>

<u>Data / Parameter</u>	<u>ID.4/ $NCV_{i,y}$</u>
<u>Unit</u>	<u>TJ/mass or volume</u>
<u>Description</u>	<u>Net calorific value of each fossil fuel type between years 2015-2017</u>
<u>Source of data</u>	<u>TEIAS (Turkish Electricity Transmission Company)</u> <u>https://www.teias.gov.tr/tr/turkiye-elektrik-uretim-iletim-2017-yili-istatistikleri</u>
<u>Value(s) applied</u>	<u>Please see calculations of emission factor (Section B.6.3.)</u>
<u>Choice of data or Measurement methods and procedures</u>	<u>TEIAS (Turkish Electricity Transmission Company)</u> <u>https://www.teias.gov.tr/tr/turkiye-elektrik-uretim-iletim-2017-yili-istatistikleri</u>
<u>Purpose of data</u>	<u>Used to calculate the combined margin emission factor</u>
<u>Additional comment</u>	<u>-</u>

<u>Data / Parameter</u>	<u>ID.4/ $EF_{CO_2,i,y}$</u>
<u>Unit</u>	<u>tCO₂/TJ</u>
<u>Description</u>	<u>CO₂ emission factor of fossil fuel type i between years 2015-2017</u>
<u>Source of data</u>	<u>IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter 1 of Volume 2 (Energy) of the 2006 IPCC Guidelines for National Greenhouse Gas Inventory</u> <u>https://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html</u>
<u>Value(s) applied</u>	<u>Please see calculations of emission factor (Section B.6.3.)</u>
<u>Choice of data or Measurement methods and procedures</u>	<u>There is no information on the fuel specific default emission factor in Turkey, hence, IPCC values has been used.</u>
<u>Purpose of data</u>	<u>Used to calculate the combined margin emission factor</u>
<u>Additional comment</u>	<u>-</u>

<u>Data / Parameter</u>	<u>ID.5/ $\eta_{m,y}$</u>
<u>Unit</u>	<u>-</u>
<u>Description</u>	<u>Average net energy conversion efficiency of thermal power units connected to the grid</u>

<u>Source of data</u>	<u>Default values in Annex.1 in “Tool to calculate the emission factor for an electricity system” version 07.0.0</u>
<u>Value(s) applied</u>	<u>Please see calculations of emission factor (Section B.6.3.)</u>
<u>Choice of data or Measurement methods and procedures</u>	<u>Default values have been used.</u>
<u>Purpose of data</u>	<u>Used to calculate the combined margin emission factor</u>
<u>Additional comment</u>	<u>-</u>

<u>Data / Parameter</u>	<u>ID.1 / $EG_{m,y}$</u>
<u>Unit</u>	<u>MWh</u>
<u>Description</u>	<u>Net electricity generated by power plant/unit m</u>
<u>Source of data</u>	<u>TEIAS (Turkish Electricity Transmission Company) http://www.teias.gov.tr/istatistikler.aspx</u>
<u>Value(s) applied</u>	<u>Please refer to Table 32</u>
<u>Choice of data or Measurement methods and procedures</u>	<u>According to “Turkish Statistics Law and Official Statistics Program”²⁶– TEIAS, the Turkish Electricity Transmission Company is the official source for the related data, hence providing the most up-to-date and accurate information available.</u>

Purpose of data	Used to calculate the combined margin emission factor
Additional comment	-

Data / Parameter	ID.2 / $FC_{i,y}$
Unit	tonnes (m^3 for gaseous fuels)
Description	Amount of fossil fuel type i consumed in the project electricity system by generation sources in year y (2009-2011)
Source of data	TEIAS (Turkish Electricity Transmission Company) http://www.teias.gov.tr/istatistikler.aspx
Value(s) applied	Please refer to Table 30
Choice of data or Measurement methods and procedures	According to "Turkish Statistics Law and Official Statistics Program" TEIAS, the Turkish Electricity Transmission Company is the official source for the related data, hence providing the most up-to-date and accurate information available.
Purpose of data	Used to calculate the combined margin emission factor
Additional comment	-

Data / Parameter	ID.3 / $NCV_{i,y}$
Unit	GJ/tonnes (m^3 for gaseous fuels)
Description	Net calorific value (energy content) of fossil fuel type i in year y
Source of data	TEIAS (Turkish Electricity Transmission Company) http://www.teias.gov.tr/istatistikler.aspx
Value(s) applied	Please refer to Table 30
Choice of data or Measurement methods and procedures	According to "Turkish Statistics Law and Official Statistics Program" TEIAS, the Turkish Electricity Transmission Company is the official source for the related data, hence providing the most up-to-date and accurate information available.
Purpose of data	Used to calculate the combined margin emission factor
Additional comment	-

Data / Parameter	ID.4 / $EF_{CO_2,i,y}$
Unit	tCO_2/GJ
Description	CO_2 emission factor of fossil fuel type i used in power unit min year y
Source of data	IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter 1 of Volume 2 (Energy) of the 2006 IPCC Guidelines for National Greenhouse Gas Inventory http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.htm
Value(s) applied	Please refer to Table 30
Choice of data or Measurement methods and procedures	There is no information on the fuel specific default emission factor in Turkey, hence, IPCC values has been used.
Purpose of data	Used to calculate the combined margin emission factor
Additional comment	-

Data / Parameter	ID.5 / $\eta_{m,y}$										
Unit	%										
Description	Average net energy conversion efficiency of power unit m in year y										
Source of data	"Tool to calculate the emission factor for an electricity system" version 03.0.0, Appendix 1										
Value(s) applied	<table border="1"> <thead> <tr> <th></th><th>Average conversion efficiency $\eta_{m,y}$</th></tr> </thead> <tbody> <tr> <td>Natural Gas</td><td>IPCC default value of 60% for combined cycle</td></tr> <tr> <td>Lignite</td><td>IPCC default value of 45% for Supercritical IPCC default value of 41.4% for PFBS</td></tr> <tr> <td>Coal</td><td>IPCC default value of 45% for Supercritical IPCC default value of 41.4% for PFBS</td></tr> <tr> <td>Fuel Oil</td><td>IPCC default value of 46% for combined cycle</td></tr> </tbody> </table>		Average conversion efficiency $\eta_{m,y}$	Natural Gas	IPCC default value of 60% for combined cycle	Lignite	IPCC default value of 45% for Supercritical IPCC default value of 41.4% for PFBS	Coal	IPCC default value of 45% for Supercritical IPCC default value of 41.4% for PFBS	Fuel Oil	IPCC default value of 46% for combined cycle
	Average conversion efficiency $\eta_{m,y}$										
Natural Gas	IPCC default value of 60% for combined cycle										
Lignite	IPCC default value of 45% for Supercritical IPCC default value of 41.4% for PFBS										
Coal	IPCC default value of 45% for Supercritical IPCC default value of 41.4% for PFBS										
Fuel Oil	IPCC default value of 46% for combined cycle										
Choice of data or Measurement methods and procedures	Default values have been used.										
Purpose of data	Used to calculate the combined margin emission factor										
Additional comment	Where available Plant specific efficiencies are used instead of default values where available. Please refer to emission reduction calculation sheet for more details.										

B.6.2.B.6.3. Ex ante calculation of emission reductions

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Estimation of emission reductions prior to validation

According to "grid connected electricity generation from renewable sources" version 195.0, project participants should prepare an estimate of likely emission reductions for the proposed crediting period. This estimate is based on the same methodology as described under section B.6.1.

Calculating the CO₂ emission factor of the grid

The CO₂ emission factor of the grid ($EF_{CO_2,grid,y}$) is calculated as the combined margin emission factor ($EF_{grid,CM,y}$) through equation (167) as followed:

Table 116. Combined margin emission factor

Combined Margin Emission Factor ($EF_{grid,CM,y}$)	Operating Margin Emission Factor ($EF_{grid,OM,y}$)	Build Margin Emission Factor ($EF_{grid,BM,y}$)	Weight of operating margin emission factor (w_{OM})	Weight of build margin emission factor (w_{BM})
tCO ₂ e/MWh	tCO ₂ e/MWh	tCO ₂ e/MWh	%	%
0.56780-596	0.66040-658	0.29020-412	75	25

Calculation of the Operating Margin Emission Factor

For the calculation of the OM the consumption amount and heating values of the fuels for each sources used for the years 2015, 2016 and 2017, is taken from the TEİAŞ annual statistics, which hold data on annual fuel consumption by fuel types as well as electricity generation amounts by sources and electricity imports, all the data needed for the calculation, including the emission factors and net calorific values (NCVs).

The amount of fuel consumption ($FC_{i,y}$) is taken from website of TEİAŞ for the calculation of the Simple OM.

Table 12-Fuel consumption of generation sources connected to the grid (2015-2017)²²

Generation Sources	Units	2015	2016	2017	Total
Natural Gas	1000m ³	20,914,868	18,954,093	22,954,854	62,823,815
Hard Coal & Import Coal	tonnes	16,629,492	19,642,410	21,139,104	57,411,006
Lignite	tonnes	49,940,131	60,213,772	64,412,257	174,566,160
Fuel Oil	tonnes	516,912	526,674	317,724	1,361,310
Diesel Oil	tonnes	238,388	306,393	197,219	742,000

Annual heating values for each fuel type are directly related with the fuel consumption and are used to calculate Net Calorific Values (TJ/kt) for each year (Table.13). The annual heating values are converted to TJ and divided by the fossil fuel consumption(kt) for that year.

Turkish specific net calorific values ($NCV_{i,y}$) values for fossil fuel types have been calculated, using data from the IPCC Guidelines for National Greenhouse Gas Inventory for the emission factor of the fossil fuel types ($EF_{CO_2,i,y}$)

Table 13-Net calorific values and emission factor of fossil fuel type²³

Generation Sources	2015	2016	2017	$EF_{CO_2,i}$ ²⁴ (tonnes/TJ)
Natural Gas	37.84	38.01	36.82	54.3
Hard Coal&Import Coal	24.08	24.07	23.60	89.5
Lignite	7.16	7.20	6.97	90.9
Fuel Oil	44.22	42.42	44.93	75.5
Diesel Oil	43.78	44.20	44.63	72.6

The electricity delivered to the grid by all power sources serving the system, not including low-cost/must run power plants/units ($EG_{gross,y}$) is obtained from TEİAŞ (Turkish Electricity Transmission Company).

Total CO₂ emissions for each year for each fuel source is calculated by the formula:

²²<https://www.teias.gov.tr/tr/iv-turkiye-termik-santrallarinda-kullanilan-yakit-miktarlari-isil-degerleri-ve-kojenerasyon-0>

²³ <https://www.teias.gov.tr/tr/iv-turkiye-termik-santrallarinda-kullanilan-yakit-miktarlari-isil-degerleri-ve-kojenerasyon-0>

²⁴https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf

$$Total\ CO_2\ Emissions = \sum iFC_{i,y} \times NCV_{i,y} \times EF_{CO_2,i,y}$$

Total CO₂ emission due to electricity generation in Turkey for the years of 2015, 2016 and 2017 may be seen in Table-14:

Table 14- CO₂ emission from electricity production, 2015-2017

Total Emissions (tCO₂)	2015	2016	2017	Total
Hard Coal	35,832,091	42,322,566	44,641,881	122,796,538
Lignite	32,508,012	39,388,444	40,816,020	112,712,476
Fuel Oil	1,725,608	1,686,704	1,077,711	4,490,024
Diesel Oil	757,776	983,254	639,039	2,380,070
Natural Gas	42,970,146	39,120,876	45,892,079	127,983,102
Total	113,793,634	123,501,844	133,066,731	370,362,209

The electricity delivered to the grid by all power sources serving the system, not including low-cost/must run power plants/units (EG_{gross,y}) is obtained from TEIAS (Turkish Electricity Transmission Company).

Table 15- Gross electricity generation by fossil fuel power sources, 2015-2017 (EG_{gross,y}(MWh))

Generation Sources	2015	2016	2017	Total
Hard Coal	44,829,872	53,703,200	56,781,900	155,314,972
Lignite	31,335,735	38,569,900	40,694,400	110,600,035
Fuel Oil	980,378	969,100	520,600	2,470,080
Diesel Oil	1,243,561	957,200	679,300	2,880,060
Natural Gas	99,218,742	89,227,100	110,489,981	298,935,842

To calculate the net electricity fed into the grid by specific fuel sources, relation between overall gross/net electricity generation data is calculated. The electricity consumption of the power plants is included in the gross electricity production. This relation may be seen in Table 16.

Table 16-Relation between net and gross electricity generation, 2015-2017

	2015	2016	2017
Gross Electricity Production (MWh)	261,783,344	274,407,700	297,277,537
Net Electricity Production (MWh)	249,899,500	261,950,900	284,257,519
Net/Gross	0.9546	0.9546	0.9562

The calculated net electricity delivered to the grid by the fossil fuel plants (EG_{net,y}) is may be seen in Table 17:

Table 17 - Net electricity generation fossil fuel power plants and electricity imports, 2015 - 2017

	2015	2016	2017
Gross electricity Production from Thermal Sources (GWh)	<u>177,608</u>	<u>183,427</u>	<u>209,166</u>
Net Electricity Production from Thermal Sources (GWh)	<u>169,546</u>	<u>175,100</u>	<u>200,005</u>
Electricity imports (GWh)	<u>7,135.5</u>	<u>6,330.3</u>	<u>2,728.3</u>
Electricity supplied to grid EGy (GWh)	<u>176,681</u>	<u>181,430</u>	<u>202,733</u>

The calculation of $EF_{grid,OM}$, requires the inclusion of electricity imports with an emission factor of 0 tCO₂/MWh. Therefore, the imports in the electricity production has been added.

The formula for calculation of operating margin is:

$$EF_{grid,OMsimple,y} = \frac{\sum iFC_{i,y} \times NCV_{i,y} \times EF_{CO_2,i,y}}{EGy} \quad (9)$$

The simple operating margin CO₂ grid emission factor ($EF_{grid,OMsimple,y}$) calculated through equation 9 is 0.6604 tCO₂/MWh as may be seen in Table-18.

Table 18- 2015-2017 Generation Weighted Average $EF_{grid,OMsimple,y}$

	2015	2016	2017
Total Emissions (tCO₂)	<u>113,793,634</u>	<u>123,501,844</u>	<u>133,066,731</u>
Net Electricity Generation+ Imports (GWh)	<u>176,681</u>	<u>181,430</u>	<u>202,733</u>
$EF_{grid,OM, simple,y}$ (tCO₂/MWh)	<u>0.6441</u>	<u>0.6807</u>	<u>0.6564</u>
2015-2017 Generation Weighted Average $EF_{grid,OMsimple,y}$ (tCO₂/MWh)	<u>0.6604</u>		

Calculation of the Build Margin Emission Factor

The Build Margin have been calculated for the year 2017.

Step 5.1 Select the option regarding the vintage:

For the vintage of data, project participants can choose between one of the following two options:

Option 1: For the first crediting period, calculate the build margin emission factor ex ante based on the most recent information available on units already built for sample group m at the time of CDM-PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

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

Option 1 has been chosen in terms of vintage of data for the proposed project activity:

- a) Identify the set of five power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently (SET5 units) and determine their annual electricity generation (AEGSET-5-units, in MWh);

The sample group of power units m used to calculate the build margin should be determined as per the following procedure, consistent with the data vintage selected above:

The recent added power units (SET5 Units) list can be obtained from the Ministry of Energy and Natural Resources web site²⁵.

Table 19- The 5 most recent power plants, 2017 (excluding VERs)

<u>Plant Name</u>	<u>City</u>	<u>Fuel Type</u>	<u>Installed Capacity (MW)</u>	<u>Temporary Acceptance Date</u>
<u>MELİH JES</u>	<u>Aydın</u>	<u>Geothermal</u>	<u>26</u>	<u>30/12/2017</u>
<u>MAVİBAYRAK-1 BİYOKÜTLE ENERJİ SANTRALİ</u>	<u>Aydın</u>	<u>Biomass</u>	<u>10</u>	<u>28/12/2017</u>
<u>CENAL TERMİK ENERJİ SANTRALİ</u>	<u>Çanakkale</u>	<u>Hard Coal</u>	<u>660</u>	<u>27/12/2017</u>
<u>ZİYARET HES</u>	<u>Erzincan</u>	<u>HPP</u>	<u>3</u>	<u>26/12/2017</u>
<u>KİĞİ BARAJI VE HES</u>	<u>Bingöl</u>	<u>HPP</u>	<u>138</u>	<u>21/12/2017</u>

²⁵<http://www.eigm.gov.tr/File/?path=ROOT%2f4%2fDocuments%2fSayfalar%2f2017+Y%2c4%b1l%2c4%b1+Enerji+Yat%2c4%b1r%2c4%b1mlar%2c4%b1.xlsx>

There isn't any data available for annual electricity production of each power plant belonging to years 2015, 2016 and 2017. The latest data available for the annual energy production for specific power station belongs to year 2012. To update the BM, the only data that we can use to estimate the annual production is the power generation capacity. We can make calculations as if every power plant had operated with full capacity all around the year.

The usage of capacity is a CDM Executive Board approved deviation from the methodology AM005 for a similar situation.²⁶ According to the board-approved deviation, as the annual production data is absent, we will "use of weights estimated using installed capacity in place of annual electricity generation" (cited from the link given in footnote 21)

The CDM registered projects are excluded from the five power plants given in Table 19. The sum of power capacities of these plants is 837 MW. $AEG_{SET-5 \text{ units}} = 837 \text{ MW}$.

- a) Determine the annual electricity generation of the project electricity system, excluding power units registered as VER project activities;

Total capacity at the end of the year 2017 is 85,200 (which is AEG_{Total}). The 20 percent of total capacity is 17,040 MW so $AEG_{SET \geq 20 \text{ per cent}} > AEG_{SET-5 \text{ units}}$.

- b) From $SET_{5 \text{ units}}$ and $SET_{>20 \text{ per cent}}$ select the set of power units that comprises the larger annual electricity generation (SET_{sample});

$AEG_{SET \geq 20 \text{ per cent}} > AEG_{SET-5 \text{ Units}}$ so the set $AEG_{SET \geq 20 \text{ per cent}}$ is selected. None of them has started to produce electricity more than 10 years ago, so the steps (d), (e) and (f) are ignored.

SET_{sample} ($AEG_{SET \geq 20 \text{ per cent}}$). The 20 percent of total power is 17,040 MW.

Table 20- SET-Sample periods

Period	Capacity Addition (MW)	VER Registered (MW)	Addition (Excluding VER Projects) (MW)	Thermal (MW)
2014	5,630.13	462.92	5,167.21	3,857.9
2015	4,287.57	1,252.30	3,035.27	645.8
2016	5,919.10	1,355.92	4,563.18	2,096.1
2017	5,833.83	1,307.84	4,525.99	3,944.2
Total	21,670.63	4378.98,3	17,291.65	10,544

The sum of 2017, 2016 and 2015 projects (excluding VER registered) is 12,150.59 MW. Since it's needed to exceed 17,040 MW, more projects from 2014 have been included. As the projects between dates 04/04/2014 and 31/12/2014 are included, 17,291.65 MW is reached. This value is the gross capacity, to reach the net capacity, Net/Gross ratio in Table 16 is used and, SET_{sample} is formed as 16,491.85.

SET_{sample} List

The list of SET_{sample} in Table 21, colored rows indicate that the project is VER registered and excluded from the SET.

Table 21- SET_{sample} list

POWER PLANT	FUEL TYPE	ADDED CAPACITY MW _e	COMMISSIONING DATE
MELİH JES	JEOTERMAL	26	30.12.2017

²⁶ http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_QEJWJEF3CFBP1OZAK6V5YXPQKK7WYJ

<u>MAVİBAYRAK-1 BİYOKÜTLE ENERJİ SANTRALİ</u>	<u>BİYOKÜTLE</u>	<u>10</u>	<u>28.12.2017</u>
<u>CENAL TERMİK ENERJİ SANTRALİ</u>	<u>İTHAL KÖMÜR</u>	<u>660</u>	<u>27.12.2017</u>
<u>ZİYARET HES</u>	<u>HES</u>	<u>3</u>	<u>26.12.2017</u>
<u>ÇAMLICA HES</u>	<u>HES</u>	<u>23</u>	<u>23.12.2017</u>
<u>ASLANCIK BARAJI VE HES</u>	<u>HES</u>	<u>5</u>	<u>22.12.2017</u>
<u>SARPINCIK RES</u>	<u>RES</u>	<u>3</u>	<u>22.12.2017</u>
<u>KİĞİ BARAJI VE HES</u>	<u>HES</u>	<u>138</u>	<u>21.12.2017</u>
<u>DATÇA RES</u>	<u>RES</u>	<u>6</u>	<u>21.12.2017</u>
<u>MERSİN RES</u>	<u>RES</u>	<u>0</u>	<u>20.12.2017</u>
<u>SANKO JES</u>	<u>JEOTERMAL</u>	<u>10</u>	<u>20.12.2017</u>
<u>HAMİTABAT DGKÇS</u>	<u>DG</u>	<u>64</u>	<u>20.12.2017</u>
<u>DEREBAŞI HES</u>	<u>HES</u>	<u>5</u>	<u>15.12.2017</u>
<u>DURUCASU HES</u>	<u>HES</u>	<u>0</u>	<u>15.12.2017</u>
<u>KÜREKDAĞI RES</u>	<u>RES</u>	<u>7</u>	<u>8.12.2017</u>
<u>MERSİN RES</u>	<u>RES</u>	<u>17</u>	<u>8.12.2017</u>
<u>RENOE ACIPAYAM GES</u>	<u>GES</u>	<u>4</u>	<u>8.12.2017</u>
<u>KUYUCAK JES</u>	<u>JEOTERMAL</u>	<u>8</u>	<u>7.12.2017</u>
<u>HATAY GÖKÇEGÖZ ÇÖP SANTRALİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>3</u>	<u>2.12.2017</u>
<u>KOZBEYLİ RES</u>	<u>RES</u>	<u>2</u>	<u>1.12.2017</u>
<u>DARICA II HES</u>	<u>HES</u>	<u>37</u>	<u>1.12.2017</u>
<u>KARTALDAĞI RES</u>	<u>RES</u>	<u>20</u>	<u>24.11.2017</u>
<u>ÇUMRA ŞEKER FABRİKASI KOJENERASYON SANTRALİ</u>	<u>LİNYİT/DG/FO/BİYOĞAZ</u>	<u>2</u>	<u>24.11.2017</u>
<u>GÖKDAĞ RES</u>	<u>RES</u>	<u>7</u>	<u>24.11.2017</u>
<u>MANASTIR-ESENKÖY RES</u>	<u>RES</u>	<u>7</u>	<u>24.11.2017</u>
<u>KÜREKDAĞI RES</u>	<u>RES</u>	<u>10</u>	<u>24.11.2017</u>
<u>TÜPRAŞ KIRIKKALE RAFİNERİ TESİSİ</u>	<u>DG</u>	<u>22</u>	<u>23.11.2017</u>
<u>KANGAL RES</u>	<u>RES</u>	<u>2</u>	<u>23.11.2017</u>
<u>DATÇA RES</u>	<u>RES</u>	<u>6</u>	<u>17.11.2017</u>
<u>SOĞUKSU RES</u>	<u>HES</u>	<u>1</u>	<u>10.11.2017</u>
<u>DARICA II HES</u>	<u>HES</u>	<u>37</u>	<u>9.11.2017</u>
<u>ELMALI RES</u>	<u>RES</u>	<u>3</u>	<u>9.11.2017</u>
<u>CENAL TERMİK ENERJİ SANTRALİ</u>	<u>İTHAL KÖMÜR</u>	<u>660</u>	<u>4.11.2017</u>
<u>KÜREKDAĞI RES</u>	<u>RES</u>	<u>10</u>	<u>4.11.2017</u>
<u>MANASTIR-ESENKÖY RES</u>	<u>RES</u>	<u>10</u>	<u>3.11.2017</u>
<u>SİNCAN ÇADIRTEPE BİYOKÜTLE ENERJİ SANTRALİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>8</u>	<u>3.11.2017</u>
<u>KAROVA RES</u>	<u>RES</u>	<u>20</u>	<u>2.11.2017</u>
<u>İÇ ANADOLU DGKÇS</u>	<u>DG</u>	<u>13</u>	<u>2.11.2017</u>
<u>GEBZE KOJENERASYON TESİSİ</u>	<u>DG</u>	<u>1</u>	<u>1.11.2017</u>
<u>VESMEC KIRK-KAB 1 ÇÖP BİYOĞAZ SANTRALİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>1</u>	<u>31.10.2017</u>
<u>TİRE BİYOĞAZ ELEKTRİK SANTRALİ</u>	<u>BİYOKÜTLE (TAR./HAYV. ATIK)</u>	<u>1</u>	<u>31.10.2017</u>
<u>KALECİK HES</u>	<u>HES</u>	<u>26</u>	<u>31.10.2017</u>
<u>GÖKDAĞ RES</u>	<u>RES</u>	<u>2</u>	<u>31.10.2017</u>
<u>MALATYA ÇÖP GAZLAŞTIRMA-YAKMA TESİSİ</u>	<u>BİYOKÜTLE</u>	<u>4</u>	<u>31.10.2017</u>
<u>DOĞAL ENERJİ BİYOKÜTLE ENERJİ SANTRALİ</u>	<u>BİYOKÜTLE (TAR./HAYV. ATIK)</u>	<u>1</u>	<u>31.10.2017</u>
<u>KARATAŞ 1 HES</u>	<u>HES</u>	<u>10</u>	<u>31.10.2017</u>
<u>PİR ENERJİ ÜRETİM TESİSİ</u>	<u>BİYOKÜTLE (PİROLİTİK GAZ VE YAĞ)</u>	<u>4</u>	<u>31.10.2017</u>

<u>DELİCE-1 HES</u>	<u>HES</u>	<u>7</u>	<u>29.10.2017</u>
<u>KARTEPE BİYOKÜTLE-PIROLİZ SIVISI VE GAZI ENERJİ SANTRALİ</u>	<u>BİYOKÜTLE (PIROLİTİK YAĞ)</u>	<u>1</u>	<u>29.10.2017</u>
<u>YAPILCANLAR-2 BİYOGAZ ENERJİ SANTRALİ</u>	<u>BİYOKÜTLE (HAYV./BİTKİSEL ATIK)</u>	<u>1</u>	<u>28.10.2017</u>
<u>HAMZABEYLİ RES</u>	<u>RES</u>	<u>2</u>	<u>28.10.2017</u>
<u>AFYON-I BİYOGAZ SANTRALİ</u>	<u>BİYOKÜTLE (HAYVANSAL ATIK)</u>	<u>7</u>	<u>28.10.2017</u>
<u>SANKO JES</u>	<u>JEOTERMAL</u>	<u>5</u>	<u>27.10.2017</u>
<u>ŞAŞAT HES</u>	<u>HES</u>	<u>7</u>	<u>27.10.2017</u>
<u>GERİŞ RES</u>	<u>RES</u>	<u>11</u>	<u>27.10.2017</u>
<u>KANGAL RES</u>	<u>RES</u>	<u>11</u>	<u>27.10.2017</u>
<u>KUYUCAK JES</u>	<u>JEOTERMAL</u>	<u>10</u>	<u>27.10.2017</u>
<u>EGE II-III-IV HES</u>	<u>HES</u>	<u>3</u>	<u>26.10.2017</u>
<u>MAS 1 YENİLENEBİLİR ENERJİ ÜRETİM TESİSİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>2</u>	<u>25.10.2017</u>
<u>KAYADİBİ HES</u>	<u>HES</u>	<u>19</u>	<u>23.10.2017</u>
<u>MAVİBAYRAK-1 BİYOKÜTLE ENERJİ SANTRALİ</u>	<u>BİYOKÜTLE</u>	<u>3</u>	<u>21.10.2017</u>
<u>DEREKÖY HES</u>	<u>HES</u>	<u>6</u>	<u>20.10.2017</u>
<u>KAZAN DOĞAL GAZ KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>108</u>	<u>19.10.2017</u>
<u>KİPAŞ KAĞIT BİYOKÜTLE ENERJİ ÜRETİM TESİSİ</u>	<u>BİYOKÜTLE</u>	<u>1</u>	<u>19.10.2017</u>
<u>ÇORUM-MECİTÖZÜ BES</u>	<u>BİYOKÜTLE (TAR./ORMAN ATIK)</u>	<u>5</u>	<u>17.10.2017</u>
<u>KÜREKDAĞI RES</u>	<u>RES</u>	<u>7</u>	<u>14.10.2017</u>
<u>MANASTIR-ESENKÖY RES</u>	<u>RES</u>	<u>14</u>	<u>13.10.2017</u>
<u>KORUMA KLOR ALKALİ KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>4</u>	<u>13.10.2017</u>
<u>KAROVA RES</u>	<u>RES</u>	<u>10</u>	<u>13.10.2017</u>
<u>KARTALDAĞI RES</u>	<u>RES</u>	<u>7</u>	<u>3.10.2017</u>
<u>GREENECO JES-3</u>	<u>JEOTERMAL</u>	<u>13</u>	<u>13.10.2017</u>
<u>RENOE ACIPAYAM GES</u>	<u>GES</u>	<u>1</u>	<u>13.10.2017</u>
<u>PINARBAŞI KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>6</u>	<u>13.10.2017</u>
<u>ITC ANTALYA BİYOKÜTLE TESİSİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>3</u>	<u>13.10.2017</u>
<u>NİSA BİYOKÜTLE ELEKTRİK ÜRETİM TESİSİ</u>	<u>BİYOKÜTLE (ORMAN ATIĞI)</u>	<u>5</u>	<u>9.10.2017</u>
<u>ÇAY REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>2</u>	<u>6.10.2017</u>
<u>KANGAL RES</u>	<u>RES</u>	<u>15</u>	<u>6.10.2017</u>
<u>KUMRULAR BİYOGAZ TESİSİ</u>	<u>BİYOKÜTLE (TAR./HAYV. ATIK)</u>	<u>4</u>	<u>5.10.2017</u>
<u>HAMİTABAT DGKÇS</u>	<u>DG</u>	<u>203</u>	<u>28.09.2017</u>
<u>KONAKPINAR RES</u>	<u>RES</u>	<u>0</u>	<u>28.09.2017</u>
<u>KARAÇAYIR RES</u>	<u>RES</u>	<u>0</u>	<u>27.09.2017</u>
<u>KANGAL RES</u>	<u>RES</u>	<u>23</u>	<u>22.09.2017</u>
<u>KAYADÜZÜ RES</u>	<u>RES</u>	<u>5</u>	<u>21.09.2017</u>
<u>SOĞUKSU HES</u>	<u>HES</u>	<u>7</u>	<u>17.09.2017</u>
<u>KARTALDAĞI RES</u>	<u>RES</u>	<u>13</u>	<u>15.09.2017</u>
<u>KOS ENERJİ SANTRALİ</u>	<u>DG</u>	<u>6</u>	<u>15.09.2017</u>
<u>ITC ANTALYA BİYOKÜTLE TESİSİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>11</u>	<u>11.09.2017</u>
<u>MARATON HES</u>	<u>HES</u>	<u>4</u>	<u>9.09.2017</u>
<u>KAYADÜZÜ RES</u>	<u>RES</u>	<u>20</u>	<u>9.09.2017</u>

<u>KİLLİK RES</u>	<u>RES</u>	<u>12</u>	<u>8.09.2017</u>
<u>YAKINCA REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>7</u>	<u>8.09.2017</u>
<u>KUYUCAK RES</u>	<u>RES</u>	<u>5</u>	<u>25.08.2017</u>
<u>ARSLANBEY-OSB İZMİT</u>	<u>DG</u>	<u>-1</u>	<u>25.08.2017</u>
<u>DEVECİKONAĞI BARAJI VE HES</u>	<u>HES</u>	<u>5</u>	<u>24.08.2017</u>
<u>ACWA POWER KIRIKKALE DGKÇS</u>	<u>DG</u>	<u>336</u>	<u>24.08.2017</u>
<u>EFE-6 JES</u>	<u>JEOTERMAL</u>	<u>23</u>	<u>20.08.2017</u>
<u>KARAMENDERES HES</u>	<u>HES</u>	<u>2</u>	<u>18.08.2017</u>
<u>KIZILDERE-3 JES</u>	<u>JEOTERMAL</u>	<u>99</u>	<u>18.08.2017</u>
<u>KAZAN DOĞAL GAZ KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>271</u>	<u>18.08.2017</u>
<u>AFJES</u>	<u>JEOTERMAL</u>	<u>3</u>	<u>17.08.2017</u>
<u>HAMİTABAT DGKÇS</u>	<u>DG</u>	<u>375</u>	<u>16.08.2017</u>
<u>ABATEKS TEKSTİL DOĞALGAZ KOJENERASYON TESİSİ</u>	<u>DG</u>	<u>4</u>	<u>14.08.2017</u>
<u>SULTANHİSAR JES</u>	<u>JEOTERMAL</u>	<u>6</u>	<u>11.08.2017</u>
<u>EBRU REG. VE HES</u>	<u>HES</u>	<u>15</u>	<u>11.08.2017</u>
<u>BİNATOM GEDİZ ELEKTRİK ÜRETİM TESİSİ</u>	<u>DG</u>	<u>3</u>	<u>4.08.2017</u>
<u>KİLLİK RES</u>	<u>RES</u>	<u>12</u>	<u>4.08.2017</u>
<u>PETKİM RES</u>	<u>RES</u>	<u>4</u>	<u>27.07.2017</u>
<u>KUYUCAK RES</u>	<u>RES</u>	<u>5</u>	<u>27.07.2017</u>
<u>TRABZON RİZE ÇÖP GAZI SANTRALİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>1</u>	<u>26.07.2017</u>
<u>KİLLİK RES</u>	<u>RES</u>	<u>21</u>	<u>21.07.2017</u>
<u>ALBE-I BİYOGAZ SANTRALİ</u>	<u>BİYOKÜTLE (TAR./HAYV. ATIK)</u>	<u>1</u>	<u>17.07.2017</u>
<u>İSKENDERUN DEMİR VE ÇELİK TERMİK KUVVET SANTRALİ</u>	<u>FO/KG/YFG</u>	<u>24</u>	<u>15.07.2017</u>
<u>FATMA RES</u>	<u>RES</u>	<u>14</u>	<u>14.07.2017</u>
<u>DİLOVASI ÇÖP BİYOGAZ SANTRALİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>1</u>	<u>13.07.2017</u>
<u>ÇAĞLAYAN REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>10</u>	<u>7.07.2017</u>
<u>BARBAROS RES</u>	<u>RES</u>	<u>9</u>	<u>30.06.2017</u>
<u>SARPINCIK RES</u>	<u>RES</u>	<u>2</u>	<u>22.06.2017</u>
<u>HAMİTABAT DGKÇS</u>	<u>DG</u>	<u>203</u>	<u>16.06.2017</u>
<u>KARGI BARAJI VE HES</u>	<u>HES</u>	<u>47</u>	<u>15.06.2017</u>
<u>ÇARDAKLI REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>15</u>	<u>15.06.2017</u>
<u>GENERJİ HES</u>	<u>HES</u>	<u>4</u>	<u>6.06.2017</u>
<u>MASPO JEOTERMAL ENERJİ TESİSİ IV</u>	<u>JEOTERMAL</u>	<u>10</u>	<u>3.06.2017</u>
<u>ÇALIKOBASI HES</u>	<u>HES</u>	<u>9</u>	<u>2.06.2017</u>
<u>DİZAYN TEKNİK ÇORLU TRİJENERASYON SANTRALİ</u>	<u>DG</u>	<u>2</u>	<u>1.06.2017</u>
<u>SUSURLUK RES</u>	<u>RES</u>	<u>13</u>	<u>30.05.2017</u>
<u>BERGRES RES</u>	<u>RES</u>	<u>41</u>	<u>26.05.2017</u>
<u>KARGI BARAJI VE HES</u>	<u>HES</u>	<u>4</u>	<u>18.05.2017</u>
<u>AİRRES-4 RES</u>	<u>RES</u>	<u>1</u>	<u>18.05.2017</u>
<u>ACWA POWER KIRIKKALE DGKÇS</u>	<u>DG</u>	<u>296</u>	<u>17.05.2017</u>
<u>YALOVA RES</u>	<u>RES</u>	<u>18</u>	<u>12.05.2017</u>
<u>TİRE RES</u>	<u>RES</u>	<u>26</u>	<u>12.05.2017</u>
<u>SEYDİOĞLU REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>2</u>	<u>9.05.2017</u>
<u>HAMİTABAT DGKÇS</u>	<u>DG</u>	<u>375</u>	<u>5.05.2017</u>
<u>AİRRES-4 RES</u>	<u>RES</u>	<u>13</u>	<u>5.05.2017</u>
<u>ÖDEMİŞ RES</u>	<u>RES</u>	<u>9</u>	<u>4.05.2017</u>
<u>ÇAYIRHAN SODYUM SÜLFAT TESİSLERİ KOJENERASYON</u>	<u>LİNYİT</u>	<u>3</u>	<u>28.04.2017</u>

PROJESİ			
ACWA POWER KIRIKKALE DGKÇS	DG	296	28.04.2017
BERGRES RES	RES	29	20.04.2017
KARGI BARAJI VE HES	HES	47	20.04.2017
ÇAYHAN 2 HES	HES	6	14.04.2017
AREL ENERJİ MANAVGAT BİYOKÜTLE TESİSİ	BİYOKÜTLE (ÇÖP GAZI)	1	14.04.2017
ÖDEMİŞ RES	RES	12	13.04.2017
MUŞ-DOĞAN REGÜLATÖRÜ VE HES	HES	8	31.03.2017
UMURLAR RES	RES	10	31.03.2017
FATMA RES	RES	11	31.03.2017
DEMİR REGÜLATÖRÜ VE HES	HES	1	31.03.2017
ALAPLI KOJENERASYON TESİSİ	DG	10	31.03.2017
SAMURLU RES	RES	9	31.03.2017
DOĞANÇAY REGÜLATÖRÜ VE HES	HES	62	31.03.2017
ETİ KROM PROSES İSİSİ KOJENERASYON SANTRALİ	ATIK ISI	2	31.03.2017
GÜNDOĞDU RES	RES	2	29.03.2017
SULTANHİSAR JES	JEOTERMAL	6	29.03.2017
PETKİM RES	RES	21	25.03.2017
KARTALDAĞI RES	RES	10	24.03.2017
GEMCİLER KOJENERASYON TESİSİ	DG	2	24.03.2017
GÜLLE ENTEGRE TEKSTİL İŞLETMELERİ EMLAK DAN. SAN. VE TİC. A.Ş. ÜRETİM TESİSİ	DG	5	24.03.2017
ÖZMEN-1 JES	JEOTERMAL	9	24.03.2017
AYBİGE REGÜLATÖRÜ VE HES	HES	6	23.03.2017
ABS ALÇI YENİCE OTOPRODÜKTÖR SANTRALİ	DG	2	17.03.2017
KARACABEY RES	RES	3	16.03.2017
TOPÇAM HES	HES	41	15.03.2017
DEREBAŞI HES	HES	5	10.03.2017
UMURLAR RES	RES	17	5.03.2017
KARTALDAĞI RES	RES	7	3.03.2017
FATMA RES	RES	11	3.03.2017
ÇAYALTI REGÜLATÖRÜ VE HES (1. SANTRAL)	HES	2	3.03.2017
İSKENDERUN ÇÖP GAZ ELEKTRİK ÜRETİM TESİSİ	BİYOKÜTLE (ÇÖP GAZI)	1	24.02.2017
ÖZMEN-1 JES	JEOTERMAL	15	24.02.2017
KIRKAĞAÇ RES	RES	11	24.02.2017
DELTA TERMİK KOMBİNE ÇEVİRİM SANTRALİ	DG	1	24.02.2017
YAHYALI RES	RES	3	23.02.2017
KARACABEY-2 BİYOGAZ TESİSİ	BİYOKÜTLE	2	23.02.2017
GÜNEŞ HES	HES	5	21.02.2017
KARGI REGÜLATÖRÜ VE HES	HES	5	20.02.2017
TEPE RES	RES	5	17.02.2017
AİRRES-4 RES	RES	42	17.02.2017
DİNAR RES	RES	9	16.02.2017
KMK PAPER KÜTAHYA KAĞIT FABRİKASI KOJENERASYON SANTRALİ	DG	8	11.02.2017

<u>KASIMLAR BARAJI VE HES</u> <u>(KASIMLAR II HES)</u>	<u>HES</u>	<u>74</u>	<u>11.02.2017</u>
<u>BALABANLI RES</u>	<u>RES</u>	<u>10</u>	<u>10.02.2017</u>
<u>MARAŞ BİYOKÜTLE TESİSİ</u>	<u>BİYOKÜTLE (ÇÖP</u> <u>GAZI)</u>	<u>4</u>	<u>3.02.2017</u>
<u>BARBAROS RES</u>	<u>RES</u>	<u>3</u>	<u>3.02.2017</u>
<u>ÇEŞME RES</u>	<u>RES</u>	<u>9</u>	<u>3.02.2017</u>
<u>ANKAMALL AVM TRİJENERASYON</u> <u>TESİSİ</u>	<u>DG</u>	<u>6</u>	<u>2.02.2017</u>
<u>ALES DOĞAL GAZ KOMBİNE</u> <u>ÇEVİRİM SANTRALİ</u>	<u>DG</u>	<u>1</u>	<u>27.01.2017</u>
<u>AYYILDIZ RES</u>	<u>RES</u>	<u>13</u>	<u>27.01.2017</u>
<u>DİNAR RES</u>	<u>RES</u>	<u>9</u>	<u>27.01.2017</u>
<u>KIRKAĞAÇ RES</u>	<u>RES</u>	<u>11</u>	<u>27.01.2017</u>
<u>ÇAYALTI REGÜLATÖRÜ VE HES (1.</u> <u>SANTRAL)</u>	<u>HES</u>	<u>3</u>	<u>20.01.2017</u>
<u>BUPİLİÇ SANTRALİ</u>	<u>DG</u>	<u>2</u>	<u>20.01.2017</u>
<u>UZUNDERE II REGÜLATÖRÜ VE</u> <u>HES (ÇATALDERE III HES)</u>	<u>HES</u>	<u>6</u>	<u>13.01.2017</u>
<u>KARDEMİR TERMİK-</u> <u>KOJENERASYON SANTRALİ</u>	<u>KÖMÜR+DİĞER</u>	<u>50</u>	<u>6.01.2017</u>
<u>YUMRUTEPE REGÜLATÖRÜ VE</u> <u>HES</u>	<u>HES</u>	<u>5</u>	<u>6.01.2017</u>
<u>KARADERE RES</u>	<u>RES</u>	<u>3</u>	<u>6.01.2017</u>
<u>SARPINCIK RES</u>	<u>RES</u>	<u>6,90</u>	<u>31.12.2016</u>
<u>KUBİLAY JES</u>	<u>JEOTERMAL</u>	<u>23,00</u>	<u>31.12.2016</u>
<u>DİNAR RES</u>	<u>RES</u>	<u>7,432</u>	<u>30.12.2016</u>
<u>ALİAĞA RES</u>	<u>RES</u>	<u>9,60</u>	<u>30.12.2016</u>
<u>ÇATALCA RES</u>	<u>RES</u>	<u>16,50</u>	<u>29.12.2016</u>
<u>GÖKTAŞ HES (GÖKTAŞ-1 HES)</u>	<u>HES</u>	<u>122,20</u>	<u>29.12.2016</u>
<u>ÇİĞDEM REG. VE HES (ÇİĞDEM 3</u> <u>HES)</u>	<u>HES</u>	<u>4,80</u>	<u>29.12.2016</u>
<u>OVARES RES</u>	<u>RES</u>	<u>0,00</u>	<u>28.12.2016</u>
<u>SAMATLAR REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>5,783</u>	<u>27.12.2016</u>
<u>YAHYALI RES</u>	<u>RES</u>	<u>23,10</u>	<u>24.12.2016</u>
<u>KIRKAĞAÇ RES</u>	<u>RES</u>	<u>17,100</u>	<u>23.12.2016</u>
<u>FATMA RES</u>	<u>RES</u>	<u>11,200</u>	<u>23.12.2016</u>
<u>MELİKOM REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>6,750</u>	<u>23.12.2016</u>
<u>MEHMETHAN JES</u>	<u>JEOTERMAL</u>	<u>22,80</u>	<u>22.12.2016</u>
<u>TOPÇAM HES</u>	<u>HES</u>	<u>20,450</u>	<u>21.12.2016</u>
<u>KEBAN DERESİ HES</u>	<u>HES</u>	<u>0,325</u>	<u>18.12.2016</u>
<u>KELTEPE RES</u>	<u>RES</u>	<u>9,20</u>	<u>18.12.2016</u>
<u>AKNİŞASTA TERMİK</u> <u>KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>2,30</u>	<u>17.12.2016</u>
<u>KURTEKS ÜRETİM TESİSİ</u>	<u>DG</u>	<u>2,00</u>	<u>16.12.2016</u>
<u>SOMA RES</u>	<u>RES</u>	<u>9,00</u>	<u>16.12.2016</u>
<u>OMMER OTEL TRİJENERASYON</u> <u>TESİSİ</u>	<u>DG</u>	<u>1,286</u>	<u>16.12.2016</u>
<u>ÇATALCA RES</u>	<u>RES</u>	<u>16,50</u>	<u>16.12.2016</u>
<u>YALOVA RES</u>	<u>RES</u>	<u>10,50</u>	<u>15.12.2016</u>
<u>SAYALAR RES</u>	<u>RES</u>	<u>3,00</u>	<u>15.12.2016</u>
<u>ERAK GİYİM KOJENERASYON</u> <u>SANTRALİ</u>	<u>DG</u>	<u>-0,165</u>	<u>15.12.2016</u>
<u>SARPINCIK RES</u>	<u>RES</u>	<u>11,50</u>	<u>9.12.2016</u>
<u>BANDIRMA-3 RES</u>	<u>RES</u>	<u>7,20</u>	<u>9.12.2016</u>
<u>KOCAELİ ÇÖP BİYOGAZ SANTRALİ</u>	<u>BİYOKÜTLE (ÇÖP</u> <u>GAZI)</u>	<u>1,415</u>	<u>9.12.2016</u>
<u>SEYİTALİ RES</u>	<u>RES</u>	<u>4,00</u>	<u>8.12.2016</u>

URLA RES	RES	7,50	8.12.2016
FATMA RES	RES	16,80	8.12.2016
BALIKLI I-II-III HES	HES	3,237	7.12.2016
YAHYALI RES	RES	23,10	7.12.2016
KARACABEY RES	RES	10,00	7.12.2016
KARADAĞ RES	RES	13,542	7.12.2016
SENKRON EFELER BİYOGAZ SANTRALİ	BİYOKÜTLE	1,20	7.12.2016
ZELİHA RES	RES	9,00	7.12.2016
SUSURLUK RES	RES	0,000	6.12.2016
DİNAR RES	RES	31,586	6.12.2016
İNCESU RES	RES	14,00	6.12.2016
SEFERİHİSAR RES	RES	9,00	6.12.2016
KINIK RES	RES	48,00	5.12.2016
MAZI I RES	RES	17,00	5.12.2016
MEŞELİ HES	HES	3,10	8.11.2016
EDİNCİK RES	RES	21,00	6.11.2016
FUATRES RES	RES	10,20	5.11.2016
SOMA RES	RES	21,00	5.11.2016
KOZBÜKÜ HES	HES	60,810	5.11.2016
ELMALI RES	RES	18,00	5.11.2016
KONAKPINAR RES	RES	5,70	4.11.2016
YAHYALI RES	RES	19,80	4.11.2016
ERİK REGÜLATÖRÜ VE HES	HES	9,012	4.11.2016
URLA RES	RES	5,00	4.11.2016
KUBİLAY JES	JEOTERMAL	1,00	31.10.2016
MEHMETHAN JES	JEOTERMAL	2,00	31.10.2016
AHMETLİ HES	HES	11,640	31.10.2016
ATLAS İNŞAAT OSMANİYE ÇÖP GAZI ELEKTRİK ÜRETİM TESİSİ	BİYOKÜTLE (ÇÖP GAZI)	3,120	31.10.2016
KEN 3 JES	JEOTERMAL	9,8	31.10.2016
SULTANHİSAR JES	JEOTERMAL	1,10	31.10.2016
YUMRUTEPE REGÜLATÖRÜ VE HES	HES	9,958	31.10.2016
DEREİÇİ HES	HES	6,770	30.10.2016
SARPINCİK RES	RES	4,60	30.10.2016
HALK ENERJİ ERZURUM GES	GES	4,90	30.10.2016
MELİKOM REGÜLATÖRÜ VE HES	HES	0,85	29.10.2016
UMURLU-2 JES	JEOTERMAL	12,00	28.10.2016
KARGI REGÜLATÖRÜ VE HES	HES	0,97	28.10.2016
KIRKAĞAÇ RES	RES	5,70	28.10.2016
KASIMLAR BARAJI VE HES	HES	25,00	28.10.2016
MUTLULAR BES	BİYOKÜTLE (ORMAN ATIĞI)	30,00	28.10.2016
MALATYA-1 ÇÖP GAZ ELEKTRİK ÜRETİM TESİSİ	BİYOKÜTLE (ÇÖP GAZI)	1,20	28.10.2016
HATAY GÖKÇEGÖZ ÇÖP SANTRALİ	BİYOKÜTLE (ÇÖP GAZI)	4,239	28.10.2016
MEŞELİ HES	HES	3,10	25.10.2016
KILCAN HES	HES	2,39	22.10.2016
MAS 1 YENİLENEBİLİR ENERJİ ÜRETİM TESİSİ	BİYOKÜTLE (ÇÖP GAZI)	0,835	22.10.2016
ZEUS BİYOKÜTLE ENERJİSİNE DAYALI ELK. ÜRT. TESİSİ	BİYOKÜTLE	12,00	22.10.2016
SEFERİHİSAR RES	RES	3,00	22.10.2016
MARAŞ BİYOKÜTLE TESİSİ	BİYOKÜTLE (ÇÖP GAZI)	1,20	21.10.2016

FATMA RES	RES	5,60	21.10.2016
GÜVERCİN REG. VE HES	HES	16,372	21.10.2016
AFYONKARAHİSAR SANDIKLI BİYOKÜTLE ÜRETİM TESİSİ	BİYOKÜTLE	1,40	21.10.2016
ERİK REGÜLATÖRÜ VE HES	HES	6,010	21.10.2016
KARACABEY RES	RES	15,00	21.10.2016
URLA RES	RES	2,50	20.10.2016
NAZAR ÜRETİM TESİSİ	DG	4,50	15.10.2016
BURSA ÇİMENTO KOJENERASYON TESİSİ	ATIK ISI	9,00	14.10.2016
TİRE BİYOGAZ TESİSİ	BİYOKÜTLE	4,268	14.10.2016
SOLENTGRE GES	GES	8,00	14.10.2016
OKKAYASI REG. VE ŞEHİTLİK HES	HES	22,708	13.10.2016
İZMİT RAFİNERİ TERMİK-KOJENERASYON	DG/FO	35,00	8.10.2016
NAMNAM HES	HES	3,720	7.10.2016
BANDIRMA-3 RES	RES	9,60	7.10.2016
KARABEL RES	RES	3,00	6.10.2016
KUZEY I-II REG. VE HES	HES	5,55	6.10.2016
TÜFEKÇİKONAĞI HES	HES	5,18	4.10.2016
AKYURT RES	RES	4,40	2.10.2016
AREL YENİLENEBİLİR ENERJİ İSPARTA BİYOKÜTLE TESİSİ	BİYOKÜTLE (ÇÖP GAZI)	2,826	1.10.2016
BOZYAKA RES	RES	2,40	1.10.2016
KARAÇAYIR RES	RES	1,60	1.10.2016
ALAŞEHİR JES 2	JEOTERMAL	24,000	1.10.2016
GREENECO JES	JEOTERMAL	12,800	30.09.2016
OVARES RES	RES	3,00	29.09.2016
KONAKPINAR RES	RES	6,30	29.09.2016
YAHYALI RES	RES	13,20	24.09.2016
KANDİL REG. VE HES	HES	6,192	23.09.2016
ELMALI RES	RES	9,00	23.09.2016
SİVAS ÇÖP GAZ ELEKTRİK ÜRETİM TESİSİ	BİYOKÜTLE (ÇÖP GAZI)	1,41	22.09.2016
BALKODU II HES	HES	6,492	10.09.2016
DEMİRCİLİ RES	RES	10,00	9.09.2016
AKYURT RES	RES	8,40	9.09.2016
GÜNDOĞDU RES	RES	6,750	8.09.2016
OVARES RES	RES	8,00	8.09.2016
ITC-KA ÇARŞAMBA ÜRETİM TESİSİ	BİYOKÜTLE (ÇÖP GAZI)	1,415	8.09.2016
ATILLA REGÜLATÖRÜ VE HES	HES	10,43	8.09.2016
KARAÇAYIR RES	RES	8,40	8.09.2016
BALIKLI I-II-III HES	HES	6,55	2.09.2016
KOZBÜKÜ HES	HES	20,27	2.09.2016
ALİAĞA RES	RES	6,00	2.09.2016
ÇARIKLI HES	HES	8,96	2.09.2016
DEMİRCİLİ RES	RES	10,00	26.08.2016
DEMİRCİLER RES	RES	14,75	26.08.2016
OVARES RES	RES	4,00	26.08.2016
SARITEPE RES	RES	5,000	25.08.2016
TERMİK-KOJENERASYON SANTRALİ	DG	2,022	19.08.2016
ALİAĞA RES	RES	18,00	12.08.2016
YALOVA RES	RES	12,00	12.08.2016

<u>ZONGULDAK EREN ENERJİ ELEKTRİK ÜR. A.Ş. ÜRETİM TESİSİ (ZETES III)</u>	<u>YERLİ/İTHAL TAŞKÖMÜRÜ VEYA LİNYİT</u>	<u>700,00</u>	<u>11.08.2016</u>
<u>GEYCEK RES</u>	<u>RES</u>	<u>18,00</u>	<u>5.08.2016</u>
<u>BOREAS I ENEZ RES</u>	<u>RES</u>	<u>2,50</u>	<u>31.07.2016</u>
<u>KARADAĞ RES</u>	<u>RES</u>	<u>2,70833</u>	<u>30.07.2016</u>
<u>BEREKETLİ RES</u>	<u>RES</u>	<u>30,00</u>	<u>29.07.2016</u>
<u>DEMİR REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>0,705</u>	<u>29.07.2016</u>
<u>DEMİRCİLİ RES</u>	<u>RES</u>	<u>10,00</u>	<u>29.07.2016</u>
<u>AFYON-I BİYOGAZ SANTRALİ</u>	<u>BİYOKÜTLE (HAYVANSAL ATIK)</u>	<u>1,20</u>	<u>29.07.2016</u>
<u>ZİNCİRLİ RES</u>	<u>RES</u>	<u>2,40</u>	<u>24.07.2016</u>
<u>DEMİRCİLER RES</u>	<u>RES</u>	<u>8,55</u>	<u>22.07.2016</u>
<u>ULUBORLU RES</u>	<u>RES</u>	<u>19,992</u>	<u>22.07.2016</u>
<u>SARITEPE RES</u>	<u>RES</u>	<u>10,00</u>	<u>22.07.2016</u>
<u>EBRU REG. VE HES</u>	<u>HES</u>	<u>15,310</u>	<u>22.07.2016</u>
<u>İNTEPE RES</u>	<u>RES</u>	<u>2,30</u>	<u>21.07.2016</u>
<u>İÇ ANADOLU DGKÇS</u>	<u>DG</u>	<u>280,000</u>	<u>21.07.2016</u>
<u>AMASYA RES</u>	<u>RES</u>	<u>15,000</u>	<u>15.07.2016</u>
<u>GEP KARAMAN OSB KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>4,200</u>	<u>15.07.2016</u>
<u>ZELİHA RES</u>	<u>RES</u>	<u>6,00</u>	<u>4.07.2016</u>
<u>ALİAĞA RES</u>	<u>RES</u>	<u>6,00</u>	<u>1.07.2016</u>
<u>DEMİRCİLİ RES</u>	<u>RES</u>	<u>10,00</u>	<u>1.07.2016</u>
<u>DORA-4 JES</u>	<u>JEOTERMAL</u>	<u>17,00</u>	<u>30.06.2016</u>
<u>GEBZE KOJENERASYON TESİSİ</u>	<u>DG</u>	<u>11,85</u>	<u>30.06.2016</u>
<u>ZONGULDAK EREN ENERJİ ELEKTRİK ÜR. A.Ş. ÜRETİM TESİSİ (ZETES III)</u>	<u>YERLİ/İTHAL TAŞKÖMÜRÜ VEYA LİNYİT</u>	<u>700,00</u>	<u>30.06.2016</u>
<u>YANIKKÖPRÜ HES</u>	<u>HES</u>	<u>9,20</u>	<u>30.06.2016</u>
<u>İÇ ANADOLU DGKÇS</u>	<u>DG</u>	<u>280,00</u>	<u>29.06.2016</u>
<u>ÇERÇİKAYA RES</u>	<u>RES</u>	<u>4,00</u>	<u>24.06.2016</u>
<u>ABALIOĞLU KOJENERASYON TESİSİ</u>	<u>DG</u>	<u>6,066</u>	<u>24.06.2016</u>
<u>ZİNCİRLİ RES</u>	<u>RES</u>	<u>9,60</u>	<u>24.06.2016</u>
<u>SEFERİHİSAR RES</u>	<u>RES</u>	<u>2,00</u>	<u>24.06.2016</u>
<u>ÇAYALTI REGÜLATÖRÜ VE HES (2. SANTRAL)</u>	<u>HES</u>	<u>2,16</u>	<u>24.06.2016</u>
<u>POYRAZ RES</u>	<u>RES</u>	<u>21,00</u>	<u>24.06.2016</u>
<u>MORDOĞAN RES</u>	<u>RES</u>	<u>13,80</u>	<u>24.06.2016</u>
<u>İÇ ANADOLU DGKÇS</u>	<u>DG</u>	<u>280,00</u>	<u>23.06.2016</u>
<u>DEMİR REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>1,895</u>	<u>18.06.2016</u>
<u>AMASYA RES</u>	<u>RES</u>	<u>12,00</u>	<u>17.06.2016</u>
<u>BOZYAKA RES</u>	<u>RES</u>	<u>0,50</u>	<u>17.06.2016</u>
<u>POYRAZ RES</u>	<u>RES</u>	<u>12,00</u>	<u>17.06.2016</u>
<u>ODAYERİ BİYOGAZ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>5,660</u>	<u>17.06.2016</u>
<u>SARITEPE RES</u>	<u>RES</u>	<u>35,00</u>	<u>17.06.2016</u>
<u>TAHA DGKÇS</u>	<u>DG</u>	<u>68,00</u>	<u>10.06.2016</u>
<u>ULUBORLU RES</u>	<u>RES</u>	<u>16,67</u>	<u>10.06.2016</u>
<u>ÇATALTEPE RES</u>	<u>RES</u>	<u>2,50</u>	<u>10.06.2016</u>
<u>TERMİK (KOJENERASYON) SANTRALİ</u>	<u>İTHAL KÖMÜR</u>	<u>9,70</u>	<u>9.06.2016</u>
<u>BOZYAKA RES</u>	<u>RES</u>	<u>4,80</u>	<u>9.06.2016</u>
<u>GARZAN BARAJI VE HES</u>	<u>HES</u>	<u>1,34</u>	<u>3.06.2016</u>
<u>ALAÇATI RES</u>	<u>RES</u>	<u>16,00</u>	<u>3.06.2016</u>

SEFERİHİSAR RES	RES	12,00	3.06.2016
YALOVA RES	RES	13,50	3.06.2016
AMASYA RES	RES	15,00	30.05.2016
POYRAZ RES	RES	9,00	27.05.2016
İNTEPE RES	RES	13,80	27.05.2016
TEKAS ELEKTRİK ÜRETİM SANTRALİ	DG	0,80	27.05.2016
URLA RES	RES	13,00	27.05.2016
GERES RES	RES	2,500	27.05.2016
PAMUKÖREN JES 3	JEOTERMAL	22,51	20.05.2016
ENERJEO KEMALİYE SANTRALİ	JEOTERMAL	24,90	20.05.2016
ÇATALTEPE RES	RES	7,50	20.05.2016
TAHA DGKÇS	DG	68,00	20.05.2016
AKPINAR HES	HES	9,010	19.05.2016
MARTEKS ÜRETİM TESİSİ	DG	4,300	14.05.2016
KURTKAYASI RES	RES	9,000	13.05.2016
KANİJE RES	RES	0,000	13.05.2016
İNEGÖL-CERRAH HES	HES	1,181	13.05.2016
İKİLER HES	HES	6,120	13.05.2016
DOĞANŞAR REG. VE HES	HES	6,770	13.05.2016
BANDIRMA II DGKÇS	DG	205,600	13.05.2016
İNTEPE RES	RES	9,200	6.05.2016
GERMİYAN RES	RES	10,800	6.05.2016
ULUBORLU RES	RES	15,003	6.05.2016
VANAZİT HES	HES	3,089	6.05.2016
ŞENBÜK RES	RES	9,160	6.05.2016
HAYMEANA I-II HES (HAYMEANA I HES)	HES	3,200	5.05.2016
ÇAYALTI REGÜLATÖRÜ VE HES (2. SANTRAL)	HES	3,120	29.04.2016
UMUTLU HES	HES	6,780	29.04.2016
KANİJE RES	RES	12,800	22.04.2016
PAŞALI REGÜLATÖRÜ VE HES	HES	3,500	22.04.2016
TAV EGE ADNAN MENDERES HAVALİMANI OTOPRODÜKTÖR TESİSİ	DG	9,780	18.04.2016
ÇAY REGÜLATÖRÜ VE HES	HES	4,143	15.04.2016
KARACABEY-2 BİYOGAZ TESİSİ	BİYOKÜTLE	1,067	15.04.2016
KURTKAYASI RES	RES	14,400	15.04.2016
KOJENERASYON TESİSİ	DG	4,300	14.04.2016
ARISU REGÜLATÖRÜ VE HES	HES	0,863	14.04.2016
BANDIRMA II DGKÇS	DG	401,600	14.04.2016
UMUTLU HES	HES	13,560	8.04.2016
ÇANDIR-1 REG. VE HES	HES	1,710	8.04.2016
TOROS TARIM SAMSUN SANTRALİ	ATIK ISI	30,600	8.04.2016
YAMANLI II HES (1. KADEME ÜNİTE 3)	HES	11,781	7.04.2016
KANİJE RES	RES	19,200	1.04.2016
ULUBORLU RES	RES	8,335	1.04.2016
ARIKAN ÜRETİM TESİSİ	DG	9,000	1.04.2016
GREENECO JES	JEOTERMAL	12,800	31.03.2016
YAYLAKÖY RES	RES	15,000	25.03.2016
BAYRA HES	HES	9,046	25.03.2016
GÖKBÖĞET HES	HES	3,176	25.03.2016
TUFANBEYLİ ÜRETİM TESİSİ	LİNYİT	150,000	25.03.2016
AKSARAY OSB BİYOGAZ SANTRALİ	BİYOKÜTLE	3,201	18.03.2016
ANI BİSKÜVİ KOJENERASYON	DG	1,200	11.03.2016

<u>SANTRALİ</u>			
<u>KURTKAYASI RES</u>	<u>RES</u>	<u>12,000</u>	<u>11.03.2016</u>
<u>KANIJE RES</u>	<u>RES</u>	<u>12,800</u>	<u>4.03.2016</u>
<u>SUSUZ REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>7,100</u>	<u>3.03.2016</u>
<u>ITC-KA BİYOKÜTLE GAZLAŞTIRMA TESİSİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>5,425</u>	<u>3.03.2016</u>
<u>YUNUS EMRE TERMİK SANTRALİ</u>	<u>LİNYİT</u>	<u>145,000</u>	<u>25.02.2016</u>
<u>ÇİLEHANE HES</u>	<u>HES</u>	<u>5,664</u>	<u>19.02.2016</u>
<u>AKBÜK II RES</u>	<u>RES</u>	<u>20,000</u>	<u>12.02.2016</u>
<u>YAMANLI II HES (1. KADEME ÜNİTE 1 VE 2)</u>	<u>HES</u>	<u>47,628</u>	<u>11.02.2016</u>
<u>TERMİK-KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>4,300</u>	<u>6.02.2016</u>
<u>ARTVİN BARAJI VE HES</u>	<u>HES</u>	<u>166,090</u>	<u>3.02.2016</u>
<u>KURTKAYASI RES</u>	<u>RES</u>	<u>9,600</u>	<u>29.01.2016</u>
<u>BOLU-GÖYNÜK ENERJİ SANTRALİ</u>	<u>LİNYİT</u>	<u>135,000</u>	<u>29.01.2016</u>
<u>YAHYALI RES</u>	<u>RES</u>	<u>16,800</u>	<u>29.01.2016</u>
<u>KÖROĞLU BARAJI VE KOTANLI HES</u>	<u>HES</u>	<u>50,000</u>	<u>29.01.2016</u>
<u>İÇDAŞ BİGA RES</u>	<u>RES</u>	<u>8,800</u>	<u>22.01.2016</u>
<u>BEYPİ A.Ş. BOLU YEM FABRİKASI KOJEN. SAN.</u>	<u>DG</u>	<u>4,300</u>	<u>22.01.2016</u>
<u>ALAŞEHİR JES</u>	<u>JEOTERMAL</u>	<u>11,270</u>	<u>15.01.2016</u>
<u>TARABYA OTELİ KOJENERASYON</u>	<u>DG</u>	<u>1,200</u>	<u>01.01.2016</u>
<u>İÇDAŞ BİGA RES</u>	<u>RES</u>	<u>12,800</u>	<u>31.12.2015</u>
<u>UMURLU JES</u>	<u>JEOTERMAL</u>	<u>9,720</u>	<u>30.12.2015</u>
<u>ITC-KA ELAZIĞ ÜRETİM TESİSİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>2,830</u>	<u>30.12.2015</u>
<u>HANAK HES</u>	<u>HES</u>	<u>5,139</u>	<u>29.12.2015</u>
<u>ALPERTEKS SANTRALİ</u>	<u>DG</u>	<u>4,290</u>	<u>25.12.2015</u>
<u>KALEKÖY HES</u>	<u>HES</u>	<u>2,740</u>	<u>25.12.2015</u>
<u>BANDIRMA RES</u>	<u>RES</u>	<u>15,000</u>	<u>25.12.2015</u>
<u>FUATRES RES</u>	<u>RES</u>	<u>16,500</u>	<u>25.12.2015</u>
<u>TUĞRA REG. VE HES</u>	<u>HES</u>	<u>2,120</u>	<u>25.12.2015</u>
<u>YAHYALI RES</u>	<u>RES</u>	<u>18,900</u>	<u>25.12.2015</u>
<u>SİLOPI TERMİK SANTRALİ</u>	<u>YERLİ ASFALTİT</u>	<u>135,000</u>	<u>22.12.2015</u>
<u>BAĞBAŞI REG. VE HES</u>	<u>HES</u>	<u>13,600</u>	<u>19.12.2015</u>
<u>İSKENDERUN ÇÖP GAZ ELEKTRİK ÜRETİM TESİSİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>2,830</u>	<u>18.12.2015</u>
<u>ATAKÖY HES</u>	<u>HES</u>	<u>5,000</u>	<u>17.12.2015</u>
<u>ŞANLIURFA BİYOKÜTLE ENERJİ SANTRALİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>3,120</u>	<u>17.12.2015</u>
<u>SÖKE RES</u>	<u>RES</u>	<u>45,000</u>	<u>14.12.2015</u>
<u>TÜPRAŞ İZMİT RAFİNERİSİ TERMİK KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>41,280</u>	<u>11.12.2015</u>
<u>ARTVİN BARAJI VE HES</u>	<u>HES</u>	<u>166,090</u>	<u>10.12.2015</u>
<u>HASANLAR HES</u>	<u>HES</u>	<u>0,000</u>	<u>9.12.2015</u>
<u>SARES RES</u>	<u>RES</u>	<u>2,750</u>	<u>4.12.2015</u>
<u>TUFANBEYLİ ÜRETİM TESİSİ</u>	<u>LİNYİT</u>	<u>300,000</u>	<u>2.12.2015</u>
<u>İÇDAŞ BİGA RES</u>	<u>RES</u>	<u>22,400</u>	<u>2.12.2015</u>
<u>FLORANCE NIGHTINGALE HASTANESİ KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>0,800</u>	<u>2.12.2015</u>
<u>İNCESU RES</u>	<u>RES</u>	<u>3,200</u>	<u>26.11.2015</u>
<u>TEKİRDAĞ ENERJİ ÜRETİM SANTRALİ</u>	<u>DG</u>	<u>4,240</u>	<u>26.11.2015</u>
<u>KANGAL RES</u>	<u>RES</u>	<u>14,000</u>	<u>26.11.2015</u>

YAHYALI RES	RES	7,200	20.11.2015
ŞANLIURFA OSB ENERJİ SANTRALİ	DG	18,310	18.11.2015
KOÇAK REG. VE HES	HES	1,344	17.11.2015
KANDİL REG. VE HES	HES	6,192	16.11.2015
OSB ÜRETİM SANTRALİ	DG	21,750	13.11.2015
SÜLOĞLU RES	RES	24,000	13.11.2015
KANİJE RES	RES	3,200	13.11.2015
AKBÜK RES	RES	4,800	12.11.2015
KIYIKÖY RES	RES	11,000	12.11.2015
ASLAN ÇİMENTO ATIK ISIDAN ENERJİ ÜRETİM TESİSİ	ATIK ISI	7,500	6.11.2015
DÜZOVA RES	RES	1,500	6.11.2015
TEPEKİŞLA BARAJI VE HES	HES	32,993	5.11.2015
ÇİLEHANE HES	HES	1,536	2.11.2015
ŞANLIURFA BİYOKÜTLE ENERJİ SANTRALİ	BİYOKÜTLE (ÇÖP GAZI)	3,120	31.10.2015
UMURLU JES	JEOTERMAL	2,280	31.10.2015
KANGAL RES	RES	20,000	30.10.2015
PAMUKÖREN JES 2	JEOTERMAL	22,510	29.10.2015
HIZIR REGÜLATÖRÜ VE HES	HES	1,955	29.10.2015
KANDİL REG. VE HES	HES	2,616	29.10.2015
BAĞARASI RES	RES	24,400	29.10.2015
HAYMEANA I-II HES (HAYMEANA I HES)	HES	3,200	29.10.2015
KARAMAN BİYOGAZ TESİSİ	BİYOKÜTLE	1,414	29.10.2015
ÇAY REGÜLATÖRÜ VE HES	HES	4,143	28.10.2015
OVACIK BİYOGAZ ENERJİ SANTRALİ	BİYOKÜTLE	4,800	28.10.2015
FUATRES RES	RES	3,300	28.10.2015
KANİJE RES	RES	3,200	28.10.2015
PAKMİL BİYOKÜTLE SANTRALİ	BİYOKÜTLE	1,763	27.10.2015
AKBÜK RES	RES	2,400	27.10.2015
KARAKAYA REG. VE HES	HES	9,010	26.10.2015
KARADUVAR ATIKSU ARITMA TESİSİ BİYOGAZ SANTRALİ	BİYOKÜTLE	1,900	26.10.2015
TRABZON RİZE ÇÖP GAZI SANTRALİ	BİYOKÜTLE (ÇÖP GAZI)	2,826	25.10.2015
PAŞALI REGÜLATÖRÜ VE HES	HES	3,500	25.10.2015
BABADERE JES	JEOTERMAL	8,000	24.10.2015
DİLOVASI ÇÖP BİYOGAZ SANTRALİ	BİYOKÜTLE (ÇÖP GAZI)	1,063	24.10.2015
SERHAT REGÜLATÖRÜ VE HES	HES	8,840	24.10.2015
SİVAS BİYOKÜTLEDEN (ÇÖP GAZI) ELEKTRİK ENERJİSİ ÜRETİM TESİSİ	BİYOKÜTLE (ÇÖP GAZI)	1,410	24.10.2015
SEBİL REG. VE HES	HES	22,636	24.10.2015
POYRAZGÖLÜ RES	RES	14,000	24.10.2015
HİHAL-2 RES	RES	7,000	23.10.2015
KIYIKÖY RES	RES	12,000	23.10.2015
YAHYALI RES	RES	9,600	23.10.2015
ATAKÖY HES	HES	2,500	22.10.2015
ADA 2 RES	RES	3,200	21.10.2015
GÜNAYŞE REG. VE HES	HES	0,800	19.10.2015
ANGUTLU HES	HES	14,400	19.10.2015
DEMİRCİ REG. VE HES	HES	12,600	17.10.2015
AKBÜK RES	RES	2,400	16.10.2015
İÇDAŞ BİGA RES	RES	16,000	16.10.2015

<u>EGE RES</u>	<u>RES</u>	<u>7,000</u>	<u>16.10.2015</u>
<u>ARPAÇIK REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>3,770</u>	<u>15.10.2015</u>
<u>ÇİLEKLİTEPE HES</u>	<u>HES</u>	<u>23,625</u>	<u>15.10.2015</u>
<u>SÜLOĞLU RES</u>	<u>RES</u>	<u>18,000</u>	<u>11.10.2015</u>
<u>TERMİK-KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>4,000</u>	<u>10.10.2015</u>
<u>ADARES RES</u>	<u>RES</u>	<u>10,000</u>	<u>10.10.2015</u>
<u>GERES RES</u>	<u>RES</u>	<u>0,000</u>	<u>3.10.2015</u>
<u>KÖPRÜBAŞI HES</u>	<u>HES</u>	<u>7,949</u>	<u>2.10.2015</u>
<u>GÖKTAŞ HES (GÖKTAŞ-2 HES)</u>	<u>HES</u>	<u>153,400</u>	<u>2.10.2015</u>
<u>BAĞARASI RES</u>	<u>RES</u>	<u>21,600</u>	<u>29.09.2015</u>
<u>POYRAZGÖLÜ RES</u>	<u>RES</u>	<u>16,000</u>	<u>18.09.2015</u>
<u>KARACABEY-2 BİYOGAZ TESİSİ</u>	<u>BİYOKÜTLE</u>	<u>1,067</u>	<u>18.09.2015</u>
<u>SÜLOĞLU RES</u>	<u>RES</u>	<u>18,000</u>	<u>18.09.2015</u>
<u>HANAK HES</u>	<u>HES</u>	<u>3,690</u>	<u>17.09.2015</u>
<u>KEN KİPAŞ JES</u>	<u>JEOTERMAL</u>	<u>24,000</u>	<u>17.09.2015</u>
<u>KIYIKÖY RES</u>	<u>RES</u>	<u>9,000</u>	<u>17.09.2015</u>
<u>İZNİK DEREKÖY HES</u>	<u>HES</u>	<u>0,715</u>	<u>15.09.2015</u>
<u>DİLEK RES</u>	<u>RES</u>	<u>9,600</u>	<u>15.09.2015</u>
<u>KUYUCAK RES</u>	<u>RES</u>	<u>15,100</u>	<u>12.09.2015</u>
<u>ALAŞEHİR JES</u>	<u>JEOTERMAL</u>	<u>33,730</u>	<u>12.09.2015</u>
<u>ORİON ÜRETİM SANTRALİ</u>	<u>DG</u>	<u>1,200</u>	<u>11.09.2015</u>
<u>TERMİK-KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>2,000</u>	<u>10.09.2015</u>
<u>TERMİK-KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>1,200</u>	<u>9.09.2015</u>
<u>TEPEKİŞLA BARAJI VE HES</u>	<u>HES</u>	<u>32,993</u>	<u>4.09.2015</u>
<u>EĞERCİ REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>1,3436</u>	<u>3.09.2015</u>
<u>AYVALI (ÇORUH) BARAJI VE HES</u>	<u>HES</u>	<u>121,654</u>	<u>3.09.2015</u>
<u>TERMİK-KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>4,044</u>	<u>2.09.2015</u>
<u>KOCADAĞ 2 RES</u>	<u>RES</u>	<u>2,500</u>	<u>2.09.2015</u>
<u>DİLEK RES</u>	<u>RES</u>	<u>7,200</u>	<u>27.08.2015</u>
<u>SEKİ YAKA II HES</u>	<u>HES</u>	<u>1,090</u>	<u>27.08.2015</u>
<u>EFELER JES</u>	<u>JEOTERMAL</u>	<u>47,400</u>	<u>26.08.2015</u>
<u>SUÇATI-I HES</u>	<u>HES</u>	<u>8,316</u>	<u>20.08.2015</u>
<u>TEPEKİŞLA BARAJI VE HES</u>	<u>HES</u>	<u>3,641</u>	<u>13.08.2015</u>
<u>KIYIKÖY RES</u>	<u>RES</u>	<u>12,000</u>	<u>13.08.2015</u>
<u>PAMUKÖREN JES</u>	<u>JEOTERMAL</u>	<u>16,006</u>	<u>7.08.2015</u>
<u>AKÇAKOYUN HES</u>	<u>HES</u>	<u>6,790</u>	<u>6.08.2015</u>
<u>ZİYARET RES</u>	<u>RES</u>	<u>1,000</u>	<u>4.08.2015</u>
<u>MUT RES</u>	<u>RES</u>	<u>0,500</u>	<u>31.07.2015</u>
<u>AKINCI (KAYABEYİ) HES</u>	<u>HES</u>	<u>10,175</u>	<u>30.07.2015</u>
<u>GÖKSU HES</u>	<u>HES</u>	<u>17,177</u>	<u>25.07.2015</u>
<u>DİLEK RES</u>	<u>RES</u>	<u>7,200</u>	<u>24.07.2015</u>
<u>PAMUKÖREN JES</u>	<u>JEOTERMAL</u>	<u>6,504</u>	<u>21.07.2015</u>
<u>BOLU-GÖYNÜK ENERJİ SANTRALİ</u>	<u>LİNYİT</u>	<u>135,000</u>	<u>15.07.2015</u>
<u>DOĞU HES</u>	<u>HES</u>	<u>5,985</u>	<u>8.07.2015</u>
<u>KARAKUZ BARAJI VE HES</u>	<u>HES</u>	<u>76,000</u>	<u>8.07.2015</u>
<u>MANAHOZ HES</u>	<u>HES</u>	<u>1,120</u>	<u>5.07.2015</u>
<u>TELLİ 1-2 HES</u>	<u>HES</u>	<u>0,000</u>	<u>3.07.2015</u>
<u>EFELER JES</u>	<u>JEOTERMAL</u>	<u>22,500</u>	<u>3.07.2015</u>
<u>AVANOS REGÜLATÖRÜ VE CEMEL HES</u>	<u>HES</u>	<u>6,000</u>	<u>3.07.2015</u>
<u>ALÇE HES</u>	<u>HES</u>	<u>5,140</u>	<u>2.07.2015</u>
<u>SOMA RES</u>	<u>RES</u>	<u>8,000</u>	<u>26.06.2015</u>
<u>SÖĞÜTLÜ HES</u>	<u>HES</u>	<u>9,160</u>	<u>26.06.2015</u>

<u>MANAHOZ HES</u>	<u>HES</u>	<u>5,960</u>	<u>25.06.2015</u>
<u>ÖDEMİŞ RES</u>	<u>RES</u>	<u>8,000</u>	<u>25.06.2015</u>
<u>ÇEŞME RES</u>	<u>RES</u>	<u>7,000</u>	<u>20.06.2015</u>
<u>MUT RES</u>	<u>RES</u>	<u>13,200</u>	<u>19.06.2015</u>
<u>TOSUNLAR-1 JES</u>	<u>JEOTERMAL</u>	<u>3,807</u>	<u>12.06.2015</u>
<u>ÇAYKARA HES</u>	<u>HES</u>	<u>10,560</u>	<u>11.06.2015</u>
<u>BOLU ÇİMENTO ATIK ISIDAN ENERJİ ÜRETME TESİSİ</u>	<u>ATIK ISI</u>	<u>6,000</u>	<u>5.06.2015</u>
<u>MUT RES</u>	<u>RES</u>	<u>16,500</u>	<u>5.06.2015</u>
<u>HAVVA HES</u>	<u>HES</u>	<u>4,780</u>	<u>4.06.2015</u>
<u>ÖDEMİŞ RES</u>	<u>RES</u>	<u>12,000</u>	<u>29.05.2015</u>
<u>EKOTEN TEKSTİL SAN. VE TİC. A.Ş. KOJEN. SANTRALİ</u>	<u>DG</u>	<u>0,008</u>	<u>29.05.2015</u>
<u>SEBENOBA RES</u>	<u>RES</u>	<u>9,000</u>	<u>28.05.2015</u>
<u>BEYHAN I BARAJI VE HES</u>	<u>HES</u>	<u>31,600</u>	<u>26.05.2015</u>
<u>ANGUTLU 2 HES</u>	<u>HES</u>	<u>8,898</u>	<u>25.05.2015</u>
<u>EDİNCİK RES</u>	<u>RES</u>	<u>26,400</u>	<u>23.05.2015</u>
<u>KORU RES</u>	<u>RES</u>	<u>10,400</u>	<u>22.05.2015</u>
<u>MUT RES</u>	<u>RES</u>	<u>19,800</u>	<u>22.05.2015</u>
<u>POLATLI BES</u>	<u>BİYOKÜTLE</u>	<u>0,637</u>	<u>22.05.2015</u>
<u>ÇEŞME RES</u>	<u>RES</u>	<u>9,000</u>	<u>22.05.2015</u>
<u>GÜNEYYAKA HES</u>	<u>HES</u>	<u>6,630</u>	<u>21.05.2015</u>
<u>SEMA REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>17,000</u>	<u>21.05.2015</u>
<u>KARGI (KIZILIRMAK) HES</u>	<u>HES</u>	<u>101,720</u>	<u>20.05.2015</u>
<u>AKSARAY OSB BİYOGAZ SANTRALİ</u>	<u>BİYOKÜTLE</u>	<u>1,067</u>	<u>15.05.2015</u>
<u>YALNIZARDIÇ HES</u>	<u>HES</u>	<u>0,530</u>	<u>8.05.2015</u>
<u>KORU RES</u>	<u>RES</u>	<u>19,800</u>	<u>8.05.2015</u>
<u>ORTAMANDIRA RES</u>	<u>RES</u>	<u>10,000</u>	<u>8.05.2015</u>
<u>SİLOPI TERMİK SANTRALİ</u>	<u>YERLİ ASFALTİT</u>	<u>135,000</u>	<u>8.05.2015</u>
<u>ÇAĞLAYAN REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>3,978</u>	<u>7.05.2015</u>
<u>HARMANLIK RES</u>	<u>RES</u>	<u>10,400</u>	<u>6.05.2015</u>
<u>KIZILÇAM REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>1,320</u>	<u>5.05.2015</u>
<u>AKINCI (KAYABEYİ) HES</u>	<u>HES</u>	<u>74,506</u>	<u>3.05.2015</u>
<u>KİPAŞ KAĞIT SANAYİ İŞLETMELERİ A.Ş. TERMİK-KOJENERASYON SANTRALİ</u>	<u>KÖMÜR</u>	<u>7,600</u>	<u>1.05.2015</u>
<u>YANBOLU HES</u>	<u>HES</u>	<u>6,21</u>	<u>30.04.2015</u>
<u>DURKAR 1 TERMİK-KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>2,433</u>	<u>30.04.2015</u>
<u>STS-1 HES</u>	<u>HES</u>	<u>11,243</u>	<u>30.04.2015</u>
<u>YUNUSLAR HES</u>	<u>HES</u>	<u>7,960</u>	<u>28.04.2015</u>
<u>HARMANLIK RES</u>	<u>RES</u>	<u>13,200</u>	<u>24.04.2015</u>
<u>KORU RES</u>	<u>RES</u>	<u>19,800</u>	<u>22.04.2015</u>
<u>BARAN REGÜLATÖRÜ VE HES (BARAN-I)</u>	<u>HES</u>	<u>8,865</u>	<u>17.04.2015</u>
<u>BOREAS I ENEZ RES</u>	<u>RES</u>	<u>2,500</u>	<u>17.04.2015</u>
<u>BEYHAN I BARAJI VE HES</u>	<u>HES</u>	<u>183,500</u>	<u>17.04.2015</u>
<u>YANBOLU HES</u>	<u>HES</u>	<u>2,870</u>	<u>16.04.2015</u>
<u>GARZAN BARAJI VE HES</u>	<u>HES</u>	<u>3,210</u>	<u>15.04.2015</u>
<u>HARMANLIK RES</u>	<u>RES</u>	<u>26,400</u>	<u>11.04.2015</u>
<u>İNCEBEL HES</u>	<u>HES</u>	<u>6,930</u>	<u>9.04.2015</u>
<u>SOMA RES</u>	<u>RES</u>	<u>12,00</u>	<u>9.04.2015</u>
<u>YALNIZARDIÇ HES</u>	<u>HES</u>	<u>15,930</u>	<u>8.04.2015</u>
<u>SEYİTALİ RES</u>	<u>RES</u>	<u>2,000</u>	<u>7.04.2015</u>
<u>BAĞIŞTAŞ I BARAJI VE HES</u>	<u>HES</u>	<u>89,540</u>	<u>3.04.2015</u>
<u>ÇAKMAK REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>8,630</u>	<u>3.04.2015</u>
<u>ONUR REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>19,568</u>	<u>2.04.2015</u>

<u>BEYHAN I BARAJI VE HES</u>	<u>HES</u>	<u>183,500</u>	<u>29.03.2015</u>
<u>ÇERÇİKAYA RES</u>	<u>RES</u>	<u>11,15795</u>	<u>20.03.2015</u>
<u>SOMA RES</u>	<u>RES</u>	<u>18,000</u>	<u>20.03.2015</u>
<u>SÜTLÜCE HES VE REGÜLATÖRÜ</u>	<u>HES</u>	<u>5,640</u>	<u>19.03.2015</u>
<u>YALNIZARDIÇ HES</u>	<u>HES</u>	<u>15,930</u>	<u>19.03.2015</u>
<u>ALAKÖPRÜ BARAJI VE HES</u>	<u>HES</u>	<u>28,890</u>	<u>18.03.2015</u>
<u>PEMBELİK BARAJI VE HES</u>	<u>HES</u>	<u>63,670</u>	<u>13.03.2015</u>
<u>KIYIKÖY RES</u>	<u>RES</u>	<u>3,000</u>	<u>13.03.2015</u>
<u>MODERN ENERJİ TERMİK SANTRALİ</u>	<u>DG+ORMAN ÜRÜN.</u>	<u>27,600</u>	<u>12.03.2015</u>
<u>BEYHAN I BARAJI VE HES</u>	<u>HES</u>	<u>183,500</u>	<u>12.03.2015</u>
<u>SÖĞÜTLÜ HES</u>	<u>HES</u>	<u>9,160</u>	<u>12.03.2015</u>
<u>ÇAKMAK REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>18,750</u>	<u>10.03.2015</u>
<u>EFELER JES</u>	<u>JEOTERMAL</u>	<u>22,500</u>	<u>6.03.2015</u>
<u>BÜYÜKBAHÇE REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>11,700</u>	<u>6.03.2015</u>
<u>BANDIRMA RES</u>	<u>RES</u>	<u>0,600</u>	<u>27.02.2015</u>
<u>TÜPRAŞ İZMİT RAFİNERİSİ TERMİK KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>79,080</u>	<u>27.02.2015</u>
<u>BAĞIŞTAŞ I BARAJI VE HES</u>	<u>HES</u>	<u>51,090</u>	<u>27.02.2015</u>
<u>ÇERÇİKAYA RES</u>	<u>RES</u>	<u>13,94735</u>	<u>19.02.2015</u>
<u>YAMANLI II HES</u>	<u>HES</u>	<u>11,222</u>	<u>19.02.2015</u>
<u>PEMBELİK BARAJI VE HES</u>	<u>HES</u>	<u>63,670</u>	<u>18.02.2015</u>
<u>SEBENOBA RES</u>	<u>RES</u>	<u>8,000</u>	<u>13.02.2015</u>
<u>SİNCAN ÇADIRTEPE BİYOKÜTLE ENERJİ SANTRALİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>5,664</u>	<u>13.02.2015</u>
<u>MEREK REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>9,180</u>	<u>12.02.2015</u>
<u>DEMİREK KOJENERASYON TESİSİ</u>	<u>DG</u>	<u>2,476</u>	<u>11.02.2015</u>
<u>PİTANE RES</u>	<u>RES</u>	<u>4,800</u>	<u>9.02.2015</u>
<u>KADAHOR REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>9,362</u>	<u>07.02.2015</u>
<u>SOMA RES</u>	<u>RES</u>	<u>6,000</u>	<u>07.02.2015</u>
<u>KOCADAĞ 2 RES</u>	<u>RES</u>	<u>7,500</u>	<u>06.02.2015</u>
<u>KÖPRÜYANI REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>11,900</u>	<u>04.02.2015</u>
<u>YAMANLI II HES</u>	<u>HES</u>	<u>11,222</u>	<u>31.01.2015</u>
<u>ADIGÜZEL II HES</u>	<u>HES</u>	<u>30,09</u>	<u>24.01.2015</u>
<u>TEKİRDAĞ ENERJİ ÜRETİM SANTRALİ</u>	<u>DG</u>	<u>1,125</u>	<u>23.01.2015</u>
<u>MMK METALURJİ SAN. TİC. VE LİMAN İŞLETMECİLİĞİ A.Ş. KOJENERASYON TESİSİ</u>	<u>DG</u>	<u>15,000</u>	<u>17.01.2015</u>
<u>HAYAT BİYOKÜTLE PROJESİ</u>	<u>BİYOKÜTLE</u>	<u>0,955</u>	<u>16.01.2015</u>
<u>ÇAYKARA HES</u>	<u>HES</u>	<u>15,360</u>	<u>16.01.2015</u>
<u>KARDEMİR KARABÜK DEMİR ÇELİK SAN. VE TİC. A.Ş. TERMİK-KOJENERASYON SANTRALİ</u>	<u>KÖMÜR+DİĞER</u>	<u>15,000</u>	<u>10.01.2015</u>
<u>ÇERÇİKAYA RES</u>	<u>RES</u>	<u>27,8947</u>	<u>10.01.2015</u>
<u>BUCAKİŞLA HES</u>	<u>HES</u>	<u>41,000</u>	<u>08.01.2015</u>
<u>PET CIPS RESİN VE KOJ. TESİSİ</u>	<u>DG</u>	<u>8,600</u>	<u>31.12.2014</u>
<u>M.KEMALPAŞA-SUUÇTU HES</u>	<u>HES</u>	<u>2,304</u>	<u>31.12.2014</u>
<u>TEKİRDAĞ ENERJİ ÜRETİM SANTRALİ</u>	<u>DG</u>	<u>13,075</u>	<u>31.12.2014</u>
<u>HAMZABEY HES</u>	<u>HES</u>	<u>8,820</u>	<u>31.12.2014</u>
<u>TERMİK KOJENERASYON SANTRALİ</u>	<u>LİNYİT</u>	<u>1,640</u>	<u>31.12.2014</u>
<u>TEKSMAK TERMİK KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>2,677</u>	<u>30.12.2014</u>
<u>YEŞİLKÖY REG. VE HES</u>	<u>HES</u>	<u>3,720</u>	<u>30.12.2014</u>

<u>GÜNAYDIN RES</u>	<u>RES</u>	<u>2,500</u>	<u>26.12.2014</u>
<u>YAZILI I-II-III HES</u>	<u>HES</u>	<u>6,620</u>	<u>25.12.2014</u>
<u>SOMA RES</u>	<u>RES</u>	<u>24,000</u>	<u>25.12.2014</u>
<u>SEBENOBA RES</u>	<u>RES</u>	<u>13,000</u>	<u>20.12.2014</u>
<u>GÜNAYDIN RES</u>	<u>RES</u>	<u>5,000</u>	<u>20.12.2014</u>
<u>ÇAĞLAYAN REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>7,956</u>	<u>19.12.2014</u>
<u>ATLAS TERMİK SANTRALİ</u>	<u>İTHAL KÖMÜR</u>	<u>600,000</u>	<u>19.12.2014</u>
<u>BANDIRMA RES</u>	<u>RES</u>	<u>26,400</u>	<u>14.12.2014</u>
<u>ARAKLI 3 HES</u>	<u>HES</u>	<u>0,631</u>	<u>12.12.2014</u>
<u>ŞADILLI RES</u>	<u>RES</u>	<u>11,000</u>	<u>06.12.2014</u>
<u>CENGİZ 240MW DGKÇS</u>	<u>DG</u>	<u>208,670</u>	<u>05.12.2014</u>
<u>EREN HES</u>	<u>HES</u>	<u>35,186</u>	<u>04.12.2014</u>
<u>MURAT HES</u>	<u>HES</u>	<u>11,089</u>	<u>01.12.2014</u>
<u>BİLECİK DOĞALGAZ ÇEVİRİM SANTRALİ</u>	<u>DG</u>	<u>13,050</u>	<u>28.11.2014</u>
<u>MENTAŞ HES</u>	<u>HES</u>	<u>9,600</u>	<u>28.11.2014</u>
<u>SOMA RES</u>	<u>RES</u>	<u>32,000</u>	<u>26.11.2014</u>
<u>KELTEPE RES</u>	<u>RES</u>	<u>0,000</u>	<u>21.11.2014</u>
<u>EKİNCİK HES</u>	<u>HES</u>	<u>7,520</u>	<u>20.11.2014</u>
<u>YAKINCA REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>11,700</u>	<u>14.11.2014</u>
<u>YÜCE HES</u>	<u>HES</u>	<u>5,283</u>	<u>14.11.2014</u>
<u>PIRINÇLIK HES</u>	<u>HES</u>	<u>21,315</u>	<u>14.11.2014</u>
<u>GÖNEN BİYOGAZ TESİSİ PROJESİ</u>	<u>BİYOKÜTLE</u>	<u>1,487</u>	<u>14.11.2014</u>
<u>ŞADILLI RES</u>	<u>RES</u>	<u>13,750</u>	<u>14.11.2014</u>
<u>ÜÇGEN HES</u>	<u>HES</u>	<u>3,388</u>	<u>07.11.2014</u>
<u>MERNİOS HALI KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>9,730</u>	<u>01.11.2014</u>
<u>BEYPAZARI BİYOGAZ TESİSİ BİYOKÜTLE PROJESİ</u>	<u>BİYOKÜTLE</u>	<u>0,7936</u>	<u>31.10.2014</u>
<u>CANAN TEKSTİL KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>2,000</u>	<u>31.10.2014</u>
<u>GÖKBOYUN REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>5,000</u>	<u>29.10.2014</u>
<u>AMASYA ÇÖP GAZ ELEKTRİK ÜRETİM TESİSİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>1,200</u>	<u>29.10.2014</u>
<u>TUĞRA REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>11,480</u>	<u>28.10.2014</u>
<u>ŞADILLI RES</u>	<u>RES</u>	<u>8,250</u>	<u>26.10.2014</u>
<u>TERMİK-KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>15,000</u>	<u>25.10.2014</u>
<u>KOCABEY-2 BİYOGAZ SANTRALİ</u>	<u>BİYOKÜTLE</u>	<u>2,134</u>	<u>25.10.2014</u>
<u>AFYON BİYOGAZ ENERJİ SANTRALİ BİYOKÜTLE PROJESİ</u>	<u>BİYOKÜTLE</u>	<u>4,017</u>	<u>24.10.2014</u>
<u>TURKOL OTEL SANTRALİ (TERMİK KOJENERASYON)</u>	<u>DG</u>	<u>1,000</u>	<u>24.10.2014</u>
<u>ADANA DOĞU ATIKSU SANTRALİ</u>	<u>BİYOKÜTLE</u>	<u>0,800</u>	<u>24.10.2014</u>
<u>TUANA HES</u>	<u>HES</u>	<u>3,695</u>	<u>24.10.2014</u>
<u>ALBE-I BİYOGAZ SANTRALİ</u>	<u>BİYOKÜTLE</u>	<u>1,813</u>	<u>24.10.2014</u>
<u>POLATLI BES</u>	<u>BİYOKÜTLE</u>	<u>0,834</u>	<u>24.10.2014</u>
<u>CENGİZ 240MW DGKÇS</u>	<u>DG</u>	<u>401,330</u>	<u>22.10.2014</u>
<u>İNCESU RES</u>	<u>RES</u>	<u>10,000</u>	<u>22.10.2014</u>
<u>SİGMA SULUOVA BİYOGAZ TESİSİ</u>	<u>BİYOKÜTLE</u>	<u>1,000</u>	<u>20.10.2014</u>
<u>ZEKERE HES</u>	<u>HES</u>	<u>3,978</u>	<u>17.10.2014</u>
<u>BURDUR ŞEKER FABRİKASI ÜRETİM TESİSİ (TERMİK KOJENERASYON)</u>	<u>DG/FO/LİNYİT</u>	<u>4,750</u>	<u>17.10.2014</u>
<u>KEREM JES</u>	<u>JEOTERMAL</u>	<u>24,000</u>	<u>16.10.2014</u>
<u>GÜRGEN REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>2,360</u>	<u>15.10.2014</u>

ALİAĞA RES	RES	2,400	10.10.2014
EFELELER JES	JEOTERMAL	22,500	01.10.2014
PİRO REGÜLATÖRÜ VE HES	HES	4,060	01.10.2014
MODERN BİYOKÜTLE ENERJİ SANTRALİ	BİYOKÜTLE	6,000	30.09.2014
UMURLAR RES	RES	10,000	30.09.2014
SAMSUN AVDAN BİYOGAZ TESİSİ BİYOKÜTLE PROJESİ	BİYOKÜTLE (ÇÖP GAZI)	2,400	27.09.2014
KOJEN	DG	1,189	26.09.2014
ALAŞEHİR JES	JEOTERMAL	24,000	25.09.2014
KAVAKLI RES	RES	13,700	25.09.2014
ASLANCIK HES	HES	46,500	19.09.2014
GARZAN HES	HES	5,420	19.09.2014
SİLİVRİ RES	RES	7,500	19.09.2014
DORUK HES	HES	28,278	19.09.2014
AYVASIL REGÜLATÖRÜ VE HES	HES	2,976	19.09.2014
KANGAL RES	RES	2,000	19.09.2014
SERAP HES	HES	28,960	19.09.2014
ALİAĞA RES	RES	7,200	12.09.2014
DOĞANÇAY HES	HES	20,160	12.09.2014
HAYAT KİMYA KOJENERASYON SANTRALİ	DG	15,040	12.09.2014
KAYSERİ KATI ATIK DEPONİ SAHASI ELEKTRİK ÜRETİM SANTRALİ	BİYOKÜTLE (ÇÖP GAZI)	1,560	11.09.2014
ATIK RES	RES	2,000	09.09.2014
KANGAL RES	RES	42,000	05.09.2014
KORKMAZ RES	RES	14,000	04.09.2014
SİLİVRİ RES	RES	12,500	03.09.2014
DOĞANÇAY HES	HES	10,080	29.08.2014
KÖRFEZ ENERJİ SAN. VE TİC. A.Ş. TERMİK KOJENERASYON SANTRALİ	BİYOKÜTLE (ÇÖP GAZI)	2,830	29.08.2014
AK NİŞASTA SAN. VE TİC. A.Ş. KOJENERASYON SANTRALİ	DG	2,000	22.08.2014
DİNAR RES	RES	36,800	22.08.2014
KAVAKLI RES	RES	36,300	21.08.2014
SİLİVRİ RES	RES	25,000	20.08.2014
ALADEREÇAM HES	HES	7,350	19.08.2014
SAMURLU RES	RES	4,500	16.08.2014
KORKMAZ RES	RES	10,000	15.08.2014
GÖKRES-2 RES	RES	24,000	15.08.2014
TERMİK-AKIŞKAN YATAKLI KOJENERASYON SANTRALİ	LİNYİT	5,500	15.08.2014
KIYIKÖY RES	RES	24,000	15.08.2014
ŞENKÖY RES	RES	9,000	15.08.2014
GENERAL REGÜLATÖRÜ VE HES	HES	5,950	08.08.2014
ATLAS TERMİK SANTRALİ	İTHAL KÖMÜR	600,000	08.08.2014
ÇANTA RES	RES	12,500	24.07.2014
ÜÇGEN 2 REGÜLATÖRÜ VE HES	HES	10,319	17.07.2014
SARAY REGÜLATÖRÜ VE HES	HES	13,500	16.07.2014
PANER KOJENERASYON SANTRALİ	DG	2,800	16.07.2014
AKDERE HES	HES	7,480	12.07.2014
HASANBEYLİ RES	RES	7,500	11.07.2014
BALABANLI RES	RES	16,100	11.07.2014

<u>AŞKALE ÇİMENTO TERMİK KOJENERASYON SANTRALİ</u>	<u>ATIK ISI</u>	<u>5,500</u>	<u>10.07.2014</u>
<u>KOÇLU HES</u>	<u>HES</u>	<u>36,260</u>	<u>10.07.2014</u>
<u>BEKİRLİ TERMİK SANTRALİ</u>	<u>İTHAL KÖMÜR</u>	<u>600,000</u>	<u>10.07.2014</u>
<u>KARADERE RES</u>	<u>RES</u>	<u>4,800</u>	<u>04.07.2014</u>
<u>UŞAK RES</u>	<u>RES</u>	<u>28,500</u>	<u>04.07.2014</u>
<u>ÇANTA RES</u>	<u>RES</u>	<u>20,000</u>	<u>28.06.2014</u>
<u>SUSURLUK RES</u>	<u>RES</u>	<u>15,000</u>	<u>28.06.2014</u>
<u>ALTINSU TEKSTİL KOJENERASYON TESİSİ</u>	<u>DG</u>	<u>1,189</u>	<u>27.06.2014</u>
<u>GÜNAYDIN RES</u>	<u>RES</u>	<u>2,500</u>	<u>27.06.2014</u>
<u>HASANBEYLİ RES</u>	<u>RES</u>	<u>7,500</u>	<u>26.06.2014</u>
<u>KARADERE RES</u>	<u>RES</u>	<u>11,200</u>	<u>21.06.2014</u>
<u>GÖKRES 2 RES</u>	<u>RES</u>	<u>11,000</u>	<u>20.06.2014</u>
<u>KÖROĞLU HES</u>	<u>HES</u>	<u>9,060</u>	<u>20.06.2014</u>
<u>BERKE REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>3,127</u>	<u>20.06.2014</u>
<u>ITC AKSARAY ÜRETİM TESİSİ</u>	<u>BİYOKÜTLE (ÇÖP GAZI)</u>	<u>1,415</u>	<u>17.06.2014</u>
<u>KAVŞAK BENDİ HES</u>	<u>HES</u>	<u>5,430</u>	<u>17.06.2014</u>
<u>BÜKÖR II HES</u>	<u>HES</u>	<u>12,597</u>	<u>13.06.2014</u>
<u>SENTETİK-2 KOJENERASYON TESİSİ</u>	<u>DG</u>	<u>3,349</u>	<u>13.06.2014</u>
<u>GÖKBEL I-II HES</u>	<u>HES</u>	<u>4,282</u>	<u>13.06.2014</u>
<u>EDİNCİK BES</u>	<u>BİYOĞAZ</u>	<u>2,126</u>	<u>12.06.2014</u>
<u>ARKUN BARAJI VE HES</u>	<u>HES</u>	<u>88,819</u>	<u>12.06.2014</u>
<u>TOKMADİN HES</u>	<u>HES</u>	<u>3,430</u>	<u>12.06.2014</u>
<u>SALMAN RES</u>	<u>RES</u>	<u>2,000</u>	<u>06.06.2014</u>
<u>ÇİNE HES</u>	<u>HES</u>	<u>46,600</u>	<u>06.06.2014</u>
<u>ERZİN DGKÇS</u>	<u>DG</u>	<u>319,820</u>	<u>05.06.2014</u>
<u>DORA 3 JES</u>	<u>JEOTERMAL</u>	<u>17,000</u>	<u>03.06.2014</u>
<u>ZİYARET RES</u>	<u>RES</u>	<u>10,000</u>	<u>31.05.2014</u>
<u>DERHAN TEKSTİL TERMİK KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>1,189</u>	<u>31.05.2014</u>
<u>ÇANTA RES</u>	<u>RES</u>	<u>15,000</u>	<u>31.05.2014</u>
<u>ARKUN BARAJI VE HES</u>	<u>HES</u>	<u>156,010</u>	<u>30.05.2014</u>
<u>SALMAN RES</u>	<u>RES</u>	<u>6,000</u>	<u>30.05.2014</u>
<u>HASANBEYLİ RES</u>	<u>RES</u>	<u>7,500</u>	<u>29.05.2014</u>
<u>GÜLLE TEKSTİL TERMİK KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>4,300</u>	<u>27.05.2014</u>
<u>ŞENBÜK RES</u>	<u>RES</u>	<u>13,940</u>	<u>25.05.2014</u>
<u>BALABANLI RES</u>	<u>RES</u>	<u>23,000</u>	<u>17.05.2014</u>
<u>UŞAK RES</u>	<u>RES</u>	<u>25,500</u>	<u>17.05.2014</u>
<u>ZALA REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>5,422</u>	<u>16.05.2014</u>
<u>KIRAZLIK REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>2,500</u>	<u>16.05.2014</u>
<u>SALMAN RES</u>	<u>RES</u>	<u>12,000</u>	<u>14.05.2014</u>
<u>TUANA HES</u>	<u>HES</u>	<u>3,695</u>	<u>13.05.2014</u>
<u>PROKOM PİROLİTİK YAĞ VE GAZ TAKITLI ELEKTRİK ÜRETİM TESİSİ</u>	<u>PİROLİTİK YAĞ</u>	<u>7,040</u>	<u>11.05.2014</u>
<u>GÜVEN GIDA TETMİK KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>2,006</u>	<u>10.05.2014</u>
<u>TONYA I-II HES</u>	<u>HES</u>	<u>2,500</u>	<u>09.05.2014</u>
<u>ASLANCIK HES</u>	<u>HES</u>	<u>12,800</u>	<u>09.05.2014</u>
<u>HASANBEYLİ RES</u>	<u>RES</u>	<u>10,000</u>	<u>09.05.2014</u>
<u>KAYAKÖPRÜ HES</u>	<u>HES</u>	<u>14,200</u>	<u>08.05.2014</u>
<u>GERES RES</u>	<u>RES</u>	<u>27,500</u>	<u>08.05.2014</u>
<u>EROĞLU GİYİM TERMİK KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>1,165</u>	<u>08.05.2014</u>

<u>ÇAMLICA II HES</u>	<u>HES</u>	<u>17,580</u>	<u>02.05.2014</u>
<u>AYVASIL REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>1,466</u>	<u>30.04.2014</u>
<u>ERZİN DGKÇS</u>	<u>DG</u>	<u>292,090</u>	<u>28.04.2014</u>
<u>CANAN TEKSTİL TERMİK KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>2,000</u>	<u>27.04.2014</u>
<u>KALEALTI II HES</u>	<u>HES</u>	<u>9,977</u>	<u>26.04.2014</u>
<u>BOYAR KİMYA TERMİK KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>2,000</u>	<u>26.04.2014</u>
<u>DÜZCE-AKSU HES</u>	<u>HES</u>	<u>46,200</u>	<u>25.04.2014</u>
<u>SÖLPEREN REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>9,762</u>	<u>25.04.2014</u>
<u>HAVVA HES</u>	<u>HES</u>	<u>2,390</u>	<u>22.04.2014</u>
<u>YEŞİLYURT ENERJİ SAMSUN DGKÇ SANTRALİ</u>	<u>DG</u>	<u>18,321</u>	<u>18.04.2014</u>
<u>GEYCEK RES</u>	<u>RES</u>	<u>14,000</u>	<u>18.04.2014</u>
<u>GÖKBEL 2 HES</u>	<u>HES</u>	<u>14,504</u>	<u>18.04.2014</u>
<u>MELİKE İPLİK TERMİK KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>9,730</u>	<u>18.04.2014</u>
<u>UZUNDERE II REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>7,020</u>	<u>18.04.2014</u>
<u>SİNCİK RES</u>	<u>RES</u>	<u>2,500</u>	<u>17.04.2014</u>
<u>ERZİN DGKÇS</u>	<u>DG</u>	<u>292,090</u>	<u>12.04.2014</u>
<u>ARSAN DOKUMA TERMİK KOJENERASYON SANTRALİ</u>	<u>DG</u>	<u>4,300</u>	<u>12.04.2014</u>
<u>KAMER REGÜLATÖRÜ VE HES</u>	<u>HES</u>	<u>3,750</u>	<u>11.04.2014</u>
<u>DAĞBAŞI HES</u>	<u>HES</u>	<u>10,433</u>	<u>11.04.2014</u>
<u>MANYAS BARAJI VE HES</u>	<u>HES</u>	<u>20,250</u>	<u>08.04.2014</u>
<u>POLAT ENERJİ KÜTAHYA TERMİK SANTRALİ</u>	<u>LİNYİT</u>	<u>51,000</u>	<u>05.04.2014</u>
<u>İZDEMİR ENERJİ ELEKTRİK ÜRETİM TESİSİ</u>	<u>İTHAL KÖMÜR</u>	<u>350,000</u>	<u>04.04.2014</u>

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

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}} \quad (15)$$

where:

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

≡

EG_{m,y} Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)

≡

EF_{EL,m,y} CO₂ emission factor of power unit m in year y (t CO₂/MWh)

≡

m Power units included in the build margin

≡

y _____ Most recent historical year for which electricity generation data is available
 ≡

△

According to, "Tool to calculate the emission factor for an electricity system", version 07.0.0, the CO₂ emission factor of each power unit m ($EF_{EL,m,y}$) should be determined as per the guidance from the tool in step 4 for simple OM, using options A1, A2 or A3, using for y the most recent historical year for which power generation data is available, where m is the power units included in the build margin.

Since plant specific fuel consumption data is not available for Turkey, option A2 has been selected for the calculation (since only fuel type and electricity generation are known) of the CO₂ emission factor of each power unit m ($EF_{EL,m,y}$) as follow:

$$EF_{EL,m,y} = \frac{EF_{CO2,m,i,y} \times 3.6}{\eta_{m,y}} \quad (5)$$

where:

$EF_{EL,m,y}$ = CO₂ emission factor of power unit m in year y (t CO₂/MWh)

$EF_{CO2,m,i,y}$ = Average CO₂ emission factor of fuel type i used in power unit m in year y (t CO₂/GJ)

$\eta_{m,y}$ = Average net energy conversion efficiency of power unit m in year y (ratio)

m _____ All power units serving the grid in year y except low-cost/must-run power units
 ≡

y _____ The relevant year as per the data vintage chosen in Step 3
 ≡

Where several fuel types are used in the power unit, the lowest CO₂ emission factor for $EF_{CO2m,i,y}$ has been used.

a) Identification of Average CO₂ Emission Factor of Fuel Type i in Power Unit m in year y

The $EF_{CO2,m,i,y}$ emission factor of each power unit m ($EF_{EL,m,y}$) should be determined as per the guidance in Step 4 for the simple OM using for y the most recent historical year for which electricity generation data is available, and using for m the power units included in the build margin:

Table 22- EF_{CO2} values of fuels used in set sample²⁷

<u>Fuels Used in SET Sample</u>	<u>EF_{CO2} Values (tCO₂/GJ)</u>
<u>Natural Gas</u>	<u>0.0543</u>
<u>Import Coal</u>	<u>0.0895</u>
<u>Lignite</u>	<u>0.0909</u>

²⁷ http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf

b) Average net energy conversion efficiency of power unit m in year y ($\eta_{m,y}$)

Since there is no available data for the plant and year specific efficiency data the efficiency level of best technology available complying the board approved deviation given in footnote 2 is considered. Quotation from the board-approved deviation is given below:

“(ii) Use the efficiency level of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy, for each fuel type in estimating the fuel consumption to estimate the build margin (BM). For the estimation of the operating margin (OM) the average emission factor for the grid for each fuel type can be used.”

Table 23- Efficiency η values for fuels in set sample²⁸

Fuels Used in SET Sample	η Values (Ratio)
Natural Gas	0.62
Import Coal	0.50
Lignite	0.50

Efficiency values are taken from the TOOL09 ‘Determining the baseline efficiency of thermal or electric energy generation systems’ version 02.0.

c) Calculation of CO₂ emission factor of power unit m in year y (t CO₂/MWh)

Using the values in Table 23, the $EF_{EL,m,y}$ values for the fuel types are reached.

Table 24- $EF_{EL,m,y}$ values for fuel types

Fuels Used in SET Sample	$EF_{EL,m,y}$ (t CO₂ MWh)
Natural Gas	0.3153
Import Coal	0.6444
Lignite	0.6545

d) Calculation of Build margin CO₂ Emission Factor (t CO₂/MWh)

Table 25- Total capacities and emission contributions by fuel type

Year	Total NG Capacity Addition (MWe)	Emission Addition of NG (tCO₂)	Total Import Coal Capacity Addition (MWe)	Emission Addition of Coal (tCO₂)	Total Lignite Capacity Addition (MWe)	Emission Addition of Lignite tCO₂)	Total Emissions (tCO₂)
2017	2,621.5	826.5	1,320	850.6	2.7	1.7	1,678.9
2016	1,656.4	522.3	9.7	6.3	430	281.4	809.9
2015	203.2	64.1	7.6	4.9	435	284.7	353.7
2014	1,649.7	520.1	2,150	1,385.5	58.1	38.1	1,943.6
Total	6,130.9	1,933	3,487.3	2,247.2	925.8	605.9	4,786.2

²⁸ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-09-v2.0.pdf>

By using the values reached as considering that power plants worked at full capacity, the calculated Build Margin, $EF_{grid,BM,y}$, is: 0.2902 tCO₂/MWh.

Using the formula;

$$BE_y = EF_{grid,OM,y} \times W_{OM} + EF_{grid,BM,y} \times W_{BM} \text{-----} (16)$$

Calculating of the Combined Margin Emission Factor

In accordance with Tool 07, $W_{OM} = 0.75$ and $W_{BM} = 0.25$ are considered.

The combined margin emission factor, $EF_{grid,CM,y}$, is calculated through equation as: **0.5678 tCO₂/MWh.**

Baseline Emissions

In accordance with ACM0002, the baseline emissions are calculated as the net electricity generated by the project activity, multiplied with the baseline emission factor of the project grid.

$$BE_y = EG_{PJ,y} \times EF_{grid,y}$$

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,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”(t CO₂/MWh)

$$\begin{aligned} BE_y &= 429,828 \times 0.5678 \\ &= 244,067 \text{ tCO}_2/\text{MWh} \end{aligned}$$

Project Emissions

Since the project activity is a wind project, PE_y=0

Leakage

In accordance with the ACM0002 (version 19), leakage is taken as zero, since the project is a new power plant is taken as zero, LE_y= 0

Emission Reductions

$$ER_y = BE_y - PE_y - LE_y \quad (9)$$

$$ER_y = 244,067 \text{ tCO}_2/\text{MWh}$$

~~The operating margin emission factor (EF_{grid,OM,y}) is calculated as the simple operating margin through equation (4) as followed:~~

~~**Table 7.** Simple operating emission factor~~

Simple-Operating-Margin-Emission-Factor ($EF_{grid,OM,y}$)		0.658 tCO ₂ /MWh			
Fuel-Type		Amount of Fossil Fuel ($FC_{i,y}$)	Net Calorific Value ($NCV_{i,y}$)	CO ₂ -Emission-Factor of Fossil Fuel ($EF_{CO_2,i,y}$)	Electricity-Generated-and-Delivered to the Grid (EG_y)
		Tons ²⁷	GJ/tons ²⁸	tCO ₂ /GJ	MWh
Natural Gas	2009	20,978,040	37,177	0.0540	91,975,170
	2010	21,783,414	37,382		93,936,330
	2011	22,804,587	37,100		99,587,133
Lignite	2009	63,620,177	6,427	0.0909	37,413,753
	2010	56,689,392	7,131		34,401,281
	2011	61,507,310	7,298		37,204,046
Coal	2009	6,621,177	22,215	0.0946	15,884,155
	2010	7,419,703	22,316		18,285,308
	2011	10,574,434	22,794		26,175,127
Fuel Oil	2009	1,783,366	40,091	0.0726	4,597,576
	2010	925,276	40,201		2,086,545
	2011	546,655	41,628		864,863

Imports to the grid are also taken into account calculating the electricity generated and delivered to the grid (EG_y). CO₂-emission factor of the net electricity imports from a connected electricity system is determined as 0 tCO₂/MWh.

Table 8. Electricity imports from a connected electricity system

	Year		
	2009	2010	2011
Electricity Imports (MWh/y)	812,000	1,143,800	4,555,800

The build-margin emission factor ($EF_{grid,BM,y}$) is calculated through equation (15) as followed:

Table 9. Build-margin emission factor

Build-Margin-Emission-Factor ($EF_{grid,BM,y}$)		0.412 tCO ₂ /MWh		
Fuel-Type		Electricity Generated and delivered to the Grid ($EG_{m,y}$)	Average CO ₂ -Emission-Factor of Fuel ($EF_{CO_2,m,i,y}$)	Average Net Energy Conversion Efficiency ($\eta_{m,y}$)
		MWh	tCO ₂ /GJ	%
Natural Gas	2010	12,787,008	0.0543	Combined Cycle
	2011	12,316,264		60
Lignite	2010	155,593	0.0909	Super Critical
	2011	0		45

²⁷ 1000 m³ in case for natural gas.

²⁸ GJ/1000m³ in case for natural gas.

Coal	2010	9,080,000	0.0946	Super Critical
	2011	4,320,000		45
Fuel Oil	2010	258,824	0.0726	Combined Cycle
	2011	1,026,593		46
Hydro	2010	2,523,322	0	n.a.
	2011	2,879,579		
Other Renewable	2010	551,785	0	n.a.
	2011	715,474		

~~Power plants under SET_{20%} are listed under Appendix 4 of this PDD.~~

B.6.3.B.6.4. Summary of ex ante estimates of emission reductions

Year	Baseline emissions (t CO ₂ e)	Project emissions (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions (t CO ₂ e)
2014	25,968	0	0	25,968
2015	155,810	0	0	155,810
2016	155,810	0	0	155,810
2017	155,810	0	0	155,810
2018	155,810	0	0	155,810
2019	155,810	0	0	155,810
2020	~~244,067~~ ~~155,810~~	0	0	~~244,067~~ ~~155,810~~
2021	~~203,389~~ ~~129,842~~	0	0	~~203,389~~ ~~129,842~~
Total	~~1,226,531~~ ~~1,090,672~~	0	0	~~1,226,531~~ ~~1,090,672~~
Total number of crediting years	7			
Annual average over the crediting period	~~153,316~~ ~~155,810~~	0	0	~~153,316~~ ~~155,810~~

Since the capacity extension is expected to be operational at the beginning of 2020, the re-calculated EF_{Grid,CM,y} and the generation of the extended capacity have been applied as of 2020 for the ex-ante estimates of emission reductions.

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

(Copy this table for each piece of data and parameter.)

Data / Parameter	ID.6 / EG _{PJ_ADD,y}
Unit	MWh
Description	Quantity of net electricity generation supplied to the grid in year y by the project plant/unit that has been added under the project activity
Source of data	Project activity site
Value(s) applied	~~261,348~~ ~~429,828~~ MWh
Measurement methods and procedures	The quantity of net electricity generation supplied to the grid by the project plant that has been added under the project activity will be calculated based on <u>EPIAS records</u> ~~the main meter (also referred as TEIAs meters) readings.~~ <u>The net electricity is measured continuously by a power meter at the grid interface and recorded monthly. EPIAS records are the source of</u>

	the exact electricity generation of the project and the imports from the grid. The quantity of net electricity delivered to the grid is cross checked with the meter reading records (OSF forms-OSOS) which are provided to the company by TEIAS.
Monitoring frequency	The electricity will be measured continuously and recorded at least monthly.
<u>QA/QC procedures</u>	• <u>A back-up meter is used for crosschecking the accuracy and both meters are periodically tested.</u> • <u>The metering devices are in line with the technical requirements which are set out by the Communiqué for Metering Devices to be used in the Electricity Market, which describes the minimum accuracy requirement the metering devices have to fulfil, which are categorized according to the installed capacity. The periodical test or maintenance is under the responsibility of TEIAS. Since TEIAS meters are sealed by TEIAS, the project proponent cannot intervene with the devices.</u> • <u>The net electricity export/supplied to a grid is the difference between the measured quantities of the grid electricity export and the import. EPIAS records are crosschecked with the meter reading protocols (OSOS-OSF forms)</u>
<u>Purpose of data</u>	<u>Calculation of baseline emissions</u>
<u>Additional comment</u>	=

QA/QC procedures	~~Maintenance and calibration of TEİAŞ meters will be carried out according to the instructions of the manufacturer or legal requirements. Since TEİAŞ meters are sealed by TEİAŞ, the project participant cannot intervene with the devices.~~
Purpose of data	Calculation of baselines emissions
Additional comment	

B.7.2. Sampling plan

>>

There are no data or parameters monitored to be determined by a sampling approach.

B.7.3. Other elements of monitoring plan

>>

All monitoring procedures and requirements of the proposed project activity is in accordance with the methodology ACM0002 "Grid-connected electricity generation from renewable sources" version 195.0.

Metering: The main source for electricity generation metering will be the TEİAŞ meters installed and sealed by TEİAŞ. Since the TEİAŞ meters are sealed by TEİAŞ and are also the basis of invoicing, a high accuracy and reliability is ensured. Also, the TEİAŞ meters have the ability to measure both the amount of electricity exported to the grid as well as the amount of electricity imported by the project activity, which provides an accurate and reliable measurement of the net electricity.

Additionally, the Project Owner enters the expected electricity generation on daily basis to the website of EPIAS which is the financial settlement centre of TEİAŞ. The website of EPIAS is accessible to project owner with their unique user ID and password. The difference between the expected and generated electricity (imbalance) is costed the project owner at the end of each month. The electricity generation data is reported monthly.

EPIAS records will used as the source of net generated electricity value and meter reading forms or OSF forms issued by TEİAŞ will be used for the crosscheck.

Meter readings: Once a month, the project participant will perform data readings. The monthly results will be recorded by the project participant both manually and electronically.

Data storage: Data will be stored electronically, during the crediting period and at least two years after the last issuance of credits for the wind farm project activity in the concerning crediting period. The Project Participant will be responsible for storage of data received from the measuring devices.

Responsibilities for monitoring

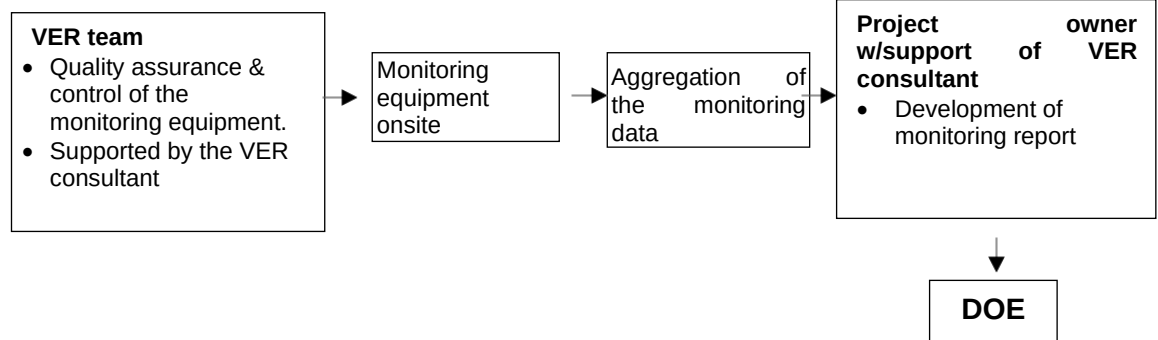
The project owner is responsible for the operation and maintenance of the project activity and the installed equipment²⁹. The project owner is also responsible for the administration of the data, setting up a VER team who will be responsible for monitoring all data required to estimate emission reductions.

In the diagram below the organization of monitoring management and data application is

²⁹ Except for the electricity meter that monitors both electricity imports and exports, since the monitoring device is sealed by TEİAŞ (Turkish Electricity Transmission Company) and the Project Participant cannot interfere with the device.

presented:

CDM-PDD-FORM



Quality assurance and quality control: The main source of measurement will be the TEİAŞ meters, which is sealed by TEİAŞ and since it is subject to monthly invoicing high reliability and accuracy is secured. In accordance with the requirements of TEİAŞ, there are two meters installed at the site where one is called the main meter and the other one secondary. TEİAŞ is the main responsible for calibration and maintenance of the devices. TEİAŞ performs the necessary maintenance and calibration. Since the electricity generation data is used for the billing and accounting between TEİAŞ and the project participant the data is of high quality.

Corrective actions and emergency preparedness: The Project Participant will regularly check the monitoring system on errors. In the case of errors, corrective actions will be undertaken by the Project Participant, or if required, by the supplier of the monitoring equipment.

B.7.4. Date of completion of application of methodology and standardized baseline and contact information of responsible persons/ entities

Date of completing the final draft of this baseline section:

16/07/2019 03.10.2014

Name of person/entity determining the baseline:

The baseline has been prepared by ~~OakDanışmanlık~~ Sekans Danışmanlık

~~Company name:~~ Sekans Danışmanlık ~~OakDanışmanlık~~

~~Visiting Address:~~ Çubuklu Mah. Vatan Cad. Körfez Sitesi 10 Blok
35/5 Beykoz/İstanbul ~~Acıbadem Mah. Şemibey~~
~~Sok. Belkıs Apt. N:3 D:6 Kadıköy / İstanbul,~~
~~TURKEY~~

~~Contact Person:~~ SILA

~~DURAN Ömer Akyürek~~ Telephone-

~~number:~~ +90 530 6680726

~~E-mail:~~ silaaak@sekansdanismanlik.com ~~oakdanismanlik.com~~

SECTION C. Duration and crediting period

C.1. Duration of project activity

C.1.1. Start date of project activity

>>

The start of the project activity is 31/03/2014.

C.1.2. Expected operational lifetime of project activity

>>

20 years³⁰

C.2. Crediting period of project activity

C.2.1. Type of crediting period

>>

Renewable

C.2.2. Start date of crediting period

>> _

28/11/2014

³⁰ Reference: "Tool to determine the remaining lifetime of equipment" v01, EB50 Annex 15

~~In line with the requirements of Gold Standard v2.2, the start date of the Gold Standard Crediting Period shall be the date of start of operation or a maximum of two years prior to Gold Standard registration, whichever occurs later. The starting date of the project activity will be defined under the first Monitoring Report.~~

C.2.3. Length of crediting period

~~>>~~

7 years, renewable

SECTION D. Environmental impacts

D.1. Analysis of environmental impacts

~~>>~~

In line with the requirements of “Regulation on Environmental Impact Assessment”, the registered capacity of the proposed project has been exempted from performing an Environmental Impact Assessment.³¹ Regarding the capacity extension, EIA opinion in favour certificate has been obtained³¹.

D.2. Environmental impact assessment

>>

n.a.

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

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The details of the Stakeholders Consultation Process could be found under the GS LSC Report and the GS Passport.

E.2. Summary of comments received

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The details of the Stakeholders Consultation Process could be found under the GS LSC Report and the GS Passport.

E.3. Report on consideration of comments received

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The details of the Stakeholders Consultation Process could be found under the GS LSC Report and the GS Passport.

³¹ EIA Opinion in Favour Certificate is available to the GS Secretariat.

SECTION F. Approval and authorization

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	T.C. BALIKESİR VALİLİĞİ ÇEVRE VE ŞEHİRCİLİK İL MÜDÜRLÜĞÜ	Karar Tarihi : <u>21.2.2019</u> Karar No : <u>2062</u>
“ÇEVRESEL ETKİ DEĞERLENDİRME BELGESİ”		
17 Temmuz 2008 tarih ve 26939 sayılı Resmî Gazetede yayımlanarak yürürlüğe giren Çevresel Etki Değerlendirmesi Yönetmeliğinin Ek-II listesinde yer alan “SOMA Rafineri Enerji Santrali Kapasite Artışı (SRMWe)” projesi ile ilgili olarak inceleme-değerlendirme yapılmış ve Proje Tanıtım Dosyasındaki çevresel etkilere karşı alınması öngörülen önlemler yeterli görülmüştür. Ayrıca ÇED Raporu hazırlanmasına gerek bulunmadığı tespit edilmiş olup, söz konusu projeye ÇED Yönetmeliğinin 17. Maddesi gereğince Valiliğimizce “Çevresel Etki Değerlendirmesi Gerekli Değildir” Kararı verilmiştir.		
		 Zeki KARACA Vali a. Vali Yardımcısı
Proje Sahibi : SOMA Enerji Elektrik Üretim A.Ş. Proje ile Var : Sanayiye Bölge 119-83 ve 119-84 parselde		



T.C.
MANİSA VALİLİĞİ
ÇEVRE VE ŞEHİRCİLİK İL MÜDÜRLÜĞÜ

Karar Tarihi : 20/02/2013
Karar No : 17

ÇEVRESEL ETKİ DEĞERLENDİRME BELGESİ

17.Temmuz.2008 tarih ve 26939 sayılı Resmi Gazete’de yayımlanarak yürürlüğe giren Çevresel Etki Değerlendirmesi Yönetmeliği ve 30.06.2011 tarih ve 27980 sayılı Resmi Gazete’de yayımlanarak yürürlüğe giren ÇED Yönetmeliğinde Değişiklik Yapılmasına Dair Yönetmeliğin Ek:II listesinde yer alan **toplam kapasitesi 179,7 MWe olması planlanan “Soma RES 62 MWe’lik Kapasite Artışı”** ile ilgili olarak inceleme-değerlendirme yapılmış ve Proje Tanıtım Dosyasında çevresel etkilere karşı alınması öngörülen önlemler yeterli görülmüştür. Ayrıca ÇED Raporu hazırlanmasına gerek bulunmadığı tespit edilmiş olup, söz konusu projeye ÇED Yönetmeliği’nin 17. maddesi gereğince Valiliğimizce “Çevresel Etki Değerlendirmesi Gerekli Değildir Kararı” verilmiştir.

Mustafa YILMAZ
İl Müdür V.

Halil İbrahim DAŞÖZ

Proje Sahibi : Soma Enerji Elektrik Üretim A.Ş.
Projenin Yeri : Manisa İli, Soma ve Kırkağaç ilçeleri.
(Çalışma Alan Koordinatları Belge Arkasında Listelenmiştir.)



T.C.
ÇEVRE ve ŞEHİRCİLİK BAKANLIĞI
Çevresel Etki Değerlendirmesi, İzin ve Denetim Genel Müdürlüğü

ÇED OLUMLU BELGESİ

25.11.2014 tarih ve 29186 sayılı Resmi Gazete’de yayımlanarak yürürlüğe giren Çevresel Etki Değerlendirmesi Yönetmeliği’nin 14. maddesi gereğince; “SOMA RÜZGAR ENERJİ SANTRALİ (RES) KAPASİTE ARTIŞI (240,1 MWm dan 611,0 MWm a)” projesi hakkında “Çevresel Etki Değerlendirmesi Olumlu” kararı verilmiştir.

M. Mustafa SATILMIŞ
Bakan a.
Genel Müdür

Karar Tarihi : 27.12.2016
Karar No : 4453
Proje Sahibi : SOMA ENERJİ ELEKTRİK ÜRETİM A.Ş.
Proje Yeri : Balıkesir, Manisa İli, Savastepe, Sındırgı, Kırkağaç, Soma, Altıeylül İlçesi, -

Appendix 1. Contact information of project participants and responsible persons/ entities

Project participant and/or responsible person/ entity	☒ Project participant ☐ Responsible person/ entity for application of the selected methodology (ies) and, where applicable, the selected standardized baselines to the project activity
Organization name	Soma Enerji Elektrik Üretim A.Ş.
Street/P.O. Box	Büyükdere Cad.
Building	Polat Holding
City	Mecidiyeköy, Istanbul
State/Region	-
Postcode	34387
Country	Turkey
Telephone	+90 (0212) 213 66 35 - 36 - 37
Fax	+90 (0212) 213 6639
E-mail	nergiz.akpinar@polatenerji.com
Website	www.polatenerji.com
Contact person	Nergiz Akpınar
Title	Planning, Coordination and Reporting Manager
Salutation	Ms.
Last name	Akpınar
Middle name	-
First name	Nergiz
Department	Energy
Mobile	-
Direct fax	-
Direct tel.	-
Personal e-mail	nergiz.akpinar@polatenerji.com

Project participant and/or responsible person/ entity	☐ Project participant ☒ Responsible person/ entity for application of the selected methodology (ies) and, where applicable, the selected standardized baselines to the project activity
Organization name	~~Oak~~ <u>Danışmanlık</u> ~~Sekans~~ <u>Danışmanlık</u>
Street/P.O. Box	~~Şemibey Sok~~ <u>Vatan Cad.</u>
Building	~~Belkıs Apt. N:3 D:6~~ <u>Körfez Sitesi 35/5</u>
City	~~Kadıköy, Beykoz~~ <u>Istanbul</u>
State/Region	-
Postcode	~~34770~~ <u>-</u>
Country	Turkey
Telephone	~~+90 530 6680726~~
Fax	-
E-mail	~~oak@oakdanismanlik.com~~ <u>silad@sekansdanismanlik.com</u>
Website	-
Contact person	~~Ömer Akyürek~~ <u>SILA DURAN</u>
Title	Managing Consultant

Salutation	Mr.
Last name	AkyürekDURAN
Middle name	-
First name	ÖmerSILA
Department	Carbon
Mobile	+90 530 6680726
Direct fax	-
Direct tel.	-
Personal e-mail	~~oak@oakdanismanlik.com~~ sila@sekansdanismanlik.com

Appendix 2. Affirmation regarding public funding

Appendix 3. Applicability of methodology and standardized baseline

Appendix 4. Further background information on ex ante calculation of emission reductions

List of SET_{20%} Power Units

2011					
Plant Name	Fuel Type	Added- Installed- Capacity MW	Generation MWh	Total Installed Capacity MW	Total Generation MWh
Akım Enerji Başpınar (Süper Film)	Natural Gas	25,32	177.000	25,32	177.000
Aksa-Akrilik	Natural Gas	25,00	189.076	59,50	450.000
Aksa Enerji (Antalya)	Natural Gas	300,00	1.800.000	1.450,00	8.700.000
Aksa Enerji (Antalya) İlave	Natural Gas	300,00	1.800.000	1.450,00	8.700.000
Aldaş Altyapı Yönetim Danışmanlık	Natural Gas	1,95	15.000	1,95	15.000
Aliğa Çakmaktepe Enerji (İlave)	Natural Gas	130,95	985.876	244,40	1.840.000
Aliğa Çakmaktepe Enerji (İlave)	Natural Gas	8,73	65.725	244,40	1.840.000
Bösen Enerji Elektrik Üretim A.Ş.	Natural Gas	93,00	698.092	235,80	1.770.000
Boyteks Tekstil San ve Tic. A.Ş.	Natural Gas	8,60	67.000	8,60	67.000
Cengiz Çift Yakıtlı K.Ç.E.S.	Natural Gas	131,34	985.000	131,34	985.000
Cengiz Enerji San ve Tic A.Ş.	Natural Gas	35,00	281.289	238,90	1.920.000
Fraport IC İctaş Antalya Havalimanı	Natural Gas	8,00	64.000	8,00	64.000
Global Enerji (Çorlu) (İlave)	Natural Gas	4,00	29.909	24,30	181.700
Gordion AVM (Redevco Üç Emlak)	Natural Gas	2,01	15.030	2,01	15.000
Goren-1 (Gaziantep Organize San)	Natural Gas	48,65	277.000	48,65	277.000
Gülle Enerji (Çorlu) (İlave)	Natural Gas	3,90	17.989	10,20	47.000
Hamitabat (Lisans Tadili)	Natural Gas	36,00	211.889	1.156,00	6.804.000
Hasıret Tekstil Tic ve San Ltd Şti	Natural Gas	2,00	15.000	2,00	15.000
HG Enerji Elektrik Üret. San. Tic. A.Ş.	Natural Gas	52,38	366.000	52,38	366.000
Isparta Mensucat (Isparta)	Natural Gas	4,30	33.000	4,30	33.000
İstanbul Sabiha Gökçen Ul. Ar. Hav.	Natural Gas	4,00	32.000	4,00	32.000
Knauf İnş. Ve Yapı Elemanlar Sn.	Natural Gas	1,56	12.000	1,56	12.000
Lokman Hekim Engürü Sağ. (Sincan)	Natural Gas	0,51	4.031	0,51	4.000
MOSB Enerji Elektrik Üretim Ltd. Şti (İlave)	Natural Gas	43,50	347.864	128,30	1.026.000
Nuh Enerji El. Ürt. A.Ş. (İlave)	Natural Gas	119,98	900.000	119,98	900.000
ODAŞ Doğalgaz KÇS (Odaş Elektrik)	Natural Gas	54,96	415.000	54,96	415.000
Polyplex Europa Polyester Film	Natural Gas	3,90	30.698	11,70	92.000
Samsun Tekeköy En. San. (Aksa En.)	Natural Gas	131,34	979.963	131,34	980.000
Samur Halı A.Ş.	Natural Gas	4,30	33.000	4,30	33.000
Sarah Halı A.Ş.	Natural Gas	4,29	33.000	4,29	33.000
Şanlıurfa OSB (Rasa Enerji Ür. A.Ş.)	Natural Gas	116,76	800.000	116,76	800.000

Tekirdağ—Çorlu Teks. Tes- (Nil-Örme)	Natural-Gas	2,68	20.976	2,68	21.000
Tirenda Tire Enerji Üretim- A.Ş.	Natural-Gas	58,38	410.000	58,38	410.000
Tüpraş—O.A.—Rafineri (Kırıkkale) (İlave)	Natural-Gas	12,00	84.783	46,00	325.000
Yeni uşak Enerji Elektrik- Santrali	Natural-Gas	8,73	65.000	8,73	65.000
Zorlu Enerji (B. Karıştırın)	Natural-Gas	7,20	54.073	122,50	920.000
	Natural-Gas 2011- Total	1.795,22	12.316.263,87		

Eti—Bor—(Borik—Asit) (Emet)(Düzeltilme)	Fuel-Oil	0,60	4.473	11,00	82.000
Karkey (Silopi-1)	Fuel-Oil	100,44	701.152	171,90	1.200.000
Mardin-Kızıltepe—(Aksa Enerji)	Fuel-Oil	32,10	225.000	32,10	225.000
Toros—Tarım—(Mersin) (Nafta+Doğalgaz)	Fuel-Oil	12,14	95.968	12,14	96.000
	Fuel—Oil—2011 Total	145,28	1.026.592,93		

Bekirli TES (İçdaş Elektrik- En.)	Coal	600,00	4.320.000	600,00	4.320.000
	Coal-2011 Total	600,00	4.320.000,00		

Çeşmebaşı REG ve HES- (Gimac En.)	Hydro	8,20	17.000	8,20	17.000
Çukurçayı HES (Aydemir- Elektrik Ür.)	Hydro	1,80	4.000	1,80	4.000
Darca HES (Bükor Elektrik- Üretim)	Hydro	8,91	35.000	8,91	35.000
Değirmendere (Kadirli) (KA- FNIH-Elek.)	Hydro	0,50	800	0,50	800
Derme (Kayseri ve Civarı- Enerji)	Hydro	4,50	7.000	4,50	7.000
Duru-2 REG ve HES- (Durucasu Elektrik)	Hydro	4,49	13.000	4,49	13.000
Erenköy REG ve HES- (Nehir Enerji)	Hydro	21,46	48.991	21,46	49.000
Erkenek (Kayseri ve Civarı- Enerji)	Hydro	0,32	500	0,32	500
Eşen 1 HES (Göлтаş Enerji- Elektrik)	Hydro	30,00	65.000	60,00	130.000
Eşen 1 HES (Göлтаş Enerji- Elektrik)	Hydro	30,00	65.000	60,00	130.000
Girlevik (Boydak Enerji)	Hydro	3,04	19.000	3,04	19.000
Gökmen REG ve HES (Su- Gücü Elektrik)	Hydro	2,87	7.997	2,87	8.000
Hacınınoğlu HES (Enerji- SA Enerji)	Hydro	71,14	101.986	142,30	204.000
Hacınınoğlu HES (Enerji- SA Enerji)	Hydro	71,14	101.986	142,30	204.000
Hakkari—(Otluca)—(NAS Enerji A.Ş.)	Hydro	1,28	8.107	3,00	19.000
Hasanlar	Hydro	9,35	29.600	9,35	29.600
Hasanlar—HES—(Düzee Enerji Birliği)	Hydro	4,68	12.000	4,68	12.000

İncirli-REG ve HES (Laskar-Enerji)	Hydro	25,20	71.000	25,20	71.000
İnegöl (Cerrah) (Kent Solar-Elektrik)	Hydro	0,27	806	0,27	800
İznik (Dereköy) (Kent Solar-Elektrik)	Hydro	0,24	900	0,24	900
Kalkandere — REG — ve Yokuşlu HES	Hydro	23,36	61.636	37,90	100.000
Karaçay — (Osmaniye)(KA-FNİH) Elektrik	Hydro	0,40	2.000	0,40	2.000
Karasu 4-2 HES (İdeal-Enerji Üretim)	Hydro	10,35	33.000	10,35	33.000
Karasu 4-3 HES (İdeal-Enerji Üretim)	Hydro	4,60	12.000	4,60	12.000
Karasu 5 HES (İdeal-Enerji Üretim)	Hydro	4,10	14.000	4,10	14.000
Karasu I HES (İdeal-Enerji Üretim)	Hydro	3,84	11.000	3,84	11.000
Karasu II HES (İdeal-Enerji Üretim)	Hydro	3,08	8.000	3,08	8.000
Kayadibi — (Bartın) — (İvme Elektromek.)	Hydro	0,46	2.017	0,46	2.000
Kazankaya — REG — ve İncesuyu HES (Aksa)	Hydro	15,00	27.000	15,00	27.000
Kernek (Kayseri ve Civarı-Enerji)	Hydro	0,83	6.014	0,83	6.000
Kesme — REG — ve HES (Kıvanç Enerji)	Hydro	2,31	4.510	4,60	9.000
Kesme — REG — ve HES (Kıvanç Enerji)	Hydro	2,31	4.510	4,60	9.000
Kıran HES (Arsan Enerji-A.Ş.)	Hydro	9,74	23.000	9,74	23.000
Koruköy HES (Akar Enerji-San ve Tic)	Hydro	3,03	13.000	3,03	13.000
Kovada I (Batiçim Enerji-Elektrik)	Hydro	8,25	1.600	8,25	1.600
Kovada II (Batiçim Enerji-Elektrik)	Hydro	51,20	24.400	51,20	24.400
Kozdere — HES — (Ado Madencilik Elekt.)	Hydro	3,15	7.987	3,15	8.000
Köyobası HES (Şirikoğlu-Elektrik)	Hydro	1,07	3.000	1,07	3.000
Kulp I HES (Yıldızlar Enerji-Elk. Ür.)	Hydro	22,92	44.000	22,92	44.000
Kumköy HES (AES-İC İttaş Enerji)	Hydro	17,49	55.000	17,49	55.000
Kuzuculu — (Dört Yol) — (KA-FNİH-Elektrik)	Hydro	0,27	1.007	0,27	1.000
M. — Kemalpaşa — (Suutçu) (Kent Solar)	Hydro	0,47	1.306	0,47	1.300
Malazgirt (Mostar Enerji-Elektrik)	Hydro	1,22	2.990	1,22	3.000
Adilcevaz (Mostar — Enerji Elektrik)	Hydro	0,39	505	0,39	500
Ahlat — (Mostar — Enerji Elektrik)	Hydro	0,20	503	0,20	500
Aksu-REG. Ve HES (Kalen-Enerji)	Hydro	5,20	12.000	5,20	12.000
Alkumru-Barajı ve HES (Limak Hid.)	Hydro	174,18	311.368	261,80	468.000
Alkumru-Barajı ve HES (Limak Hid.)	Hydro	87,09	155.684	261,80	468.000

Ayrancılar HES (Muradiye-Elektrik)	Hydro	18,72	43.734	32,10	75.000
Ayrancılar HES (Muradiye-Elektrik)	Hydro	13,38	31.255	32,10	75.000
Balkondur I HES (BTA-Elektrik Enerji)	Hydro	9,19	20.002	9,19	20.000
Batman	Hydro	0,48	1.077	198,50	450.000
Bayburt (Boydak Enerji)	Hydro	0,40	1.683	0,40	1.700
Bayramhacılı Barajı ve HES	Hydro	47,00	95.000	47,00	95.000
Berdan	Hydro	10,20	15.000	10,20	15.000
Besni (Kayseri ve Civarı Enerji)	Hydro	0,27	201	0,27	200
Boğuntu HES (Beyobası Enerji)	Hydro	3,80	10.003	3,80	10.000
Bünyan (Kayseri ve Civarı El. Taş.)	Hydro	1,16	3.200	1,16	3.200
Cevheri I II REG ve HES (Özcevh. En.)	Hydro	16,36	32.000	16,36	32.000
Çağ Çağ (NAAS Enerji A.Ş.)	Hydro	14,40	22.000	14,40	22.000
Çakırman REG ve HES (Yusaka En.)	Hydro	6,98	15.000	6,98	15.000
Çamardı (Kayseri ve Civarı Elek. Taş.)	Hydro	0,07	100	0,07	100
Çamlıca III HES (Çamlıca-Elektrik)	Hydro	27,62	24.998	27,62	25.000
Çamlıkaya REG ve HES (Çamlıkaya En.)	Hydro	2,82	3.655	8,50	11.000
Çanakçı HES (Can Enerji-Entegre)	Hydro	4,63	10.960	9,30	22.000
Çanakçı HES (Can Enerji-Entegre)	Hydro	4,63	10.960	9,30	22.000
Çemişkezek (Boydak Enerji)	Hydro	0,12	500	0,12	500
Menge Barajı ve HES (EnerjiSA Enerji)	Hydro	44,71	58.000	44,71	58.000
Molu Enerji (Zamanlı Bahçelilik HES)	Hydro	4,17	30.000	4,17	30.000
Muratlı REG ve HES (Armahes El.)	Hydro	26,70	55.000	26,70	55.000
Narinkale REG ve HES (EBD Enerji)	Hydro	30,40	55.355	33,50	61.000
Otluca I HES (Beyobası Enerji Ür.)	Hydro	37,54	99.997	37,54	100.000
Otluca II HES (Beyobası Enerji Ür.)	Hydro	6,36	15.000	6,36	15.000
Ören REG ve HES (Çelikler-Elektrik)	Hydro	6,64	16.000	6,64	16.000
Pınarbaşı (Kayseri ve Civarı El. Taş.)	Hydro	0,10	297	0,10	300
Poyraz HES (Yeşil Enerji-Elektrik)	Hydro	2,66	6.000	2,66	6.000
Saraçbendi HES (Çamlıca-Elektrik)	Hydro	25,48	57.000	25,48	57.000
Sarıkavak HES (Eser Enerji Yat. A.Ş.)	Hydro	8,06	24.000	8,06	24.000
Sayan HES (Karel-Elektrik-Üretim)	Hydro	14,90	26.993	14,90	27.000
Sefaköy HES (Püre Enerji-Üretim A.Ş.)	Hydro	33,11	68.000	33,11	68.000
Daren HES (Elektrik (Seyrantepe))	Hydro	49,70	140.875	56,80	161.000
Seyrantepe HES	Hydro	7,14	20.238	56,80	161.000

(Düzeltilme)					
Sızır (Kayseri ve Civarı- Elek. Taş.)	Hydro	5,76	35.000	5,76	35.000
Söğütükaya (Posof III) HES	Hydro	6,13	18.000	6,13	18.000
Tefen HES (Aksu Madencilik San.)	Hydro	22,00	53.333	33,00	80.000
Tefen HES (Aksu Madencilik San.)	Hydro	11,00	26.667	33,00	80.000
Tektuğ (Erkenek)	Hydro	0,51	1.186	13,00	30.000
Turunçova (Finike) (Turunçova En.)	Hydro	0,55	80	55,00	8.000
Tuztaşı HES (Gürüz Elek.- Üretim)	Hydro	1,61	5.981	1,61	6.000
Uluabat Kuv. Tün. Ve HES- (Düzeltilme)	Hydro	2,98	6.854	100,00	230.000
Uludure (Nas Enerji A.Ş.)	Hydro	0,64	2.600	0,64	2.600
Üzümlü HES (Akgün Enerji- Üretim)	Hydro	11,36	22.996	11,36	23.000
Varto (Mostar Enerji Elektrik)	Hydro	0,29	604	0,29	600
Yamaç HES (Yamaç Enerji- Üretim A.Ş.)	Hydro	5,46	10.000	5,46	10.000
Yapısan (Karaca REG ve- Darıca I HES)	Hydro	13,32	24.515	110,30	203.000
Yaprak II HES (Nisan- Elektromek)	Hydro	5,40	10.500	10,80	21.000
Yaprak II HES (Nisan- Elektromek)	Hydro	5,40	10.500	10,80	21.000
Yaşıl HES (Yaşıl Enerji- Elektrik)	Hydro	1,52	3.196	3,80	8.000
Yaşıl HES (Yaşıl Enerji- Elektrik)	Hydro	2,28	4.792	3,80	8.000
Yedigöl REG. Ve HES- (Yedigöl Hidr.)	Hydro	21,90	42.000	21,90	42.000
Yedigöze HES (Yedigöze- Elek.) (İlave)	Hydro	155,33	133.983	310,70	268.000
Hydro-2011 Total		1.509,22	2.879.578,98		

Bolu Belediyesi Çöp Top.- Tes. Biyogaz	Biogas	1,13	7.500	1,13	7.500
CEV Enerji Üretim (Gaziantep Çöp Biyogaz)	Biogas	4,52	29.366	5,70	37.000
İTC Adana Enerji Üretim (İlave)	Biogas	1,42	83.000	1,42	83.000
İTC-Ka En (Aslım Biyokütle) Konya	Biogas	4,25	33.141	5,70	44.500
İTC-Ka En (Aslım Biyokütle) Konya	Biogas	1,42	11.047	5,70	44.500
İTC-Ka Enerji (Sincan) (İlave)	Biogas	1,42	11.055	5,70	44.500
İTC-Ka Enerji Mamak Katı- Atık Top.	Biogas	2,83	18.914	25,40	170.000
Kayseri Katı Atık Deponi- Sahası	Biogas	1,56	12.000	1,56	12.000
Aydın/Germencik Jeotermal	Geothermal	20,00	150.000	20,00	150.000
Akres (Akhisar Rüzgar En.- Elekt.)	Wind	20,00	64.384	43,80	141.000
Akres (Akhisar Rüzgar En.- Elekt.)	Wind	20,00	64.384	43,80	141.000

Akres (Akhisar Rüzgar En-Elekt.)	Wind	3,75	12.072	43,80	141.000
Ayvıcık RES (Ayres Ayvıcık Rüzgar)	Wind	5,00	15.000	5,00	15.000
Baki Elektrik Şamllı Rüzgar (İlave)	Wind	24,00	78.947	114,00	375.000
Bandırma Enerji (Bandırma RES)	Wind	3,00	5.625	24,00	45.000
Çanakkale RES (Enerji-SA Enerji)	Wind	25,30	66.000	29,90	78.000
Çanakkale RES (Enerji-SA Enerji)	Wind	4,60	12.000	29,90	78.000
Çataltepe RES (Alize Enerji Elektrik)	Wind	16,00	44.000	16,00	44.000
Innores Elektrik Yuntdağ Rüzgar	Wind	10,00	27.619	52,50	145.000
Kıllık RES (Pem Enerji A.Ş.)	Wind	20,00	36.500	40,00	73.000
Kıllık RES (Pem Enerji A.Ş.)	Wind	15,00	27.375	40,00	73.000
Kıllık RES (Pem Enerji A.Ş.)	Wind	5,00	9.125	40,00	73.000
Sares RES (Garet Enerji Üretim)	Wind	7,50	17.000	22,50	51.000
Seyitali RES (Doruk Enerji Elektrik)	Wind	30,00	94.000	30,00	94.000
Soma RES (Soma Enerji) (İlave)	Wind	20,00	55.642	116,10	323.000
Soma RES (Soma Enerji) (İlave)	Wind	16,90	47.017	116,10	323.000
Susurluk RES (Alantek Enerji Üret.)	Wind	12,50	26.667	45,00	96.000
Susurluk RES (Alantek Enerji Üret.)	Wind	10,00	21.333	45,00	96.000
Susurluk RES (Alantek Enerji Üret.)	Wind	12,50	26.667	45,00	96.000
Susurluk RES (Alantek Enerji Üret.)	Wind	10,00	21.333	45,00	96.000
Şah RES (Galata Wind Enerji Ltd. Şti)	Wind	63,00	231.000	93,00	341.000
Şah RES (Galata Wind Enerji Ltd. Şti)	Wind	27,00	99.000	93,00	341.000
Şah RES (Galata Wind Enerji Ltd. Şti)	Wind	3,00	11.000	93,00	341.000
Turguttepe RES (Sabaş Elektrik)	Wind	3,00	6.875	24,00	55.000
Ziyaret RES (Ziyaret RES Elektrik)	Wind	2,00	6.330	57,50	182.000
Renewable 2011 Total		213,37	715.474,13		

2011 TOTAL		4.263	21.257.910
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2010					
Plant Name	Fuel Type	Added-Installed-Capacity MW	Generation MWh	Total Installed Capacity MW	Total Generation MWh
Can Tekstil (Çorlu/Tekirdağ)	Natural Gas	7,832	60.246	13	100.000
Altınmarka	Natural Gas	4,6	37.024	8,2	66.000
Akbaşlar (İlave)	Natural Gas	1,54	12.078	10,2	80.000
Global Enerji (Pelitlik)	Natural Gas	3,544	27.057	23,8	181.700
Rasa Enerji (Van)	Natural Gas	26,19	166.622	114,9	731.000

20.03.2010	Aksa Enerji (Antalya)	Natural Gas	25	192.500	850	6.545.000
	Yıldız Entegre Ağaç (Kocaeli)	Natural Gas	12,368	79.794	18,6	120.000
22.04.2010	Ataer Enerji Elektrik Üretim A.Ş.	Natural Gas	49	277.886	119,2	676.000
05.05.2010	Cengiz Enerji San ve Tic A.Ş. (Tekkeköy)	Natural Gas	101,95	802.000	203,9	1.604.000
	Uğur Enerji Üretim San ve Tic A.Ş.	Natural Gas	48,2	405.136	60,2	506.000
22.05.2010	Aksa Enerji (Antalya)	Natural Gas	25	192.500	850	6.545.000
	Altek Alarko Elektrik Santralleri	Natural Gas	60,1	415.570	164	1.134.000
01.07.2010	Flokser Tekstil (Çerkezköy/Tekirdağ)	Natural Gas	5,2	42.000	5,2	42.000
	RB Karesi İthalat İhracat Tekstil	Natural Gas	8,6	65.000	8,6	65.000
10.07.2010	Cengiz Enerji San ve Tic A.Ş. (Tekkeköy)	Natural Gas	101,95	802.000	203,9	1.604.000
17.07.2010	Keskinoğlu Tavukçuluk ve Dam. İşl.	Natural Gas	3,5	25.000	3,5	25.000
	Binatom Elektrik Üretim A.Ş.	Natural Gas	2	13.000	2	13.000
23.07.2010	Can Enerji Elektrik Üretim A.Ş. (Tekirdağ)	Natural Gas	29,1	203.000	29,1	203.000
31.07.2010	Kurtoğlu Bakır Kurşun San ve A.Ş.	Natural Gas	1,6	12.000	1,6	12.000
	Sönmez Enerji Üretim (Uşak)	Natural Gas	33,242	256.297	70,7	545.100
11.08.2010	Kırka Boraks (Kırka) (Eti-Maden İşl) (İlave)	Natural Gas	10	65.934	18,2	120.000
17.08.2010	Enerji SA (Bandırma)	Natural Gas	930,8	7.540.000	930,8	7.540.000
	Uğur Enerji Üretim San ve Tic A.Ş. (İlave)	Natural Gas	12	100.864	60,2	506.000
19.08.2010	Marmara Pamuklu Mensucat (İlave)	Natural Gas	26,19	203.450	69,9	543.000
19.08.2010	Aliağa Çakmaktepe Enerji (İlave)	Natural Gas	69,84	557.920	104,7	836.400
26.08.2010	Sönmez Enerji Üretim (Uşak) (İlave)	Natural Gas	2,564	19.769	70,7	545.100
	Polypex Europa Polyester-Film	Natural Gas	7,8	61.000	7,8	61.000
29.09.2010	Altek Alarko Elektrik Santralleri	Natural Gas	21,89	151.361	164	1.134.000
07.10.2010	Rasa Enerji (Van) (İlave)	Natural Gas	10,124	64.409	114,9	731.000
07.10.2010	International Hospital İstanbul A.Ş.	Natural Gas	0,8	6.000	0,8	6.000
		Natural Gas 2010 Total	1.632	12.787.008		
25.11.2010						
26.11.2010						
07.12.2010						
16.12.2010						
18.12.2010						
29.12.2010						
31.12.2010						

15.12.2010	~~Tüpraş Rafineri (İzmit)~~ ~~(İlave)~~	Fuel Oil	40	258.824	85	550.000
		~~Fuel Oil 2010~~ ~~Total~~	40	258.824		
22.01.2010	Etİ Soda Üre. Paz. Nak. Ve Elek. Üre. San.	Lignite	24	144.000	24	144.000
	Konya Şeker San. Ve Tic. A.Ş.	Lignite	6	11.593	147,5	285.000
26.02.2010		Lignite 2010 Total	30	155.593		

15.07.2010

01.11.2010

29.12.2010

Eren Enerji Elektrik Üretim A.Ş.	Coal	160	1.068.235	1360	9.080.000
Eren Enerji Elektrik Üretim A.Ş. (İlave)	Coal	600	4.005.882	1360	9.080.000
Eren Enerji Elektrik Üretim A.Ş. (İlave)	Coal	600	4.005.882	1360	9.080.000
Coal 2010 Total		1360	9.080.000		

13.01.2010	Kulp-IV HES (Yıldızlar En.-Elk. Ür. A.Ş.)	Hydro	12,3	23.000	12,3	23.000
21.01.2010	Gindere Hes (İlave)	Hydro	9,065	16.073	28,2	50.000
28.01.2010	Bayburt HES (Bayburt Enerji Üret.)	Hydro	14,6	24.000	14,6	24.000
28.01.2010	Uzunçayır HES (Tunceli) (İlave)	Hydro	27,33	60.659	82	182.000
29.01.2010	Alakır HES (Yurt Enerji Üretim)	Hydro	2,1	4.000	2,1	4.000
19.02.2010	Peta Mühendislik En. (Mursal II Hes)	Hydro	4,5	11.000	4,5	11.000
19.02.2010	Asa Enerji (Kale Reg-ve HES)	Hydro	9,6	18.000	9,6	18.000
23.02.2010	Hetaş Hacısalihoğlu (Yıldızlı HES)	Hydro	1,2	3.000	1,2	3.000
11.03.2010	Doğubey Elektrik (Sarımeşmet Hes)	Hydro	3,1	6.000	3,1	6.000
26.03.2010	Nuryol Enerji (Defne Reg-ve Hes)	Hydro	7,2	13.000	7,2	13.000
01.04.2010	Özgür Elektrik (Azmak I Reg.-Ve Hes)	Hydro	5,913	12.026	11,8	24.000
03.04.2010	Birim Hidr. Üretim. A.Ş. (Erfelek Hes)	Hydro	3,225	5.458	6,5	11.000
07.04.2010	Beytel Elek. Ür. A.Ş. (Çataloluk Hes)	Hydro	9,5	17.000	9,5	17.000
09.04.2010	Nisan E. Mekanik. En. (Başak Reg. HES)	Hydro	6,9	12.000	6,9	12.000
11.04.2010	Uzunçayır HES (Tunceli) (İlave)	Hydro	27,33	60.659	82	182.000
16.04.2010	Fırtına Elektrik Ür. A.Ş. (Sümer HES)	Hydro	21,6	39.000	21,6	39.000
30.04.2010	Karen Karadeniz El. A.Ş. Aralık Hes	Hydro	12,4	32.000	12,4	32.000
14.05.2010	Birim Hidr. Üretim. A.Ş. (Erfelek Hes)	Hydro	3,225	3.006	11,8	11.000
27.05.2010	Karadeniz El. Üretim (Uzundere 1 Hes)	Hydro	31	46.350	62,2	93.000
28.05.2010	Akım Enerji (Cevizlik Reg.-Ve Hes)	Hydro	91,4	187.000	91,4	187.000
01.06.2010	Çakıt HES (Çakıt Enerji A.Ş.)	Hydro	20,2	54.000	20,2	54.000
04.06.2010	Erenler Reg-ve Hes (BME-Bir Müt. En)	Hydro	45	48.000	45	48.000
11.06.2010	Paşa Reg-ve Hes (Özgür-Elektrik)	Hydro	8,7	19.000	8,7	19.000
15.06.2010	Güzel Çay I HES (İlk-Elektrik Enerji)	Hydro	3,14	9.304	8,1	24.000
16.06.2010	Kale Reg-ve Hes (Kale-Enerji Üretim A.Ş.)	Hydro	34,1	66.000	34,1	66.000
30.06.2010	Erikli Akocak Reg-ve Hes	Hydro	41,25	73.000	82,5	146.000
30.06.2010	Çamlıkaya Reg-ve Hes	Hydro	5,6	11.000	5,6	11.000
Version 0510	Enar Hes (Elda Elektrik Üretim)	Hydro	4,4	9.000	4,4	9.000

15.07.2010

08.07.2010	Damlapınar Hes (Cenay-Elektrik Üretim)	Hydro	16,4	52.000	16,4	52.000
08.07.2010	Dim Hes (Diler Elektrik-Üretim)	Hydro	38,3	70.000	38,3	70.000
11.07.2010	Kırpılık Reg- Ve Hes (Özgür-Elektrik)	Hydro	6,2	13.000	6,2	13.000
10.07.2010	Özgür Elektrik (Azmak I-Reg- Ve Hes)	Hydro	5,913	12.026	11,8	24.000
14.07.2010	Yavuz Reg- Ve Hes (Masat-Enerji)	Hydro	22,5	47.000	22,5	47.000
21.07.2010	Kayabükü Reg- Ve Hes (Elite-Elek.)	Hydro	14,6	28.000	14,6	28.000
29.07.2010	Erikli Akacak Reg ve Akacak Hes	Hydro	41,25	73.000	82,5	146.000
06.08.2010	Gök Reg- Ve Hes (Gök-Enerji El- San.)	Hydro	10	24.000	10	24.000
10.08.2010	Bulam Reg ve Hes (Mem-Enerji Elk)	Hydro	7	19.000	7	19.000
28.08.2010	Karşıyaka Hes (Akua Enerji-Üret)	Hydro	1,6	5.000	1,6	5.000
20.08.2010	Ceyhan Hes (Berkman Hes) (Enova En)	Hydro	12,6	29.000	25,2	58.000
25.08.2010	Güdül 1 Reg ve Hes (Yaşam Enerji)	Hydro	2,4	8.000	2,4	8.000
28.08.2010	Ceyhan Hes (Berkman Hes) (Enova En)	Hydro	12,6	29.000	25,2	58.000
03.09.2010	Tektuğ Elektrik (Andırın Hes)	Hydro	40,5	60.000	40,5	60.000
06.09.2010	Selen Elektrik (Kepezkaya-Hes)	Hydro	28	70.000	28	70.000
17.09.2010	Reşadiye 2 Hes (Turkon-Mng Elekt)	Hydro	26,1	119.000	26,1	119.000
21.09.2010	Kozan Hes (SerEr Enerji)	Hydro	4	5.000	4	5.000
30.09.2010	Kahraman Reg ve Hes (Katırcıoğlu)	Hydro	1,4	3.000	1,4	3.000
30.09.2010	Narinkale Reg ve HES (EBD Enerji)	Hydro	3,1	6.000	3,1	6.000
07.10.2010	Erenköy Reg ve Hes (Türkerler)	Hydro	21,5	49.000	21,5	49.000
14.10.2010	Kahta I Hes (Erdemyıldız-Elek- Ürt)	Hydro	7,1	20.000	7,1	20.000
27.10.2010	Uluabat Kuvvet Tüneli ve Hes	Hydro	48,5	105.000	97	210.000
28.10.2010	Sabunsuyu II Hes (Ang-Enerji Elk)	Hydro	7,4	12.000	7,4	12.000
04.11.2010	Burç Bendi ve Hes (Akkur-Enerji)	Hydro	27,3	64.000	27,3	64.000
07.11.2010	Karadeniz El- Üretim (Uzundere 1 Hes) (İlave)	Hydro	31	46.350	62,2	93.000
11.11.2010	Murgul Bakı (Ç- Kaya) (İlave)	Hydro	19,6	31.587	24,2	39.000
11.11.2010	Güzel Çay II HES (İlk-Elektrik Enerji)	Hydro	4,96	14.696	8,1	24.000
25.11.2010	Uluabat Kuvvet Tüneli ve Hes (İlave)	Hydro	48,5	105.000	97	210.000
26.11.2010	Reşadiye 1 Hes (Turkon-Mng Elekt)	Hydro	15,6	71.126	26,1	119.000
26.11.2010	Egemen 1 Hes (Enersis-Elektrik)	Hydro	8,8	18.131	19,9	41.000
02.12.2010	Yedigöze Hes (Yedigöze-Elektrik)	Hydro	155,3	268.000	155,3	268.000
13.12.2010	Umut III Reg ve Hes (Nisan-Elek)	Hydro	12	15.000	12	15.000

24.12.2010	Feko 2 Barajı (Akkur Enerji)	Hydro	69,3	126.000	69,3	126.000
28.12.2010	Egemen 1B Hes (Enersis-Elektrik)	Hydro	11,1	22.869	19,9	41.000
30.12.2010	Kalkandere Reg ve Yokuşlu Hes	Hydro	14,5	36.000	14,5	36.000
	Hydro 2010 Total		1.248	2.523.322		

01.02.2010	CEV Enerji Üretim (Gaziantep Çöp Biyogazı)	Biogas	1,1	8.600	1,1	8.600
24.02.2010	Ortadoğu Enerji (Odayeri)-(Eyüp-İst)	Biogas	4,245	33.357	16,9	132.800
30.04.2010	ITC KA Enerji-Sincan	Biogas	1,416	11.126	4,2	33.000
02.09.2010	ITC Adana Biokütle Sant	Biogas	11,32	91.475	9,9	80.000
13.01.2010	Tuzla Jeotermal	Geothermal	7,5	55.000	7,5	55.000
26.03.2010	Menderes-Geotermal Dora-2	Geothermal	9,5	73.000	9,5	73.000
14.01.2010	Rotor Elektrik (Osmaniye-RES)	Wind	20	64.444	135	435.000
26.02.2010	Asmakınan (Bandırma 3-RES)	Wind	20	37.500	24	45.000
10.03.2010	Soma Enerji Üretim (Soma-RES)	Wind	4,5	11.364	79,2	200.000
10.03.2010	Rotor Elektrik (Osmaniye-RES)	Wind	17,5	56.389	135	435.000
12.03.2010	Deniz Elektrik (Sebanoba-RES)	Wind	10	32.000	30	96.000
19.03.2010	Akdeniz Elektrik (Mersin-RES)	Wind	33	50.000	33	50.000
26.03.2010	Asmakınan (Bandırma 3-RES)	Wind	4	7.500	24	45.000
09.03.2010	Boreas Enerji (Boreas I Enez-RES)	Wind	15	42.000	15	42.000
09.04.2010	Rotor Elektrik (Osmaniye-RES)	Wind	17,5	56.389	135	435.000
09.04.2010	Bergama RES En. Ür. A.Ş.-Aliağa RES	Wind	52,5	176.167	90	302.000
22.04.2010	Bakras En. Elkt. Ür. A.Ş.-Şenbük RES	Wind	15	40.000	15	40.000
28.04.2010	Alize Enerji (Keltepe-RES)	Wind	1,8	5.391	20,7	62.000
05.06.2010	Rotor Elektrik (Gökçedağ-RES)	Wind	20	64.444	135	435.000
10.06.2010	Soma Enerji Üretim (Soma-RES)	Wind	7,2	18.182	79,2	200.000
16.06.2010	Bergama RES En. Ür. A.Ş.-Aliağa RES	Wind	37	124.156	90	302.000
18.06.2010	Mazı 3 RES Elektrik (Mazı-3 RES)	Wind	7,5	20.000	30	80.000
30.06.2010	Borasko Enerji (Bandırma-RES)	Wind	12	30.105	57	143.000
15.07.2010	Ziyaret RES (Ziyaret-RES-Elektrik)	Wind	12,5	42.500	35	119.000
28.07.2010	Soma Enerji Üretim (Soma-RES)	Wind	7,2	18.182	79,2	200.000
13.08.2010	Soma RES (Bilgin Rüzgar-San. En. Ür)	Wind	32	92.800	90	261.000
20.08.2010	Soma Enerji Üretim (Soma-RES)	Wind	6,3	15.909	79,2	200.000
02.09.2010	Belen Elektrik (Belen-RES)-(İlave)	Wind	6	11.667	36	70.000
03.09.2010	Ütopya Elektrik (Düzova-RES)-(İlave)	Wind	15	30.000	30	60.000

23.09.2010	Soma RES (Bilgin Rüzgar-San.-En.-Ür) (İlave)	Wind	27,5	79.750	90	261.000
01.10.2010	Soma Enerji Üretim (Soma-RES) (İlave)	Wind	9	22.727	79,2	200.000
13.10.2010	Ziyaret RES (Ziyaret RES-Elektrik) (İlave)	Wind	22,5	76.500	35	119.000
15.10.2010	Rotor Elektrik (Gökçedağ-RES) (İlave)	Wind	2,5	8.056	135	435.000
11.11.2010	Soma RES (Bilgin Rüzgar-San) (İlave)	Wind	30	87.000	90	261.000
11.11.2010	Kuyucak RES (Alize Enerji-Üret)	Wind	8	29.375	25,6	94.000
09.12.2010	Kuyucak RES (Alize Enerji-Üret) (İlave)	Wind	17,6	64.625	25,6	94.000
22.12.2010	Sares RES (Garet Enerji-Üretim)	Wind	15	51.000	15	51.000
30.12.2010	Turguttepe RES (Sabaş-Elektrik Ür)	Wind	22	55.000	22	55.000
			Renewable 2010 Total	193	551.785	
			2010 TOTAL	4.503	25.356.531	

Appendix 5. Further background information on monitoring plan

Appendix 6. Summary of post registration changes

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
05.0	25 June 2014	Revisions to: • Include the Attachment: Instructions for filling out the project design document form for CDM project activities (these instructions supersede the "Guidelines for completing the project design document form" (Version 01.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the project activity in B.7.4 and Appendix 1; • Change the reference number from <i>F-CDM-PDD</i> to <i>CDM-PDD-FORM</i>; • Editorial improvement.
04.1	11 April 2012	Editorial revision to change version 02 line in history box from Annex 06 to Annex 06b
04.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the project design document form for CDM project activities" (EB 66, Annex 8).
03.0	26 July 2006	EB 25, Annex 15
02.0	14 June 2004	EB 14, Annex 06b
01.0	03 August 2002	EB 05, Paragraph 12
Initial adoption.		
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: project activities, project design document		