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	Dilek Wind Power Plant
Version number of the PDD	2.0
Completion date of the PDD	08/02/2016
Project participant(s)	Kale Enerji Üretim Ticaret ve Sanayi A.Ş.
Host Party	Turkey
Sectoral scope and selected methodology(ies), and where applicable, selected standardized baseline(s)	Sectoral Scope:I "Energy industries (renewable-/non-renewable sources)" ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 16.0
Estimated amount of annual average GHG emission reductions	33,647 tonnes of CO_2eq

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

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Kale Enerji Üretim Ticaret ve Sanayi A.Ş. (Kale Enerji) plans to build Dilek Wind Power Plant (Dilek WPP) located in Alanlı Village, Andırın District, Kahramanmaraş Province, with an installed capacity of **24 MW**. There are ten Nordex N117/2400 turbines, each having a capacity of 2.4 MWs. The turbines were purchased from Germany and shipped to Turkey for installation.

The generation license for the project was issued on 01/02/2011 for an installed of 27.5 MWs with 11 wind turbines each having 2.5 MW capacity. However, the last turbine location has been revised a couple of times in research of the highest possible outcome in terms of wind power. Until time of this report writing, the company has not decided the location of the 11th turbine and was doing measurements in a number of places. As a result, the project commissioned with 10 turbines, each having 2.4 MW, totaling a 24 MW capacity.

The project will generate **60,300 MWh** of net electricity annually with regards to the Feasibility Study conducted on 09/10/2013. The electricity will be collected in the switchyard and transferred to Andırın 34,5 kV energy transmission line via Sir Hydroelectric Power plant, located in 12 km of the project site via overhead transmission line.

The purpose of the project is to produce renewable electricity using wind as the power source and to contribute to Turkey's growing electricity demand through a sustainable and low carbon technology. The project will displace the same amount of electricity generated by the grid dominated with fossil fired power plants. The annual emission reduction estimated by the project is **33,647 tonnes of CO2eq**.

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

- Displacing the electricity generated by fossil fuel fired power plants by utilizing the renewable resources so as to avoid environmental pollution and GHG emissions,
- Contributing the economic development of the region by providing sustainable energy resources,
- Increasing the income and local standard of living by providing job opportunities for the local people,
- Renewable energy projects therefore keep money circulating within the local economy,lowering the dependency on imported fossil fuel for electricity production.
- Generating electricity from renewable energy rather than fossil fuels offers significant public health benefits. The air and water pollution emitted by coal and natural gas plants is linked to breathing problems, neurological damage, heart attacks, and cancer.

The project construction is started on May of 2014 with the site preparations and and finished on June of 2015. The plant was commissioned on 24/07/2015.

A.2. Location of project activity

A.2.1. Host Party

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Turkey has ratified Kyoto Protocol on 26/08/2009 but did not give any emission reduction commitment. The project does not involve facilities under the European Union-Greenhouse Gas Emissions Trading Scheme.

A.2.2. Region/State/Province etc.

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The project is located in Andırın District of Kahramanmaraş Province, Turkey (Figure.1).

Figure.1. The project site is marked.

A.2.3. City/Town/Community etc.

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Çuhadarlı Village is located on the Northwest of the project site at a distance of 500 m to T2-T6. On the North of T7 turbine, Kerçiler district lies and on the South there lies Ayvalı district. Kabaklar Village is at a distance of 1,250 m on the West of T3 turbine. Alanlı Village is at the Southwest of T10 turbine at a distance of 800 m. The final locations of the 10 turbines are presented in Figure.2 below. Arrangement have been made with respect to the residential places and private lands inside the project site and energy optimization. Therefore; the locations of T1 and T4 are revised after the LSC meeting.

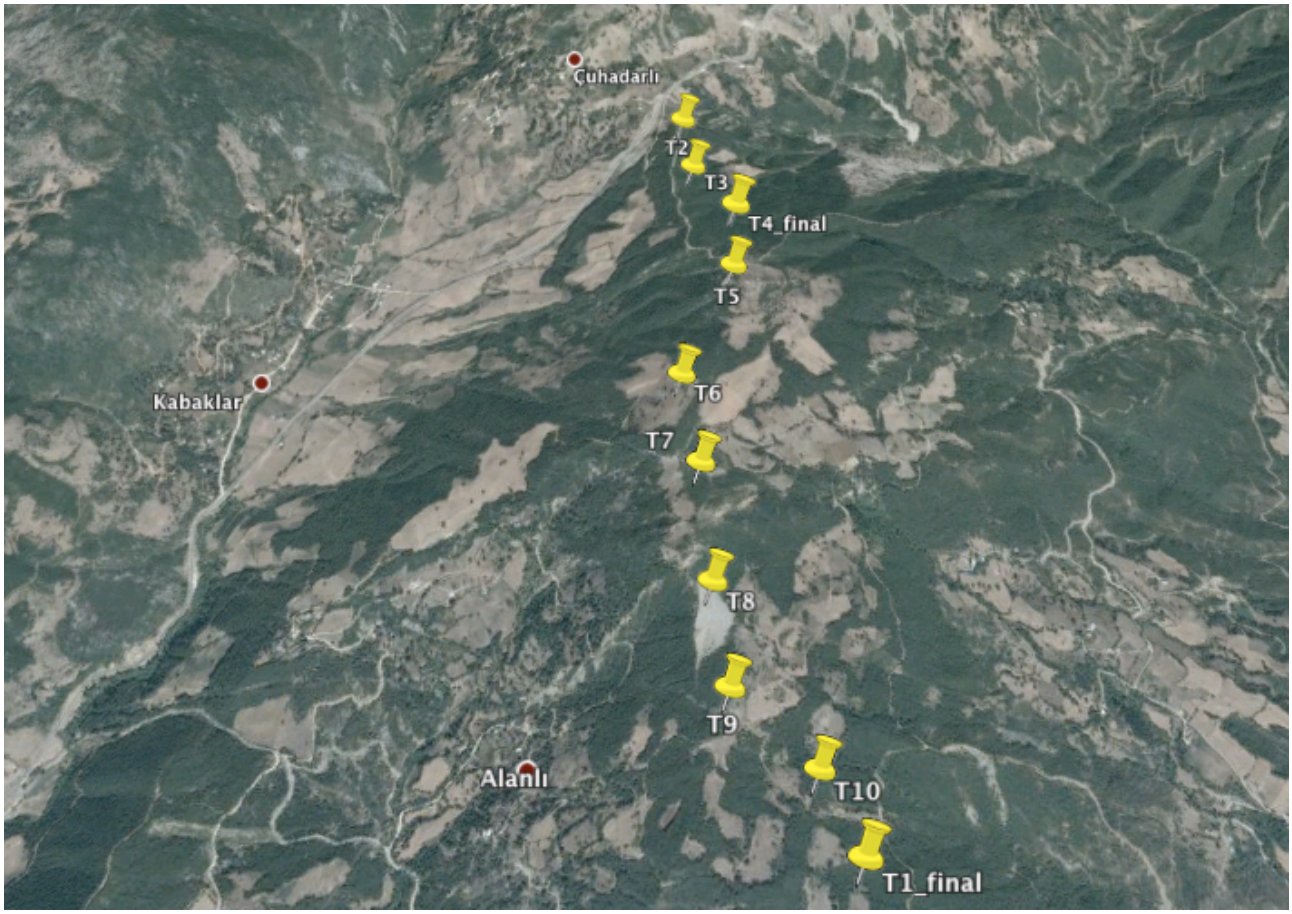

Figure.2. The turbine locations

A.2.4. Physical/Geographical location

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Turbine No	Latitude (N)	Longtitude (E)
T1	37° 32’ 4.74”	36° 28’ 8.43”
T2	37° 33’ 31.90”	36° 27’ 49.55”
T3	37° 33’ 23.85”	36° 27’ 51.00”
T4	37° 33’ 16.25”	36° 27’ 56.52”
T5	37° 33’ 5.02”	36° 27’ 56.29”
T6	37° 32’ 51.81”	36° 27’ 50.01”
T7	37° 32’ 41.83”	36° 27’ 52.22”
T8	37° 32’ 29.43”	36° 27’ 53.46”
T9	37° 32’ 19.06”	36° 27’ 55.20”
T10	37° 32’ 12.44”	36° 28’ 4.26”

A.3. Technologies and/or measures

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The project comprises installation of eleven NORDEX N117/2400 kW wind turbine generators with 91 m hub height. As an all-round turbine in the 2.4 MW product line, the N 117/2400 can be deployed at strong-wind sites. It covers wind class IEC IIIA.

The wind turbine series ensures power yield for at least 20 years of operation in accordance with the information provided in the web page[1].

Figure.3. NortexN117/2400

Rotor

The rotor consists of three rotor blades made of high-quality glass fibre-reinforced polyester, a hub, slewing rings and drives for adjusting the rotor blades. A pitch system is used to control and optimise output. The variable-speed rotor enhances the aerodynamic effects and reduces the wind load on the system. If necessary, each rotor blade can be locked in any position by means of an innovative locking system to facilitate servicing.

Drive train

The drive train consists of the rotor shaft, the gearbox, an elastic coupling and the generator.

Gearbox

The nacelle is equipped with a two-stage planetary gearbox with a spur gear stage, as an option a differential gearbox is also available. The gearbox is fitted with a cooling circuit with variable cooling output. The gearbox bearing and tooth engagement are kept continuously lubricated with oil.

Generator

The generator is a double-fed asynchronous machine. Nordex has been using this type of generator with variable-speed turbines successfully for many years. The main advantage is that only 25 – 30% of the energy produced needs to be fed into the electricity grid via a frequency converter. The deployment of this generator/frequency converter system thus cuts the total cost of the wind power system.

Cooling and filtration

The gearbox, generator and converter of the turbine each have independent active cooling systems. The cooling system for the generator and frequency converter is based on a cooling water circuit, while the gearbox is cooled by an oil-based system. This ensures optimum operating conditions in all types of weather. A separate cooling system room at the rear of the nacelle facilitates access to the cooling units and ensures optimum performance of the individual systems.

[1] http://www.nordex-online.com/fileadmin/MEDIA/Gamma/Nordex_Gamma_en.pdf

Braking system
The three redundant and independently controlled rotor blades can be set at full right angles to the rotation direction for aerodynamic braking. In addition, the hydraulic disc brake provides additional support in the event of an emergency stop.

Nacelle
The nacelle consists of the cast machine frame, a welded generator frame, a steel structure for the crane system and for supporting the nacelle housing and the nacelle housing itself, which is made of glass fibre-reinforced plastic. Ergonomically designed, it is spacious and thus very service-friendly.

Yaw system
The wind direction is continuously monitored by two redundant wind direction sensors on the nacelle. If the permissible deviation is exceeded, the nacelle yaw is actively adjusted by means of up to 4 geared motors.

Tower
The tubular steel tower is designed and certified as a modular tower. The requirements of EN 50308 in particular have been taken into account in the design of the tower interiors (access ladder, platforms, safety equipment). The transformer can be installed either inside or outside the tower. Nordex offers the N117/2400 on a modular tubular steel tower with a height of 91 metres and on a hybrid tower with a height of 140 metres.

Control and grid connection
The wind turbine has two anemometers. One anemometer is used for controlling the turbine, the second for monitoring the first. All operational data can be monitored and checked on a control screen located in the switch cabinet or via an external laptop. The data and signals are transmitted via ISDN for remote monitoring. At the click of the mouse, the operator can download all key data for the turbine from the Internet. The necessary communications software and hardware is supplied by Nordex.

Lightning protection
Lightning and overvoltage protection of the entire wind turbine is based on the lightning protection concept and is in accordance with DIN EN 62305.

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)
Turkey (Host)	Kale Enerji Üretim ve Sanayi A.Ş. (private entity)	No

A.5. Public funding of project activity

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No public funding is applicable to the project activity.

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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The emission reductions of the Project have been calculated in accordance with the approved large scale CDM-methodology ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 16.0[2]

For baseline calculations the ACM0002 refers to the following tools:

- "Tool for the demonstration and assessment of additionality" version 07.0.0[3]
- "Combined tool to identify the baseline scenario and demonstrate additionality", version 05.0.0[4]
- "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", version 02[5]
- "Tool to calculate the emission factor for an electricity system" version 04.0[6]
- "Tool to determine the remaining lifetime of equipment" version 01[6]
- "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" version 03.0.1[7]

"Tool to calculate the emission factor for an electricity system" and "Tool for the demonstration and assessment of additionality" are applicable to the proposed project and both are applied below.

B.2. Applicability of methodology and standardized baseline

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The applicability criteria for CDM-methodology ACM0002 are listed and justified below:

[2] https://cdm.unfccc.int/methodologies/DB/EY2CL7RTEHRC9V6YQHLAR6MJ6VEU83

[3] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf

[4] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-02-v5.0.0.pdf

[5] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v2.pdf

[6] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v4.0.pdf

[6] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-10-v1.pdf

[7] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf

This methodology is applicable to grid-connected renewable energy power generation project activities that;

(a) Install a Greenfield power plant,

(b) Involve a capacity addition to (an) existing plant(s);

(c) Involve a retrofit of (an) existing operating plants/units;

(d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or

(e) Involve a replacement of (an) existing plant(s)/unit(s).

The proposed project is a greenfield power plant.

The methodology is applicable under the following conditions:

- *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;*

- *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.*

The proposed project is a renewable energy power plant utilizing wind power.

In case of hydro power plants, one of the following conditions shall apply:

(a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or

(b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3), is greater than 4 W/m2; or

(c) 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

(d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m2, all of the following conditions shall apply:

(i) The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m2;

(ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity;

(iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m2
shall be:

a. Lower than or equal to 15 MW; and

b. Less than 10 per cent of the total installed capacity of integrated hydro power project

In the case of integrated hydro power projects, project proponent shall:

- *Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or*

- *Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.*

The proposed project is not a hydropower plant.

The methodology is not applicable to:

- *Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site;*

- *Biomass fired power plants/units.*

In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance"

The project does not involve switching from fossil fuels to renewable energy resources at the site of the project activity and is not biomass fired power plant or hydropower plant.

The project is the installation of wind power plant and not a capacity addition, retrofit or replacement.

B.3. Project boundary

The project boundary encompasses the physical, geographical site of the renewable generation source. The wind power plant with all installation is the project boundary

As the electricity generated by the project displaces the electricity generated by national grid, the baseline boundary is defined as the national grid. This includes the project site and all power plants connected physically to the national grid and excludes the off-grid power plants. Please see the diagram below.

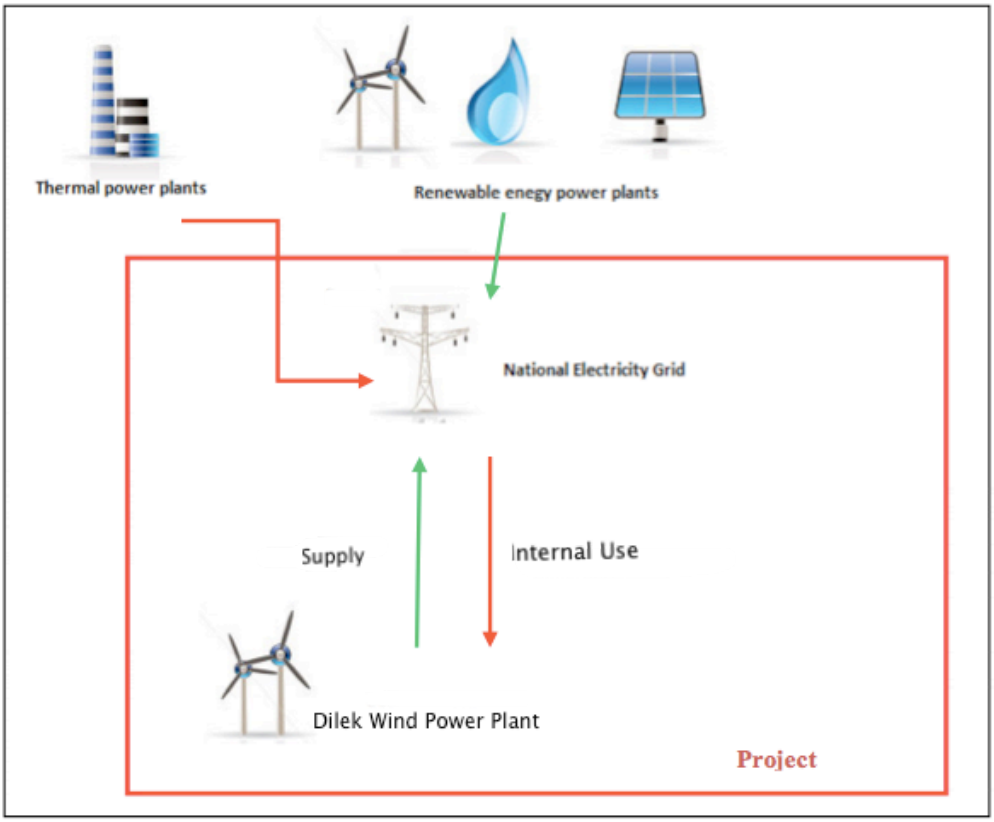

Figure.4. The project boundary

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

Source		Gas	Included?	Justification / Explanation
Baseline	CO2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity.	CO_2	Yes	Main emission source. The dominant emissions from power plants are in the form of CO_2, therefore CO_2 emissions from fossil fuel fired power plants connected to the grid will be accounted for in baseline calculations.
		CH_4	No	Minor emission sources.
		N_2O	No	
Project Activity	Emissions as a result of Project Activity	CO_2	No	Not Applicable

B.4. Establishment and description of baseline scenario

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According to ACM0002 (Version 16), if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

- 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, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

The electricity generation is mainly done by fossil fuel fired power plants in Turkey as stated in Electricity Generation Sector Report 2014 by Ministry of Natural Resources and Energy[7]. The share of resources in the electricity generation in Turkey has been shown in the Figure.5.

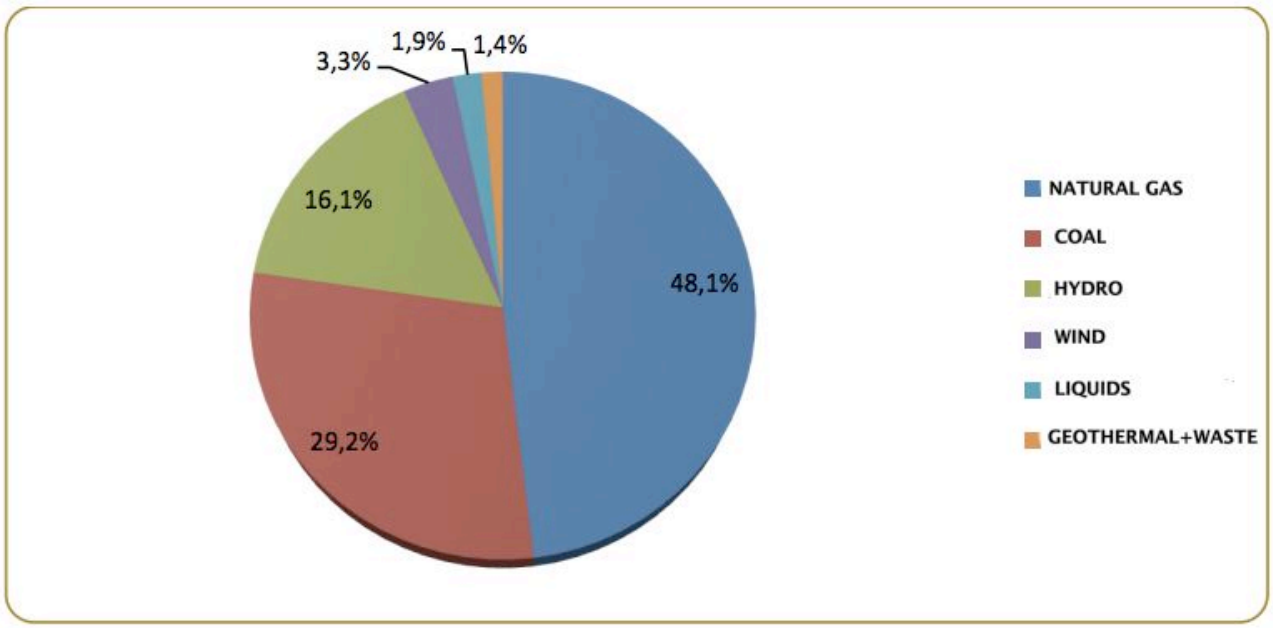
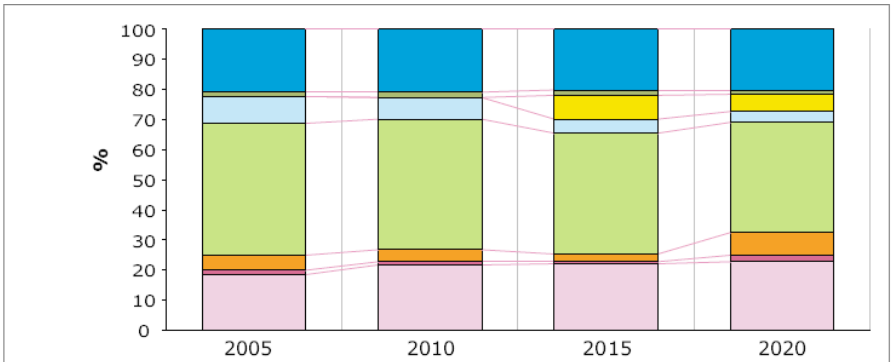


Figure.5. The share of resources for installed capacity & electricity generation.

It is assumed that the energy generation profile of the country will not change and the weight of fossil fired power plants will remain the same during the crediting period. This assumption is based on the analysis presented in the First National Communication submitted by Turkey. The share of resources in generating capacity between years 2005-2020 is shown in Figure.5.

[7] http://www.etkb.gov.tr/File/?path=ROOT%2f1%2fDocuments%2fSektör+Raporu%2fEUAS-Sektor_Raporu2014.pdf



	2005	2010	2015	2020
Hydro	21.2	21.0	20.5	20.2
Wind	1.3	1.8	1.6	1.5
Nuclear	0.0	0.0	7.8	5.8
F.Oil+Diesel	8.7	7.1	4.8	3.6
Natural Gas	43.8	43.4	39.8	36.5
Imported Coal	4.9	3.9	2.7	7.4
Dom. Hard Coal	1.4	1.1	0.8	2.0
Lignite	18.6	21.7	22.0	23.0

Figure.6. Electricity Generation Forecast (2005-2020)

The share of lignite and imported coal is expected to rise while the percentage of hydro power is also expected to slightly decreasing during the period. Thermal resources are expected to still comprise 72.5% of total capacity in 2020 in spite of the entrance of nuclear power into the calculation.[8]

The baseline methodology procedure described in "Tool to calculate the emission factor for an electricity system (version 4.0.0)" is followed to calculated combined margin in Section B.6 below.

B.5. Demonstration of additionality

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The Project Information File was prepared and submitted to Ministry of Environment and Urbanization, "EIA is not required" decision dated 05/05/2009. The license for electricity generation was acquired on 01/02/2011.

The Board of Directors decided to develop VER project for wind power plant during the financial feasibility study. The local stakeholder meeting was conducted on 30/04/2014.

The investment decision date is taken as the completion of the Feasibilty Study on 09/10/2013. The date of turbine purchase agreement is the date when the project owner commits for mobilize funds for the project. This is the first actual step towards the implementation of the project and considered as the project start date. Table.1 below summarizes the important milestones of the project development.

[8] Chapter.5.Projections and Mitigations Scenarios, First National Communication of Turkey on Climate Change, January 2007, (pg. 121-157) (http://www.undp.org.tr/Gozlem2.aspx?WebSayfaNo=627)

Table.1. Time schedule of the project development

	Activity	Date
1	EIA exemption letter	05/05/2009
2	Generation License	01/02/2011
3	Board decision to develop VER project	22/07/2013
4	Feasibility study completed (Investment Decision Date)	09/10/2013
5	Agreement with carbon consultant	09/04/2014
6	Local Stakeholder Meeting	30/04/2014
7	Turbine Purchase Contract (Project Start Date)	01/10/2014
8	Construction agreement	10/05/2014
9	Loan Agreement	16/02/2015
10	Listed in GS registry	14/04/2015
11	Commissioning date	24/07/2015

Demonstration of additionality

ACM0002 refers to "Tool for demonstration and assessment of additionality" (version 07.0.0) which is applied as follows:

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

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

The project owner is a small company who would like to focus on renewable energy projects and the project is their third investment. The alternatives are defined related to the investor as per footnote 7 of the "Tool for demonstration and assessment of additionality" version 7.0.0:

1) *The project activity taken without VER:* The investment is not financially attractive and comprises potential risks as described below. Therefore, this alternative is not realistic.

2) *Building a new power plant utilizing other renewable resource:* The generation license given for the project activity is limited to wind power plant operation. There is no continuous water regime or geothermal resources available in the project site. Considering the distance to the nearest grid connection(12 kms), solar power is not feasible as well. With the regards to the bioenergy, the forest resources belongs to the government. The industrial and agricultural activities are limited in the region for biogas production.

   Therefore, utilizing other renewable resources is not a realistic and credible alternative scenario to the project activity.

3) *No activity:* In case no project activity is taken, the same amount of electricity will be generated by the existing grid to supply the increasing demand of the country. This alternative is the same as baseline scenario.

Outcome of Step 1a) The only realistic and credible scenario is that number 3, no activity. In that case, the same amount of electricity will be generated by the existing grid, which is the same as baseline scenario.

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

All alternatives to the project activity are in compliance with the existing laws and regulations which are described below in Table .2.

Table.2. Relevant laws and regulations project and applicable to the alternatives

Relevant Laws	Number / Enactment Date	Aim and Scope
Environmental Law[9] *Environmental Impact Assessment Regulation[10]	Nr. 2872 / 17.07.2008	The approval is requested for power plants from Ministry of Environment and Forest as Electricity Licence Regulation requests project to be in line with the environmental law.
Electricity Market Law[11] *Electricity Licence Regulation[12] *Electricity Market Balancing and Conciliation Regulation[13]	Nr. 4628 / 03.03.2001	Regulating procedures of electricity generation, transmission, distribution, wholesale, retail for legal entities. Two regulations issued under the law; one for generation licence and the other for market price balancing and conciliation.
Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy[14]	Nr. 5346 / 18.05.2005	Aims to extend the utilization of renewable energy for electricity generation and identifies method and principles for power generation from renewable resources in an economical and conservative manner as well as certification of the electricity generated from renewable resources.
Energy Efficiency Law[15]	Nr. 5627 / 02.05.2007	Identifies method and principles for industry, power plants, residential

[9] http://www.mevzuat.adalet.gov.tr/html/631.html

[10] http://www.cedgm.gov.tr/CED/AnaSayfa/yonetmelikler.aspx?sflang=tr

[11] http://www2.epdk.gov.tr/mevzuat/kanun/elektrik/elektrik.html

[12] http://www.epdk.gov.tr/index.php/elektrik-piyasasi/mevzuat?id=74

[13] http://www.epdk.gov.tr/index.php/elektrik-piyasasi/mevzuat?id=36

[14] http://www.epdk.gov.tr/index.php/elektrik-piyasasi/mevzuat?id=143

[15] http://mevzuat.dpt.gov.tr/kanun/5627.htm

		buildings and transport to imply necessary measures for energy efficiency during electricity generation, transmission, distribution and consumption.

Outcome of Step1b: The only realistic scenario is the supply of same amount of electricity from the existing grid, which is in compliance with the laws and regulations.

Step 2 - Investment analysis

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

***Sub-step 2a* - Determine appropriate analysis method**

(1)There are three options for investment analysis method:

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

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

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

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

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

Weighted Average Cost of Capital

The benchmark is advised to be WACC for project IRR as stated in the referenced tool. The expected return on capital should be higher than the cost of capital for an investment to be worthwhile. The cost of capital is the rate of return that capital could be expected to earn in an alternative investment of equivalent risk. If a project is of similar risk to a company's average business activities it is reasonable to use the company's average cost of capital as a basis for the evaluation. A company's securities typically include both debt and equity, one must therefore calculate both the cost of debt and the cost of equity to determine a company's cost of capital.

Calculation of Cost of Equity:

In order to calculate the cost of equity, the approach presented in the paper "Estimating equity Risk Premiums" by Prof. Damodaran is taken[16]. He is a Professor of Finance at the Stern School of

[16] http://pages.stern.nyu.edu/~adamodar/pdfiles/papers/riskprem.pdf

Business at Newyork University and well known as author of several widely used academic and practitioner texts on Valuation, Corporate Finance and Investment Management. Most of the parameter used in calculations are taken from the data presented in his web site.

Since the private sector inclusion to the energy market is very early in Turkey, compared to mature markets in other countries, we assume that all companies investing an emerging market would be equally exposed to country risk. The following formula is used for expected cost of equity:

*Expected cost of Equity=Risk free rate + β*Equity Risk Premium*

1) *Choice of Risk free rate:*

It is stated in the referenced paper that the risk free rate chosen should match up with the duration of the cashflows being discounted and long-term default free government bond rate are generally preferred in corporate finance and valuation. Therefore,the risk free rate is taken from the lowest yielding bonds in the particular market, i.e. government bonds.

2) *Choice of beta:*

There are four power generating and trading companies under trade in Istanbul Stock Exchange and Electricity Index is calculated as 0.917 for year 2013 by Bloomberg which is one of the well-known data supplier to the financial market.

3) *Choice of Equity Risk Premium:*

One of the simplest and most easily accessible measure of the country risk is the rating assigned to a country's debt by a ratings agency. These rating measure default risk but are they are affected by many of the factors that drive equity risk. Total risk premium has been calculated by the following formula:

Equity Risk Premium= Base Premium for Mature Equity Market+ Country Risk Premium

The equity risk premium for Turkey has been taken from updated latest data by Prof. Damodoran which has been given as **8.65**% for 2013. This is the most recent data available.

Cost of Equity calculated with above formula is after tax basis. To convert it into before tax basis, the folowing formula has applied:

Cost of Equity $_{\text{before tax}}$= Cost of Equity $_{\text{after tax}}$ / (1- T_c)

Where T_c is average business revenue tax.

The following parameters are used for calculation:

Parameter	Value	Source
Risk free rate	6.36%	(US900123AT75) on 09/10/2013 maturing on 14/02/2034
Beta	0.917	Beta for electricity market in Turkey in 2013, Bloomberg
Country Risk	8.65%	Prof. Damodaran, Risk Premium for Other Markets, 2013, Total Risk Premium for Turkey[17]
Expected Cost of Equity	14.29%	Calculated as after tax
T_c	20%	Average business revenue tax
Expected Cost of Equity	17.87%	Calculated as before tax

[17] www.stern.nyu.edu/~adamodar/pc/archives/ctryprem13.xls

Calculation of Cost of Debt:

The interest rate for Turkey was 9.17 % as of September, 30th 2014 for 10-year government bonds[18].

Calculation of WACC:

The Weighted Average Cost of Capital (WACC) for the project has been calculated by the following formula[19]:

$$WACC = CE\frac{E}{V} + CD\frac{D}{V}(1 - T_c)$$

The parameters are defined below:

Parameter	Value	Source
CE, Cost of Equity	17.87%	Calculated above
E/V, percentage of financing that is equity	15%	Calculated
CD, Cost of Debt	8.94%	Turkey interest rate –September, 30th 2013
D/V, percentage of financing that is debt	85%	Calculated
V, Total project cost	$27,072,000	E+D
T_c, Average business revenue tax	20%	Since the project IRR is calculated on before-tax basis for the project, revenue tax is not included in the calculation.
WACC	10.28%	Calculated

In order to follow a conservative approach, the WACC as **10.28%** is accepted as the benchmark for the project.

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

The "Guidance for the assessment of investment analysis"[20] implies that:

"6. Guidance: Input values used in all investment analysis should be valid and applicable at the time

of the investment decision taken by the project participant. "

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

[18] https://ycharts.com/indicators/turkey_10year_government_bond_interest_rate

[19] http://www.investopedia.com/terms/w/wacc.asp#axzz2CDF1Yzdb

[20] http://cdm.unfccc.int/Reference/Guidclarif/reg/reg_guid03.pdf

Table .3. Summary of financial data

Parameter used for financial analysis	Unit	value	Source
Expected Electricity Generation	MWh	60,300	As per "Guidelines for reporting and validation of plant load factors" [21], the plant load factor is calculated by a third party for the feasibility report.
Total Investment	EUR	27,072,000	Feasibility Study
Operational Cost	EUR/year	674,990	Feasibility Study
Economical lifetime	Years	20	Product Brochure[22]
Electricity price	USDcent/kWh	7.3	Guaranteed long term price by Renewable Energy Law
Exchange rate	EUR/USD	1.360	Feasibility Report
Revenues	EUR/year	3,238,778.12	Electricity revenues were estimated based on the wholesale price given by Renewable Energy Law

The Internal Rate of Return (IRR) before taxation for the project is calculated as **7.65 %** without the VER revenue. That is much lower than the benchmark of **10.28%**.

As a result, the revenue acquired from the operation of the power plant is not financially attractive to do the investment.

Sub-step 2d - Sensitivity Analysis

The sensitivity analysis is applied to variables that constitute of the total investment cost in order to show that investment decision is not the most attractive alternative financially. Investment cost, operational cost, electricity generation and price are taken into account in the sensitivity analysis and the change in electricity revenue is discussed below.

For a range of ±10% fluctuations in parameters above, Table.4. below have been obtained.

Table.4. Sensitivity analysis for the Project IRR

IRR w/o carbon	-10%	-5%	5%	10%
Investment Cost	*9.10*	*8.34*	*7.00*	*6.40*
Electricity Price	*5.95*	*6.81*	*8.46*	*9.25*
Electricity Generation	*5.95*	*6.81*	*8.46*	*9.25*

The project IRR becomes 9.10 % with a 10% decrease in investment costs and 9.25% with an increase in electricity generation or electricity unit price.

[21] http://cdm.unfccc.int/EB/048/eb48_repan11.pdf

[22] http://www.nordex-online.com/fileadmin/MEDIA/Gamma/Nordex_Gamma_en.pdf).

The investment cost is mostly dependent on turbine and electromechanically equipment costs (85% of the total cost). It is unlikely to expect 10% or more decrease as the turbine price is fixed by the purchase agreement.

The electricity tariff guaranteed by the law is 7.3 USDcents/kWh and is not expected increase in the long term. The government prefers to encourage local wind power technology by giving additional incentives to the present tariff. The project benefits from the local product incentive which increase the unit price from 7.3 USDcents/kWh to 8.7 USDcents/kWh fort he first 5 years of operation. It is unlikely to expect a further increase in the feed-in tariff in the long-run.

The average electricity generation for 20 years has been estimated as 60,300 MWhs (P50) in the Feasibility Report. The annual generation could be higher at high wind speeds at initial years of operation but the average would stay the same as the turbines worn out through its operational life. The IRR becomes 9.25% with 10% rise in the electricity generation but will still be under the benchmark of 10.28%.

B.6. Emission reductions

B.6.1. Explanation of methodological choices

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According to the baseline methodology ACM0002, the emission reduction ER_y by the project activity during a given year y is defined as;

$$ER_y = BE_y - (PE_y + LE_y)$$

Where:

ER_y: Emission reductions achieved by the project activity in year y (tCO_2e).

BE_y: Baseline Emission in year y (tCO_2e).

PE_y: Project Emission in year y (tCO_2e).

LEy: Leakage Emissions in year y (tCO_2e).

Baseline Emission

The baseline emissions are the product of electrical energy baseline *EGBL*, *y* expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor:

$$BE_y = EG_{BL,y} * EF_{CO2,grid,y}$$

where :

$EF_{CO2,grid,y}$: CO_2 emission factor of the grid connected power generation in year y (tCO_2/MWh)

$EG_{BL,y}$: Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)

The emission factors are calculated as described in the “Tool to calculate the emission factor for an electricity system” (version 4.0.0) as following seven steps:

Step 1. Identify the relevant electric power system

The project is connected to the national grid, so the project electricity system is the national grid which includes the project site and all power plants physically connected to the grid. Each power plant can be dispatched without significant transmission constraints from the central grid (Figure.7).

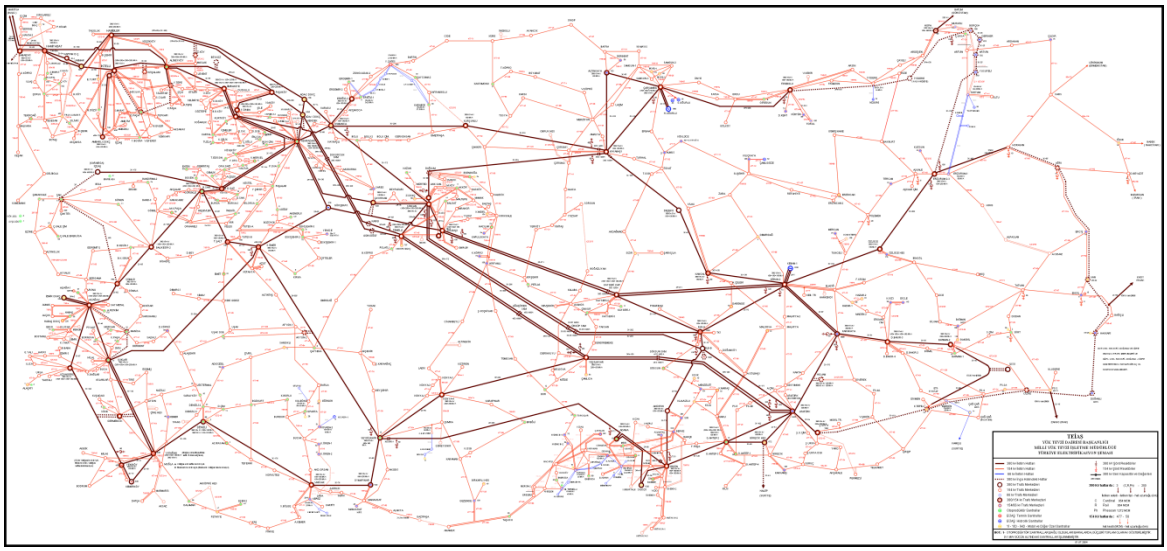

Figure.7. Interconnected national grid of Turkey[23]

There is no electricity import from another power grid within the same host country and electricity exports are not subtracted from electricity generation data used for calculating and monitoring the electricity emission factors.

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

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.

Option I is chosen.

Step 3. Select an operating margin (OM) method

The calculation of 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 data specific to the power plants connected to the grid, such as the dispatch order for each power plant in the system and the amount of power dispatched from all plants in the system during each hour, are not available. Therefore, Simple OM has been selected as the methodology.

[23] http://www.geni.org/globalenergy/library/national_energy_grid/turkey/turkishnationalelectricitygrid.shtml

The Simple OM method (a) can only be used if low-cost/must run resources constitute less than 50% of total grid generation in:
1) average of the five most recent years, or
2) based on long-term averages for hydroelectricity production.

There is no nuclear plant in Turkey and hydro, wind and geothermal facilities are only renewable sources utilized for electricity. There is no indication that the coal fired power plants are accepted as the low cost /must run. Table.5. below shows the share of hydro and renewable resources in electricity generation for the five most recent years (2010-2014) and it is below 50% of the total grid generation.

Table.5. Share of primary sources in electricity generation, 2010 – 2014[24]

YEAR	THERMAL		HYDRO		GEOTHERM.WIND		TOTAL
	GWh	%	GWh	%	GWh	%	GWh
2010	155,827.6	73.8	51,795.5	24.5	3,584.6	1.7	211,207.7
2011	171,638.3	74.8	52,338.6	22.8	5,418.2	2.4	229,395.1
2012	174,871.7	73.0	57,865.0	24.2	6,760.1	2.8	239,496.8
2013	171,812.5	71.5	59,420.5	24.7	8,921.0	3.7	240,154.0
2014	200,416.6	79.5	40,644.	16.1	10,901.5	4,3	251,962.8

The Simple OM can be calculated using either of the two following data vintages for year(s) y:

- 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, use a 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation.

- Ex post option: The year in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring. If the data required calculating the emission factor for year y is usually only available later than six months after the end of year y,alternatively the emission factor of the previous year (y-1) may be used. If the data is usually only available 18 months after the end of year y, the emission factor of the year proceeding the previous year (y-2) may be used. The same data vintage (y, y-1 or y-2) should be used throughout all crediting periods.

Based on the most recent data available, ex- ante option is chosen.

Step 4. Calculate the operating margin emission factor according to the selected method

There are two options calculating the Simple OM emission factor ($EF_{grid,OMsimple,y}$):

Option A: Based on the net electricity generation and a CO_2 emission factor of each power unit; or

[24] Annual Development of Turkey's Installed Capacity and Generation in Turkey (1970-2013), (http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2014/kgucunkullan%C4%B1m(14-23)/14.xls)

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.

Option B can only be used if:
(a) The necessary data for Option A is not available; and
(b) Only nuclear and 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; and
(c) Off-grid power plants are not included in the calculation.

As the data on each power plant/unit is not publicly available and renewable power generation are considered as low-cost/must-run power sources, Option B is selected. Off-grid power plants are not included in the calculations.
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:

$$EF_{grid,OMsimple,y} = \frac{\sum_i FC_{i,y} * NCV_{i,y} * EF_{CO2,i,y}}{EG_y}$$

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)

$NCV_{i,y}$: Net calorific value(energy content) of fossil fuel type i in year y (GJ/mass or volume unit)

$EF_{CO2,i,y}$: CO2 emission factor of fossil fuel type i in year y(tCO2/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 CDM-PDD to the DOE for validation (ex-ante option).

Step 5: Identify the group of power units to be included in the build margin

1) *Identification of the available data*

The sample group of power units *m* used to calculate the build margin consists of either:
a) The set of five power units that have been built most recently, or
b) The set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently.

a) The set of five power units that have been built most recently could be accessible in Ministry of Energy and Natural Resources web site[25]:

[25] 2014 Yılı Enerji Yatırımları; http://www.etkb.gov.tr/tr-TR/EIGM-Raporlari

License Owner	Plant Name	Place	Type	Capacity (MW)	Commissioning Date
POLYPLEX RESİNS SAN. VE TİC. A.Ş.	PET CİPS RESİN VE KOJ. TESİSİ	TEKİRDAĞ	Natural Gas	8.600	31/12/2014
KENT SOLAR ELEKTRİK ÜRETİM SAN. VE TİC. LTD. ŞTİ.	M.KEMALPAŞA-SUUÇTU HES	BURSA	Hydropower	2.304	31/12/2014
CAN ENERJİ ENTEGRE ELEKTRİK ÜRETİM A.Ş.	TEKİRDAĞ ENERJİ ÜRETİM SANTRALİ	TEKİRDAĞ	Natural Gas	13.075	31/12/2014
ŞAR ENERJİ ELEKTRİK ÜRETİM A.Ş.	HAMZABEY HES	RİZE	Hydropower	8.820	31/12/2014
MED-MAR SAĞLIK HİZ. GIDA İNŞ. TUR. İŞL. NAK. VE EL. ÜR. SAN. VE TİC. A.Ş.	TERMİK KOJENERASYON SANTRALİ	ÇANKIRI	Lignite	1.640	31/12/2014

As it could be seen from the list, the most recent power plants started operation have very low capacity and there is no information about their annual electricity production.

b) The set of power capacity addition could be predicted from list of investments including the installed capacities in MWs in Ministry of Energy and Natural Resources web page.[26]. The project generation of the recently added power plants are available in Capacity Projection Reports prepared by TEİAŞ however, the latest report (2014-2018) includes the capacity additions until 2013[27]. Futhermore, the reports include the list of power plants connected to the grid with assumed annual generations if they operate at full year performance; which is not case. In order to use the most recent data and to match the period chosen for OM calculations above (2012-2014); a deviaiton from the methodology has been applied.

The deficiency in the data has been eliminated by a methodology deviation has been proposed for China and accepted by the Executive Board[28]. As Executive Board accepted the following deviations:

1. Use of capacity additions during last 1~3 years for estimating the build margin emission factor for grid electricity;
2. Use of weights estimated using installed capacity in place of annual electricity generation.

The Board suggest the following when applying the deviation:

- Use of 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)

The tool to calculate the emission factor for an electricity system states to select either the 5 most recent power units or the units that comprise at least 20% of the system generation, excluding registered CDM projects. As the use of weights estimated using installed capacity in place of annual electricity generation will be implemented, 20% of the total installed power units in 2014 will be included in BM calculations.

The total capacity was 66,802.6 MW and the 20% of this amount is 13,360.5 MWs. In order to reach the capacity, the set of power plants is determined as follows:

2) Exclusion of the registered VER projects

As per the tool, the projects registered as voluntary emission reduction are excluded from the group of projects:

[26] 2012-2014 Yılı Enerji Yatırımları; http://www.etkb.gov.tr/tr-TR/EIGM-Raporlari

[27] http://www.teias.gov.tr/YayinRapor/APK/projeksiyon/index.htm

[28] http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_QEJWJEF3CFBP1OZAK6V5YXPQKK7WYJ

"Power plant registered as CDM project activities should be excluded from the sample group m."

The VER projects operational between 05/08/2012-31/12/2014 are excluded from the list and the net capacity addition is calculated as below:

YEARS	THERMAL	CAPACITY ADD.	VER Capacity	NET CAPACİTY ADDITION	TOTAL
05/08/2012- 31/12/2012	356.2	1,938.3	310.3	1,628	57,059.4
2013	3,647.2	6,986.3	898.5	6,087.8	64,007.5
2014	3,907.0	6,305.2	536.5	5,768.6	66,802.6
CAPACITY ADDED	**7,910.4**	**15,229.8**	**1,745.3**	**13,484.5**	

Summing up the capacity additions through 2012-2014 and subtracting registered VER projects; an amount of 13,484.5 MW is reached.

3) Determining the efficiency level of the best technology commercially available

As per the suggestion of the Board to use of efficiency level of the best technology commercially available, proportional weights that correlate to the distribution of installed capacity in place during the selected period above should be applied.

The efficiency data for power plants are not available for best practice technologies utilized in Turkey. Therefore, the default values from the tool have been applied.

4) Determining the vintage

In terms of vintage, there two options defined:

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 is selected for the data vintage.

STEP 6. Calculate the build margin emission factor.

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

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} x EF_{EL,m,y}}{\sum_m EG_{m,y}} \quad (12)$$

Where:

$EF_{grid,BM,y}$: Build margin CO2 emission factor in year y (tCO2/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 power unit m in year y (tCO2/MWh)
m: Power units included in the build margin
y: Most recent historical year for which power generation data is available

The BM calculation adopts the modifications methods agreed by the CDM EB. The weighted average of the installed capacity of each fossil fuel type; rather than power plant based data, should be used instead of EG values. Therefore the equation is regenerated as :

$$EF_{grid,BM,y} = \frac{\sum_{m} CAP_{m,y} x EF_{EL,m,y}}{\sum_{m} CAP_{m,y}}$$

$CAP_{m,y}$: Incrementally installed capacity of power unit m in year y.

The generation capacities for coal-fired, oil-fired and gas- fired technology are available for the calculation. However; there are multi-fuel fired capacity additions utilizing solid+liquid fuel or liquid+natural gas fuel mixtures. Therefore; first the fuel consumption data are used to calculate the proportion of CO2 emissions from each fossil fuel type. Second, the emission factors for the best commercially available technology of power generation for each fossil fuel are calculated. Third, the emission factor for thermal power is calculated as a weighted average of all emission factors calculated in the Step 1. Finally, this thermal emission factor is multiplied by the proportion of thermal power added capacity in the additional 20% capacity.

Sub-step 6(a) Calculate the percentages of CO2 emissions from each type of fossil fuel-fired power plants in total CO2 emissions from all thermal power plants.

According to the methodology; the ratio of tCO_2 produced by each fossil fuel type for power generation is calculated with the following formulas:

$$\lambda_{Coal} = \frac{\sum_{i \in COAL,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{Lignite} = \frac{\sum_{i \in Lignite,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{FuelOil} = \frac{\sum_{i \in FuelOil,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{DieselOil} = \frac{\sum_{i \in DieselOil,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{LPG} = \frac{\sum_{i \in LPG,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{Naphta} = \frac{\sum_{i \in Naphta, j, y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{Gas} = \frac{\sum_{i \in GAS, j, y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

λ_i : Ratio of CO_2 produced by fossil fuel i to the total emissions.

$F_{i,j,y}$: Amount of fuel i consumed by power sources j in year y [kt or m^3]

$NCV_{i,y}$: Net calorific value for fossil fuel i in year y [TJ/kt]

$EF_{i,j}$: CO_2 emission factor of fuel type i used in power unit j in (tCO_2/TJ)

j : Power units included in the build margin

y : Most recent historical year for which power generation data is available

Sub-step 6(b) Calculating fossil fuel fired emission factor ($EF_{Thermal}$)

Thermal emission factor is calculated with the formula:

$$EF_{Thermal} = \sum_i \lambda_i * EF_{i,Adv}$$

$EF_{Thermal}$: Weighted emissions factor of thermal power generation with the efficiency level of the best commercially available technology in Turkey (tCO_2/MWh).

λ_i : Ratio of CO_2 produced by fossil fuel i to the total emissions.

$EF_{i,Adv}$: Emission factors with efficiency levels of the best commercially available technology in Turkey (tCO_2/MWh).

$EF_{i,Adv}$ is calculated with the formula in accordance with Option A2 for calculating EF in the tool:

$$EF_{i,Adv} = \frac{EF_{CO2,m,i,y} * 3.6}{\eta_{m,y}} \quad (3)$$

$EF_{CO2,m,i,y}$: Average CO2 emission factor of fuel type *i* used in power unit *m* in year *y* (tCO2/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

Sub-step 6(c) Calculating Build Margin Emission Factor

$$EF_{grid,BM,y} = \frac{CAP_{Thermal}}{CAP_{Total}} * EF_{Thermal}$$

$EF_{grid,BM,y}$: Build Margin CO_2 emission factor in year y (tCO_2/MWh).

$CAP_{Thermal}$: Total thermal power capacity addition of the selected period [MW]

CAP_{Total} : Total power capacity addition of the selected period [MW]

$EF_{Thermal}$: Emission factors with efficiency levels of the best commercially available technology in Turkey (tCO_2/MWh).

Step7. Calculate the combined margin emission factor

The combined margin emissions factor $EF_{grid,CM,y}$ is calculated as follows:

$$EF_{grid,\ CM,\ y}=EF_{grid,OM,y} * w_{OM} + EF_{grid,BM,y} * w_{BM} \quad (13)$$

$EF_{grid,\ BM,\ y}$: Build margin CO2 emission factor in year y (tCO2/MWh)
$EF_{grid,OM,y}$: Operating margin CO2 emission factor in year y (tCO2/MWh)
w_{OM} :Weighting of operating margin emissions factor (%)
w_{BM} :Weighting of build margin emissions factor (%)

The combined margin emissions factor $EF_{grid,CM,y}$ should be calculated as the weighted average of the Operating Margin emission factor ($EF_{grid,OMsimple,y}$) and the Build Margin emission factor ($EF_{grid,BM,y}$), where w_{OM} = 0.75 and w_{BM} = 0.25 for wind power plant project for the first crediting period and for subsequent crediting periods.

Project emissions:

As per the methodology, for all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected. Therefore, project emissions are accounted to be as zero.

Leakage:

No leakage emissions are considered. The emissions potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport etc.) are neglected.

B.6.2. Data and parameters fixed ex ante

SECTION A. Data / Parameter	$EG_{gross,y}$
Unit	MWh
Description	Gross electricity generated by all power plants connected to the national grid including low-cost must run power plants between years 2012-2014
Source of data	TEIAS (Turkish Electricity Transmission Company) annual data
Value(s) applied	Detailed in Appendix. 4
Choice of data or Measurement methods and procedures	Official data
Purpose of data	Calculation of CM
Additional comment	

Data / Parameter	$EG_{net,y}$
Unit	MWh
Description	Net electricity generated by all power plants connected to the national grid excluding low-cost must run power plants between years 2012-2014
Source of data	TEIAS (Turkish Electricity Transmission Company) annual data
Value(s) applied	Detailed in Appendix. 4
Choice of data or Measurement methods and procedures	Official data
Purpose of data	Calculation of CM
Additional comment	

Data / Parameter	$EG_{imported,y}$
Unit	MWh
Description	Electricity imported to the national grid between years 2012-2014.
Source of data	TEIAS (Turkish Electricity Transmission Company) annual data
Value(s) applied	Detailed in Appendix. 4
Choice of data or Measurement methods and procedures	Official data
Purpose of data	Calculation of CM
Additional comment	

Data / Parameter	$FC_{i,y}$
Unit	Tonnes/m^3
Description	Fossil fuel consumed by thermal power plants between years 2012-2014
Source of data	TEIAS (Turkish Electricity Transmission Company) annual data
Value(s) applied	Detailed in Appendix. 4
Choice of data or Measurement methods and procedures	Official data
Purpose of data	Calculation of CM &BM
Additional comment	

Data / Parameter	NCV
Unit	TJ/mass or volume
Description	Net calorific value of each fossil fuel type between years 2012-2014
Source of data	TEIAS (Turkish Electricity Transmission Company) annual data
Value(s) applied	Detailed in Appendix. 4
Choice of data or Measurement methods and procedures	Official data
Purpose of data	Calculation of CM&BM
Additional comment	

Data / Parameter	EF_{CO2}
Unit	tCO_2/TJ
Description	CO_2 emission factor of fossil fuel type i
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 Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Value(s) applied	Detailed in Appendix. 4
Choice of data or Measurement methods and procedures	Official data
Purpose of data	Calculation of CM&BM
Additional comment	

Data / Parameter	$\eta_{m,y}$
Unit	-
Description	Average net energy conversion efficiency of thermal power units connected to the grid
Source of data	Default values in Annex.1 in “Tool to calculate the emission factor for an electricity system”
Value(s) applied	Detailed in Appendix. 4
Choice of data or Measurement methods and procedures	Official data
Purpose of data	Calculation of CM
Additional comment	

Data / Parameter	$CAP_{y,total}$
Unit	MWh
Description	Capacity addition to the national grid between years 2012-2014
Source of data	2012-2014 Energy Investment Tables prepared by Ministry of Energy and Natural Resources
Value(s) applied	Detailed in Appendix.4
Choice of data or Measurement methods and procedures	Official data
Purpose of data	Calculation of BM
Additional comment	

B.6.3. Ex ante calculation of emission reductions

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Calculation of Operating Margin

The following data are available on the Turkish Electricity Transmission Company (TEİAŞ) web site[29]:

- Annual fuel consumption by fuel type (tons or m^3),
- Annual heating values for fuels consumed for electricity generation (Tcal)
- Annual electricity generation by fuel type, import and export (GWh)

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.6). The annual heating values are converted to TJ and divided by the fossil fuel consumption for that year.

Table.6. Net Calorific Values for each fuel type for Turkey.

Fuel Type	NCV (TJ/kt)		
	2012	**2013**	**2014**
Hard Coal + Imported Coal	24.34	23.79	16.50
Lignite	7.03	7.26	28.27
Fuel Oil	41.70	42.61	0.43
Diesel Oil	44.71	44.12	6.91
LPG	0.00	0.00	0.00
Naphtha	0.00	0.00	0.00
Natural Gas	36.95	37.14	16.50

The coefficients required for calculation of CO_2 emission factor (tCO_2/TJ) have been obtained through IPCC 2006 guidelines for GHG inventories[30]. Using the available data and the formula

[29]http://www.teias.gov.tr/TürkiyeElektrikİstatistikleri/istatistik2014/istatistik2014.htm

given in section B6.1, overall CO_2 production by electricity generation is calculated as given in Table.7. below.

Table.7. Calculation of total emission by electricity generation

	COEF (tCO_2/TJ) (Lower)	**Fuel Consumption (2012-2014)** (tons or $1000m^3$)	**Total Emission (2012 - 2014) (tCO_2)**
Hard Coal+ Imported Coal	94.600	38,866,326.00	88,295,739.98
Lignite	90.933	160,558,908.00	103,966,450.17
Fuel Oil	67.833	1,892,613.00	5,976,251.51
Diesel Oil	72.600	425,726.00	1,365,357.26
LPG	61.6	0	0.00
Naphtha	69.300	0	0.00
Natural Gas	54.267	71,425,881.00	144,285,449.04
Total Emissions			**343,889,247.96**

Net electricity generated and supplied to the grid by thermal plants has been calculated using data obtained from the TEİAŞ web page. The ratio between gross and net generation has been calculated first, and assuming that the same ratio is valid for thermal plants; gross generation by thermal power plants has been multiplied by this ratio in order to find net generation by thermal plants. Summing up this with the imported electricity, total supply excluding low cost / must run sources are determined as given in Table.8. below.

Table.8. Net Electricity Generation from thermal power plants (units in GWh)

Year	**Gross generation**	**Net generation**	**Net/ Gross (1)**	**Gross Gen. Thermal (2)**	**Net Gen Thermal (1x2)**	**Import**	**Total Supply to the grid**
2012	239,496.8	227,707.3	0.951	174,871.7	166,263.4	5,826.7	172,090
2013	240,154.0	228,977.0	0.953	171,812.5	163,816.2	7,429.4	171,246
2014	251,962.7	239,448.8	0.950	200,416.6	190,462.7	7,953.3	198,416
Total					**520,542.4**	**21,209.4**	**541,751.8**

Finally, using the data tabulated in the previous two tables, the OM emission factor considering years 2012 -2014 has been calculated as generation weighted average from equation for OM above;

[30] Table 2.2.Default Emission Factors for Stationary Combustion in the Energy Industries, Vol.2. Energy, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, (http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf)

$$EF_{grid, OMsimple, y} = 0.635\ tCO_2/\ MWh$$

The Operating Margin emission factor calculated above will be constant throughout the 7 years crediting period.

Calculation of Build Margin

Sub-step 6(a) Calculate the percentages of CO2 emissions from each type of fossil fuel-fired power plants in total CO2 emissions from all thermal power plants.

The annual fuel consumption data for each fuel type for 2012-2014 are gathered from TEIAS web page. Net calorific value (in TJ/kt) are calculated as described above for the same period. The lower values for CO_2 emission coefficient (tCO_2/TJ) from IPCC 2006 guidelines for GHG inventories have been used.

The following ratios have been obtained:

Table.9. Ratio of CO_2 by each fossil fuel type to the total emissions

Fuel Type	λi	Fuel Type	λi
Coal	0.2368	Lpg	0.0000
Lignite	0.3252	Naphta	0.0000
Fuel Oil	0.0160	Natural Gas	0.4189
Diesel Oil	0.0031		

Sub-step 6(b) Calculate the operating margin emission factor of fuel-based generation.

The data for the best available technology for thermal power plants are not available for Turkey. Therefore, the default efficiency factors given in Annex.1 of the tool are used for the calculation.

The coal power plants are classified as subcritical in Turkey. The thermal efficiency ranges between 30-39% for coal and lignite fired power plants during the period 2003-2010 as stated in the article “Energy Efficiency Studies in Thermal Power plants and Acquirements” presented in III. Energy Efficiency Congress on 02.April.2011[31].

The rest of the power plants are accepted to run under Combined Cycle technology as the best available one in the country.

Table.10. Efficiency factors

Fossil fuel type	Efficiency (%)
Coal	39
Lignite	39
Fuel-oil	46
Diesel-oil	46
LPG	46
Naphtha	46
Natural gas	60

$EF_{Thermal}$ is calculated as 0.627 tCO_2/MWh

Sub-step 6(c) Calculating Build Margin Emission Factor

[31] http://www.mmo.org.tr/resimler/dosya_ekler/de57221d69ac155_ek.pdf?dergi=113

The Build Margin has been calculated as **0.326 tCO_2/MWh**.

Calculation of the Combined Margin

$EF_{grid, CM, y}$ = 0.75 * 0.635 + 0.25 * 0.326= 0.558

The combined margin emission factor is therefore **0.558 tCO_2/MWh,** which will be used as the baseline factor in calculation of emission reduction by project activity.

Project Emissions

PE= 0

Emission reduction (ERy*)* by the project activity

For the first crediting period of seven years, annual emission reduction will be;

$$ER_y = BE_y - (PE_y + LE_y)$$

BE_y=(60,300 MWh * 0.558 tCO_2e/ MWh) = **33,647 tCO_2**
PE_y= **0 tCO_2**
LE_y= **0 tCO_2**

The total emission reduction will be **tCO_2**

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

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
August 2015-December 2015	14,019	0	0	14,019
2016	33,647	0	0	33,647
2017	33,647	0	0	33,647
2018	33,647	0	0	33,647
2019	33,647	0	0	33,647
2020	33,647	0	0	33,647
2021	33,647	0	0	33,647
2022	33,647	0	0	33,647
January 2023-July 2023	19,628	0	0	19,628
Total	235,529	0	0	235,529
Total number of crediting years	7			
Annual average over the crediting period	33,647	0	0	33,647

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

Data / Parameter	EG_y
Unit	MWh/yr
Description	Net electricity exported to the grid in the year y
Source of data	Meter Reading are done remotely by governmental officers and the invoice is issued by the agreement of both parties.
Value(s) applied	The annual electricity fed to the grid is estimated as 60,300 MWh.
Measurement methods and procedures	The net electricity is measured continuously by a power meter at the grid interface and recorded monthly.
Monitoring frequency	Monthly
QA/QC procedures	• A back up meter is used for crosschecking the accuracy and both meters are calibrated if required. • Data measured by meters and will be crosschecked with the data uploaded to PMUM.
Purpose of data	Calculation of emission reductions
Additional comment	

B.7.2. Sampling plan

>>N/A

B.7.3. Other elements of monitoring plan

The Project Owner will be responsible for the overall management of the monitoring procedures including recording, data collection and store. The consultant will calculate emission reductions based on these monitored data and prepare monitoring report.

Hourly readings will be done and noted to a log book by the personnel. The readings will be then uploaded to the website of “Market Financial Settlement Center” or PMUM which serves as an official unit to balance real time electricity demand with production. Each electricity producer has to report their daily generation forecasts and realized generation to the database run by PMUM.

In addition, monthly power meter readings are done as a basis for monitoring net electricity fed into the grid. Governmental officers from TEIAS (Turkish Electricity Transmission Company) will read remotely and record the amount of electricity at the end of each month by Automated Meter Reading System (OSOS). The records include day, peak and night hour electricity generation of the plant and checked and approved by both parties.

The gross production by every single wind turbine generation will be monitored and the data will be stored through a SCADA system. Through this SCADA system, also other technical specifications of the turbines can be monitored such as temperature, voltage, current, frequency, vibration etc.

The objective of the monitoring plan is to ensure the complete, consistent, clear, and accurate monitoring and calculation of the emissions reductions during the whole crediting period. The Project Owner is responsible for the implementation of the monitoring plan.

Monitoring parameters

According to the methodology applied, the electricity supplied to the national grid by the project and the electricity consumed by the project activity shall be monitored. The net electricity is the difference of the electricity supplied and consumed by the project and shall be taken into account for emission reduction calculations.

Data Management and Quality Control

Two power meters are installed at the grid interface of the project. One is the main meter and the other is back-up meter of the main meter for cross-checking. Both meters are jointly inspected and sealed in order to be protected from interference by any of the parties, meaning the project owner or governmental officers.

The capacity of the transmission line to be connected is 34.5 kV, the accuracy class for main power meter has been defined in the Communiqué for Power Meters[32] as 0.2S class. The back-up meter will have the same accuracy class as well. The calibration will be implemented in accordance with the related standard procedures (IEC-EN 60687) by either TEIAS or the provider company in the name of TEIAS. The power meters are of the brand MANAS with model SL700. The details are given in the table below.

	Type	**ID**
Main meter	SL761W071	73003757
Back up meter	SL761W071	73003758

The power meters have the communication hardware which enables PMUM to reach the data stored and report the errors in reading. If there is need for calibration, governmental officers will be doing it.

When the main meter has a breakdown, the readings of the back-up meter will be used. If both meters failed, conservative data substitution procedures based on the internal SCADA data will be used.

All data collected as part of monitoring will be archived electronically by the project owner and be kept at least for 2 years after the end of the last crediting period.

[32] http://www3.epdk.org.tr/index.php/elektrik-piyasasi/mevzuat?id=68

Please see Appendix.5. Monitoring Information for more information.

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

XX/01/2016
Ms. Selda Cabbar

SECTION C. Duration and crediting period

C.1. Duration of project activity

C.1.1. Start date of project activity

01/10/2014 (Turbine purchase agreement)

C.1.2. Expected operational lifetime of project activity

49 years

C.2. Crediting period of project activity

C.2.1. Type of crediting period

Renewable

C.2.2. Start date of crediting period

24/07/2015 (Commissioning Date of the plant)

C.2.3. Length of crediting period

7 years, 0 months

SECTION D. Environmental impacts

D.1. Analysis of environmental impacts

>>

There are a national park (Karatepe Aslantaş), a nature park (Yavşan Yaylası), nature conservation area (Körçoban) and two dams (Sır, Aslantaş) inside surrounding area the radius of a circle 30 km as the crow flies.

The only impact on migrating birds is defined as collision and this is anticipated to be relatively low and limited as there are only 11 turbines on the site. To minimize the risk, following measures are proposed:

- Turbines will be placed as single file.
- The top of the blades will be painted with red.

A detailed biodiversity study will be conducted and presented to Ministry of Environment and Urbanism. Mitigation measures will be defined to minimize the risk in the region.

There are only two wind power plant projects in the province. One is the proposed project and the other is located in Öksüz Mountain and they are not operational yet. There are no other licenses. The number of turbines will not increase in time. Those kinds of investments require high financial capacity and it is not easy to do that in a very short time.

D.2. Environmental impact assessment

>>

An Environmental Impact Assessment (EIA) is not mandatory for wind power plants according to national legislation in Turkey. A pre-EIA study was done and Project Information File (PIF) was submitted to Ministry of Environment and Forest. The study includes definition of the project activities and defines the possible environmental impacts and mitigation measures to be implemented. " EIA is not necessary" decision was taken by Kahramanmaraş Provincial Directorate of Environment and Urbanism on 05/05/2009.

Project will be located on an area of 1.769 m2. The project site is partly on agricultural land, partly on forest land. The topography of the land is plain on the top of the hill where the turbines will be located and mountainous at the surrounding. Çuhadarlı Village is located on the Northwest of the project site at a distance of 550 m to T1-T2-T6. On the North of T7 turbine, Kerçiler district lies and on the South there lies Ayvalı district. Kabaklar Village is at a distance of 1,250 m on the West of T3 turbine. Alanlı Village is at the Southwest of T11 turbine at a distance of 800 m.

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

>>

The project site was visited on April 2014 by environmental consultants preparing Project Information File (PIF) and they interviewed villagers and muhktars randomly.

The meeting was opened by introduction of the consultant and the project owner representative. The aim of the meeting is explained and the attendees were asked to sign the attendance form. One-page non-technical summary including telephone numbers and emails for the consultant and GS Turkey were distributed. The project is presented as a voluntary emission reduction activity under Gold Standard.

The name of the project and company were introduced. The installed capacity of the project, number of the turbines and the place of the turbines were described and shown to the attendees. The project timeline described and the construction phases are explained. The concept of climate change and its effects are discussed with the audience. The economic benefits provided to the country were mentioned.

The project owner, then, explained the location of the turbines and the expropriation process for the project. He said the experts commission, assigned by the court will predict the price of the land

and they would pay that price. He explained that the commission would include agricultural and forestry engineers as well as the local residents in the villages.

During the site visit they said that they knew about the planned wind power plant in their region but had no technical information about it. They added that they did not oppose to wind farms. Another issue pointed by the villagers is job opportunities. That kind of environmental friendly investments were appreciated as they could provide job opportunities to youngsters.

The Local Stakeholder Consultation Meeting was organized on 05/04/2014 in the nearest settlement, Alanlı Village. Local residents were informed by announcements The project site is located inside Cuhadarli and Kabaklar Village boundaries and therefore they are also invited to the meeting. The women are invited to one of the village house to discuss about the project after the meeting with the Mukhtars.

Figure.6. From The Local Stakeholder Consultation Meeting

E.2. Summary of comments received

>>

The participation of local community was high. The following questions and comments were received during the meeting:

Q1. What will be the benefits of the project?

The wind power plants are environmental friendly projects. They do not emit carbon dioxide or other polluting gases like thermal power plants. Thermal power plants have many negative impacts on environment as they emit hazardous gases and use cooling water.

The wind power plants contribute to country's economic development as they utilize local resources and therefore decrease the expenses of fossil fuel import.

These are the reasons why the project is developed, i.e. to reduce emissions and to contribute to economic development.

Q2. Will the turbines cause noise?
The turbines are far away from the village to cause any noise. Besides, the latest technology has minimized the noise to very low levels. The turning of blades cause “hoop” like noise when you stand under the turbines. The motor is covered with noise-proof material.

Q3. Is there risk of radiation when the turbines are generating electricity?
No, there is no risk of radiation in wind power plants. The electricity connection between two turbines will be buried underground, so you will not even see any cables around.

Q4. We saw some technicians doing survey around the village. Is that huge area to be expropriated? To what extent the project area goes?
The study was done for mapping purposes. We were trying to understand the topography of the region in order to place the turbines away from the residential area and crop fields. The area to be expropriated would be minimal. According to the law, we have to purchase the land surrounding the turbines in order to eliminate the damage risk caused by accidents such as fall of towers. We will fence a 10 m X10 m area around the turbine and you can still use the rest of the land for agricultural purposes. Only two turbines located on private land, others are on forest land.

Q5. Will you hire workforce? If so we would like them to be from our villages. Our villagers should benefit from the job opportunities.
The workers will be hired from the villages as many as possible. We do not have a heavy construction here so the number of workers would be low. The qualified workers should have licenses as required by the law.

Q6. Is there any benefit to the village in terms of electricity generated?
We could not provide electricity to the village. The distribution company and the regulation did not allow us to do so. We will feed the electricity to the national grid.

Q7. Will you improve the access road?
When the construction begins and the machinery is arrived, we will do our best for you to improve the access roads.

Q8. What will happen to the natural beauty of our villages? Ecological balance will be disturbed and we will have headaches because of the turbines. I saw the high voltage transmission line passing through Andırın Town. The damage to the natural beauty was high. The number of turbines will increase in time.

Figure.7. From The Local Stakeholder Consultation Meeting

E.3. Report on consideration of comments received

>>

The project was taken positively by the attendees but they were happy to be informed. They generally think that clean energy services provided by the project are beneficial for the county but they also would like to see contributions from the project owner. The access road inside the villages is not in good condition and they would like them to be improved. The drinking water system has also problems and they have expectations about that as well. The workers should be employed from the nearby villages was another comment mentioned verbally during the meeting.

Most of the participants see the project as environmental friendly technology and would contribute to country's economic development. Most of the residents do not expect any negative environmental impact caused by the project. The concern of impact on bird migration was raised by hunters who thought that the birds will change their flying direction and their hunting place might shift about half a kilometer. Mitigation measures proposed by biodiversity study to be prepared will be implemented to minimize the risk of collision of migrating birds. The recent technology adapted to migrating bird with longer of blades and slower rotor speed. The top of the blades are painted to let escape the birds from collision.

SECTION F. Approval and authorization

>>

N/A

- - - - -

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	**Kale Enerji Üretim Ticaret ve Sanayi A.Ş.**
Street/P.O. Box	
Building	**Bahçelievler Mah. Trabzon Bulv. No:106/C Kat:1**
City	**Kahramanmaraş**
State/Region	
Postcode	
Country	**Turkey**
Telephone	**+90 344 231 04 08**
Fax	**+90 344 231 04 59**
E-mail	**info@kaleenerji.com.tr**
Website	**www.kaleenerji.com.tr**
Contact person	
Title	**Mr.**
Salutation	**General Coordinator**
Last name	**Akdemir**
Middle name	**-**
First name	**Ahmet**
Department	
Mobile	
Direct fax	**+90 344 231 04 59**
Direct tel.	**+90 344 231 04 08**
Personal e-mail	**aakdemir@kalenerji.com.tr**
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	**Karbon Danışma**
Street/P.O. Box	
Building	
City	
State/Region	
Postcode	
Country	
Telephone	
Fax	

E-mail	
Website	
Contact person	
Title	**Ms.**
Salutation	**Director**
Last name	**Cabbar**
Middle name	
First name	**Selda**
Department	
Mobile	
Direct fax	
Direct tel.	
Personal e-mail	

Appendix 2. Affirmation regarding public funding

No public funding is available for the project

Appendix 3. Applicability of methodology and standardized baseline

The project fully complies with the ACM0002 **"**Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 16.0.0

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

Data Used in calculation of OM for Turkish Electricity Grid[33]

Table.A. Heating Values of Fuels Consumed in Thermal Power Plants in Turkey by the Electric Utilities (Tcal)

Fuel	2012	2013	2014
Hard Coal	71,270.15	68,784.76	82,874
Imported Coal			97,916
Lignite	93,586.64	81,676.24	180,790
Total	**164,856.79**	**150,461**	7,444
Fuel Oil	5,624.76	5,837.24	1,245

[33] http://www.teias.gov.tr/TürkiyeElektrikİstatistikleri/istatistik2014/istatistik2014.htm

Diesel Oil	1,883.65	1,363.23	-
Lpg	0	0	-
Naphta	0	0	8,689
TOTAL	**7,508.41**	**7,200.47**	227,649
Natural Gas	**203,766.37**	**203,243.70**	82,874
TOTAL	**548,496.77**	**518,566.63**	**606,607**

Table.B. Fuel Consumed in Thermal Power Plants in Turkey by the Electric Utilities (ton /m3)

Fuel	2012	2013	2014
Hard Coal	12,258,462.00	12,105,930.00	14,501,934.00
Imported Coal			
Lignite	55,742,463.00	47,120,306.00	57,696,139.00
Total	68,000,925.00	59,226,236.00	72,198,073.00
Fuel Oil	564,796.00	573,534.00	754,283.00
Diesel Oil	176,379.00	129,359.00	119,988.00
Lpg	-	-	-
Naphta	-	-	-
TOTAL	741,175.00	702,893.00	874,271.00
Natural Gas	23,090,121.00	22,909,746.00	25,426,014.00

Table.C. Net Electricity supply to the grid by thermal plants and imports

Year	Gross generation	Net generation	Import
2012	239,496.80	227,707.30	5,826.70
2013	240,153.95	228,977.00	7,429.40
2014	251,962.75	239,448.83	7,953.34

Table.D. Default Emission Factors for Stationary Combustion in the Energy Industries (kg of greenhouse gas per TJ on a Net Calorific Basis)[34]

Fuel	CO_2		
	Default Emission Factor	Lower	Upper
Residual Fuel Oil	77,400	**75,500**	78,800
Gas/Diesel Oil	74,100	**72,600**	74,800
Residual Fuel Oil	77,400	**75,500**	78,800
Liquefied Petroleum Gases	63,100	**61,600**	65,600
Naptha	73,300	**69,300**	76,300
Anthracite	98,300	**94,600**	101,000
Lignite	101,000	**90,900**	115,000
Natural Gas	56,100	**54,300**	58,300

[34] Table 1.4 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf)

Data Used in calculation of BM for Turkish Electricity Grid[35]

Table.E. Annual development of Turkey's installed capacity between 05/08/2012 and 31/12/2012 (MW)

SIRA NO	ŞİRKET ADI	SANTRAL ADI	İL	YAKIT CİNSİ	İLAVE KURULU GÜÇ MW_e	GEÇİCİ KABULTARİHİ	VER
132	DEDELİ DOĞALGAZ ELEK. ÜR. VE TİC. A.Ş.	ÇAY DOĞALGAZ KOMBİNE ÇEVRİM SANTRALİ	AFYONKARAHİSAR	DG	126.100	05/08/2012	
133	GÖKNUR GIDA MAD. EN. İM.İT.İH. TİC. VE SAN. A.Ş.	OTOPRODÜKTÖR SANTRALİ	NİĞDE	KÖMÜR	1.550	09/08/2012	
134	ÖZENİR ENERJİ ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	KIRIKDAĞ HİDROELEKTRİK SANTRALİ	HAKKARİ	HES	16.860	15/08/2012	
135	MCK ELEKTRİK ÜRETİM A.Ş.	ARPA REGÜLATÖRRÜ VE HES	ARTVİN	HES	32.412	16/08/2012	
136	BARES ELEKTRİK ÜRETİM A.Ş.	BALIKESİR RÜZGAR ENERJİ SANTRALİ	BALIKESİR	RES	13.750	17/08/2012	X
137	ODAŞ ELEKTRİK ÜRETİM SANAYİ TİCARET A.Ş.	ODAŞ DOĞALGAZ KOMBİNE ÇEVRİM SANTRALİ	ŞANLIURFA	DG	18.320	17/08/2012	
138	KALEMİRLER ENERJİ ELEKTRİK ÜRETİM LTD. ŞTİ.	SEZER BİO ENERJİ BİYOGAZ ELEKTRİK ÜRETİM SANTRALİ	ANTALYA	BİYOKÜTLE	0.500	17/08/2012	
139	PAK ENERJİ ÜRETİMİ SAN. VE TİC. A.Ş.	DEMİRCİLER HİDROELEKTRİK SANTRALİ	DENİZLİ	HES	5.317	25/08/2012	
140	ÇARŞAMBA ENERJİ ELEKTRİK ÜRETİM A.Ş.	ÇARŞAMBA HES	SAMSUN	HES	11.310	30/08/2012	
141	DOĞAL ENERJİ ELEKTRİK ÜRETİM A.Ş.	SAMURLU RÜZGAR ENERJİ SANTRALİ	İZMİR	RES	12.000	31/08/2012	X
142	ORTADOĞU ENERJİ SAN. VE TİC. A.Ş.	2. ETAP 3. KISIM GAZ MOTORU GENERATÖR GRUPLARI	İSTANBUL	BİYOGAZ (ÇÖP GAZI)	4.092	07/09/2012	
143	ITC BURSA ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	BİYOKÜTLE (ÇÖP GAZI) SANTRALİ	BURSA	BİYOKÜTLE (ÇÖP GAZI)	1.400	07/09/2012	X
144	BİNATOM ELEKTRİK ÜRETİM A.Ş.	DOĞALBASİT KOMBİNE ÇEVRİM SANTRALI	KÜTAHYA	DG	2.145	08/09/2012	
145	MEM ENERJİ ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	YAMANLI III HES KAPSAMINDAKİ GÖKKAYA HİDROELEKTRİK SANTRALİ	ADANA	HES	28.540	14/09/2012	X
146	BARES ELEKTRİK ÜRETİM A.Ş.	BALIKESİR RÜZGAR ENERJİ SANTRALİ	BALIKESİR	RES	16.500	14/09/2012	X
147	KÜÇÜKER TEKSTİL SAN. VE TİC. A.Ş.	OTOPRODÜKTÖR SANTRALİ	DENİZLİ	KÖMÜR	5.000	14/09/2012	
148	DURUM GIDA SAN. VE TİC. A.Ş.	DURUM GIDA TERMİK KOJENERASYON SANTRALİ	MERSİN	DG	3.600	14/09/2012	

[35] Enerji Yatırımları (http://www.etkb.gov.tr/tr-TR/EIGM-Raporlari)

149	ELEKTRİK ÜRETİM A.Ş.	ERMENEK HİDROELEKTRİK SANTRALİ	KARAMAN	HES	151.200	14/09/2012	
150	ELEKTRİK ÜRETİM A.Ş.	ERİK HİDROELEKTRİK SANTRALİ	KARAMAN	HES	6.480	14/09/2012	
151	YEDİGÖL HİDROELEKTRİK ÜR. TİC. A.Ş.	AKSU REG. VE HES	ERZURUM	HES	27.272	14/09/2012	
152	DUMLU ENERJİ ELEKTRİK ÜRETİM LTD. ŞTİ.	DUMLU HİDROELEKTRİK SANTRALİ	ERZURUM	HES	3.982	15/09/2012	
153	JTI TÜTÜN ÜRÜNLERİ SANAYİ A.Ş.	JTI TORBALI KOJENERASYON SANTRALİ	İZMİR	DG	4.000	21/09/2012	
154	TRAKYA YENİŞEHİR CAM SAN. A.Ş	OTOPRODÜKTÖR (TERMİK KOJENERASYON) ELEKTRİK SANTRALİ	BURSA	ATIK ISI	6.000	28/09/2012	
155	RİNERJİ RİZE ELEKTRİK ÜRETİM A.Ş.	CUNİŞ HİDROELEKTRİK SANTRALİ	TRABZON	HES	5.600	28/09/2012	
156	BATEN ENERJİ ÜRETİMİ A.Ş.	TUZKÖY HİDROELEKTRİK SANTRALİ	NEVŞEHİR	HES	8.440	28/09/2012	X
157	BAYBURT ENERJİ ÜRETİM VE TİCARET A.Ş.	YILDIRIM HİDROELEKTRİK SANTRALİ	BAYBURT	HES	7.118	28/09/2012	
158	NİSAN ELEKTROMEKANİK ENERJİ SAN. VE TİC. A.Ş.	UMUT REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	ORDU	HES	5.800	04/10/2012	
159	RASA ENERJİ ÜRETİM A.Ş.	ŞANLIURFA OSB ENERJİ SANTRALİ	ŞANLIURFA	ATIK ISI	11.720	05/10/2012	
160	KÜTAHYA ŞEKER FABRİKASI A.Ş.	OTOPRODÜKTÖR SANTRALİ	KÜTAHYA	LİNYİT	4.568	05/10/2012	
161	MURAT HES ENERJİ ELEKTRİK ÜR. VE TİC. A.Ş.	MURAT I-II REGÜLATÖRÜ VE HES	ADIYAMAN	HES	35.628	05/10/2012	
162	ENERJİSA ENERJİ ÜRETİM A.Ş.	BALIKESİR RÜZGAR ENERJİ SANTRALİ	BALIKESİR	RES	24.750	06/10/2012	X
163	FALANJ ENERJİ ELEKTRİK ÜRETİM A.Ş.	TELLİ I-II HİDROELEKTRİK SANTRALİ	GİRESUN	HES	8.720	10/10/2012	
164	GOODYEAR LASTİKLERİ TÜRK A.Ş.	TERMİK KOJENERASYON SANTRALI	KOCAELİ	DG	1.000	12/10/2012	
165	AREL ÇEVRE YATIRIMLARI ENERJİ VE ELEKTRİK ÜRETİMİ LTD. ŞTİ.	AREL ENERJİ BİYOKÜTLE TESİSİ	AFYONKARAHİSAR	BİYOKÜTLE (ÇÖP GAZI)	1.200	13/10/2012	
166	KÖRFEZ ENERJİ ÜRETİM SAN. VE TİC. LTD. ŞTİ.	KOCAELİ ÇÖP BİYOGAZ (LFG) SANTRALI TESİSİ BİYOKÜTLE ELEKTRİK ÜRETİM TESİSİ	KOCAELİ	BİYOKÜTLE (ÇÖP GAZI)	1.063	15/10/2012	X
167	MAREN MARAŞ ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	SİNEM JEOTERMAL ENERJİ SANTRALİ	AYDIN	JEOTERMAL	24.000	16/10/2012	
168	ORTADOĞU ENERJİ SAN. VE TİC. A.Ş.	İSTANBUL - ŞİLE - KÖMÜRCÜODA ÇÖP BİYOGAZ PROJESİ	İSTANBUL	BİYOGAZ (ÇÖP GAZI)	2.830	16/10/2012	
169	ELEKTRİK ÜRETİM A.Ş.	ERMENEK HİDROELEKTRİK SANTRALİ	KARAMAN	HES	151.200	17/10/2012	
170	POYRAZ ENERJİ ELEKTRİK ÜRETİM A.Ş.	POYRAZ RÜZGAR ENERJİ SANTRALİ	BALIKESİR	RES	16.000	19/10/2012	X

171	DOĞAL ENERJİ ELEKTRİK ÜRETİM A.Ş.	SAMURLU RÜZGAR ENERJİ SANTRALİ	İZMİR	RES	10.000	19/10/2012	X
172	İLK ELEKTRİK ENERJİ ÜRETİMİ SAN. TİC. A.Ş.	AYANCIK HİDROELEKTRİK SANTRALİ	SİNOP	HES	15.600	21/10/2012	
173	MERAL ELEKTRİK ÜRETİM A.Ş.	ESENDURAK HİDROELEKTRİK SANTRALİ	ERZURUM	HES	9.330	23/10/2012	X
174	MAREN MARAŞ ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	DENİZ JEOTERMAL ENERJİ SANTRALİ	AYDIN	JEOTERMAL	24.000	30/10/2012	
175	EKİM GRUP ELEKTRİK ÜRETİM A.Ş.	EKİM BİYOGAZ SANTRALİ	KONYA	BİYOGAZ	1.200	30/10/2012	
176	İZAYDAŞ İZMİT ATIK VE ARTIKLARI ARITMA YAKMA VE DEĞERLENDİRME A.Ş.	BİYOGAZ SANTRALİ	KOCAELİ	BİYOGAZ	0.330	31/10/2012	
177	ENERJİSA ENERJİ ÜRETİM A.Ş.	BALIKESİR RES	BALIKESİR	RES	16.500	03/11/2012	X
178	BİNATOM ELEKTRİK ÜRETİM A.Ş.	DOĞALGAZ BASİT ÇEVRİM SANTRALİ	KÜTAHYA	DG	4.044	03/11/2012	
179	ELEKTRİK ÜRETİM A.Ş.	ALPASLAN I HİDROELEKTRİK SANTRALİ	MUŞ	HES	80.000	13/11/2012	
180	AGE DENİZLİ DOĞALGAZ ELEKTRİK ÜRETİM A.Ş.	DOĞALGAZ KOMBİNE ÇEVRİM SANTRALİ	DENİZLİ	DG	47.000	15/11/2012	
181	TEKNO DOĞALGAZ ÇEVİRİM EN. ELK. ÜR.A.Ş.	BİLECİK DOĞALGAZ ÇEVRİM SANTRALİ	BİLECİK	DG	25.800	16/11/2012	
182	AKDENİZ KİMYA SAN. VE TİC. A.Ş.	KOJENERASYON SANTRALİ	İZMİR	DG	2.022	16/11/2012	
183	GÜRTEKS İPLİK SANAYİ VE TİCARET A.Ş.	KOJENERASYON SANTRALİ	GAZİANTEP	DG	6.698	17/11/2012	
184	MANRES ELEKTRİK ÜRETİM A.Ş.	GÜNAYDIN RÜZGAR ENERJİ SANTRALİ	BALIKESİR	RES	10.000	20/11/2012	X
185	BOMONTİ ELK. MÜH. MÜŞ.İNŞ.TUR.TİC. A.Ş.	ŞİFRİN REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	ADIYAMAN	HES	6.744	22/11/2012	
186	ENERJİSA ENERJİ ÜRETİM A.Ş.	BALIKESİR RES	BALIKESİR	RES	19.250	22/11/2012	X
187	ÇAĞLAYAN HES ENERJİ ÜRETİM A.Ş.	ÇAĞLAYAN HİDROELEKTRİK SANTRALİ	TRABZON	HES	6.000	22/11/2012	
188	KIVANÇ TEKSTİL SAN. VE TİC. A.Ş.	KOJENERASYON SANTRALİ	ADANA	DG	2.145	23/11/2012	
189	BAYBURT ENERJİ ÜRETİM VE TİCARET A.Ş.	YILDIRIM HİDROELEKTRİK SANTRALİ	BAYBURT	HES	3.559	23/11/2012	
190	BT BORDO ELK. ÜR. VE DAĞ.PAZ.SAN.VE TİC. A.Ş.	YAĞMUR REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	TRABZON	HES	8.946	27/11/2012	X
191	BOYABAT ELEKTRİK ÜRETİM VE TİCARET A.Ş.	BOYABAT BARAJI VE HİDROELEKTRİK SANTRALİ	SİNOP	HES	513.000	29/11/2012	
192	DİZ-EP ELEKTRİK ÜRETİM LTD. ŞTİ.	BEKTEMUR HİDROELEKTRİK SANTRALİ	AMASYA	HES	3.492	30/11/2012	
193	ITC ADANA EN. ÜR. SAN. VE TİC.	BİYOKÜTLE (ÇÖP GAZI)	ADANA	BİYOKÜTLE (ÇÖP GAZI)	4.245	01/12/2012	X

	A.Ş.	ENERJİ SANTRALİ					
194	YÜCEYURT ENERJİ ÜRETİM TİCARET VE SANAYİ A.Ş.	ARAKLI-I HİDROELEKTRİK SANTRALİ	TRABZON	HES	13.067	07/12/2012	
195	DARBOĞAZ ELK. ÜR. SAN. VE TİC. LTD. ŞTİ.	ALABALIK REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ I-II	ERZURUM	HES	13.840	14/12/2012	X
196	İZMİR BÜYÜK EFES OTELCİLİK VE TUR. A.Ş.	İZMİR BÜYÜK EFES OTELİ KOJENERASYON TESİSİ	İZMİR	DG	1.200	14/12/2012	
197	BOZTEPE ENERJİ ÜRETİM PAZARLAMA A.Ş.	GEMCİLER REGÜLATÖRÜ VE HES	ADIYAMAN	HES	7.980	18/12/12	
198	ELEKTRİK ÜRETİM A.Ş.	KILAVUZLU BARAJI VE HES	KAHRAMANMARAŞ	HES	40.500	18/12/12	
199	BİNATOM ELEKTRİK ÜRETİM A.Ş.	DOĞALGAZ BASİT ÇEVRİM SANTRALİ	KÜTAHYA	DG	2.022	19/12/12	
200	ENERJİSA ENERJİ ÜRETİM A.Ş.	BALIKESİR RÜZGAR ENERJİ SANTRALİ	BALIKESİR	RES	22.000	22/12/2012	X
201	DOĞAL ENERJİ ELEKTRİK ÜRETİM A.Ş.	KOZBEYLİ RÜZGAR ENERJİ SANTRALİ	İZMİR	RES	20.000	22/12/2012	X
202	OLGU ENERJİ YATIRIM ÜRETİM VE TİCARET A.Ş.	DİNAR RES	AFYONKARAHİSAR	RES	16.100	22/12/2012	X
203	AKDENİZLİ ELEKTRİK ÜRETİM A.Ş.	BAĞIŞTAŞ II HİDROELEKTRİK SANTRALİ	ERZİNCAN	HES	32.400	23/12/2012	X
204	MASAT ENERJİ ELEKTRİK ÜRETİM VE TİC. LTD. ŞTİ.	MİDİLLİ REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	AMASYA	HES	20.970	27/12/2012	
205	ACARSOY ENERJİ ELK. ÜR. SAN. VE TİC. A.Ş.	TERMİK KOMBİNE ÇEVRİM SANTRALİ	DENİZLİ	DG	50.000	27/12/12	
206	ADV ELEKTRİK ÜRETİM LTD. ŞTİ.	FINDIK HES	GÜMÜŞHANE	HES	11.250	27/12/2012	
207	VİRA ELEKTRİK ÜRETİM A.Ş.	TUĞRA REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	GİRESUN	HES	4.900	29/12/12	
208	ALES ELEKTRİK ÜRETİM VE TİC. A.Ş.	DOĞALGAZ KOMBİNE ÇEVRİM SANTRALİ	AYDIN	DG	49.000	29/12/12	
209	SANKO ENERJİ SAN. VE TİC. A.Ş.	KIZILAĞAÇ HES (YOKUŞLU KALKANDERE HES'İN İKİ ÜNİTESİ)	RİZE	HES	5.200	30/12/2012	X

Table.F. Annual development of Turkey's installed capacity in 2013

SIRA NO	ŞİRKET ADI	SANTRAL ADI	İL	YAKIT CİNSİ	İLAVE KURULU GÜÇ MW_e	GEÇİCİ KABULTARİHİ	VER
1	FERNAS ENERJİ ELEKTRİK ÜRETİM A.Ş.	GARZAN HİDROELEKTRİK SANTRALİ	BATMAN	HES	42.030	04/01/2013	
2	NAKSAN PLASTİK VE ENERJİ SAN. TİC. A.Ş.	NAKSAN TERMİK KOJENERASYON TESİSİ	GAZİANTEP	DG	19.760	07/01/2013	
3	NİSAN ELEKTROMEKANİK	YAPRAK HİDROELEKTRİK	AMASYA	HES	13.480	11/01/2013	**X**

	ENERJİ SAN. TİC. A.Ş.	SANTRALİ (YAPRAK I)					
4	DOĞAL ENERJİ ELEKTRİK ÜRETİM A.Ş.	SAMURLU RES	İZMİR	RES	6.000	12/01/2013	X
5	ÇOBANYILDIZI ELEKTRİK ÜRETİM A.Ş.	LİNYİT KÖMÜR/DOĞALGAZ YAKITLI AKIŞKAN YATAKLI EL. ÜR. SANTRALİ	KONYA	LİNYİT/DG	37.000	12/01/2013	
6	ENERKA KALECİK ELEKTRİK ÜRETİM VE PAZARLAMA A.Ş.	KALECİK HES (III. KADEME)	ANKARA	HES	2.6015	19/01/2013	
7	ÜÇHARMANLAR ENERJİ ÜRETİM LTD. ŞTİ.	ÜÇHARMANLAR HİDROELEKTRİK SANTRALİ	TRABZON	HES	16.640	24/01/2013	
8	KANYON YENİLENEBİLİR ENERJİ ÜRETİM TİCARET A.Ş.	ÇENGER I REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	ANTALYA	HES	5.690	25/01/2013	
9	ALİAĞA ÇAKMAKTEPE ENERJİ ÜRETİM A.Ş.	TREMİK-DOĞALGAZ KOMBİNE ÇEVRİM SANTRALİ	İZMİR	DG	24.000	25/01/2013	
10	EMSEY SAĞLIK HİZ. VE İŞL. TUR. OTEL. A.Ş.	OTOPRODÜKTÖR KOJENERASYON SANTRALİ	İSTANBUL	DG	0.849	31/01/2013	
11	KAPIDAĞ RÜZGAR ENERJİSİ ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	KAPIDAĞ RÜZGAR ENERJİ SANTRALİ	BALIKESİR	RES	16.000	31/01/2013	X
12	ELEKTRİK ÜRETİM A.Ş.	KILAVUZLU BARAJI VE HES	KAHRAMANMARAŞ	HES	13.500	01/02/13	
13	MUT ELEKTRİK ÜRETİM SAN. VE TİC. LTD. ŞTİ.	DİNÇ REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	MERSİN	HES	1.970	01/02/2013	
14	BUCAK YENİLENEBİLİR ENERJİ ÜRETİM A.Ş.	BUCAKKÖY HİDROELEKTRİK SANTRALİ	ANTALYA	HES	5.800	01/02/2013	
15	KURTSUYU ELEKTRİK ÜRETİM A.Ş.	DARAN HİDROELEKTRİK SANTRALİ (DARAN II)	KARAMAN	HES	19.420	01/02/2013	
16	ENERJİSA ENERJİ ÜRETİM A.Ş.	BALIKESİR RES	BALIKESİR	RES	16.500	02/02/2013	X
17	OLGU ENERJİ YATIRIM ÜRETİM VE TİC. A.Ş.	DİNAR RÜZGAR ENERJİ SANTRALİ	AFYONKARAHİSAR	RES	16.100	08/02/2013	X
18	KAM ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	TORLAR HİDROELEKTRİK SANTRALİ	KAHRAMANMARAŞ	HES	14.834	08/02/2013	
19	HİDRO-D HİDROELEKTRİK ENERJİ ÜRETİM A.Ş.	ÇOBANLI HİDROELEKTRİK SANTRALİ	SİVAS	HES	19.030	09/02/2013	
20	ÜTOPYA ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	DÜZOVA RÜZGAR ENERJİ SANTRALİ	İZMİR	RES	0.000	12/02/2013	X
21	BOL SU ENERJİ ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	CEVİZLİDERE HİDROELEKTRİK SANTRALİ	BOLU	HES	3.400	13/02/2013	
22	AKKOÇ ELEKTRİK ÜRETİM LTD. ŞTİ.	REMSU HİDROELEKTRİK SANTRALİ	MERSİN	HES	1.958	13/02/2013	
23	BİS ENERJİ ELEKTRİK ÜRETİM A.Ş.	TERMİK-KOMBİNE ÇEVRİM SANTRALİ (STG3)	BURSA	DG	28.000	13/02/2013	
24	ORTADOĞU ENERJİ SAN. VE TİC. A.Ş.	ODAYERİ BİYOGAZ PROJESİ	İSTANBUL	BİYOGAZ (ÇÖP GAZI)	4.245	13/02/2013	
25	AKDENİZ ELEKTRİK ÜRETİM A.Ş.	MERSİN RÜZGAR ENERJİ SANTRALİ	MERSİN	RES	1.000	14/02/2013	X
26	BOL SU ENERJİ ELEKTRİK ÜRETİM	ÇELTİKDERE HİDROELEKTRİK	BOLU	HES	2.150	14/02/2013	

	SAN. VE TİC. A.Ş.	SANTRALİ					
27	TURHAL ENERJİ ÜRETİM A.Ş.	OSMANCIK HES	AMASYA	HES	9.030	15/02/2013	
28	KARMA GIDA YATIRIM SAN. VE TİC. A.Ş.	KARMA-1 BES	SAKARYA	BİYOKÜTLE	1.487	16/02/2013	
29	SUATA ELEKTRİK ÜRETİM LTD. ŞTİ.	BURÇAK HİDROELEKTRİK SANTRALİ (BURÇAK I)	GİRESUN	HES	6.630	18/02/2013	
30	DOĞAL ENERJİ ELEKTRİK ÜRETİM A.Ş.	KOZBEYLİ RÜZGAR ENERJİ SANTRALİ	İZMİR	RES	8.000	22/02/2013	X
31	TEMSA ELEKTRİK ÜRETİM LTD. ŞTİ.	GÖZEDE II HES	BURSA	HES	4.000	22/02/2013	
32	ADV ELEKTRİK ÜRETİM LTD. ŞTİ.	FINDIK REGÜLATÖRÜ VE HES	GÜMÜŞHANE	HES	8.500	22/02/2013	
33	ENERJİSA ENERJİ ÜRETİM A.Ş.	BALIKESİR RES	BALIKESİR	RES	13.250	27/02/2013	X
34	MMK METALURJİ SAN. TİC. VE LİMAN İŞLETMECİLİĞİ A.Ş.	GEBZE KOJENERASYON TESİSİ	KOCAELİ	DG	7.960	27/02/2013	
35	AKÇANSA ÇİMENTO SANAYİ VE TİCARET A.Ş.	AKÇANSA TERMİK-KOJENERASYON SANTRALİ	ÇANAKKALE	ATIK ISI	15.200	01/03/2013	
36	BUCAK YENİLENEBİLİR ENERJİ ÜRETİM A.Ş.	BUCAKKÖY HİDROELEKTRİK SANTRALİ	ANTALYA	HES	2.900	01/03/2013	
37	FRİTO LAY GIDA SAN. TİC. A.Ş.	FRİTO LAY KOJENERASYON SANTRALİ	KOCAELİ	BİYOGAZ/DG	0.305	01/03/2013	
38	AVKAL ENERJİ ÜRETİM VE TİC. A.Ş.	KALE HİDROELEKTRİK SANTRALİ	AMASYA	HES	29.250	01/03/2013	X
39	PRESTİJ ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	KOÇAK REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	GİRESUN	HES	24.108	01/03/2013	
40	ENERKA KALECİK ELEKTRİK ÜRETİM VE PAZARLAMA A.Ş.	KALECİK HES (KALECİK 3. KADEME 2. ÜNİTE)	ANKARA	HES	2.602	04/03/2013	
41	YÜKSEL ENERJİ ELEKTRİK ÜRETİM VE TİC. A.Ş.	KÖPRÜBAŞI HES	BOLU	HES	74.000	05/03/2013	
42	SUATA ELEKTRİK ÜRETİM LTD. ŞTİ.	BURÇAK HİDROELEKTRİK SANTRALİ (BURÇAK I)	GİRESUN	HES	33.400	07/03/2013	
43	ENERJİSA ENERJİ ÜRETİM A.Ş.	KÖPRÜ BARAJI VE HİDROELEKTRİK SANTRALİ	ADANA	HES	77.924	08/03/2013	
44	BEYBO BOYA SAN. VE TİC. A.Ş.	BEYBO KOJENERASYON TESİSİ	TEKİRDAĞ	DG	2.022	15/03/2013	
45	LODOS KARABURUN ELEKTRİK ÜRETİM A.Ş.	KARABURUN RÜZGAR ENERJİ SANTRALİ	İZMİR	RES	14.000	15/03/2013	X
46	ATİ İNŞAAT ENERJİ ÜRETİM VE TİC. LTD. ŞTİ.	DİYOBAN HİDROELEKTRİK SANTRALİ	ARTVİN	HES	8.520	15/03/2013	
47	CESE ELEKTRİK ÜRETİM A.Ş.	MAVİ REGÜLATÖRÜ VE HES	MERSİN	HES	11.390	21/03/2013	
48	OLGU ENERJİ YATIRIM ÜRETİM VE TİC. A.Ş.	DİNAR RÜZGAR ENERJİ SANTRALİ	AFYONKARAHİSAR	RES	16.100	22/03/2013	X
49	YEŞİLIRMAK ELEKTRİK ENERJİ ÜRETİM A.Ş.	YEŞİLIRMAK-I HİDROELEKTRİK SANTRALİ	TOKAT	HES	14.250	22/03/2013	
50	PAK ENERJİ ÜRETİMİ SAN. VE TİC. A.Ş.	KAVAKÇALI HİDROELEKTRİK SANTRALİ	MUĞLA	HES	11.143	29/03/2013	

51	DARBOĞAZ ELEKTRİK ÜRETİM SAN. VE TİC. LTD. ŞTİ.	ALABALIK REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	ERZURUM	HES	2.480	29/03/2013	**X**
52	ALKİM KAĞIT SAN. VE TİC. A.Ş.	KOJENERASYON SANTRALİ	İZMİR	DG	5.538	30/03/2013	
53	ARSAN ENERJİ A.Ş.	KAYAKÖPRÜ HİDROELEKTRİK SANTRALİ	GİRESUN	HES	14.200	05/04/2013	
54	LODOS KARABURUN ELEKTRİK ÜRETİM A.Ş.	KARABURUN RÜZGAR ENERJİ SANTRALİ	İZMİR	RES	12.000	10/04/2013	**X**
55	EGENDA EGE ENERJİ ÜRETİM A.Ş.	EĞLENCE 2 HES	ADANA	HES	26.000	10/04/2013	
56	YÜCEYURT ENERJİ ÜRETM TİCARET VE SANAYİ A.Ş.	ARAKLI 1 HES	TRABZON	HES	1.844	11/04/2013	
57	TÜRKİYE PETROL RAFİNERİLERİ A.Ş.	OTOPRODÜKTÖR SANTRALİ	İZMİR	DG/MOTORİN	24.580	12/04/2013	
58	ACARSOY ENERJİ ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	ACARSOY DENİZLİ DOĞALGAZ KOMBİNE ÇEVRİM SANTRALİ	DENİZLİ	DG	13.000	12/04/2013	
59	ÇİFTEKÖPRÜ ELEKTRİK ÜRETİM A.Ş.	ÇİFTEKÖPRÜ REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	ARTVİN	HES	7.770	18/04/2013	
60	DURUCASU ELEKTRİK ÜRETİM LTD. ŞTİ.	DURU 1 REGÜLATÖRÜ VE HES	AMASYA	HES	4.000	18/04/2013	
61	NAKSAN ENERJİ ELEKTRİK ÜRETİMİ A.Ş.	NAKSAN ENERJİ SANTRALİ -2	GAZİANTEP	DG	19.460	19/04/2013	
62	TUYAT ELEKTRİK ÜRETİM A.Ş.	TUZLAKÖY-SERGE REGÜLATÖRÜ VE HES - II	ERZURUM	HES	9.520	19/04/2013	**X**
63	ZARİF ENERJİ VE EL. ÜR. TEKS. SAN. VE TİC. LTD. ŞTİ.	KIRIKKALE ÇÖP GAZI (BİYOKÜTLE) SANTRALİ	KIRIKKALE	BİYOKÜTLE (ÇÖP GAZI)	1.003	23/04/2013	
64	KARADENİZ HİDROELEKTRİK EN. ELK. ÜR.	ÇIRAKDAMI REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	GİRESUN	HES	24.550	26/04/2013	
65	ENERJİSA ENERJİ ÜRETİM A.Ş.	KÖPRÜ BARAJI VE HES	ADANA	HES	77.240	26/04/2013	
66	ALES ELEKTRİK ÜRETİM VE TİC. A.Ş.	DOĞALGAZ KOMBİNE ÇEVRİM SANTRALİ	AYDIN	DG	13.000	27/04/2013	
67	LODOS KARABURUN ELEKTRİK ÜRETİM A.Ş.	KARABURUN RÜZGAR ENERJİ SANTRALİ	İZMİR	RES	12.000	03/05/2013	**X**
68	POYRAZ ENERJİ ELEKTRİK ÜRETİM A.Ş.	POYRAZ RES	BALIKESİR	RES	4.900	03/05/2013	**X**
69	KONİ İNŞAAT SANAYİ A.Ş.	AKKÖY-ESPİYE HİDROELEKTRİK SANTRALİ	GİRESUN	HES	4.456	10/05/2013	
70	ENERJİSA ENERJİ ÜRETİM A.Ş.	DAĞDELEN REGÜLATÖRÜ VE HES	KAHRAMANMARAŞ	HES	8.000	10/05/2013	**X**
71	ÜTOPYA ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	DÜZOVA RÜZGAR ENERJİ SANTRALİ	İZMİR	RES	0.000	16/05/2013	**X**
72	AKDENİZLİ ELEKTRİK ÜRETİM A.Ş.	BAĞIŞTAŞ-II HİDROELEKTRİK SANTRALİ	ERZİNCAN	HES	16.200	16/05/2013	
73	ESKO ŞİŞLİ ELEKTRİK ÜRETİM A.Ş.	FLORANCE NIGHTINGALE HASTANESİ KOJENERASYON SANTRALİ	İSTANBUL	DG	2.000	17/05/2013	
74	BEREKET ENERJİ ÜRETİM A.Ş.	TOROS HES	ADANA	HES	49.990	17/05/2013	

75	COŞKUN ELEKTRİK ÜRETİM LTD. ŞTİ.	YEŞİLVADİ HES	HATAY	HES	9.980	18/05/2013	
76	KURTSUYU ELEKTRİK ÜRETİM A.Ş.	DARAN-I HİDROELEKTRİK SANTRALİ	KARAMAN	HES	23.870	21/05/2013	
77	AR-ES ELEKTRİK ÜRETİM LTD. ŞTİ.	HASANKALE REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	NEVŞEHİR	HES	5.290	22/05/2013	
78	GAZİANTEP ÖZEL SAĞLIK HASTANESİ A.Ş.	GAZİANTEP ÖZEL SAĞLIK HASTANESİ A.Ş. KOJENERASYON SANTRALİ	GAZİANTEP	DG	1.188	24/05/2013	
79	AGE DENİZLİ DOĞALGAZ ELEKTRİK ÜRETİM A.Ş.	AGE DENİZLİ DOĞALGAZ KOMBİNE ÇEVRİM SANTRALİ	DENİZLİ	DG	64.500	25/05/2013	
80	GALATA WIND ENERJİ A.Ş.	ŞAH RES	BALIKESİR	RES	0.000	25/05/2013	X
81	LODOS KARABURUN ELEKTRİK ÜRETİM A.Ş.	KARABURUN RÜZGAR ENERJİ SANTRALİ	İZMİR	RES	22.000	29/05/2013	X
82	KÜÇÜKBAY YAĞ VE DETERJAN SAN. A.Ş.	KÜÇÜKBAY YAĞ VE DETERJAN SAN. A.Ş. TERMİK KOJENERASYON SANTRALİ	İZMİR	DG	1.605	30/05/2013	
83	POLAT TURİZM OTELCİLİK TİC. VE SAN. A.Ş.	RENAISSANCE ISTANBUL BOSPHORUS HOTEL KOJENERASYON SANTRALİ	İSTANBUL	DG	0.501	30/05/2013	
84	ZEYTİNELİ RES ELEKTRİK ÜRETİM A.Ş.	ZEYTİNELİ RES	İZMİR	RES	37.500	30/05/2013	X
85	DOĞAL ENERJİ ELEKTRİK ÜRETİM A.Ş.	SAMURLU RES	İZMİR	RES	2.000	31/05/2013	X
86	MENERJİ ELK. ÜR. DAĞ. PAZ. SAN. VE TİC. A.Ş.	YÜCE HİDROELEKTRİK SANTRALİ	GİRESUN	HES	5.283	31/05/2013	
87	ITC-KA ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	BİYOKÜTLEDEN ENERJİ ÜRETİM SANTRALİ	ANKARA	BİYOKÜTLE (ÇÖP GAZI)	8.496	31/05/2013	
88	KAPIDAĞ RÜZGAR ENERJİSİ EL. ÜR. SAN. VE TİC. A.Ş.	KAPIDAĞ RES	BALIKESİR	RES	8.000	01/06/2013	X
89	MED ENERJİ A.Ş.	AKKAYA REGÜLATÖRÜ VE HES	KASTAMONU	HES	4.400	02/06/2013	
90	ARSAN DOKUMA BOYA SAN. VE TİC. A.Ş.	ARSAN DOKUMA TERMİK KOJENERASYON SANTRALİ	KAHRAMANMARAŞ	DG	4.300	08/06/2013	
91	EGENDA EGE ENERJİ ÜRETİM A.Ş.	EĞLENCE-I HES	ADANA	HES	42.650	13/06/2013	
92	AY ELEKTRİK ÜRETİM A.Ş.	ESKİKÖY REGÜLATÖRÜ VE HES	ANTALYA	HES	2.630	13/06/2013	
93	PAK ENERJİ ÜR.SAN VE TİC A.Ş	GELİNKAYA HES	ERZURUM	HES	6.866	14/06/2013	X
94	HASIRCI TEKSTİL SAN. VE TİC.	HASIRCI TEKSTİL SAN. VE TİC. TERMİK KOJENERASYIN SANTRALİ	GAZİANTEP	DG	2.300	15/06/2013	
95	OMW SAMSUN EL. ÜR. SAN. VE TİC. A.Ş.	OMW SAMSUN DGKÇS	SAMSUN	DG	886.920	20/06/2013	
96	RWE&TURCAS GÜNEY ELEKTRİK ÜRETİM A.Ş.	RWE&TURCAS GÜNEY DENİZLİ DGKÇS	DENİZLİ	DG	797.400	21/06/2013	

97	AREL ÇEVRE YATIRIMLARI EN. VE EL. ÜR. LTD. ŞTİ.	AREL ENERJİ MANAVGAT BİYOKÜTLE TESİSİ	ANTALYA	BİYOKÜTLE (ÇÖP GAZI)	2.400	21/06/2013	
98	ZEYTİNELİ RES ELK. ÜR. A.Ş.	ZEYTİNELİ RES	İZMİR	RES	12.000	21/06/2013	X
99	ZEYNEP ENERJİ ÜRETİM SAN. TİC. A.Ş.	AVANOS REG. VE CEMEL HES (CEMEL I)	NEVŞEHİR	HES	7.200	27/06/2013	
100	YENİ BELEN EN. EL. ÜR. SAN. VE TİC. A.Ş.	ŞENBÜK RES	HATAY	RES	24.000	27/06/2013	X
101	YENİ BELEN EN. EL. ÜR. SAN. VE TİC. A.Ş.	ŞENBÜK RES	HATAY	RES	3.000	30/06/2013	X
102	MOR ELEKTRİK ÜRETİM A.Ş.	MOR-2 HİDROELEKTRİK SANTRALİ	GÜMÜŞHANE	HES	6.630	03/07/2013	
103	ASYA EN. EL. ÜR. SAN. TİC. A.Ş.	GÜNEŞLİ II HİDROELEKTRİK SANTRALİ	TRABZON	HES	12.380	03/07/2013	
104	ELEKTRİK ÜRETİM A.Ş.	DERİNER BARAJI VE HES	ARTVİN	HES	167.500	05/07/2013	
105	HER ENERJİ VE ÇEVRE TEKNOLOJİLERİ EL. ÜR. A.Ş.	KAYSERİ KATI ATIK DEPONİ SAHASI EN. ÜR. TESİSİ BİYOKÜTLE (ÇÖP GAZI) SANTRALİ	KAYSERİ	BİYOKÜTLE (ÇÖP GAZI)	1.357	05/07/2013	
106	ANADOLU İPLİK VE TEKSTİL SAN. A.Ş.	ANADOLU İPLİK VE TEKSTİL SAN. A.Ş. TERMİK KOJENERASYON SANTRALİ	TEKİRDAĞ	DG	8.600	05/07/2013	
107	ÖZDİLEK EV TETSTİL SAN. VE TİC. A.Ş.	ÖZDİLEK EV TETSTİL SAN. VE TİC. A.Ş. OTOPRODÜKTÖR SANTRALİ	BURSA	DG	4.300	12/07/2013	
108	DERYA ELEKTRİK ÜRETİMİ VE TİC. A.Ş.	PİRİNÇLİ REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	ÇORUM	HES	9.340	16/07/2013	X
109	SUSURLUK ENERJİ A.Ş.	SUSURLUK RES	BALIKESİR	RES	0.000	16/07/2013	X
110	EMSAT EL. ÜR. VE MAL. PAZ. SAN. VE TİC. A.Ş.	MEREKLER REGÜLATÖRÜ VE ALGÖLÜ HES	ARDAHAN	HES	11.157	18/07/2013	X
111	EDİNCİK ENERJİ ÜRETİM A.Ş.	EDİNCİK RES	BALIKESİR	RES	30.000	19/07/2013	X
112	OLGU ENERJİ YATIRIM ÜR. TİC. A.Ş.	DİNAR RES	AFYONKARAHİSAR	RES	1.700	19/07/2013	X
113	GÜLSAN SENTETİK DOKUMA SAN. VE TİC. A.Ş.	GÜLSAN SENTETİK DOKUMA SAN. VE TİC. A.Ş. TERMİK KOJENERASYIN TESİSİ	GAZİANTEP	DG	36.642	20/07/2013	
114	KAİS ELEKTRİK ÜRETİM A.Ş.	DEĞİRMEN HES	GÜMÜŞHANE	HES	13.000	26/07/2013	
115	İSKUR TEKSTİL ENERJİ TİC. VE SAN. A.Ş.	İSKUR TEKSTİL ENERJİ TİC. VE SAN. A.Ş. OTOPRODÜKTÖR SANTRALİ	KAHRAMANMARAŞ	DG	8.600	26/07/2013	
116	LODOS KARABURUN EL. ÜR. A.Ş.	KARABURUN RES	İZMİR	RES	21.000	26/07/2013	X
117	BELEN ELEKTRİK ÜRETİM A.Ş.	BELEN RES	HATAY	RES	0.000	26/07/2013	X
118	BATISÖKE SÖKE ÇİMENTO SANAYİİ TÜRK A.Ş.	BATISÖKE ATIK ISI OTOPRODÜKTÖR SANTRALİ	AYDIN	ATIK ISI	5.335	27/07/2013	
119	FENER ENERJİ TAAHHÜT İNŞ. SAN. VE TİC. LTD. ŞTİ.	DOĞALGAZ YAKITLI KOJENERASYON SANTRALİ	KAYSERİ	DG	1.200	29/07/2013	

120	KIROBA ELEKTRİK ÜRETİM A.Ş.	MADRANBABA RES	AYDIN	RES	19.500	30/07/2013	**X**
121	BOSSA TİCARET VE SANAYİ İŞLETMELERİ T.A.Ş	BOSSA TİCARET VE SANAYİ İŞLETMELERİ T.A.Ş TERMİK KOJENERASYON SANTRALİ	ADANA	DG	6.698	31/07/2013	
122	TRABZON ENERJİ ÜRETİM VE TİC. A.Ş.	KEMERÇAYIR REGÜLATÖRÜ VE HES	TRABZON	HES	15.498	01/08/2013	
123	BAV ELEKTRİK ÜRETİM A.Ş.	IRMAK HES	ORDU	HES	5.740	01/08/2013	
124	ELEKTRİK ÜRETİM A.Ş.	DERİNER BARAJI VE HES	ARTVİN	HES	335.000	02/08/2013	
125	YEŞİLYURT ENERJİ ELEKTRİK ÜRETİM A.Ş.	YEŞİLYURT ENERJİ SAMSUN MERKEZ OSB DOĞALGAZ KOMBİNE ÇEVRİM SANTRALİ	SAMSUN	DG	128.247	02/08/2013	
126	YEŞİLYURT GRUP ENERJİ ÜRETİM TİC. VE SAN. A.Ş.	ARAKLI-4 REGÜLATÖRÜ VE HES	TRABZON	HES	8.911	02/08/2013	
127	FRITO LAY GIDA SAN. VE TİC. A.Ş.	FRITO LAY GIDA SAN. VE TİC. A.Ş. TERMİK KOJENERASYON TESİSİ	MERSİN	BİYOGAZ/DG	0.660	02/08/2013	
128	ADACAMİ ENERJİ ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	ADACAMİ HİDROELEKTRİK SANTRALİ	RİZE	HES	14.652	02/08/2013	
129	AKAR ENERJİ SAN. TİC. LTD. ŞTİ.	GECÜR HİDROOELEKTRİK SANTRALİ	GİRESUN	HES	3.098	05/08/2013	
130	ENERKA KALECİK ELEKTRİK ÜRETİM VE PAZ. A.Ş.	KALECİK HES	ANKARA	HES	3.075	06/08/2013	
131	MENDERES GEOTHERAMAL ELEKTRİK ÜRETİM A.Ş.	DORA-3 JEOTERMAL ENERJİ SANTRALİ	AYDIN	JEOTERMAL	17.000	16/08/2013	
132	LODOS KARABURUN EL. ÜR. A.Ş.	KARABURUN RES	İZMİR	RES	27.000	16/08/2013	**X**
133	HOŞDERE ENERJİ ÜRETİM VE TİC. A.Ş.	SENA HES	KARS	HES	21.436	19/08/2013	
134	ORTADOĞU ENERJİ SAN. VE TİC. A.Ş.	İSTANBUL - ŞİLE - KÖMÜRCÜODA ÇÖP BİYOGAZ PROJESİ	İSTANBUL	BİYOGAZ (ÇÖP GAZI)	5.660	22/08/2013	
135	ŞİMŞEK BİSKÜVİ VE GIDA SAN. A.Ş.	ŞİMŞEK BİSKÜVİ TERMİK KOJENERASYON SANTRALİ	KARAMAN	DG	1.560	23/08/2013	
136	AKSA AKRİLİK KİMYA SAN. A.Ş.	AKSA SANTRALİ	YALOVA	DG	0.000	23/08/2013	
137	ORTADOĞU ENERJİ SAN. VE TİC. A.Ş.	İSTANBUL - KEMERBURGAZ - ODAYERİ ÇÖP BİYOGAZ PROJESİ	İSTANBUL	BİYOGAZ (ÇÖP GAZI)	2.830	23/08/2013	
138	ENFAŞ ENERJİ ELEKTRİK ÜRETİM A.Ş.	AKSARAY OSB BİYOGAZ SANTRALİ	AKSARAY	BİYOKÜTLE	2.134	28/08/2013	
139	İDOL ELEKTRİK ÜRETİM A.Ş.	GÖZELOLUK REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	GÜMÜŞHANE	HES	13.580	29/08/2013	
140	ZORLU DOĞAL ELEKTRİK ÜRETİMİ A.Ş.	KIZILDERE II JEOTERMAL SANTRALİ	DENİZLİ	JEOTERMAL	60.000	30/08/2013	
141	KESKİNKILIÇ GIDA SAN. VE TİC. A.Ş.	KESKİNKILIÇ GIDA TERMİK KOJENERASYON SANTRALİ	AKSARAY	DG	10.000	30/08/2013	
142	MCK ELEKTRİK ÜRETİM A.Ş.	DEVECİKONAĞI BARAJI VE HES	BURSA	HES	23.000	30/08/2013	

143	DOKUBOY DOKUMACILAR TEKSTİL MAD. SAN. VE TİC. A.Ş.	DOKUBOY OTOPRODÜKTÖR SANTRALİ	KAHRAMANMARAŞ	DG	4.300	30/08/2013	
144	ALBE ENERJİ ELEK. ELKTR. DAN. MÜŞ. PET. MAD. TAR. HAY. SAN. VE TİC. A.Ş.	YAPRAK HES	ANTALYA	HES	8.970	05/09/2013	X
145	SAF ENERJİ ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	SAF I HES	BİNGÖL	HES	8.600	06/09/2013	
146	LODOS KARABURUN ELEKTRİK ÜRETİM A.Ş.	KARABURUN RES	İZMİR	RES	12.000	06/09/2013	X
147	EGELİ ENERJİ YATIRIM İNŞ. VE TİC. A.Ş.	YAYLA REGÜLATÖRÜ VE HES	ARTVİN	HES	4.670	06/09/2013	X
148	AKSA ENERJİ ÜRETİM A.Ş.	ATİK RES	HATAY	RES	4.000	13/09/2013	X
149	HETAŞ HACISALİHOĞLU ENERJİ VE TİC. A.Ş.	TONYA I-II HES	TRABZON	HES	1.250	13/09/2013	
150	AL-YEL ELEKTRİK ÜRETİM A.Ş.	GEYCEK RES	KIRŞEHİR	RES	26.000	13/09/2013	X
151	SUSURLUK ENERJİ A.Ş.	SUSURLUK RÜZGAR ENERJİ SANTRALİ	BALIKESİR	RES	0.000	13/09/2013	X
152	GÜMÜŞKÖY JEOTERMAL ENERJİ ÜRETİM A.Ş.	GÜMÜŞKÖY JES	AYDIN	JEOTERMAL	6.600	15/09/2013	
153	KONBELTAŞ KONYA İNŞ. TAŞ. HİZ. DAN. VE PARK İŞLT. VE ELK. ÜRT. VE TİC. A.Ş.	KONYA ATIKSU ARITMA TESİSİ ELEKTRİK SANTRALİ	KONYA	BİYOGAZ	2.436	19/09/2013	
154	DARIVEREN ENERJİ ELEKTRİK ÜRETİM A.Ş.	DARIVEREN HES	DENİZLİ	HES	3.065	20/09/2013	
155	ENERJİSA ENERJİ ÜRETİM A.Ş.	SARIGÜZEL HES	KAHRAMANMARAŞ	HES	98.880	20/09/2013	X
156	ENERJİSA ENERJİ ÜRETİM A.Ş.	KUŞAKLI REGÜLATÖRÜ VE HES	ADANA	HES	20.000	20/09/2013	X
157	TRABZON ENERJİ ÜRETİM VE TİC. A.Ş.	ÜÇHANLAR REGÜLATÖRÜ VE HES	TRABZON	HES	11.939	27/09/2013	
158	AYEN ENERJİ A.Ş.	MORDOĞAN RES	İZMİR	RES	30.750	27/09/2013	X
159	SAMSUN AVDAN EN. ÜR. VE TİC. A.Ş.	BİYOKÜTLE (ÇÖP GAZI) ENERJİ ÜRETİM SANTRALİ	SAMSUN	BİYOGAZ	1.200	27/09/2013	X
160	SARAY DÖKÜM VE MADENİ AKSAM SANAYİ TURİZM A.Ş.	SARAY RES	TEKİRDAĞ	RES	4.000	27/09/2013	X
161	ENERKA KALECİK EL. ÜR. VE PAZ. A.Ş.	KALECİK HES	ANKARA	HES	3.075	30/09/2013	
162	ELEKTRİK ÜRETİM A.Ş.	DERİNER HİDROELEKTRİK SANTRALİ	ARTVİN	HES	167.500	02/10/2013	
163	ZEYNEP ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	AVANOS REGÜLATÖRÜ VE CEMEL HİDROELEKTRİK SANTRALİ	NEVŞEHİR	HES	7.200	04/10/2013	
164	GAZİANTEP ORGANİZE SANAYİ BÖLGESİ ELEKTRİK ÜRETİM A.Ş.	GOREN-2 TERMİK KOJENERASYON SANTRALİ	GAZİANTEP	DG	48.650	04/10/2013	
165	ENERJİSA ENERJİ ÜRETİM A.Ş.	KANDİL BARAJI VE HES	KAHRAMANMARAŞ	HES	203.200	10/10/2013	

166	DERYA ELEKTRİK ÜRETİMİ VE TİC. A.Ş.	PİRİNÇLİ REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	ÇORUM	HES	9.340	10/10/2013	X
167	İPEKSAN ELEKTRİK ÜRETİM A.Ş.	İPEKSAN ELEKTRİK ÜRETİM A.Ş. TERMİK KOJENERASYON SANTRALİ	MARDİN	DG	8.600	10/10/2013	
168	NAKSAN ENERJİ ELETRİK ÜRETİMİ A.Ş.	NAKSAN ENERJİ SANTRALİ 2	GAZİANTEP	DG	1.100	11/10/2013	
169	AL-YEL ELEKTRİK ÜRETİM A.Ş.	GEYCEK RÜZGAR ENERJİ SANTRALİ	KIRŞEHİR	RES	12.000	11/10/2013	X
170	BATIÇİM BATI ANADOLU ÇİMENTO SANAYİİ A.Ş.	BATIÇİM BATI ANADOLU ÇİMENTO SANAYİİ A.Ş. TERMİK KOJENERASYON SANTRALİ	İZMİR	ATIK ISI	9.000	12/10/2013	X
171	ODAŞ ELEKTRİK ÜRETİM SAN. TİC. A.Ş.	ODAŞ I DOĞALGAZ KOMBİNE ÇEVRİM SANTRALİ	ŞANLIURFA	DG	12.000	23/10/2013	
172	ORTAÇAĞ ENERJİ ÜRETİM A.Ş.	ORTAÇAĞ REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	TRABZON	HES	12.944	24/10/2013	
173	ÖVÜNÇ ENERJİ VE ELEKTRİK ÜRETİM A.Ş.	ÇERMİKLER BARAJI VE HES	SİVAS	HES	3.000	24/10/2013	
174	ZORLU DOĞAL ELEKTRİK ÜRETİM A.Ş.	KIZILDERE II JES	DENİZLİ	JEOTERMAL	20.000	31/10/2013	
175	SENKRON GRUP İNŞAAT MAK. MÜH. PROJE EL. ÜR. LTD ŞTİ.	SENKRON EFELER BİYOGAZ SANTRALİ	AYDIN	BİYOGAZ	2.400	31/10/2013	
176	ÇELİKLER JEOTERMAL ELEKTRİK ÜRETİM A.Ş.	PAMUKÖREN JES	AYDIN	JEOTERMAL	45.020	31/10/2013	
177	KÖPRÜBAŞI ENERJİ ELEKTRİK ÜRETİM A.Ş.	KÖPRÜBAŞI HİDROELEKTRİK SANTRALİ	GÜMÜŞHANE	HES	14.660	08/11/2013	
178	LUTUF MENSUCAT A.Ş.	LUTUF MENSUCAT KOJENERASYON SANTRALİ	KAHRAMANMARAŞ	DG	2.000	08/11/13	
179	DARENHES ELEKTRİK ÜRETİMİ A.Ş.	TATAR HİDROELEKTRİK SANTRALİ	ELAZIĞ	HES	64.11	14/11/13	X
180	ARSAN SOĞUKPINAR ELEKTRİK ÜRETİM A.Ş.	SOĞUKPINAR HİDROELEKTRİK SANTRALİ	GİRESUN	HES	8.900	15/11/13	
181	H.G. ENERJİ ELEKTRİK ÜRETİMİ SAN. VE TİC. A.Ş.	H.G. ENERJİ GEDİZ SANTRALİ	KÜTAHYA	DG	5.350	15/11/13	
182	ELEKTRİK ÜRETİM A.Ş.	AMBARLI TERMİK SANTRALİ	İSTANBUL	DG	516.000	21/11/13	
183	İLCAN ELEKTRİK ÜRETİM A.Ş.	YAZYURDU REGÜLATÖRÜ VE HES	ERZURUM	HES	14.900	22/11/13	X
184	DNZ ELEKTRİK ÜRETİM A.Ş.	AKKENT CALKUYUCAK HES	DENİZLİ	HES	13.813	22/11/13	
185	EFE EN. EL. ÜR. PAZ. DAN. SAN. VE TİC. LTD. ŞTİ.	EREM HİDROELEKTRİK SANTRALİ	OSMANİYE	HES	3.050	23/11/13	
186	R.K. RÜZGAR ENERJİ SANTRALLERİ EL. ÜR. SAN. VE TİC. LTD. ŞTİ.	PAŞALİMANI RES	BALIKESİR	RES	0.800	25/11/2013	X
187	KARAKÖY ELEKTRİK ÜRETİM A.Ş.	KARAKÖY HİDROELEKTRİK SANTRALİ	ANKARA	HES	3.000	28/11/13	
188	ADASU ENERJİ A.Ş.	ADASU HİDROELEKTRİK SANTRALİ	SAKARYA	HES	9.600	28/11/13	X

189	MOR ELEKTRİK ÜRETİM A.Ş.	AĞKOLU HES	ORDU	HES	4.380	28/11/13	
190	OLGU ENERJİ YATIRIM ÜRETİM VE TİC. A.Ş.	DİNAR RES	AFYONKARAHİSAR	RES	0.000	29/11/2013	X
191	ISPARTA MENSUCAT SAN. VE TİC. A.Ş.	ISPARTA MENSUCAT SAN. VE TİC. A.Ş. KOJENERASYON SANTRALİ	ISPARTA	DG	0.000	29/11/13	
192	ETKEN ELEKTRİK ÜRETİM LTD. ŞTİ.	OYLAT HES	BURSA	HES	1.900	03/12/13	X
193	DURUCASU ELEKTRİK ÜRETİM LTD. ŞTİ.	DURU REGÜLATÖRÜ VE HES	AMASYA	HES	1.630	04/12/13	
194	AL-YEL ELEKTRİK ÜRETİM A.Ş.	GEYCEK RES	KIRŞEHİR	RES	33.000	05/12/13	X
195	DARENHES ELEKTRİK ÜRETİMİ A.Ş.	KİRAZLIK REGÜLATÖRÜ VE HES	SİİRT	HES	14.537	05/12/13	
196	KURTSUYU ELEKTRİK ÜRETİM A.Ş.	DARAN HİDROELEKTRİK SANTRALİ	KARAMAN	HES	23.870	05/12/13	
197	ORTADOĞU RULMAN SAN. VE TİC. A.Ş.	ORTADOĞU RULMAN SANAYİ TERMİK KOJENERASYON SANTRALİ	ANKARA	DG	7.744	06/12/13	
198	YENİ ELEKTRİK ÜRETİM A.Ş.	YENİ ELEKTRİK ÜRETİM A.Ş. DGKÇS	KOCAELİ	DG	289.091	06/12/13	
199	TEKTUĞ ELEKTRİK ÜRETİM A.Ş.	SIRIMTAŞ HİDROELEKTRİK SANTRALİ	ADIYAMAN	HES	13.617	07/12/13	
200	KAYA TURİSTİK TESİSLERİ TİTREYENGÖL OTELCİLİK A.Ş.	KAYA BELEK TERMİK KOJENERASYON SANTRALİ	ANTALYA	DG	1.286	08/12/13	
201	ARI SU ENERJİ ÜRETİM A.Ş.	AKBAŞ HİDROELEKTRİK SANTRALİ	DENİZLİ	HES	12.502	12/12/13	
202	ÖVÜNÇ ENERJİ VE ELEKTRİK ÜRETİM A.Ş.	ÇERMİKLER BARAJI VE HES	SİVAS	HES	22.000	12/12/13	
203	DARENHES ELEKTRİK ÜRETİMİ A.Ş.	TATAR HİDROELEKTRİK SANTRALİ	ELAZIĞ	HES	64.110	13/12/13	X
204	MELET ENERJİ ELEKTRİK ÜRETİM A.Ş.	ORDU HES	ORDU	HES	21.000	13/12/13	
205	ENERJİSA ENERJİ ÜRETİM A.Ş.	SARIGÜZEL BARAJI HES	KAHRAMANMARAŞ	HES	3.660	14/12/13	X
206	ADACAMİ ENERJİ ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	ADACAMİ HİDROELEKTRİK SANTRALİ	RİZE	HES	14.652	16/12/13	
207	ENTEK ENERJİ TEKNOLOJİLERİ SAN. VE TİC. LTD. ŞTİ.	BOZTEPE HES	ORDU	HES	18.150	17/12/13	
208	ENERJİSA ENERJİ ÜRETİM A.Ş.	KAVŞAK BENDİ HES	ADANA	HES	61.950	19/12/13	
209	BGT MAVİ ENERJİ EL. ÜR. DAĞ. PAZ. SAN. VE TİC. A.Ş.	SUKENARI REGÜLATÖRÜ VE HES	TRABZON	HES	8.566	19/12/13	
210	YENİ ELEKTRİK ÜRETİM A.Ş.	YENİ ELEKTRİK ÜRETİM A.Ş. DGKÇS	KOCAELİ	DG	575.909	20/12/13	
211	ENERKA KALECİK ELEKTRİK ÜRETİM VE PAZ. A.Ş.	KALECİK I HES	ANKARA	HES	7.757	20/12/13	
212	ENERJİSA ENERJİ ÜRETİM A.Ş.	ÇAMBAŞI REGÜLATÖRÜ VE HES	TRABZON	HES	44.100	20/12/13	
213	ENSU ELEKTRİK ÜRETİM LTD. ŞTİ.	ÇİĞDEM REGÜLATÖRÜ VE HES	GİRESUN	HES	17.700	20/12/13	

214	MASAT ENERJİ ELEKTRİK ÜRETİM VE TİC. LTD. ŞTİ	MİDİLLİ HES	AMASYA	HES	11.577	24/12/13	
215	DOĞAL ENERJİ ELEKTRİK ÜRETİM A.Ş.	SAYALAR RES	MANİSA	RES	20.000	25/12/13	**X**
216	ETİ ALUMİNYUM A.Ş.	KOJENERASYON	KONYA	ATIK ISI	12.930	26/12/13	
217	YEŞİLYURT ENERJİ ELEKTRİK ÜRETİM A.Ş.	YEŞİLYURT DGKÇS	SAMSUN	DG	11.396	26/12/13	
218	SUATA ELEKTRİK ÜRETİM LTD. ŞTİ.	BURÇAK HES 2. KADEME	GİRESUN	HES	26.260	26/12/13	
219	AK-ÖZLÜCE ELEKTRİK ÜRETİM TİC. A.Ş.	ÖZLÜCE HES	ERZURUM	HES	18.190	27/12/13	
220	DURUM GIDA SA. VE TİC. A.Ş.	KOJENERASYON	MERSİN	DG	2.022	27/12/13	
221	ATABEY ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	UZUNDERE II HES	RİZE	HES	7.020	27/12/13	
222	AL-YEL ELEKTRİK ÜRETİM A.Ş.	GEYCEK RES	KIRŞEHİR	RES	12.000	27/12/13	**X**

Table.G. Annual development of Turkey's installed capacity in 2014

SIRA NO	**ŞİRKET ADI**	**SANTRAL ADI**	**İL**	**YAKIT CİNSİ**	**İLAVE KURULU GÜÇ MW_e**	**GEÇİCİ KABUL TARİHİ**	VER
1	MELET ENERJİ ELEKTRİK ÜRETİM A.Ş.	ORDU HES	ORDU	HES	21.000	04/01/2014	
2	AĞAOĞLU ENERJİ ÜRETİM A.Ş.	AĞAOĞLU DGKÇS	İSTANBUL	DG	12.900	08/01/2014	
3	EREĞLİ DEMİR ÇELİK FABRİKALARI TÜRK A.Ş.	KOJENERASYON	ZONGULDAK	DG/FO	9.800	09/01/2014	
4	ZAFER TEKSTİL SAN VE TİC. A.Ş.	ZAFER TEKSTİL SAN. VE TİC. A.Ş. KOJENERASYON SANTRALİ	GAZİANTEP	DG	1.450	10/01/2014	
5	KARHES ELEKTRİK ÜRETİM A.Ş.	DERELİ REGÜLATÖRÜ VE HES	GİRESUN	HES	49.200	10/01/2014	
6	MAKYOL İNŞAAT SAN. TURİZM VE TİC. A.Ş.	MAKYOL ETİLER TİCARET MERKEZİ KOJENERASYON SANTRALİ	İSTANBUL	DG	0.6000	10/01/2014	
7	MERCEDES BENZ TÜRK A.Ş.	MERCEDES BENZ TÜRK KOJENERASYON TESİSİ	İSTANBUL	DG	2.020	10/01/2014	
8	BAREN ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	KİRAZLIK REGÜLATÖRÜ VE HES	SİİRT	HES	14.537	15/01/2014	
9	AL-YEL ELEKTRİK ÜRETİM A.Ş.	GEYCEK RES	KIRŞEHİR	RES	16.000	17/01/2014	X
10	LİMAK HİDROELEKTRİK SANTRAL YATIRIMLARI A.Ş.	ALKUMRU BARAJI VE HES	SİİRT	HES	14.250	17/01/2014	
11	BEYOBASI ENERJİ ÜRETİM A.Ş.	SEKİYAKA II HES	MUĞLA	HES	2.300	17/01/2014	
12	KIY ENERJİ A.Ş.	KIY HİDROELEKTRİK SANTRALİ	ADANA	HES	11.900	23/01/2014	
13	NİSAN ENERJİ ÜRETİM SAN. TİC. A.Ş.	YAHYABEY HES	KAYSERİ	HES	0.310	24/01/14	
14	TEKTUĞ ELEKTRİK ÜRETİM A.Ş.	SİNCİK RES	ADIYAMAN	RES	25.000	24/01/2014	

15	HASANBEYLİ ENERJİ A.Ş.	HASANBEYLİ RES	OSMANİYE	RES	10.000	24/01/2014	X
16	ENERJİSA ENERJİ ÜRETİM A.Ş.	KANDİL BARAJI VE HES	KAHRAMANMARAŞ	HES	4.720	24/01/2014	X
17	ENERJİSA ENERJİ ÜRETİM A.Ş.	KAVŞAK BENDİ HES	ADANA	HES	61.950	24/01/2014	
18	INNORES ELEKTRİK ÜRETİM A.Ş.	YUNTDAĞ RES	İZMİR	RES	2.500	29/01/2014	X
19	MUY ENERJİ ELEKTRİK ÜRETİM SAN. VE TİC. LTD. ŞTİ.	ÇORAKLI HİDROELEKTRİK SANTRALİ	ADANA	HES	2.600	30/01/2014	
20	TEKTUĞ ELEKTRİK ÜRETİM A.Ş.	SIRIMTAŞ HİDROELEKTRİK SANTRALİ	ADIYAMAN	HES	13.617	31/01/2014	
21	ATİ İNŞAAT EN ÜRETİM VE TİC. LTD. ŞTİ.	DİYOBAN HES	ARTVİN	HES	10.520	31/01/2014	
22	KORES KOCADAĞ RÜZGAR ENERJİ SANTRALİ ÜRETİM A.Ş.	KORES KOCADAĞ RÜZGAR ENERJİ SANTRALİ	İZMİR	RES	2.500	31/01/2014	X
23	ANEMON ENERJİ ELEKTRİK ÜRETİM A.Ş.	İNTEPE RES	ÇANAKKALE	RES	0.000	07/02/2014	X
24	AK-ÖZLÜCE ELEKTRİK ÜRETİM TİC. A.Ş.	ÖZLÜCE HES	ERZURUM	HES	18.190	07/02/2014	
25	ESER ENERJİ ÜRETİM A.Ş.	BERKE REGÜLATÖRÜ VE HES	KASTAMONU	HES	6.254	08/02/2014	
26	KIY ENERJİ A.Ş.	KIY HİDROELEKTRİK SANTRALİ	ADANA	HES	11.900	13/02/2014	
27	MELTEM KİMYA VE TEKSTİL SAN. İT. İH. VE TİC. LTD. ŞTİ.	KOJENERASYON SANTRALİ	ADANA	DG	2.145	14/02/2014	
28	AL-YEL ELEKTRİK ÜRETİM A.Ş.	GEYCEK RES	KIRŞEHİR	RES	23.000	14/02/2014	X
29	SAMUR HALILARI SAN. VE TİC. A.Ş.	KOJENERASYON SANTRALİ	ANKARA	DG	4.300	14/02/2014	
30	AKSA ENERJİ ÜRETİM A.Ş.	ATİK RES	HATAY	RES	12.000	15/02/2014	
31	USTAOĞLU ELEKTRİK ÜRETİM A.Ş.	ARISU HES	TRABZON	HES	3.821	17/02/2014	
32	ENERJİSA ENERJİ ÜRETİM A.Ş.	KAVŞAK BENDİ HES	ADANA	HES	61.950	20/02/2014	
33	BİFA BİSKÜVİ VE GIDA SAN. A.Ş.	BİFA BİSKÜVİ VE GIDA SAN. A.Ş. KOJENERASYON SANTRALİ	KARAMAN	DG	2.145	21/02/2014	
34	NİSAN ELEKTROMEKANİK ENERJİ SAN. VE TİC. A.Ş.	UMUT REGÜLATÖRÜ VE HES	ORDU-TOKAT	HES	24.450	21/02/2014	
35	ZİYARET RES ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	ZİYARET RES	HATAY	RES	7.500	22/02/2014	X
36	GÖNEN YENİLENEBİLİR ENERJİ ÜRETİM A.Ş.	GÖNEN BİYOGAZ SANTRALİ	BALIKESİR	BİYOKÜTLE	2.134	26/02/2014	
37	ITC-KA ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	ITC-KA BİYOKÜTLE GAZLAŞTIRMA TESİSİ	ANKARA	BİYOKÜTLE (ÇÖP GAZI)	5.425	27/02/2014	X
38	MİRAN ENERJİ ELEKTRİK ÜRETİM LTD. ŞTİ.	BARAN REGÜLATÖRÜ VE HES (BARAN-I)	SİİRT	HES	12.410	27/02/2014	
39	DEREMEN ENERJİ ELEKTRİK ÜRETİM SAN. VE TİC. LTD. ŞTİ.	AÇMA REGÜLATÖRÜ VE HES	TRABZON	HES	2.400	27/02/2014	

40	DOĞAL ENERJİ ELEKTRİK ÜRETİM A.Ş.	KOZBEYLİ RES	İZMİR	RES	4.200	28/02/2014	X
41	HASANBEYLİ ENERJİ A.Ş.	HASANBEYLİ RES	OSMANİYE	RES	7.500	28/02/2014	X
42	SAF ENERJİ ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	SAF I HES	BİNGÖL	HES	7.490	28/02/2014	
43	TUFAN ENERJİ VE PETROL ÜRÜNLERİ SAN. TİC. A.Ş.	EKİNÖZÜ 1-2 HES	SİVAS	HES	5.660	06/03/2014	
44	ASLANCIK ELEKTRİK ÜRETİM A.Ş.	ASLANCIK BARAJI VE HES	GİRESUN	HES	46.500	07/03/2014	
45	GARET ENERJİ ÜRETİM VE TİC. A.Ş.	SARES RES	ÇANAKKALE	RES	2.250	08/03/2014	X
46	ERENLER ENERJİ ÜRETİM VE TİC. A.Ş.	DEĞİRMEN REGÜLATÖRÜ HE HİDROELEKTRİK SANTRALİ	ANTALYA	HES	6.840	13/03/2014	
47	ÇİMSA ÇİMENTO SAN. VE TİC. A.Ş.	KOJENERASYON SANTRALİ	MERSİN	ATIK ISI	9.560	14/03/2014	
48	BAREN ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	KİRAZLIK REGÜLATÖRÜ VE HES	SİİRT	HES	14.537	14/03/2014	
49	BURGÜÇ BURSA GÜÇ BİRLİĞİ ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	BOĞAZKÖY HES	BURSA	HES	10.000	19/03/2014	
50	ÜTOPYA ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	DÜZOVA RES	İZMİR	RES	10.000	21/03/2014	X
51	FATİH ENERJİ ELEKTRİK ÜRETİM PAZ. DAN. SAN. VE TİC. A.Ş.	AKSU REGÜLATÖRÜ VE HİDROELEKTRİK SANTRALİ	MALATYA	HES	5.770	21/03/2014	
52	KNAUF İNŞAAT VE YAPI ELEMANLARI SAN. VE TİC. A.Ş.	KOJENERASYON SANTRALİ	ANKARA	DG	2.000	26/03/2014	
53	KADOOĞLU ENERJİ ELEKTRİK ÜRETİM A.Ş.	KALE HES	KARS	HES	17.100	28/03/2014	X
54	AL-YEL ELEKTRİK ÜRETİM A.Ş.	GEYCEK RES	KIRŞEHİR	RES	14.000	28/03/2014	X
55	İZDEMİR ENERJİ ELEKTRİK ÜRETİM A.Ş.	İZDEMİR ENERJİ ELEKTRİK ÜRETİM TESİSİ	İZMİR	İTHAL KÖMÜR	350.000	04/04/2014	
56	GÜMÜŞKÖY JEOTERMAL ENERJİ ÜRETİM A.Ş.	GÜMÜŞKÖY JES	AYDIN	JEOTERMAL	6.600	04/04/2014	X
57	BALABANLI RÜZGAR ENERJİSİNDEN ELEKTRİK ÜRETİM A.Ş.	BALABANLI RES	TEKİRDAĞ	RES	11.500	04/04/2014	X
58	TEKTUĞ ELEKTRİK ÜRETİM A.Ş.	KALEALTI II HES	OSMANİYE	HES	3.837	04/04/2014	
59	POLAT ELEKTRİK ÜRETİM İNŞAAT İTHALAT İHRACAT A.Ş.	POLAT ENERJİ KÜTAHYA TERMİK SANTRALİ	KÜTAHYA	LİNYİT	51.000	05/04/2014	
60	ELEKTRİK ÜRETİM A.Ş.	MANYAS BARAJI VE HES	BALIKESİR	HES	20.250	08/04/2014	
61	VARTO ELEKTRİK ÜRETİM A.Ş.	KAMER REGÜLATÖRÜ VE HES	MUŞ	HES	3.750	11/04/2014	
62	ALPEREN ELEKTRİK ÜRETİM A.Ş.	DAĞBAŞI HES	MERSİN	HES	10.433	11/04/2014	
63	EGEMER ELEKTRİK ÜRETİM A.Ş.	ERZİN DGKÇS	HATAY	DG	292.090	12/04/2014	
64	ARSAN DOKUMA BOYA SAN. VE TİC. A.Ş.	ARSAN DOKUMA TERMİK KOJENERASYON	KAHRAMANMARAŞ	DG	4.300	12/04/2014	

		SANTRALİ					
65	TEKTUĞ ELEKTRİK ÜRETİM A.Ş.	SİNCİK RES	ADIYAMAN	RES	2.500	17/04/2014	
66	YEŞİLYURT ENERJİ ELEKTRİK ÜRETİM A.Ş.	YEŞİLYURT ENERJİ SAMSUN DGKÇ SANTRALİ	SAMSUN	DG	18.321	18/04/2014	
67	AL-YEL ELEKTRİK ÜRETİM A.Ş.	GEYCEK RES	KIRŞEHİR	RES	14.000	18/04/2014	X
68	GÖKBEL ENERJİ ELEKTRİK ÜRETİM A.Ş.	GÖKBEL 2 HES	ISPARTA	HES	14.504	18/04/2014	
69	MELİKE İPLİK SAN. VE TİC. A.Ş.	MELİKE İPLİK TERMİK KOJENERASYON SANTRALİ	GAZİANTEP	DG	9.730	18/04/2014	
70	ATABEY ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	UZUNDERE II REGÜLATÖRÜ VE HES	RİZE	HES	7.020	18/04/2014	
71	İKLİMYA ELEKTRİK ÜRETİM A.Ş.	HAVVA HES	ERZURUM	HES	2.390	22/04/2014	
72	DÜZCE AKSU ELEKTRİK ÜRETİM A.Ş.	DÜZCE-AKSU HES	DÜZCE	HES	46.200	25/04/2014	
73	VASFİ ENERJİ ELEKTRİK ÜRT. PAZ. SAN. VE TİC. LTD. ŞTİ.	SÖLPEREN REGÜLÂTÖRÜ VE HES	ERZİNCAN	HES	9.762	25/04/2014	
74	TEKTUĞ ELEKTRİK ÜRETİM A.Ş.	KALEALTI II HES	OSMANİYE	HES	9.977	26/04/2014	
75	BOYAR KİMYA SAN. VE TİC. A.Ş.	BOYAR KİMYA TERMİK KOJENERASYON SANTRALİ	GAZİANTEP	DG	2.000	26/04/2014	
76	CANAN TEKSTİL SAN. VE TİC. A.Ş.	CANAN TEKSTİL TERMİK KOJENERASYON SANTRALİ	GAZİANTEP	DG	2.000	27/04/2014	
77	EGEMER ELEKTRİK ÜRETİM A.Ş.	ERZİN DGKÇS	HATAY	DG	292.090	28/04/2014	
78	KAÇKAR ENERJİ ELEKTRİK ÜRETİM A.Ş.	AYVASIL REGÜLATÖRÜ VE HES	RİZE	HES	1.466	30/04/2014	
79	DERİN ENERJİ ÜRETİM SAN. TİC. A.Ş.	ÇAMLICA II HES	KAYSERİ	HES	17.580	02/05/2014	
80	ARSAN ENERJİ A.Ş.	KAYAKÖPRÜ HES	GİRESUN	HES	14.200	08/05/2014	
81	GERES ELEKTRİK ÜRETİM A.Ş.	GERES RES	MANİSA	RES	27.500	08/05/2014	X
82	EROĞLU GİYİM SAN. TİC. A.Ş.	EROĞLU GİYİM TERMİK KOJENERASYON SANTRALİ	TEKİRDAĞ	DG	1.165	08/05/2014	
83	HETAŞ HACISALİHOĞLU ENERJİ VE TİC. A.Ş.	TONYA I-II HES	TRABZON	HES	2.500	09/05/2014	
84	ASLANCIK ELEKTRİK ÜRETİM A.Ş.	ASLANCIK HES	GİRESUN	HES	12.800	09/05/2014	
85	HASANBEYLİ ENERJİ A.Ş.	HASANBEYLİ RES	OSMANİYE	RES	10.000	09/05/2014	X
86	GÜVEN GIDA SAN. VE TİC. A.Ş.	GÜVEN GIDA TETMİK KOJENERASYON SANTRALİ	GAZİANTEP	DG	2.006	10/05/2014	
87	PROKOM MADENCİLİK OTO. İNŞ. EL. ÜR. ELKTR. TAAH. İT. İH. SAN. VE TİC. LTD. ŞTİ	PROKOM PİROLİTİK YAĞ VE GAZ TAKITLI ELEKTRİK ÜRETİM TESİSİ	ERZİNCAN	PİROLİTİK YAĞ	7.040	11/05/2014	
88	AŞKALE ELEKTRİK ÜRETİM A.Ş.	TUANA HES	ERZURUM	HES	3.695	13/05/2014	

89	ÖRES ELEKTRİK ÜRETİM A.Ş.	SALMAN RES	İZMİR	RES	12.000	14/05/2014	
90	AHMET HAKAN ELEKTRİK ÜRETİM A.Ş.	ZALA REGÜLATÖRÜ VE HES	KASTAMONU	HES	5.422	16/05/2014	
91	BAREN ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	KİRAZLIK REGÜLATÖRÜ VE HES	SİİRT	HES	2.500	16/05/2014	
92	BALABANLI RÜZGAR ENERJİSİNDEN ELEKTRİK ÜRETİM A.Ş.	BALABANLI RES	TEKİRDAĞ	RES	23.000	17/05/2014	X
93	ARNAZ RES ELEKTRİK ÜRETİM A.Ş.	UŞAK RES	UŞAK	RES	25.500	17/05/2014	
94	BAKRAS ENERJİ ELEKTRİK ÜRETİM A.Ş.	ŞENBÜK RES	HATAY	RES	13.940	25/05/2014	X
95	GÜLLE ENTEGRE TEKSTİL İŞL. EMLAK DAN. SAN VE TİC. A.Ş.	GÜLLE TEKSTİL TERMİK KOJENERASYON SANTRALİ	TEKİRDAĞ	DG	4.300	27/05/2014	
96	HASANBEYLİ ENERJİ A.Ş.	HASANBEYLİ RES	OSMANİYE	RES	7.500	29/05/2014	X
97	ENERJİSA ENERJİ ÜRETİM A.Ş.	ARKUN BARAJI VE HES	ERZURUM - ARTVİN	HES	156.010	30/05/2014	
98	ÖRES ELEKTRİK ÜRETİM A.Ş.	SALMAN RES	İZMİR	RES	6.000	30/05/2014	
99	ZİYARET RES ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	ZİYARET RES	HATAY	RES	10.000	31/05/2014	X
100	DERHAN TEKSTİL KONFEKSİYON ENERJİ SAN. VE TİC. A.Ş.	DERHAN TEKSTİL TERMİK KOJENERASYON SANTRALİ	BURSA	DG	1.189	31/05/2014	
101	BOYDAK ENERJİ ÜRETİM VE TİC. A.Ş.	ÇANTA RES	İSTANBUL	RES	15.000	31/05/2014	
102	MENDERES GEOTHERMAL ELEKTRİK ÜRETİM A.Ş.	DORA 3 JES	AYDIN	JEOTERMAL	17.000	03/06/2014	
103	EGEMER ELEKTRİK ÜRETİM A.Ş.	ERZİN DGKÇS	HATAY	DG	319.820	05/06/2014	
104	ÖRES ELEKTRİK ÜRETİM A.Ş.	SALMAN RES	İZMİR	RES	2.000	06/06/2014	
105	ELEKTRİK ÜRETİM A.Ş.	ÇİNE HES	AYDIN	HES	46.600	06/06/2014	
106	TELKO ENERJİ ÜRETİM TUR. İNŞ. SAN. VE TİC. A.Ş.	EDİNCİK BES	BALIKESİR	BİYOGAZ	2.126	12/06/2014	
107	ENERJİSA ENERJİ ÜRETİM A.Ş.	ARKUN BARAJI VE HES	ARTVİN / ERZURUM	HES	88.819	12/06/2014	
108	GETİRİ ENERJİ ÜRETİM SAN. VE TİC. LTD. ŞTİ.	TOKMADİN HES	GİRESUN	HES	3.430	12/06/2014	
109	BÜKOR ELEKTRİK ÜRETİM A.Ş.	BÜKOR II HES	BİLECİK	HES	12.597	13/06/2014	
110	GÜRTEKS İPLİK SAN. VE Tİ. A.Ş.	SENTETİK-2 KOJENERASYON TESİSİ	GAZİANTEP	DG	3.349	13/06/2014	
111	GÖKBEL ENERJİ ELEKTRİK ÜRETİM A.Ş.	GÖKBEL I-II HES	ISPARTA-BURDUR	HES	4.282	13/06/2014	
112	ITC-KA ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	ITC AKSARAY ÜRETİM TESİSİ	AKSARAY	BİYOKÜTLE (ÇÖP GAZI)	1.415	17/06/2014	
113	ENERJİSA ENERJİ ÜRETİM A.Ş.	KAVŞAK BENDİ HES	ADANA	HES	5.430	17/06/2014	
114	GARET ENERJİ ÜRETİM VE TİC. A.Ş.	GÖKRES 2 RES	MANİSA	RES	11.000	20/06/2014	

115	ETKEN ELEKTRİK ÜRETİM LTD. ŞTİ.	KÖROĞLU HES	OSMANİYE	HES	9.060	20/06/2014	
116	ESER ENERJİ ÜRETİM A.Ş.	BERKE REGÜLATÖRÜ VE HES	KASTAMONU	HES	3.127	20/06/2014	
117	AYSU ENERJİ SAN. VE TİC. A.Ş.	KARADERE RES	KIRKLARELİ	RES	11.200	21/06/2014	X
118	HASANBEYLİ ENERJİ A.Ş.	HASANBEYLİ RES	OSMANİYE	RES	7.500	26/06/2014	X
119	ALTINSU TEKSTİL ENERJİ SAN. VE TİC. LTD. ŞTİ.	ALTINSU TEKSTİL KOJENERASYON TESİSİ	BURSA	DG	1.189	27/06/2014	
120	MANRES ELEKTRİK ÜRETİM A.Ş.	GÜNAYDIN RES	BALIKESİR	RES	2.500	27/06/2014	X
121	BOYDAK ENERJİ ÜRETİM VE TİC. A.Ş.	ÇANTA RES	İSTANBUL	RES	20.000	28/06/2014	
122	SUSURLUK ENERJİ A.Ş.	SUSURLUK RES	BALIKESİR	RES	15.000	28/06/2014	X
123	AYSU ENERJİ SAN. VE TİC. A.Ş.	KARADERE RES	KIRKLARELİ	RES	4.800	04/07/2014	X
124	ARNAZ RES ELEKTRİK ÜRETİM A.Ş.	UŞAK RES	UŞAK	RES	28.500	04/07/2014	
125	AŞKALE ÇİMENTO SANAYİ T.A.Ş.	AŞKALE ÇİMENTO TERMİK KOJENERASYON SANTRALİ	ERZURUM	ATIK ISI	5.500	10/07/2014	
126	İYON ENERJİ ÜRETİMİ SAN. VE TİC. A.Ş.	KOÇLU HES	GİRESUN	HES	36.260	10/07/2014	
127	İÇDAŞ ELEKTRİK ENERJİSİ ÜRETİM VE YATIRIM A.Ş.	BEKİRLİ TERMİK SANTRALİ	ÇANAKKALE	İTHAL KÖMÜR	600.000	10/07/2014	
128	HASANBEYLİ ENERJİ A.Ş.	HASANBEYLİ RES	OSMANİYE	RES	7.500	11/07/2014	X
129	BALABANLI RÜZGAR ENERJİSİNDEN ELEKTRİK ÜRETİM A.Ş.	BALABANLI RES	TEKİRDAĞ	RES	16.100	11/07/2014	X
130	A.F.E ELEKTRİK ÜRETİM TİC. SAN. A.Ş.	AKDERE HES	BURSA	HES	7.480	12/07/2014	
131	MERTLER ENERJİ ÜRETİM PAZARLAMA A.Ş.	SARAY REGÜLATÖRÜ VE HES	TRABZON	HES	13.500	16/07/2014	
132	PANCAR ELEKTRİK ÜRETİM A.Ş.	PANER KOJENERASYON SANTRALİ	İZMİR	DG	2.800	16/07/2014	
133	BND ELEKTRİK ÜRETİM A.Ş.	ÜÇGEN 2 REGÜLATÖRÜ VE HES	ORDU	HES	10.319	17/07/2014	
134	BOYDAK ENERJİ ÜRETİM VE TİC. A.Ş.	ÇANTA RES	İSTANBUL	RES	12.500	24/07/2014	
135	GENERAL ENERJİ ÜRETİM A.Ş.	GENERAL REGÜLATÖRÜ VE HES	ORDU	HES	5.950	08/08/2014	
136	ATLAS ENERJİ ÜRETİM A.Ş.	ATLAS TERMİK SANTRALİ	HATAY	İTHAL KÖMÜR	600.000	08/08/2014	
137	AYEN ENERJİ A.Ş.	KORKMAZ RES	İZMİR	RES	10.000	15/08/2014	
138	GARET ENERJİ ÜRETİM VE TİC. A.Ş.	GÖKRES-2 RES	MANİSA	RES	24.000	15/08/2014	
139	AYNES GIDA SAN. VE TİC. A.Ş.	TERMİK-AKIŞKAN YATAKLI KOJENERASYON SANTRALİ	DENİZLİ	LİNYİT	5.500	15/08/2014	
140	ALENKA ENERJİ ÜRETİM VE YATIRIM LTD. ŞTİ.	KIYIKÖY RES	KIRKLARELİ	RES	24.000	15/08/2014	

141	EOLOS RÜZGAR ENERJİSİ ÜRETİM A.Ş.	ŞENKÖY RES	HATAY	RES	9.000	15/08/2014	
142	DOĞAL ENERJİ ELEKTRİK ÜRETİM A.Ş.	SAMURLU RES	İZMİR	RES	4.500	16/08/2014	X
143	AKKÖY ENERJİ A.Ş.	ALADEREÇAM HES	GİRESUN	HES	7.350	19/08/2014	
144	SİLİVRİ ENERJİ A.Ş.	SİLİVRİ RES	İSTANBUL	RES	25.000	20/08/2014	
145	BRİZA RÜZGAR ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	KAVAKLI RES	BALIKESİR	RES	36.300	21/08/2014	X
146	AK NİŞASTA SAN. VE TİC. A.Ş.	AK NİŞASTA SAN. VE TİC. A.Ş. KOJENERASYON SANTRALİ	KIRKLARELİ	DG	2.000	22/08/2014	
147	OLGU ENERJİ YATIRIM ÜRETİM VE TİC. A.Ş.	DİNAR RES	AFYONKARAHİSAR	RES	36.800	22/08/2014	
148	ELEN ENERJİ ÜRETİMİ SAN. TİC. A.Ş.	DOĞANÇAY HES	SAKARYA	HES	10.080	29/08/2014	X
149	KÖRFEZ ENERJİ SAN. VE TİC. A.Ş.	KÖRFEZ ENERJİ SAN. VE TİC. A.Ş. TERMİK KOJENERASYON SANTRALİ	KOCAELİ	BİYOKÜTLE (ÇÖP GAZI)	2.830	29/08/2014	
150	SİLİVRİ ENERJİ A.Ş.	SİLİVRİ RES	İSTANBUL	RES	12.500	03/09/2014	
151	AYEN ENERJİ A.Ş.	KORKMAZ RES	İZMİR	RES	14.000	04/09/2014	
152	KANGAL ELEKTRİK ENERJİ ÜRETİM VE TİC. A.Ş.	KANGAL RES	SİVAS	RES	42.000	05/09/2014	
153	AKSA ENERJİ ÜRETİM A.Ş.	ATİK RES	HATAY	RES	2.000	09/09/2014	
154	HER ENERJİ VE ÇEVRE TEKNOLOJİLERİ ELEKTRİK ÜRETİM A.Ş.	KAYSERİ KATI ATIK DEPONİ SAHASI ELEKTRİK ÜRETİM SANTRALİ	KAYSERİ	BİYOKÜTLE (ÇÖP GAZI)	1.560	11/09/2014	X
155	TAN ELEKTRİK ÜRETİM A.Ş.	ALİAĞA RES	İZMİR	RES	7.200	12/09/2014	X
156	ELEN ENERJİ ÜRETİMİ SAN. TİC. A.Ş.	DOĞANÇAY HES	SAKARYA	HES	20.160	12/09/2014	X
157	HAYAT KİMYA SANAYİ A.Ş.	HAYAT KİMYA KOJENERASYON SANTRALİ	KOCAELİ	DG	15.040	12/09/2014	
158	ASLANCIK ELEKTRİK ÜRETİM A.Ş.	ASLANCIK HES	GİRESUN	HES	46.500	19/09/2014	
159	NAS ENERJİ A.Ş.	GARZAN HES	BATMAN	HES	5.420	19/09/2014	
160	SİLİVRİ ENERJİ A.Ş.	SİLİVRİ RES	İSTANBUL	RES	7.500	19/09/2014	
161	YENİ DORUK ENERJİ ELEKTRİK ÜRETİM A.Ş.	DORUK HES	GİRESUN	HES	28.278	19/09/2014	
162	KAÇKAR ENERJİ ELEKTRİK ÜRETİM A.Ş.	AYVASIL REGÜLATÖRÜ VE HES	RİZE	HES	2.976	19/09/2014	
163	KANGAL ELEKTRİK ENERJİ ÜRETİM VE TİC. A.Ş.	KANGAL RES	SİVAS	RES	2.000	19/09/2014	
164	EBD ENERJİ ÜRT. VE TİC. A.Ş.	SERAP HES	KARS	HES	28.960	19/09/2014	
165	TÜRKERLER JEO. ENERJİ ARAMA VE ÜRT. A.Ş.	ALAŞEHİR JES	MANİSA	JEOTERMAL	24.000	25/09/2014	
166	BRİZA RÜZGAR ELKTR. ÜRT. SAN. VE TIC. A.Ş.	KAVAKLI RES	BALIKESİR	RES	13.700	25/09/2014	X

167	BURKAY TEKSTİL SAN. VE TİC. A.Ş.	KOJEN	BURSA	DG	1.189	26/09/2014	
168	SAMSUN AVDAN ENERJİ ÜRETİM VE TİC. A.Ş.	SAMSUN AVDAN BİYOGAZ TESİSİ BİYOKÜTLE PROJESİ	SAMSUN	BİYOKÜTLE (ÇÖP GAZI)	2.400	27/09/2014	X
169	MODERN BİYOKÜTLE ENERJİSİ ELEKTRİK ÜRETİM A.Ş.	MODERN BİYOKÜTLE ENERJİ SANTRALİ	TEKİRDAĞ	BİYOKÜTLE	6.000	30/09/2014	
170	ELFA ELEKTRİK ÜRETİM A.Ş.	UMURLAR RES	BALIKESİR	RES	10.000	30/09/2014	
171	GÜRMAT ELEKTRİK ÜRETİM A.Ş.	EFELER JES	AYDIN	JEOTERMAL	22.500	01/10/2014	
172	GETİRİ ENERJİ ÜRETİM SAN. VE TİC. LTD. ŞTİ.	PİRO REGÜLATÖRÜ VE HES	ORDU	HES	4.060	01/10/2014	
173	TAN ELEKTRİK ÜRETİM A.Ş.	ALİAĞA RES	İZMİR	RES	2.400	10/10/2014	X
174	GÜRGEN ENERJİ ÜRETİM VE DAĞITIM A.Ş.	GÜRGEN REGÜLATÖRÜ VE HES	RİZE	HES	2.360	15/10/2014	
175	MAREN MARAŞ ELEKTRİK ÜRETİM SANAYİ VE TİC. A.Ş.	KEREM JES	AYDIN	JEOTERMAL	24.000	16/10/2014	
176	BOZAT ELEKTRİK ÜRETİM A.Ş.	ZEKERE HES	GİRESUN	HES	3.978	17/10/2014	
177	TÜRKİYE ŞEKER FABRİKALARI A.Ş.	BURDUR ŞEKER FABRİKASI ÜRETİM TESİSİ (TERMİK KOJENERASYON)	BURDUR	DG/FO/LİNYİT	4.750	17/10/2014	
178	SİGMA ELEKTRİK ÜRETİM MÜHENDİSLİK VE PAZARLAMA LTD. ŞTİ.	SİGMA SULUOVA BİYOGAZ TESİSİ	AMASYA	BİYOKÜTLE	1.000	20/10/2014	
179	CENGİZ ENERJİ SANAYİİ VE TİCARET A.Ş.	CENGİZ 240MW DGKÇS	SAMSUN	DG	401.330	22/10/2014	
180	TAMYELİ ENERJİ YATIRIM ÜRETİM VE TİCARET A.Ş.	İNCESU RES	AFYONKARAHİSAR	RES	10.000	22/10/2014	
181	AFYON ENERJİ VE GÜBRE ÜRETİM TİC. VE SAN. A.Ş.	AFYON BİYOGAZ ENERJİ SANTRALİ BİYOKÜTLE PROJESİ	AFYONKARAHİSAR	BİYOKÜTLE	4.017	24/10/2014	
182	TÜRKOL TURİZM SANAYİ VE TİCARET A.Ş.	TURKOL OTEL SANTRALİ (TERMİK KOJENERASYON)	İSTANBUL	DG	1.000	24/10/2014	
183	YENİ ADANA İMAR İNŞAAT TİCARET A.Ş.	ADANA DOĞU ATIKSU SANTRALİ	ADANA	BİYOKÜTLE	0.800	24/10/2014	
184	AŞKALE ELEKTRİK ÜRETİM A.Ş.	TUANA HES	ERZURUM	HES	3.695	24/10/2014	
185	ALBE DOĞALGAZ DAĞITIM VE ELEKTRİK ENERJİSİ ÜRETİM LTD. ŞTİ.	ALBE-I BİYOGAZ SANTRALİ	ANKARA	BİYOKÜTLE	1.813	24/10/2014	
186	POLRES ELEKTRİK ÜRETİM İNŞAAT TARIM HAYVANCILIK TİC. VE SAN. A.Ş.	POLATLI BES	ANKARA	BİYOKÜTLE	0.834	24/10/2014	
187	AK GIDA SANAYİ VE TİCARET A.Ş.	TERMİK-KOJENERASYON SANTRALI	SAKARYA	DG	15.000	25/10/2014	
188	ENFAŞ ENERJİ ELEKTRİK ÜRETİM A.Ş.	KOCABEY-2 BİYOGAZ SANTRALİ	BURSA	BİYOKÜTLE	2.134	25/10/2014	
189	ÇANRES ELEKTRİK ÜRETİM A.Ş.	ŞADILLI RES	ÇANAKKALE	RES	8.250	26/10/2014	X
190	VİRA ELEKTRİK ÜRETİM A.Ş.	TUĞRA REGÜLATÖRÜ VE	GİRESUN	HES	11.480	28/10/2014	

		HES					
191	GÜFEN ENERJİ ELK. ÜRT. PAZ. SAN. TİC. LTD. ŞTİ.	GÖKBOYUN REGÜLATÖRÜ VE HES	OSMANİYE	HES	5.000	29/10/2014	
192	BOĞAZKÖY ENERJİ ELEKTRİK ÜRETİM TİC. LTD. ŞTİ.	AMASYA ÇÖP GAZ ELEKTRİK ÜRETİM TESİSİ	AMASYA	BİYOKÜTLE (ÇÖP GAZI)	1.200	29/10/2014	
193	DERİN ENERJİ ÜRETİM SANAYİ VE TİCARET LTD. ŞTİ.	BEYPAZARI BİYOGAZ TESİSİ BİYOKÜTLE PROJESİ	ANKARA	BİYOKÜTLE	0.7936	31/10/2014	
194	CANAN TEKSTİL SANAYİ VE TİCARET A.Ş.	CANAN TEKSTİL KOJENERASYON SANTRALI	GAZİANTEP	DG	2.000	31/10/2014	
195	MERİNOS HALI SAN. VE TİC. A.Ş.	MERNİOS HALI KOJENERASYON SANTRALİ	GAZİANTEP	DG	9.730	01/11/2014	
196	BND ELEKTRİK ÜRETİM A.Ş.	ÜÇGEN HES	OSMANİYE	HES	3.388	07/11/2014	
197	TIRSAN ENERJİ ELEKTRİK ÜRETİM ANONİM ŞİRKETİ	YAKINCA REGÜLATÖRÜ VE HES	GİRESUN	HES	11.700	14/11/2014	
198	MENERJİ ELEKTRİK ÜRETİM ANONİM ŞİRKETİ	YÜCE HES	GİRESUN	HES	5.283	14/11/2014	
199	ENBATI ELEKTRİK ÜRETİM SAN. VE TİC. A.Ş.	PİRİNÇLİK HES	KARABÜK	HES	21.315	14/11/2014	
200	GÖNEN YENİLENEBİLİR ENERJİ ÜRETİM A.Ş.	GÖNEN BİYOGAZ TESİSİ PROJESİ	BALIKESİR	BİYOKÜTLE	1.487	14/11/2014	
201	ÇANRES ELEKTRİK ÜRETİM A.Ş.	ŞADILLI RES	ÇANAKKALE	RES	13.750	14/11/2014	X
202	GÖKSU ENERJİ ÜRETİM A.Ş.	EKİNCİK HES	SİVAS	HES	7.520	20/11/2014	
203	ALİZE ENERJİ ELEKTRİK ÜRETİM A.Ş.	KELTEPE RES	BALIKESİR	RES	0.000	21/11/2014	X
204	SOMA ENERJİ ELEKTRİK ÜRETİM A.Ş.	SOMA RES	MANİSA	RES	32.000	26/11/2014	X
205	TEKNO DOĞALGAZ ÇEVİRİM ENERJİ ELEKTRİK ÜRETİM A.Ş.	BİLECİK DOĞALGAZ ÇEVRİM SANTRALİ	BİLECİK	DG	13.050	28/11/2014	
206	BEREKET ENERJİ ÜRETİM A.Ş.	MENTAŞ HES	ADANA	HES	9.600	28/11/2014	
207	AKASYA ELEKTRİK ÜRETİM LTD. ŞTİ.	MURAT HES	ORDU	HES	11.089	01/12/2014	
208	IRMAK ENERJİ ÜRETİM SANAYİ VE TİCARET A.Ş.	EREN HES	KARABÜK	HES	35.186	04/12/2014	
209	CENGİZ ENERJİ SANAYİİ VE TİCARET A.Ş.	CENGİZ 240MW DGKÇS	SAMSUN	DG	208.670	05/12/2014	
210	ÇANRES ELEKTRİK ÜRETİM A.Ş.	ŞADILLI RES	ÇANAKKALE	RES	11.000	06/12/2014	X
211	YÜCEYURT ENERJİ ÜRETİM A.Ş.	ARAKLI 3 HES	TRABZON	HES	0.631	12/12/2014	
212	BANDIRMA ENERJİ VE ELEKTRİK ÜRETİM TİC. A.Ş.	BANDIRMA RES	BALIKESİR	RES	26.400	14/12/2014	X
213	ATE ENERJİ ELK. ÜR. SAN. TİC. A.Ş.	ÇAĞLAYAN REGÜLATÖRÜ VE HES	DİYARBAKIR	HES	7.956	19/12/2014	
214	ATLAS ENERJİ ÜRETİM A.Ş.	ATLAS TERMİK SANTRALİ	HATAY	İTHAL KÖMÜR	600.000	19/12/2014	
215	DENİZ ELEKTRİK ÜRETİM LTD. ŞTİ.	SEBENOBA RES	HATAY	RES	13.000	20/12/2014	
216	MANRES ELEKTRİK ÜRETİM A.Ş.	GÜNAYDIN RES	BALIKESİR	RES	5.000	20/12/2014	X

217	ELİF GRUP ENERJİ ELEKTRİK ÜRETİM LTD. ŞTİ.	YAZILI I-II-III HES	MERSİN	HES	6.620	25/12/2014	
218	SOMA ENERJİ ELEKTRK ÜRT. A.Ş.	SOMA RES	MANİSA	RES	24.000	25/12/2014	X
219	MANRES ELEKTRİK ÜRETİM A.Ş.	GÜNAYDIN RES	BALIKESİR	RES	2.500	26/12/2014	X
220	TEKSMAK MAKİNE TEKSTİL ENERJİ SAN. TİC. PAZ. LTD. ŞTİ.	TEKSMAK TERMİK KOJENERASYON SANTRALİ	BURSA	DG	2.677	30/12/2014	
221	YEŞİLKÖY ELKTR. ÜRT. VE TİC. LTD. ŞTİ.	YEŞİLKÖY REG. VE HES	RİZE	HES	3.720	30/12/2014	
222	POLYPLEX RESİNS SAN. VE TİC. A.Ş.	PET CİPS RESİN VE KOJ. TESİSİ	TEKİRDAĞ	DG	8.600	31/12/2014	
223	KENT SOLAR ELEKTRİK ÜRETİM SAN. VE TİC. LTD. ŞTİ.	M.KEMALPAŞA-SUUÇTU HES	BURSA	HES	2.304	31/12/2014	
224	CAN ENERJİ ENTEGRE ELEKTRİK ÜRETİM A.Ş.	TEKİRDAĞ ENERJİ ÜRETİM SANTRALİ	TEKİRDAĞ	DG	13.075	31/12/2014	
225	ŞAR ENERJİ ELEKTRİK ÜRETİM A.Ş.	HAMZABEY HES	RİZE	HES	8.820	31/12/2014	
226	MED-MAR SAĞLIK HİZ. GIDA İNŞ. TUR. İŞL. NAK. VE EL. ÜR. SAN. VE TİC. A.Ş.	TERMİK KOJENERASYON SANTRALİ	ÇANKIRI	LİNYİT	1.640	31/12/2014	

Appendix 5. Further background information on monitoring plan

According to the Turkish Law and Regulations, the methods of monitoring the net electricity fed to the grid and quality control and assures are explained below:

Monitoring data is collected in accordance with the agreement[36] done between the project owner and Turkish Electricity Distribution Company (TEDAS) which provides the infrastructure for the connection to the national grid. The metering system is defined in the agreement as two groups: main meter and back up meter. The design of the metering system is checked and approved by TEDAS before commissioning of the plant. The technical specifications of the power meters should be in line with Measure and Metering Devices Regulation[37] by Ministry of Industry and Trade. In addition, the Communiqué for Power Meters announced by Energy Market Regulations Authority (EMRA)[38] requires all meters to be in line with either Turkish Standards Institution[39] or International Electro-technical Commissions Standards. The meters are placed at the point the electricity is fed to the grid and sealed on behalf of the both parties. This prevents any intervention and assures the accuracy and quality of the measurements.

The main and spare meter readings are recorded monthly and cross-checked whether calibration is required. For the capacity of the transmission line with a capacity 34.5 kV,and power of the circuit greater than 100MVA, the accuracy class for power meters have been defined in the Communiqué for Power Meters[40] as 0.2S class. The calibration will be implemented in accordance with the related standard procedures (Please see the table below). The periodical maintenance is under the responsibility of TEDAS and has been fixed as once in 10 years in accordance with Article.9 of Measure and Metering Devices Regulation[41].

Standards for power meters

Power of the circuit that power meters are located.	Greater than 100 MVA	100 MVA -10 MVA	Lower than 10 MVA
Active power meters	IEC-EN 60687 0.2S class	IEC-EN 60687 0.5S class	IEC-EN 60687 0.5 class
Reactive power meters	IEC-EN 61268 2 class	IEC-EN 61268 2 class	IEC-EN 61268 2 class

[36] http://www.tedas.gov.tr/7,Basvuru_Detay.html

[37] http://www.mevzuat.adalet.gov.tr/html/21179.html

[38] http://www2.epdk.gov.tr/mevzuat/teblig/elektrik/sayac/sayac.pdf

[39] http://global.tse.org.tr/

[40] http://www2.epdk.gov.tr/mevzuat/teblig/elektrik/sayac/sayac.pdf

[41] http://www.mevzuat.adalet.gov.tr/html/21179.html

Appendix 6. Summary of post registration changes

N/A

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Attachment. Instructions for filling out the project design document form for CDM project activities

1. General instructions

1. When designing a project activity and completing the CDM-PDD-FORM, in addition to applying the "CDM project standard" (Project standard), the selected approved baseline and monitoring methodology(ies) (hereinafter referred to as the selected methodology(ies)) and, where applicable, the selected approved standardized baseline(s) (hereinafter referred to as the selected standardized baseline(s)), consult the "Rules and Reference" section of the UNFCCC CDM website < http://cdm.unfccc.int/ >. This section contains all regulatory documents for the CDM, such as standards (including methodologies, tools and standardized baselines), procedures, guidelines, clarifications, forms and the "Glossary of CDM terms".

2. When documenting changes occurred to the project activity after its registration in accordance with applicable provisions relating to the post registration changes process, prepare two versions of the PDDs using the CDM-PDD-FORM, one in clean version and the other indicating the changes in track-change.

3. In addition to the provisions in paragraph 2 above, provide a summary of the changes, including the reasons for the changes and any additional information relating to the changes, in Appendix 6 below.

4. Where a PDD contains information that the project participants wish to be treated as confidential/proprietary, submit documentation in two versions:

   (a) One version where all parts containing confidential/proprietary information are made illegible (e.g. by covering those parts with black ink) so that the version can be made publicly available without displaying confidential/proprietary information;

   (b) A version containing all information that is to be treated as strictly confidential/proprietary by all parties handling this documentation (designated operational entities (DOEs) and applicant entities (AEs); Board members and alternate members; panel/committee and working group members; external experts requested to consider such documents in support of work for the Board; the secretariat).

5. Information used to: (a) demonstrate additionality; (b) describe the application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s); and (c) support the environmental impact assessment; is not considered proprietary or confidential. Make any data, values and formulae included in electronic spreadsheets provided accessible and verifiable.

6. Complete the CDM-PDD-FORM and all attached documents in English, or contain a full translation of relevant sections in English.

7. Complete the CDM-PDD-FORM using the same format without modifying its font, headings or logo, and without any other alteration to the form.

8. Do not modify or delete tables and their columns in the CDM-PDD-FORM. Add rows of the tables as needed. Add additional appendices as needed.

9. If a section of the CDM-PDD-FORM is not applicable, explicitly state that the section is left blank intentionally.

10. Use an internationally recognized format for presentation of values in the CDM-PDD-FORM, for example use digits grouping in thousands and mark a decimal point with a dot (.), not with a comma (,).

11. Complete the CDM-PDD-FORM deleting this Attachment "Instructions for filling out the project design document form for CDM project activities".

2. Specific instructions

1. Indicate the following information on the cover page:
   (a) Title of the project activity;
   (b) Version number of the PDD;
   (c) Completion date of the PDD (DD/MM/YYYY);
   (d) Project participant(s);
   (e) Host Party;
   (f) Sectoral scope, selected methodology(ies) and, where applicable, selected standardized baseline(s);
   (g) Estimated amount of annual average GHG emission reductions.

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

1. Provide a brief description of the project activity in accordance with applicable provisions related to the description of project activity in the Project standard.
2. Also provide a brief description of (in a couple of paragraphs):
   (a) The scenario existing prior to the implementation of the project activity including, where applicable, the type of facility where the project activity will take place or replace (e.g. sugar mill, swine farm, iron smelter, etc.);
   (b) The baseline scenario, as identified in section B.4 below.
3. The full description of the technologies and measures, project boundary and baseline scenario are to be provided in sections A.3, B.3 and B.4 below.
4. If the baseline scenario is the same as the scenario existing prior to the implementation of the project activity, there is no need to repeat the description of the scenarios, but only to state that both are the same.
5. Provide the estimate of annual average and total GHG emission reductions for the chosen crediting period.
6. Include a brief description of how the project activity contributes to sustainable development (not more than one page).
7. The UNFCCC CDM website presents all methodologies linked to sectoral scopes as well as standardized baselines. The CDM Methodology Booklet also classifies methodologies by sectoral scope and type of project activities and lists standardized baselines.

A.2. Location of project activity

A.2.1. Host Party

A.2.2. Region/State/Province etc.

A.2.3. City/Town/Community etc.

A.2.4. Physical/Geographical location

1. Provide details of the physical/geographical location of the project activity, including information allowing the unique identification of this project activity and a map. Do not exceed one page for the description of location.

A.3. Technologies and measures

1. Describe the technologies and measures to be employed and/or implemented by the project activity, including a list of the facilities, systems and equipment that will be installed and/or modified by the project activity. This includes:
   (a) A list and the arrangement of the main manufacturing/production technologies, systems and equipment involved. Include in the description information about the age and average lifetime of the equipment based on manufacturer's specifications and industry standards, and existing and forecast installed capacities, load factors and efficiencies. The monitoring equipments and their location in the systems are of particular importance;
   (b) Energy and mass flows and balances of the systems and equipment included in the project activity;
   (c) The types and levels of services (normally in terms of mass or energy flows) provided by the systems and equipment that are being modified and/or installed under the project activity and their relation, if any, to other manufacturing/production equipment and systems outside the project boundary. The types and levels of services provided by those manufacturing/production systems and equipment outside the project boundary may also constitute important parameters of the description. Clearly explain how the same types and levels of services provided by the project activity would have been provided in the baseline scenario.
2. Also provide a list of:
   (a) Facilities, systems and equipment in operation under the existing scenario prior to the implementation of the project activity;
   (b) Facilities, systems and equipment in the baseline scenario, as established in section B.4 below.
3. If the baseline scenario is a continuation of current practice, thus identical to the scenario existing prior to the implementation of the project activity, there is no need to repeat the description of the scenarios, only state that both are the same.
4. Do not provide information that is not essential to understanding the purpose of the project activity and how it reduces GHG emissions. Do not include information related to equipment, systems and measures that are auxiliary to the main scope of the project activity and do not affect directly or indirectly GHG emissions and/or mass and energy balances of the processes related to the project activity.
5. Include a description of how the technologies and measures and know-how to be used are transferred to the host Party.

A.4. Party(ies) and project participant(s)

1. List in the table below Party(ies) and project participant(s) involved in the project activity and provide contact information in Appendix 1. below.
2. When the CDM-PDD-FORM is completed in support of a proposed new methodology, identify at least the host Party and any known project participant(s) (e.g. those proposing a new methodology).

Name of Party involved (host) indicates host Party	Name of private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Name A (host)	Private entity A Public entity A	
Name B	Private entity B Public entity B	
…	…	

A.5. Public funding of project activity

1. Indicate whether the project activity receives public funding from Parties included in Annex I. If so:
   (a) Provide information on Parties providing public funding;
   (b) Attach in Appendix 2. below the affirmation obtained from such Parties in accordance with applicable provisions related to official development assistance in the Project standard.
2. When the CDM-PDD-FORM is completed in support of a proposed new methodology, describe whether public funding from Parties included in Annex I is likely to be provided, indicating the Parties to the extent possible.

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

B.1. Reference of methodology and standardized baseline

1. Indicate exact reference (number, title, version) of:
   (a) The selected methodology(ies) (e.g. ACM0001: "Large-scale Consolidated Methodology: Flaring or use of landfill gas" (Version 15.0);
   (b) Any tools and other methodologies to which the selected methodology(ies) refer (e.g. "Methodological Tool: Tool for the demonstration and assessment of additionality" (Version 07.0.0));
   (c) The selected standardized baseline(s), where applicable (e.g. ASB0001 "Standardized baseline: Grid emission factor for the Southern African power pool" (Version 01.0)).
2. Refer to the UNFCCC CDM website for the exact reference of approved baseline and monitoring methodologies, tools and standardized baselines.

B.2. Applicability of methodology and standardized baseline

1. Justify the choice of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) by showing that the project activity meets each applicability condition of the methodology(ies) and, where applicable, the selected standardized baseline(s). Explain documentation that has been used and provide the references to it or include the documentation in Appendix 3. below.

B.3. Project boundary

1. Use the table below to describe emission sources and GHGs included in the project boundary for the purpose of calculating project emissions and baseline emissions.
2. In addition to the table, present a flow diagram of the project boundary, physically delineating the project activity, based on the description provided in section A.3 above. Include in the flow diagram the equipment, systems and flows of mass and energy described in that section. In particular, indicate in the diagram the emission sources and GHGs included in the project boundary and the data and parameters to be monitored.

Source		Gas	Included	Justification/Explanation
Baseline scenario	Source 1	CO_2		
		CH_4		
		N_2O		
		…		
	Source 2	CO_2		
		CH_4		
		N_2O		
		…		
	…	CO_2		
		CH_4		
		N_2O		
		…		
Project scenario	Source 1	CO_2		
		CH_4		
		N_2O		
		…		
	Source 2	CO_2		
		CH_4		
		N_2O		
		…		

Source		Gas	Included	Justification/Explanation
	…	CO_2		
		CH_4		
		N_2O		
		…		

B.4. Establishment and description of baseline scenario

1. Explain how the baseline scenario is established in accordance with applicable provisions for establishment and description of baseline scenarios in the Project standard and the selected methodology(ies).
2. Where the procedure in the selected methodology(ies) involves several steps, describe how each step is applied and transparently document the outcome of each step. Explain and justify key assumptions and rationales. Provide and explain all data used to establish the baseline scenario (variables, parameters, data sources, etc.). Provide all relevant documentation and/or references.
3. Provide a transparent description of the baseline scenario as established above.
4. Where the selected standardized baseline standardizes the baseline scenario, describe the baseline scenario in accordance with the selected standardized baseline.
5. The full description of the technology of the baseline scenario is to be provided in section A.3 above.
6. Note that section B.4 above and section B.5 below are complementary. Some of the steps undertaken in one section may overlap with the steps undertaken in the other section depending on the procedures used to establish the baseline scenario and demonstrate additionality. If the “Combined tool to identify the baseline scenario and demonstrate additionality” is used, replicate the same information in both sections. In this case, make a reference to the other section where the description is contained.

B.5. Demonstration of additionality

1. Demonstrate that the project activity is additional in accordance with the selected methodology(ies), where applicable, the selected standardized baseline(s) and applicable provisions for demonstration of additionality in the Project standard. Where the procedure in the selected methodology(ies) and/or tool involves several steps, describe how each step is applied and transparently document the outcome of each step. Indicate clearly the method selected to demonstrate additionality (e.g. investment analysis or barrier analysis). Present in a transparent manner, in the form or in a separate appendix, with all data used (variables, parameters, data sources, etc.), how the additionality of the project activity is demonstrated.
2. Where the additionality criteria (e.g. positive lists of technologies) in the selected standardized baselines(s) are used, justify how the project activity meets the additionality criteria (e.g. how the technology to be implemented or implemented by the project activity is justified as one of the technologies listed in the positive list).
3. Where investment analysis is used, list all relevant assumptions and parameters used in the analysis. Where benchmark analysis is used, clearly indicate the benchmark. Where cost comparison is used, describe the scenarios compared.
4. Where the barriers are involved in demonstrating additionality, only select the most relevant barriers. With key facts and/or assumptions and the rationale, justify the credibility of the barriers. Provide relevant documentation or references.
5. If the start date of the project activity is prior to the date of publication of the PDD for the global stakeholder consultation, provide evidence of the prior consideration of the CDM in accordance with applicable provisions related to the demonstration of prior consideration of the CDM in the Project standard.

B.6. Emission reductions

B.6.1. Explanation of methodological choices

1. Explain how the methods or methodological steps in the selected methodology(ies) and, where applicable, the selected standardized baseline(s), for calculating baseline emissions, project emissions, leakage and emission reductions are applied. Clearly state which equations will be used in calculating emission reductions.
2. Explain and justify all relevant methodological choices, including:

(a) Where the selected methodology(ies) and, where applicable, the selected standardized baseline(s) include different scenarios or cases, indicate and justify which scenario or case applies to the project activity (e.g. which scenario in ACM0006 is applicable);

(b) Where the selected methodology(ies) and, where applicable, the selected standardized baseline(s) provide different options to choose from (e.g. which methodological approach is used to calculate the "operating margin" in ACM0002), indicate and justify which option is chosen for the project activity;

(c) Where the selected methodology(ies) and, where applicable, the selected standardized baseline(s) allow different default values, indicate and justify which of the default values have been chosen for the project activity.

B.6.2. Data and parameters fixed ex ante

1. Include a compilation of information on the data and parameters that are not monitored during the crediting period but are determined before the registration and remain fixed throughout the crediting period. Do not include data that become available only after the registration of the project activity (e.g. measurements after the implementation of the project activity) here but include them in the table in section B.7.1 below.
2. The compilation of information may include data that are measured or sampled, and data that are collected from other sources (e.g. official statistics, expert judgment, proprietary data, IPCC, commercial and scientific literature, etc.). Do not include data that are calculated with equations provided in the selected methodology(ies) or default values specified in the methodology(ies) in the compilation.
3. For each piece of data or parameter, complete the table below, following these instructions:
   (a) "Value(s) applied": Provide the value applied. Where a time series of data is used, where several measurements are undertaken or where surveys have been conducted, provide detailed information in Appendix 4. below. To report multiple values referring to the same data and parameter, use one table. If necessary, use reference(s) to electronic spreadsheets;
   (b) "Choice of data": Indicate and justify the choice of data source. Provide clear and valid references and, where applicable, additional documentation in Appendix 4. below;
   (c) "Measurement methods and procedures": Where values are based on measurement, include a description of the measurement methods and procedures applied (e.g. which standards have been used), indicate the responsible person/entity that undertook the measurement, the date of the measurement and the measurement results. More detailed information can be provided in Appendix 4. below;
   (d) "Purpose of data": Choose one of the following:
      (i) Calculation of baseline emissions;
      (ii) Calculation of project emissions;
      (iii) Calculation of leakage.

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

Data / Parameter:	
Unit:	
Description:	
Source of data:	
Value(s) applied:	
Choice of data or Measurement methods and procedures:	
Purpose of data:	
Additional comment:	

B.6.3. Ex ante calculations of emission reductions

1. Provide a transparent ex ante calculation of baseline emissions, project emissions (or, where applicable, direct calculation of emission reductions) and leakage expected during the crediting period, applying all relevant equations provided in the selected methodology(ies) and, where applicable, the selected standardized baseline(s). For data or parameters available before registration, use values contained in the table in section B.6.2 above.

2. For data/parameters not available before registration and monitored during the crediting period, use estimates contained in the table in section B.7.1 below. If any of these estimates has been determined by a sampling approach, provide a description of the sampling efforts undertaken in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities".
3. Document how each equation is applied, in a manner that enables the reader to reproduce the calculation. Where relevant, provide additional background information and/or data in Appendix 4. below, including relevant electronic spreadsheets.
4. Provide a sample calculation for each equation used, substituting the values used in the equations.

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

1. Summarize the results of the ex ante calculation of emission reductions for all years of the crediting period, using the table below.

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
Year A				
Year B				
Year C				
Year …				
Total				
Total number of crediting years				
Annual average over the crediting period				

B.7. Monitoring plan

1. Through sections B.7.1, B.7.2 and B.7.3 below, provide a detailed description of the monitoring plan of the project activity developed in accordance with the applicable provisions in the Project standard and the monitoring requirements of the selected methodology(ies).

B.7.1. Data and parameters to be monitored

1. Include specific information on how the data and parameters that need to be monitored in the selected methodology(ies) and, where applicable, the selected standardized baseline(s) would actually be collected during monitoring. Include here data that are determined only once for the crediting period but that will become available only after registration of the project activity (e.g. measurements after the implementation of the project activity).
2. For each piece of data or parameter, complete the table below, following these instructions:
   (a) "Source of data": Indicate the source(s) of data that will be used for the project activity (e.g. which exact national statistics). Where several sources are used, justify which data sources should be preferred;
   (b) "Value(s) applied": The value applied is an estimate of the data/parameter that will be monitored during the crediting period, but is used for the purpose of calculating estimated emission reductions in section B.6 above. To report multiple values referring to the same data and parameter, use one table. If necessary, use reference(s) to electronic spreadsheets;
   (c) "Measurement methods and procedures": Where data or parameters are to be monitored, specify the measurement methods and procedures, standards to be applied, accuracy of the measurements, person/entity responsible for the measurements, and, in case of periodic measurements, the measurement intervals;
   (d) "QA/QC procedures": Describe the Quality Assurance (QA)/Quality Control (QC) procedures to be applied, including the calibration procedures, where applicable;

(e) "Purpose of data": Choose one of the following:
  (i) Calculation of baseline emissions;
  (ii) Calculation of project emissions;
  (iii) Calculation of leakage.

3. Provide any relevant further background documentation in Appendix 5. below.

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

Data / Parameter:	
Unit:	
Description:	
Source of data:	
Value(s) applied:	
Measurement methods and procedures:	
Monitoring frequency:	
QA/QC procedures:	
Purpose of data:	
Additional comment:	

B.7.2. Sampling plan

1. If data and parameters monitored in section B.7.1 above are to be determined by a sampling approach, provide a description of the sampling plan in accordance with the recommended outline for a sampling plan in the "Standard for sampling and surveys for CDM project activities and programme of activities".

B.7.3. Other elements of monitoring plan

1. Describe the operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage generated by the project activity. Clearly indicate the responsibilities and institutional arrangements for data collection and archiving. Provide any relevant further background information in Appendix 5. below.

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

1. Provide the date of completion of study on application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the project activity in the format of DD/MM/YYYY.
2. Provide contact information of the person(s)/ entity(ies) responsible for the application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the project activity and indicate if the person(s)/ entity(ies) is also a project participant(s) in Appendix 1. below.

SECTION C. Duration and crediting period

C.1. Duration of project activity

C.1.1. Start date of project activity

1. State the start date of the project activity, in the format of DD/MM/YYYY, describe how this date has been determined, and provide evidence to support this date.

C.1.2. Expected operational lifetime of project activity

1. State the expected operational lifetime of the project activity in years and months.

C.2. Crediting period of project activity

C.2.1. Type of crediting period

1. State the type of crediting period chosen for the project activity (renewable or fixed).
2. For a renewable crediting period, indicate whether it is the first, second or third.

C.2.2. Start date of crediting period

1. State the start date of crediting period of the project activity in the format of DD/MM/YYYY.

C.2.3. Length of crediting period

1. State the length of the crediting period of the project activity in years and months.

SECTION D. Environmental impacts

D.1. Analysis of the environmental impacts

1. Provide a summary of the analysis of the environmental impacts of the project activity and references to all related documentation.

D.2. Environmental impact assessment

1. If an environmental impact assessment is required, provide conclusions and references to all related documentation.

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

1. Describe the process by which comments from local stakeholders have been invited for the project activity.

E.2. Summary of comments received

1. Identify stakeholders that have made comments and provide a summary of these comments.

E.3. Report on consideration of comments received

1. Provide information demonstrating that all comments received have been considered.

SECTION F. Approval and authorization

1. Indicate whether the letter(s) of approval from Party(ies) for the project activity is available at the time of submitting the PDD to the validating DOE.
2. If so, provide the letter(s) of approval along with the PDD.

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

1. For each organisation listed in sections A.4 and B.7.4 above, complete the table below, with the following mandatory fields: Project participant and/or responsible person/ entity, Organization, Street/P.O. Box, City, Postcode, Country, Telephone, Fax, e-mail and Name of contact person. Copy and paste the table as needed.

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	
Street/P.O. Box	
Building	
City	
State/Region	
Postcode	
Country	
Telephone	
Fax	
E-mail	
Website	
Contact person	
Title	
Salutation	
Last name	
Middle name	
First name	
Department	
Mobile	
Direct fax	
Direct tel.	
Personal e-mail	

Appendix 2. Affirmation regarding public funding

1. If applicable, attach the affirmation obtained from Parties included in Annex 1 providing public funding to the project activity.

Appendix 3. Applicability of methodology and standardized baseline

1. Provide any further background information on the applicability of the selected methodology(ies) and, where applicable, the selected standardized baseline(s).

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

1. Provide any further background information on the ex ante calculation of emission reductions. This may include data, measurement results, data sources, etc.

Appendix 5. Further background information on monitoring plan

1.	Provide any further background information used in the development of the monitoring plan. This may include tables with time series data, additional documentation of measurement equipment, procedures, etc.

Appendix 6. Summary of post registration changes

1.	Provide a summary of the post registration changes.

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Document information

Version	*Date*	*Description*
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 *F-CDM-PDD* to *CDM-PDD-FORM;* • 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.

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