Verified Carbon Standard

# MONITORING REPORT: 2ND VERIFICATION

Document Prepared by

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Life İklim ve Enerji Ltd. Şti. (as Carbon Consultant)

| | |
|---|---|
| Project Title | Otluca HPPs Run-of-River Hydro Project |
| Version | 05 |
| Report ID | - |
| Date of Issue | 18-November-2022 |
| Project ID | 755 |
| Monitoring Period | 01-August-2013 to 31-July-2019 (both days are included) |
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# 1 PROJECT DETAILS

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

Otluca HPPs is a 46.017 MWe[1] run-of-river hydro power plant project. It consists of three sub-projects (Otluca-1, Boğuntu, Otluca-2) which are located at the upstream part of the Anamur River in Anamur district. The sub-projects are described as follows:

Otluca-1 is a medium head plant using a weir structure to divert Anamur river water into an intake structure with three de-sanding basins. From there it enters a tunnel of about 3.8 km length followed by an open canal of about 500 m length and followed again by a tunnel of about 2.2 km length until the water reaches a headpond. An intake from this pond takes it through a 507 m long penstock to the powerhouse. The combined capacity of the 3 turbines is 36.888 MWe.

Boğuntu uses the water of the Boğuntu River (tributary of the Anamur River) and is a medium head structure with the same system as Otluca 1. It has one de-sanding basin, starts with 162 m long open canal and continues with a 1.5 km long headrace tunnel to a headpond. The penstock is about 94 m long and leads with a head of 67.6 m to a power plant with 3 turbines. The installed capacity is 3.321 MWe.

The weir of Otluca-2 is located only some 500 m downstream from where Otluca 1 and Boğuntu Projects feed the water back into the Anamur River. Otluca-2 diverts the water again to an intake structure and into three settlement ponds before it enters the conveyance system consisting out of 2 tunnels and 2 canals of an overall length of 1,547 m, out of which 1,137 m are tunnel. The water arrives at a headpond and feeds through a 57 m long penstock the powerhouse with 29.4 m head and 3 turbines. The combined installed capacity of 5.808 MWe.

The purpose of the Project is to export the generated electricity to the regional grid, thereby contributing to the Turkey's electricity demand and rapidly growing economy. Since the Project generates electricity from renewable energy resources, it makes a significant contribution to climate protection. According to the validated VCS-PD, the Project was expected to generate 224,000 MWh of electricity annually, and to reduce 123,003 tons of CO2 emissions per year, according to the validated VCS-PD.

*Table 1 - Technical Characteristics of Otluca HPPs[2]*

| | | |
|---|---|---|
| Project Main Characteristics | Type: | Run-of-river HPP |
| | Total Installed Power: | 46.017 MWe |
| | Annual Power Generation: | 224,000 MWh/year |
| | Transmission Line | Type: 2x477 MCM section, line;<br>Connection Point: Anamur Switchyard;<br>Length: 20 km |
| **Otluca-1** | | |

[1] See: Provisional Acceptance Letters

[2] Please see: Provisional Acceptance Letters and registered PD

| | | |
|---|---|---|
| Weir | Type | Concrete |
| | Elevation at crest | 283.5 m |
| | Height from river bed | 11 m |
| | Length | 29.8 m |
| Power Plant | Design discharge | 20 $m^3/s$ |
| | Net head | 209 m |
| | Turbine type | Francis, vertical axis |
| | Units | 3 |
| | Installed Power | 12.296 MWe |
| **Boğuntu** | | |
| Weir | Type | Concrete |
| | Elevation at crest | 233.5 m |
| | Height from riverbed | 5.5 m |
| | Length | 26 m |
| Power Plant | Design discharge | 6 $m^3/s$ |
| | Net head | 66 m |
| | Turbine type | Francis, horizontal axis |
| | Units | 3 |
| | Installed Power | 1.107 MWe |
| **Otluca-2** | | |
| Weir | Type | Concrete |
| | Elevation at crest | 159 m |
| | Height from riverbed | 2.5 m |
| | Length | 159 m |
| Power Plant | Design discharge | 24 $m^3/s$ |
| | Net head | 28 m |
| | Turbine type | Francis, vertical axis |
| | Units | 3 |
| | Installed Power | 1.936 MWe |
| **Turbines** | | |
| Otluca-1 | Product no | ND2009022-01 & ND2009022-02 & ND2009022-03 |
| Boğuntu | Serial no | 09-01 & 09-02 & 09-03 |
| Otluca-2 | Product no | ND2009022-01 & ND2009022-02 & ND2009022-03 |
| **Generators** | | |
| Otluca-1 | Product no | ND2009022-01 & ND2009022-02 & ND2009022-03 |
| Boğuntu | Serial no | 09333 & 09334 & 09335 |

| | | |
|---|---|---|
| Otluca-2 | Product no | ND2009022-01 & ND2009022-02 & ND2009022-03 |

First monitoring period covered the 28 months from 07-04-2011 to 31-07-2013 (both days were included). Total emission reductions achieved in first monitoring period were 241,701 tons of CO2e. This monitoring period covers the 72 months from 01-08-2013 to 31-07-2019 (both days included). Total emission reductions achieved in this period are 532,381 tons of CO2e since electricity production is 969,560.57 MWh for this monitoring period.

## 1.2 Sectoral Scope and Project Type

The respective sectoral scope is scope 1: "Energy Industry – Renewable/Non-renewable Sources". The installed capacity of the project is 46.017 MWe, thus it falls into a large-scale project activity.

The project is not a grouped project.

## 1.3 Project Proponent

| | |
|---|---|
| Organization name | Elen Enerji Üretimi Sanayi Ticaret A.Ş. |
| Contact person | Mustafa Kemal Güngör |
| Title | General Manager |
| Address | İlkbahar Mah. Turan Güneş Bulvarı Galip Erdem Cad. No:3 |
| Telephone | +90 312 408 14 00 |
| Email | info@akfenren.com.tr |

## 1.4 Other Entities Involved in the Project

| | |
|---|---|
| Organization name | Life İklim ve Enerji Ltd. Şti. |
| Role in the Project | Project Developer |
| Contact person | Kerem Aslan |
| Title | Carbon Consultant |
| Address | Oğuzlar Mahallesi, 1377. Sk. No:19, 06520 Çankaya/Ankara/Turkey |
| Telephone | +90 312 481 2142 |
| Email | kerem.aslan@lifeenerji.com |

## 1.5 Project Start Date

The project start date was 07-April-2011 which the project began generating GHG emission reductions or removals.

## 1.6 Project Crediting Period

Biggest part of the Otluca (Otluca-1) was started in operation April 2011, Otluca-2 was started in operation 13-07-2011 and Boğuntu was started in operation 16-09-2011. Related Documents are provided to the DOE. Earliest date is set as starting date of the project which is 07-04-2011.

Start: 07-April-2011

End: 06-April-2021

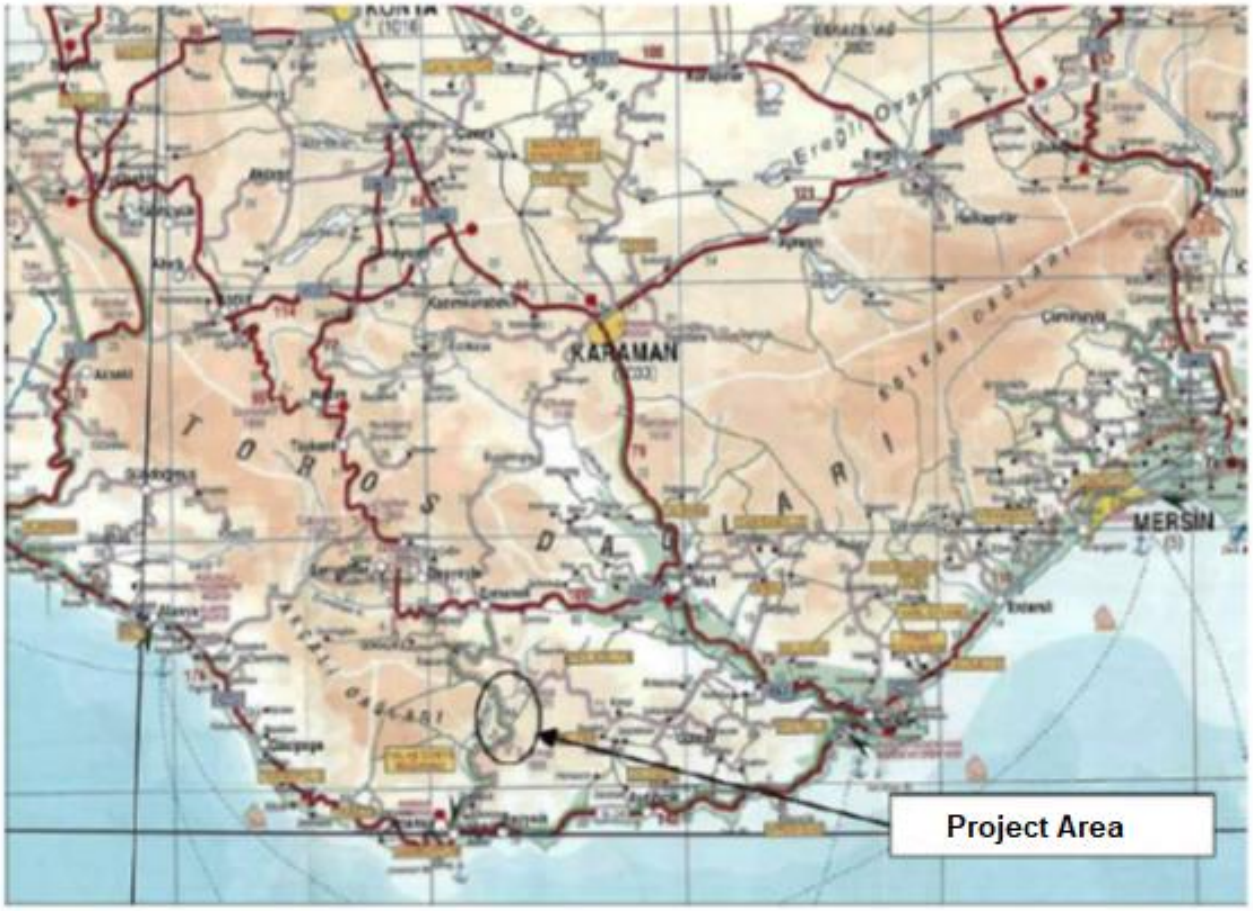
10-years two-times renewed crediting period.

## 1.7 Project Location

The project is located on the upstream part of Anamur River in Taşeli Plateau in southern Turkey, Anamur district, Mersin province. The closest settlements to the project site are Çaltıbükü village and Boğuntu village. The geographical coordinates of the Weir and the Power plant are as follows:

Table 2 - Geographical coordinates of the Weir and the Power plant[3]

| | Otluca-1 Weir | Otluca-1 HPP | Otluca-2 Weir | Otluca-2 HPP | Boğuntu Weir | Boğuntu HPP |
|---|---|---|---|---|---|---|
| **Lat.** | 36° 18' 13.753" N | 36° 15' 34.491" N | 36° 15' 24.103" N | 36° 14' 29.794" N | 36° 16' 28.971" N | 36° 15' 44.067" N |
| **Long.** | 32° 46' 45.825" E | 32° 49' 21.043" E | 32° 49' 19.383" E | 32° 49' 34.932" E | 32° 49' 56.593" E | 32° 49' 21.903" E |




[3] See: Table 2 in Approved PD and provisional acceptance letter (page 538)

Figure 1: Location of the project

## 1.8 Title and Reference of Methodology

"Consolidated baseline methodology for grid connected electricity generation from renewable sources" (ACM0002 version 12.1.0)[4]

The above methodology is hereafter referred to as the "Baseline Methodology". The Baseline Methodology is used in conjunction with the approved monitoring methodology ACM0002 version 12.1.0 (subsequently referred to as "Monitoring Methodology").

The monitoring report also draws upon the:

- Tool for demonstration and assessment of additionality , Version 5.2[5]
- Tool to calculate the emission factor for an electricity system, Version 2.2.0[6]

## 1.9 Participation under other GHG Programs

The project does not participate/has not participated in any other GHG program.

## 1.10 Other Forms of Credit

No GHG related environmental credits are applied to the Turkish power sector. No participation in any Emission Trading Programs and Other Binding Limits.

## 1.11 Sustainable Development

The project helps Turkey to stimulate and commercialize the use of grid-connected renewable energy technologies and markets. Furthermore, the project demonstrates the viability of grid-connected wind farms which can support improved energy security, improved air quality, alternative sustainable energy futures, improved local livelihoods and sustainable renewable energy industry development. The specific goals of the project are to:

- reduce greenhouse gas emissions in Turkey compared to the business-as-usual scenario;
- help to stimulate the growth of the hydraulic power industry in Turkey;
- create local employment during the construction and the operation phase of the hydraulic power plant;
- reduce other pollutants resulting from power generation industry in Turkey, compared to a business-as-usual scenario;
- help to reduce Turkeys increasing energy deficit;
- differentiate the electricity generation mix and reduce import dependency;
- contribute to the development of landscaping, reforestation, making investments, such as roads, various supports for village schools.

As the project developer, Elen Enerji believes that efficient utilization of all kinds of natural resources with a harmony coupled with responsible environmental considerations is vital for the sustainable development of Turkey and the World. This has been a guiding factor for the

[4] https://cdm.unfccc.int/Panels/meth/meeting/10/046/mp46_an06.pdf

[5] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v5.2.pdf

[6] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.2.0.pdf

shareholders towards the concept of designation and installation of a hydraulic power project. The benefits that are gained by the realization of the project compared to the business-as-usual scenario can be summarized under some main indicators.

- For Environmental aspect, the project activities replace the grid electricity and avoid the greenhouse gas emissions (CO2, CH4) and other pollutants (SOX, NOX, particulate matters).

- In addition, the project helps to develop the hydraulic power industry and encouraged to the investment in the industry. Thus, for economical aspect, Turkey's increasing energy deficit and import dependency are reduced.

- For social aspect, during the construction and operation of the wind farm, local employment is enhanced and local poverty and unemployment can be partially eliminated by increasing job opportunities and project business activities.

- Implementation of the project contributes to wider deployment and acceleration of the hydraulic technology in local and national level.

Table 3 : Sustainable Development Contributions

| Row number | SDG Target | SDG Indicator | Net Impact on SDG Indicator | Current Project Contributions | Contributions Over Project Lifetime |
|---|---|---|---|---|---|
| 1) | 13.0 | Tonnes of greenhouse gas emissions avoided | Implemented activities to increase | 532,381 tCO2e emission reduction during this MP. | 532,381 tCO2e[7] emission reduction over the project lifetime |
| 2) | 7.2 | Renewable energy electricity generation in the national grid | Implemented activities to increase | 969,560.57 MWh renewable electricity generation during this MP | 969,560.57 MWh[8] renewable electricity generation over the project lifetime |
| 3) | 8.8 | The number of employment due to implementation of project activity | Implemented activities to increase | There are 21 employees who have been working at the plant during this MP. | Throughout the construction and operation phases, employment has been provided by the Project Activity over the project lifetime.<br>21 employees[9] have worked and gained income at the plant during the project lifetime. |

[7] Please see the Section 5.4 of this document.

[8] Please see the appendix 1 of this document.

[9] Please see the appendix 2 of this document.

# 2 SAFEGUARDS

## 2.1 No Net Harm

No negative environmental and socio-economic impacts have been observed/recorded for this monitoring period as confirmed by the project participant and stakeholders during the interviews. According to the relevant "Reporting form for Land Acquisition / Social Impacts of Portfolio Projects" for Otluca HPP, an Environmental Impact Assessment was not required.[10]

The project activity takes into account negative comments -mostly provide by mukhtar- from local stakeholders for socio-economic impacts of the project activity and implements an action plan to take necessary actions accordingly. Project activity takes precautions for possible environmental impacts of the project such as; wastewater storage and disposal of them, hazardous and domestic waste storage, fish passage, lifeline water records and necessary trainings for all employees.

## 2.2 Local Stakeholder Consultation

Stakeholder engagement procedure was conducted at the Çaltıbükü Village with the village head and the local stakeholders on 13-December-2021.
As validated during the site visit, although the general outcome of the discussions with the local people is positive verbally, the project owner is regularly following up with the local people whether they have any problems or requests. As a result of the follow-up, there was not any complaint received from the stakeholders during the site visit. There is not any significant update in the project implementation which may affect the project activity, implementation, stakeholders, and environment. There are also statements that 'there is no change' etc. in the meeting in terms of project design and implementation.
Logbook is available for comments of local stakeholders. What's more, thanks to the Grievance Mechanism, local stakeholders have a chance to submit their requests and complaints to the project owner about the project. In addition, mukhtar (head of the village) had already taken the contact information (e.g mobile phone) of public relationships expert, project manager and assistant general director of the company so that the local stakeholders can be able to reach these people whenever they have any complaints, suggestions, or ideas about the project. They can be able to communicate with them in case of any problems.
Since mukhtar is the head of the village, he is the main contact person between the project owner and the local stakeholders. Muhtar is made sure that there is continuous communication between the two parties.

Stakeholder meeting was performed on 13-December-2021 for this monitoring period.

## 2.3 AFOLU-Specific Safeguards

N/A

[10] Please see: Document of EIA is not required

# 3 IMPLEMENTATION STATUS

## 3.1 Implementation Status of the Project Activity

Otluca HPP started to generate and provide electricity to the Turkish National Grid on 07-April-2011. During the monitoring period, there was no event or situation that occurred, which may impact the applicability of the methodology.

For the drop in the electricity generation of project activity in 2014, 2015 and 2016 years for this monitoring period, data, and studies on changes in the related river course may not be available. But the graph of 'Rainfall and Rain Days' for Mersin region is accessible via link. We can easily observe the rainfall amount of 2014 year for comparison year. Therefore, it is observable that there are drastic decreases and increases in the velocity of the river course with the effect of rainfall apart from the other factors such as such as freezing in the river due to the climate condition of related area. These values –where electricity production has decreased significantly due to climate change in this project activity - are conservative enough for the calculation of emission reduction.

| Date (DD-MM-YYYY) | Project Activity |
|---|---|
| 05-07-2007 | Issuance of the License |
| 25-08-2007 | Requests for Proposals from Consultants for VER Development |
| 04-01-2008 | Start of first Construction Activities |
| 28-05-2008 | Contract with Hangzhou Yatai Hydro Equipment Comp. Co. Ltd. (generators/turbines) |
| 01-09-2008 | Initial Agreement with a VER Consultant |
| 27-03-2009 | Financial Closure with Bank |
| 13-04-2010 | Signature with FutureCamp Türkiye for VER Development |
| 07-04-2011 | Start of operation |
| 07-04-2011 | Start of the 1st monitoring period |
| 31-07-2013 | End of the 1st monitoring period |
| 01-08-2013 | Start of the 2nd monitoring period |
| 31-07-2019 | End of the 2nd monitoring period |

Detailed technical characteristics of Otluca HPPs are given in the Figure (Single Line Diagram) below.

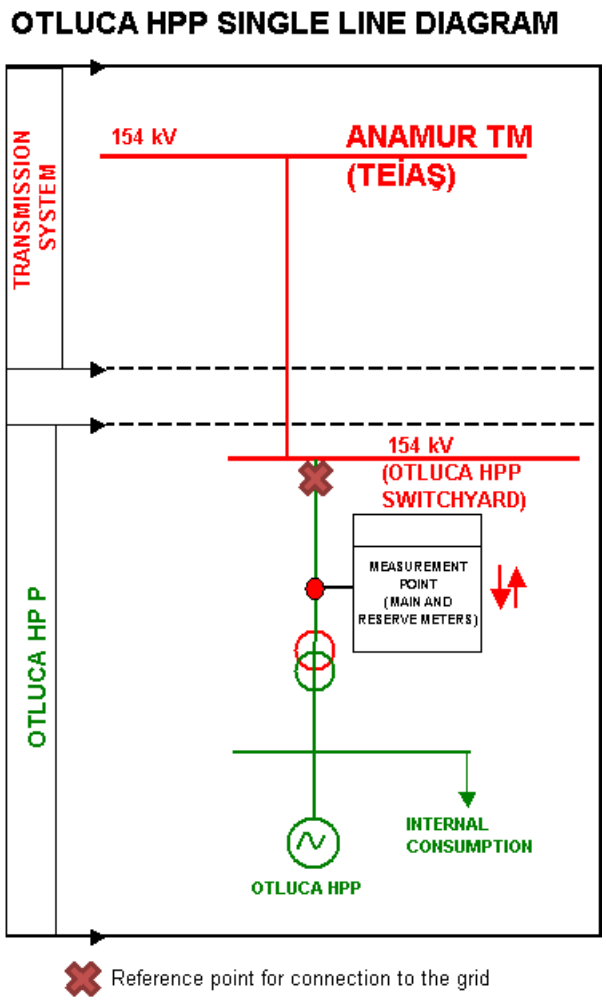



Figure 2: Single Line Diagram of Otluca HPPs

## 3.2 Deviations

### 3.2.1 Methodology Deviations

N/A

### 3.2.2 Project Description Deviations

- Beyobası Enerji Üretim A.Ş. has transferred the project to Elen Enerji Üretimi Sanayi ve Ticaret A.Ş. with all its rights as per generation licence.[11]
- The meter reading procedure physically can be delayable due to weather conditions or any temporary causes. Thus, to provide a continuity of the existance of cross-check values, following up the invoices of electricity generations and consumptions of the project are also added to the cross-check method under the $EG_{facility,y}$ monitoring parameter. For this monitoring period, since the net electricity generation value is not specified in the invoices provided for the years 2013, 2014 and 2015, the cross-check

[11] Please see: Generation Licence

data is taken from the EPİAŞ transparency platform. The data on this platform belongs to TEİAŞ, who is responsible for remote or physical meter readings.

- The data from the Electricity Meters are the basis for the settlement notification of EPIAS and web screenshots of EPIAS are used and will be used as main source of data for monitoring. TEİAŞ is responsible for meter readings and these data are used and will be used for cross-checking in line with the 2nd project description deviation above.

## 3.3 Grouped Projects

N/A

# 4 DATA AND PARAMETERS

## 4.1 Data and Parameters Available at Validation

| Data / Parameter | $EF_{grid,CM,y}$ |
|---|---|
| Data unit | tCO2/MWh |
| Description | Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" |
| Source of data | As per "Tool to calculate the emission factor for an electricity system" |
| Value applied | 0.5491 tCO2/MWh |
| Justification of choice of data or description of measurement methods and procedures applied | As per "Tool to calculate the emission factor for an electricity system" |
| Purpose of Data | For calculation emission factor |
| Comments | No additional comments |

| Data / Parameter | **Gross electricity generation** |
|---|---|
| Data unit | MWh |
| Description | Gross Electricity supplied to the grid by relevant sources (2006-2008) |
| Source of data | Turkish Electricity Transmission Company (TEİAŞ), Annual Development of Turkey's Gross Electricity Generation of Primary Energy Resources (1975-2008) TEİAŞ. Please see: https://webapi.teias.gov.tr/file/d68d12d1-7b09-4c5a-bd1d-bd29b40b97e5?download |
| Value applied | 131,681,100 MWh; 154,982,500 MWh; 163,919,400 MWh |
| Justification of choice of data or description of measurement methods and procedures applied | TEİAŞ is the national electricity transmission company, which makes available the official data of all power plants in Turkey. |
| Purpose of Data | Combined Margin Calculations |
| Comments | No additional comments |

| Data / Parameter | Net Electricity Generation |
|---|---|
| Data unit | MWh |
| Description | Net electricity fed into the grid. Used for the calculation of the net/gross relation (Including Import and Export figures) |
| Source of data | Turkish Electricity Transmission Company (TEİAŞ), Annual Development of Electricity Generation Consumption and Losses in Turkey (1984-2008) TEİAŞ. Please see: https://webapi.teias.gov.tr/file/ae3e13fb-9d07-4128-a1d9-d5ce9ed1458c?download |
| Value applied | 169,543.1 GWh; 183,339.7 GWh; 189,761.9 GWh |
| Justification of choice of data or description of measurement methods and procedures applied | This data is used to find relation between the gross and net electricity delivered to the grid by fossil fuel fired power plants. Import and Export data is used to identify total net electricity fed into the grid in the years of 2006, 2007 and 2008. TEİAŞ is the national electricity transmission company, which makes available the official data of all power plants in Turkey. |
| Purpose of Data | Combined Margin Calculations |
| Comments | No additional comments |

| | |
|---|---|
| **Data / Parameter** | Sample Group for BM emission factor |
| **Data unit** | Name of the plants, MW capacities, fuel types, annual electricity generations and dates of commissioning. |
| **Description** | Most recent power plants which compromise 20% of total generation |
| **Source of data** | Annual Development of Fuels Consumed in Thermal Power Plants in Turkey by the Electric Utilities, TEİAŞ:<br><br>For plants in 2004:<br>https://webapi.teias.gov.tr/file/91891c1f-f8ba-4374-87c3-588730f53a73?download<br><br>For plants in 2005:<br>https://webapi.teias.gov.tr/file/91891c1f-f8ba-4374-87c3-588730f53a73?download<br><br>For plants in 2006:<br>https://webapi.teias.gov.tr/file/56efcc33-7319-40f9-b6e0-3cb8ba963f96?download<br><br>For plants in 2007:<br>https://webapi.teias.gov.tr/file/56efcc33-7319-40f9-b6e0-3cb8ba963f96?download<br><br>For plants in 2008:<br>https://webapi.teias.gov.tr/file/56efcc33-7319-40f9-b6e0-3cb8ba963f96?download |
| **Value applied** | See Validated VCS-PD |
| **Justification of choice of data or description of measurement methods and procedures applied** | TEİAŞ is the national electricity transmission company, which makes available the official data of all power plants in Turkey. The latest data available during PD preparation was for 2008. |
| **Purpose of Data** | Combined Margin Calculations |
| **Comments** | No additional comments |

| | |
|---|---|
| **Data / Parameter** | $EF_{CO2,I,y}$ |
| **Data unit** | tCO2/GJ |
| **Description** | Emission factor for 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 IPCC Guidelines on National GHG Inventories.<br>Please see:<br>https://www.ipcc-nggip.iges.or.jp/public/2006gl/ |
| **Value applied** | See Validated V*CS-PD*. |
| **Justification of choice of data or description of measurement methods and procedures applied** | The Intergovernmental Panel on Climate Change (IPCC) is an intergovernmental body of the United Nations that is dedicated to providing the world with objective, scientific information relevant to understanding the scientific basis of the risk of human-induced climate change, its natural, political, and economic impacts and risks, and possible response options. |
| **Purpose of Data** | Combined Margin Calculations |
| **Comments** | No additional comments |

| | |
|---|---|
| **Data / Parameter** | $\eta_{m,y}$ |
| **Data unit** | - |
| **Description** | Average energy conversion efficiency of power unit m in year y |
| **Source of data** | Annex I the "Tool to calculate the emission factor for an electricity system" |
| **Value applied** | See Validated V*CS-PD*. |
| **Justification of choice of data or description of measurement methods and procedures applied** | For efficiency rates of Coal and Lignite Power Plants See Annex-1 of the Tool (highest rate is applied to be conservative) For Natural Gas and Oil plants efficiencies, default value given in the tool is applied:<br>https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.2.0.pdf |
| **Purpose of Data** | Combined Margin Calculations |
| **Comments** | No additional comments |

| | |
|---|---|
| **Data / Parameter** | $HV_{i,y}$ |
| **Data unit** | Mass or volume unit |

| | |
|---|---|
| **Description** | Heating Values of fuels consumed for electricity generation in the years of 2006, 2007 and 2008 |
| **Source of data** | Heating Values of Fuels Consumed in Thermal Power Plants in Turkey by The Electric Utilities, TEİAŞ.<br>Please see:<br>https://webapi.teias.gov.tr/file/346a8564-97c6-4027-b674-6ac3def3ba29?download |
| **Value applied** | See validated VCS-PD |
| **Justification of choice of data or description of measurement methods and procedures applied** | There is no national NVC data in Turkey. However, TEİAŞ announces Heating values of fuels. This data is used to calculate annual NCVs for each fuel type.<br>TEİAŞ is the national electricity transmission company, which makes available the official data of all power plants in Turkey. |
| **Purpose of Data** | Combined Margin Calculations |
| **Comments** | No additional comments |

| | |
|---|---|
| **Data / Parameter** | **$FC_{i,y}$** |
| **Data unit** | Mass or volume unit |
| **Description** | Fuels consumed for electricity generation in the years of 2006, 2007 and 2008 |
| **Source of data** | Annual Development of Fuels Consumed in Thermal Power Plants in Turkey by The Electric Utilities, TEİAŞ.<br>Please see:<br>(2000-2005)<br>https://webapi.teias.gov.tr/file/91891c1f-f8ba-4374-87c3-588730f53a73?download<br><br>(2006-2008)<br>https://webapi.teias.gov.tr/file/56efcc33-7319-40f9-b6e0-3cb8ba963f96?download |
| **Value applied** | See Validated VCS-PD. |
| **Justification of choice of data or description of measurement methods and procedures applied** | TEİAŞ is the national electricity transmission company, which makes available the official data of all power plants in Turkey. |
| **Purpose of Data** | Combined Margin Calculations |

| | |
|---|---|
| **Comments** | No additional comments |

| | |
|---|---|
| **Data / Parameter** | **$NCV_{i,y}$** |
| **Data unit** | TJ/kton, TJ/million $m^3$ |
| **Description** | Net Calorific Value of fuel types in the years of 2006, 2007 and 2008 |
| **Source of data** | Calculated by using HVi,y to FCi,y as Net Calorific Values of fuel types are not directly available in Turkey. |
| **Value applied** | See Validated VCS-PD. |
| **Justification of choice of data or description of measurement methods and procedures applied** | TEİAŞ is the national electricity transmission company, which makes available the official data of power plants in Turkey. |
| **Purpose of Data** | Combined Margin Calculations |
| **Comments** | No additional comments |

## 4.2 Data and Parameters Monitored

| | |
|---|---|
| **Data / Parameter** | **$EG_{facility,y}$** |
| **Data unit** | MWh/yr |
| **Description** | Quantity of net electricity generation supplied to the grid in year y |
| **Source of data** | The data from the Electricity Meters are the basis for the settlement notification of EPIAS. Data are gathered electronically from the meters by TEIAS and stored in secured website of EPIAS, which is accessible to project developer with a private password. For monitoring, web screenshots of EPIAS are used as main source of data. |
| **Description of measurement methods and procedures to be applied** | Two electricity meters were placed (one main and one reserve) at the substation. One was the main meter (Actaris SL761A071 model with serial number 53099076) and the other one was the backup meter (Actaris SL761A071 with serial number 53099077). These meters were sealed by distribution company and intervention by project proponent is not possible. |

On 20.03.2014 (within monitoring period), the main meter and backup meter has been changed and meter changing protocol document has been provided to DOE. Current meters have been installed in such a way that the previous main meter and current main meter, the previous back-up meter and current back-up meter will be changed.

The specification of the previous meters (replaced on 20.03.2014) is provided below:

| Name | Serial Number | Brand - Model | Accuracy Class | Rated Frequency |
|---|---|---|---|---|
| Main Meter | 53099076 | ACTARIS – SL761A071 | 0.2s | 50 Hz |
| Back-up meter | 53099077 | ACTARIS – SL761A071 | 0.2s | 50 Hz |

First protocol date is 11.03.2011 for previous meters.

The specification of current meters is provided below:

| Name | Serial Number | Brand - Model | Accuracy Class | Rated Frequency |
|---|---|---|---|---|
| Main Meter | 4241357 | EMH – LZQJ-XC | 0.2s | 50 Hz |
| Back-up meter | 4241358 | EMH – LZQJ-XC | 0.2s | 50 Hz |

First protocol date is 20.03.2014 for current meters.

Latest test protocol date is 21.11.2017 for both of the meters during this monitoring period.

The meters are reading electricity supplied to the system and withdrawn from the system separately, the net electricity amount supplied to the grid is calculated by electricity supplied minus electricity withdrawn which are taken from monthly settlement notifications. Two meters are back-up each other. These meters are chosen according to national regulations and approved and sealed by TEIAS at start-up of the plant. Maintenance and calibration of the metering devices are making by TEIAS periodically.[12]

[12] Please see, Index Protocols

| | |
|---|---|
| | In addition to invoices and metering devices, the electricity delivered to the grid can be cross-checked through meter-reading protocols providing by TEIAS. All records are keeping for at least two years as requested by the applied methodology. All meters kept the data for four months in case of any breakdown. If any meter is found to be out of calibration, accurate energy amounts shall be detected via substitute counter group since registry values of the main counter group is the same as of the substitute group in the last measurement. |
| **Frequency of monitoring/recording** | The primary and back-up measurement devices measure, read and record various data such as electricity generated and consumed, in real-time. The measurements and recordings are made continuously. The readings are performed in monthly intervals. There is no sampling involved. |
| **Value monitored** | 969,560.57 MWh |

| Vintage | | Electricity supplied to the grid (MWh) | Electricity consumption from the grid (MWh) | Net electricity supplied to the grid (MWh) |
|---|---|---|---|---|
| 01/08/2013 | 31/12/2013 | 19,165.23 | 61.34 | 19,103.89 |
| 01/01/2014 | 31/12/2014 | 119,300.89 | 0.31 | 119,300.58 |
| 01/01/2015 | 31/12/2015 | 167,008.21 | 0.03 | 167,008.18 |
| 01/01/2016 | 31/12/2016 | 146,145.72 | 0.64 | 146,145.08 |
| 01/01/2017 | 31/12/2017 | 170,311.10 | 0.10 | 170,311.00 |
| 01/01/2018 | 31/12/2018 | 172,851.71 | 0.34 | 172,851.37 |
| 01/01/2019 | 31/07/2019 | 174,840.49 | 0.02 | 174,840.47 |
| **Total** | | 969,623.34 | 62.77 | 969,560.57 |

| | |
|---|---|
| **Monitoring equipment** | ***Calibration frequency:***<br><br>According to the Article 9 of the relevant regulation[13], periodical inspections of "gauges for electric, water, coal gas, natural gas and, current and voltage measuring transformers will be made once in 10 years". This is in line with the monitoring plan and national requirements. TEIAS is deciding when to carry out the next calibration. The Project owner has no control over or access to the measurement devices and is not entitled to perform any type of maintenance or calibration.<br><br>***Last calibration:***<br><br>Calibration tests are performed by ITRON FRANCE. In addition to the first calibration TEİAŞ was performed tests on both main and |

[13] https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5

| | |
|---|---|
| | backup meters. The dates of the tests are 11.03.2011, 18.12.2013 and 21.11.2017. Frequency of the tests is determined by TEİAŞ, and the test mentioned above is the first test performed on the meters. Also in the test report prepared by the TEİAŞ it is stated that meters are in line with the IEC/TSE 62053-22 standard.<br><br>***Responsible personnel:***<br><br>TEIAS is responsible for monitoring and ensuring that the measurement devices satisfy the requirements. TEIAS is also responsible for the calibration of the measurement devices. In case of any detected problem (e.g. failure of one of the measurement devices, inconsistency between the readings of the primary and the back-up meter etc.), the plant manager in the name of the Project owner is responsible for coordinating the necessary maintenance and calibration procedure with TEİAŞ. |
| **QA/QC procedures to be applied** | Maintenance and calibration of the metering devices will be made by TEIAS periodically. If there is a significant difference between the readings of two devices, maintenance and tests of the metering devices and the associated equipment will be done before waiting for the periodical maintenance. |
| **Purpose of the data** | Calculation of baseline emissions |
| **Calculation method** | The net electricity amount supplied to the grid is calculated by electricity supplied minus electricity withdrawn. |
| **Comments** | No additional comments |

| | |
|---|---|
| **Data / Parameter** | $Cap_{PJ}$ |
| **Data unit** | W |
| **Description** | Installed capacity of the hydro power plant after the implementation of the project activity |
| **Source of data** | Equipment specifications that described in the equipment contracts |
| **Description of measurement methods and procedures to be applied** | Cross-checking of instrument specifications of the installed turbines/generators (MW) and the indication in the PD. |
| **Frequency of monitoring/recording** | Yearly |
| **Value monitored** | 46,017,000 |
| **Monitoring equipment** | N/A |

| | |
|---|---|
| **QA/QC procedures to be applied** | Producing company is responsible for the information in the instrument specifications. |
| **Purpose of the data** | To follow up the change in the capacity of the project |
| **Calculation method** | Equipment specifications and provisional acceptance |
| **Comments** | Cross-checked value of the installed power is same as previous monitoring period and approved PD. |

| | |
|---|---|
| **Data / Parameter** | $A_{PJ}$ |
| **Data unit** | $m^2$ |
| **Description** | Area of the reservoir measured with topographic drawings in the surface of the water, after implementation of the project activity, when reservoir full |
| **Source of data** | Technical drawings from consultants |
| **Description of measurement methods and procedures to be applied** | Measured from topographical surveys or maps |
| **Frequency of monitoring/recording** | Yearly |
| **Value monitored** | 49,464 |
| **Monitoring equipment** | Maps |
| **QA/QC procedures to be applied** | Area of the reservoir are preparing according to necessary calculations and Ministry of Energy and Natural Resources of Turkey is the responsible ministry for the confirmation of topographical survey and calculations. |
| **Purpose of the data** | To follow up the change in the reservoir area/s |
| **Calculation method** | N/A |
| **Comments** | There is a significant reduction of the electricity generation due to drought[14]. |

## 4.3 Monitoring Plan

As described above, the relevant data that has to be monitored is the electricity supplied to the grid (EGy) per year, the installed capacity of the hydro power plant and the area of the reservoir.

***EGy:***
These data are subject to the accounting quality systems of both parties to the power purchase agreement, TEIAS and Elen Enerji Üretimi Sanayi Ticaret A.Ş. With this, no additional structures or processes have to be implemented to insure the availability of necessary data for monitoring.

[14] https://ember-climate.org/app/uploads/2022/02/European-Electricity-Review-H1-2021.pdf - page 27 - Turkey

At the end of one monitoring period, the data from the monthly meter reading records by PMUM (In approved PD, PMUM records were given as reference for electricity generation. However, the name of this institution was changed, and electricity generation records have been belonged to EPİAŞ) Therefore, EPİAŞ records added up to the yearly electricity generation and multiplied with the combined margin emission factor with the help of an excel spreadsheet that also contains the combined margin calculation. Thus, the complete baseline approach is always transparent and traceable.

***Responsible personnel:***

TEIAS is responsible for monitoring and ensuring that the measurement devices satisfy the requirements. TEIAS is also responsible for the calibration of the measurement devices. In case of any detected problem (e.g. failure of one of the measurement devices, inconsistency between the readings of the primary and the back-up meter etc.), the plant manager in the name of the Project owner is responsible for coordinating the necessary maintenance and calibration procedure with TEİAŞ.

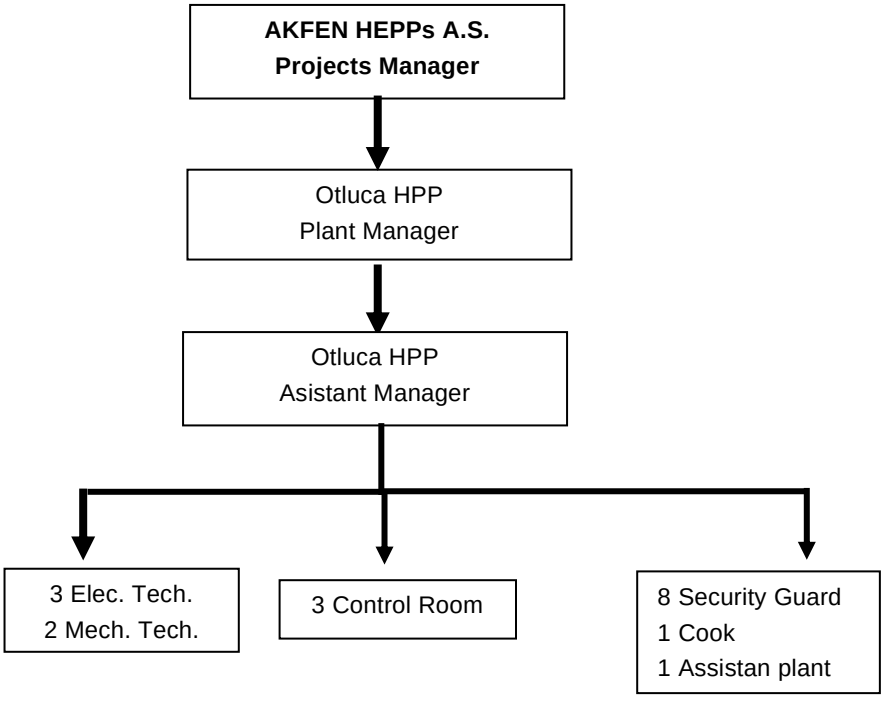
Thus, the complete baseline approach is always transparent and traceable.

Technicians in Otluca HPP daily reads meters and keeps record for electricity generation amount and reports to management. These records can be used for monitoring in case of any problem will arise in meters.

***CapPJ and APJ***

These data will be stated for monitoring yearly Power density of the project is greater than 10 W/m2 so there is no GHG emission due to project activity which is explained under section 4.3.

- Currently 21 people are working in the plant.
- All data monitored under the monitoring plan are keeping in electronic form and hard copy for 2 years after the end of the crediting period.



# 5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

## 5.1 Baseline Emissions

As per ACM0002 baseline emissions include only $CO_2$ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. This is calculated as per formula 6:

$BE_y = (EG_{PJ,y}) \times EF_{grid,CM,y}$ **(6)**

Where:

$BE_y$ = Baseline emissions in year y ($tCO_2$/yr).

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

$EF_{grid,CM,y}$ = Combined margin $CO_2$ emission factor for grid connected power generation in year y calculated using the latest version of the .Tool to calculate the emission factor for an electricity system. ($tCO_2$/MWh)

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

The project activity is the installation of a new grid-connected renewable power plant, thus $EG_{PJ,y} = EG_{facility,y}$ (ACM0002 page 9, equation 7).

It follows that:

$BE_y = EG_{facility,y}$ * $EF_{grid,CM,}$ = 969,560.57 MWh * 0.5491 tCO2/MWh = **532,381 $tCO_2$ (Round-downed)**

The comparison of actual and estimated emission reduction calculations as follows:

| Vintage | | actual ER (tCO2e) | estimated ER (tCO2e) | % by year |
|---|---|---|---|---|
| 01-08-2013 | 31-12-2013 | 10,489 | 51,560 | -80% |
| 01-01-2014 | 31-12-2014 | 65,507 | 123,003 | -47% |
| 01-01-2015 | 31-12-2015 | 91,704 | 123,003 | -25% |
| 01-01-2016 | 31-12-2016 | 80,248 | 123,340 | -35% |
| 01-01-2017 | 31-12-2017 | 93,517 | 123,003 | -24% |
| 01-01-2018 | 31-12-2018 | 94,912 | 123,003 | -23% |
| 01-01-2019 | 31-07-2019 | 96,004 | 71,443 | 34% |
| **Total** | | **532,381** | 738,355 | -28% |

## 5.2 Project Emissions

Project emissions are calculated as follows:

$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$

Where:

$PE_y$ = Project emissions in year y ($tCO_2e/yr$)

$PE_{FF,y}$ = project emissions from fossil fuel consumption in year y ($tCO_2/yr$)

$PE_{GP,y}$ = Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y

$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (tCO2e/yr)

$PE_{FF,y}$ is zero as there will be no fossil fuel consumption to generate electricity and $PE_{GP,y}$ is zero as the project is not a geothermal project activity.

In order to calculate project emissions from water reservoir of the plant, power density should be calculated. The power density of the project activity (PD) is calculated as follows:

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}} \quad \textbf{(5)}$$

PD= Power density of the project activity
$Cap_{PJ}$ = Installed capacity of the hydro power plant after the implementation of the project activity
$Cap_{BL}$ = Installed capacity of the hydro power plant before the implementation of the project activity (W). For the new hydro power plants, this value is zero
$A_{PJ}$ = Area of the reservoir measured in the surface of the water, after the implementation of the project activity when reservoir is full (m2)
$A_{BL}$ = Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full ($m^2$). For new reservoirs, this value is zero.

As the project acitivity is not extension of another project, $Cap_{BL}$ and $A_{BL}$ are zero, then

$$PD = \frac{Cap_{PJ}}{A_{PJ}}$$

As in the case of Otluca HPP this density is well above the 10 $W/m^2$ threshold (930.31 $W/m^2$ which is still above; reservoir size: 49,464 $m^2$, installed capacity: 46.017 MW), emissions ($CH_4$ and $CO_2$) from the reservoir are zero (ACM0002, page 8). According to the tool (page 7), for the projects having power density more than 10 $W/m^2$ threshold is zero. Hence, the project emission (PEy) is zero.

## 5.3 Leakage

As described in the ACM0002 methodology version 12.1.0, no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are neglected.

## 5.4 Net GHG Emission Reductions and Removals

BEy = (EGPJ,y) x EFgrid,CM,y

Where:

BEy = Baseline emissions in year y (tCO2/yr).

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

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

EGfacility,y = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

The project activity is the installation of a new grid-connected renewable power plant, thus EGPJ,y = EGfacility,y (ACM0002).

Emission reductions due to project activity have to be calculated as per formula 11 of ACM0002:

$$ER_y = BE_y - PE_y \quad \textbf{(11)}$$

Where:

$ER_y$ = Emission reductions in year y ($tCO_2/yr$).

$BE_y$ = Baseline emissions in year y ($tCO_2/yr$).

$PE_y$ = Project emissions in year y ($tCO_2/yr$).

Then:

$ER_y = BE_y$

- Total emission reductions achieved in this period are 532,381 tons of CO2e.
- Total clean electricity generation achieved in this period are 969,560.57 MWh.
- There are 21 employees in the project during this monitoring period.

Otluca HPP is a run-of-river HPP, the electricity amount supplied to the grid depends on external physical conditions, i.e. the flow rate. That is why, actual emission reduction amounts are 39% lower than estimated amount since electricity generated is also lower than the estimated amount of electricity. As a result, the actual emission reductions are less than the estimated emission reduction amount.

It follows that:

$BE_y = EG_{facility,y} * EF_{grid,CM,}$ = 969,560.57 MWh/year * 0.5491 tCO2/MWh = **532,381 $tCO_2$/year**

With an actual annual project electricity generation of amounts which was given in the Appendix 1 of this report, and $EF_{grid,CM,y}$ calculated in Registered PD as 0.5491 tCO2/MWh[15], net GHG emission reductions/removals are:

| Months | Baseline emissions or baseline net GHG removals by sinks (tCO2e) | Project emissions or actual net GHG removals by sinks (tCO2e) | Leakage (tCO2e) | Emission reductions or net anthropogenic GHG removals by sinks (tCO2e) |
|---|---|---|---|---|
| ***Aug-13*** | 2,651 | 0 | 0 | 2,651 |
| ***Sep-13*** | 789 | 0 | 0 | 789 |
| ***Oct-13*** | 2,461 | 0 | 0 | 2,461 |
| ***Nov-13*** | 2,041 | 0 | 0 | 2,041 |
| ***Dec-13*** | 2,547 | 0 | 0 | 2,547 |
| ***Sum 2013*** | 10,489 | 0 | 0 | 10,489 |
| ***Jan-14*** | 4,439 | 0 | 0 | 4,439 |
| ***Feb-14*** | 6,801 | 0 | 0 | 6,801 |
| ***Mar-14*** | 9,712 | 0 | 0 | 9,712 |
| ***Apr-14*** | 8,923 | 0 | 0 | 8,923 |
| ***May-14*** | 7,801 | 0 | 0 | 7,801 |
| ***Jun-14*** | 3,885 | 0 | 0 | 3,885 |
| ***Jul-14*** | 2,031 | 0 | 0 | 2,031 |
| ***Aug-14*** | 1,550 | 0 | 0 | 1,550 |
| ***Sep-14*** | 1,123 | 0 | 0 | 1,123 |
| ***Oct-14*** | 3,772 | 0 | 0 | 3,772 |
| ***Nov-14*** | 4,461 | 0 | 0 | 4,461 |
| ***Dec-14*** | 11,009 | 0 | 0 | 11,009 |
| ***Sum 2014*** | 65,507 | 0 | 0 | 65,507 |
| ***Jan-15*** | 10,849 | 0 | 0 | 10,849 |
| ***Feb-15*** | 6,624 | 0 | 0 | 6,624 |
| ***Mar-15*** | 13,883 | 0 | 0 | 13,883 |
| ***Apr-15*** | 17,547 | 0 | 0 | 17,547 |
| ***May-15*** | 17,615 | 0 | 0 | 17,615 |
| ***Jun-15*** | 10,397 | 0 | 0 | 10,397 |
| ***Jul-15*** | 3,904 | 0 | 0 | 3,904 |
| ***Aug-15*** | 2,271 | 0 | 0 | 2,271 |
| ***Sep-15*** | 858 | 0 | 0 | 858 |
| ***Oct-15*** | 2,753 | 0 | 0 | 2,753 |

[15] Registered PD

| | | | | |
|---|---|---|---|---|
| ***Nov-15*** | 2,409 | 0 | 0 | 2,409 |
| ***Dec-15*** | 2,595 | 0 | 0 | 2,595 |
| ***Sum 2015*** | 91,704 | 0 | 0 | 91,704 |
| ***Jan-16*** | 11,153 | 0 | 0 | 11,153 |
| ***Feb-16*** | 11,688 | 0 | 0 | 11,688 |
| ***Mar-16*** | 15,266 | 0 | 0 | 15,266 |
| ***Apr-16*** | 16,566 | 0 | 0 | 16,566 |
| ***May-16*** | 11,162 | 0 | 0 | 11,162 |
| ***Jun-16*** | 3,967 | 0 | 0 | 3,967 |
| ***Jul-16*** | 2,476 | 0 | 0 | 2,476 |
| ***Aug-16*** | 1,709 | 0 | 0 | 1,709 |
| ***Sep-16*** | 1,401 | 0 | 0 | 1,401 |
| ***Oct-16*** | 1,188 | 0 | 0 | 1,188 |
| ***Nov-16*** | 1,034 | 0 | 0 | 1,034 |
| ***Dec-16*** | 2,637 | 0 | 0 | 2,637 |
| ***Sum 2016*** | 80,248 | 0 | 0 | 80,248 |
| ***Jan-17*** | 5,144 | 0 | 0 | 5,144 |
| ***Feb-17*** | 3,901 | 0 | 0 | 3,901 |
| ***Mar-17*** | 13,444 | 0 | 0 | 13,444 |
| ***Apr-17*** | 17,798 | 0 | 0 | 17,798 |
| ***May-17*** | 17,086 | 0 | 0 | 17,086 |
| ***Jun-17*** | 7,624 | 0 | 0 | 7,624 |
| ***Jul-17*** | 3,387 | 0 | 0 | 3,387 |
| ***Aug-17*** | 2,242 | 0 | 0 | 2,242 |
| ***Sep-17*** | 1,661 | 0 | 0 | 1,661 |
| ***Oct-17*** | 2,919 | 0 | 0 | 2,919 |
| ***Nov-17*** | 8,809 | 0 | 0 | 8,809 |
| ***Dec-17*** | 9,504 | 0 | 0 | 9,504 |
| ***Sum 2017*** | 93,517 | 0 | 0 | 93,517 |
| ***Jan-18*** | 13,163 | 0 | 0 | 13,163 |
| ***Feb-18*** | 9,499 | 0 | 0 | 9,499 |
| ***Mar-18*** | 17,528 | 0 | 0 | 17,528 |
| ***Apr-18*** | 16,561 | 0 | 0 | 16,561 |
| ***May-18*** | 8,921 | 0 | 0 | 8,921 |
| ***Jun-18*** | 3,864 | 0 | 0 | 3,864 |
| ***Jul-18*** | 2,441 | 0 | 0 | 2,441 |
| ***Aug-18*** | 1,725 | 0 | 0 | 1,725 |
| ***Sep-18*** | 1,270 | 0 | 0 | 1,270 |
| ***Oct-18*** | 2,919 | 0 | 0 | 2,919 |
| ***Nov-18*** | 2,522 | 0 | 0 | 2,522 |
| ***Dec-18*** | 14,500 | 0 | 0 | 14,500 |
| ***Sum 2018*** | 94,912 | 0 | 0 | 94,912 |
| ***Jan-19*** | 13,005 | 0 | 0 | 13,005 |
| ***Feb-19*** | 9,512 | 0 | 0 | 9,512 |

| | | | | |
|---|---|---|---|---|
| ***Mar-19*** | 14,427 | 0 | 0 | 14,427 |
| ***Apr-19*** | 17,596 | 0 | 0 | 17,596 |
| ***May-19*** | 17,717 | 0 | 0 | 17,717 |
| ***Jun-19*** | 16,263 | 0 | 0 | 16,263 |
| ***Jul-19*** | 7,484 | 0 | 0 | 7,484 |
| ***Sum 2019*** | 96,004 | 0 | 0 | 96,004 |
| ***Total Sum*** | ***532,381*** | ***0*** | ***0*** | ***532,381*** |

# APPENDIX 1: <NET ELECTRICITY GENERATION>

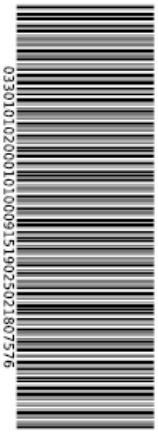
| Months | Electricity supplied to the grid (MWh) (1) | Electricity consumption from the grid (MWh) (2) | Net electricity supplied to the grid[MWh] (3) =(1)-(2) |
|---|---|---|---|
| ***Aug-13*** | 4,828.34 | 0.00 | 4,828.34 |
| ***Sep-13*** | 1,493.28 | 56.54 | 1,436.74 |
| ***Oct-13*** | 4,487.50 | 4.80 | 4,482.70 |
| ***Nov-13*** | 3,716.82 | 0.00 | 3,716.82 |
| ***Dec-13*** | 4,639.29 | 0.00 | 4,639.29 |
| ***Sum 2013*** | 19,165.23 | 61.34 | 19,103.89 |
| ***Jan-14*** | 8,083.92 | 0.01 | 8,083.91 |
| ***Feb-14*** | 12,385.50 | 0.00 | 12,385.50 |
| ***Mar-14*** | 17,687.68 | 0.07 | 17,687.62 |
| ***Apr-14*** | 16,250.09 | 0.00 | 16,250.09 |
| ***May-14*** | 14,207.09 | 0.00 | 14,207.09 |
| ***Jun-14*** | 7,074.66 | 0.01 | 7,074.65 |
| ***Jul-14*** | 3,699.01 | 0.00 | 3,699.01 |
| ***Aug-14*** | 2,822.24 | 0.00 | 2,822.24 |
| ***Sep-14*** | 2,046.03 | 0.11 | 2,045.92 |
| ***Oct-14*** | 6,870.36 | 0.11 | 6,870.25 |
| ***Nov-14*** | 8,124.33 | 0.00 | 8,124.33 |
| ***Dec-14*** | 20,049.98 | 0.00 | 20,049.98 |
| ***Sum 2014*** | 119,300.89 | 0.31 | 119,300.58 |
| ***Jan-15*** | 19,757.78 | 0.00 | 19,757.78 |
| ***Feb-15*** | 12,063.95 | 0.00 | 12,063.95 |
| ***Mar-15*** | 25,282.74 | 0.01 | 25,282.74 |
| ***Apr-15*** | 31,955.39 | 0.00 | 31,955.39 |
| ***May-15*** | 32,079.68 | 0.00 | 32,079.68 |
| ***Jun-15*** | 18,934.59 | 0.00 | 18,934.59 |
| ***Jul-15*** | 7,108.91 | 0.00 | 7,108.91 |
| ***Aug-15*** | 4,135.63 | 0.00 | 4,135.63 |
| ***Sep-15*** | 1,562.61 | 0.00 | 1,562.61 |
| ***Oct-15*** | 5,014.21 | 0.02 | 5,014.19 |
| ***Nov-15*** | 4,386.74 | 0.00 | 4,386.74 |
| ***Dec-15*** | 4,725.98 | 0.00 | 4,725.98 |
| ***Sum 2015*** | 167,008.21 | 0.03 | 167,008.18 |
| ***Jan-16*** | 20,310.64 | 0.02 | 20,310.62 |
| ***Feb-16*** | 21,286.24 | 0.00 | 21,286.24 |
| ***Mar-16*** | 27,801.85 | 0.00 | 27,801.85 |
| ***Apr-16*** | 30,170.10 | 0.00 | 30,170.10 |
| ***May-16*** | 20,327.67 | 0.00 | 20,327.67 |

| | | | |
|---|---|---|---|
| ***Jun-16*** | 7,225.42 | 0.02 | 7,225.40 |
| ***Jul-16*** | 4,510.15 | 0.12 | 4,510.03 |
| ***Aug-16*** | 3,111.91 | 0.03 | 3,111.88 |
| ***Sep-16*** | 2,551.50 | 0.03 | 2,551.47 |
| ***Oct-16*** | 2,164.42 | 0.02 | 2,164.40 |
| ***Nov-16*** | 1,882.96 | 0.00 | 1,882.96 |
| ***Dec-16*** | 4,802.86 | 0.40 | 4,802.46 |
| ***Sum 2016*** | 146,145.72 | 0.64 | 146,145.08 |
| ***Jan-17*** | 9,368.09 | 0.05 | 9,368.05 |
| ***Feb-17*** | 7,103.90 | 0.00 | 7,103.90 |
| ***Mar-17*** | 24,483.14 | 0.00 | 24,483.14 |
| ***Apr-17*** | 32,412.60 | 0.00 | 32,412.60 |
| ***May-17*** | 31,116.22 | 0.01 | 31,116.21 |
| ***Jun-17*** | 13,884.25 | 0.00 | 13,884.25 |
| ***Jul-17*** | 6,168.40 | 0.02 | 6,168.38 |
| ***Aug-17*** | 4,083.70 | 0.00 | 4,083.70 |
| ***Sep-17*** | 3,024.19 | 0.00 | 3,024.19 |
| ***Oct-17*** | 5,315.12 | 0.00 | 5,315.12 |
| ***Nov-17*** | 16,042.40 | 0.01 | 16,042.39 |
| ***Dec-17*** | 17,309.09 | 0.01 | 17,309.08 |
| ***Sum 2017*** | 170,311.10 | 0.10 | 170,311.00 |
| ***Jan-18*** | 23,971.73 | 0.00 | 23,971.73 |
| ***Feb-18*** | 17,299.81 | 0.00 | 17,299.81 |
| ***Mar-18*** | 31,921.77 | 0.00 | 31,921.77 |
| ***Apr-18*** | 30,159.55 | 0.00 | 30,159.55 |
| ***May-18*** | 16,247.34 | 0.00 | 16,247.34 |
| ***Jun-18*** | 7,036.86 | 0.00 | 7,036.86 |
| ***Jul-18*** | 4,445.54 | 0.28 | 4,445.26 |
| ***Aug-18*** | 3,141.56 | 0.00 | 3,141.56 |
| ***Sep-18*** | 2,312.01 | 0.03 | 2,311.98 |
| ***Oct-18*** | 5,316.46 | 0.03 | 5,316.43 |
| ***Nov-18*** | 4,592.59 | 0.00 | 4,592.59 |
| ***Dec-18*** | 26,406.49 | 0.00 | 26,406.49 |
| ***Sum 2018*** | 172,851.71 | 0.34 | 172,851.37 |
| ***Jan-19*** | 23,684.37 | 0.00 | 23,684.37 |
| ***Feb-19*** | 17,322.85 | 0.00 | 17,322.85 |
| ***Mar-19*** | 26,273.98 | 0.00 | 26,273.98 |
| ***Apr-19*** | 32,045.39 | 0.00 | 32,045.39 |
| ***May-19*** | 32,265.03 | 0.01 | 32,265.02 |
| ***Jun-19*** | 29,618.39 | 0.00 | 29,618.39 |
| ***Jul-19*** | 13,630.48 | 0.01 | 13,630.47 |
| ***Sum 2019*** | 174,840.49 | 0.02 | 174,840.47 |
| ***Total Sum*** | ***969,623.34*** | ***62.77*** | ***969,560.57*** |

# APPENDIX 2: <INSURANCE RECORDS>

T.C. ÇALIŞMA ve SOSYAL GÜVENLİK BAKANLIĞI
SOSYAL GÜVENLİK KURUMU BAŞKANLIĞI
SİGORTA PRİMLERİ GENEL MÜDÜRLÜĞÜ

SİGORTALI HİZMET LİSTESİ 18.11.2022 15:41:41




| | | |
|---|---|---|
| İşyeri Sicil No | : | 23511010110908750330 2-96/000 |
| İşyeri Ünvanı | : | ELEN ENERJİ ÜRETİMİSANAYİ TİC.A.Ş. |
| SGM(kod-ad) | : | SGK ANAMUR SOSYAL GÜVENLİK MERKEZİ |
| İşyeri Adresi | : | DİBEK MAHÇALTIBÜKÜ KÖYÜ Dış kapı no:- İç kapı no:MERSİNANAMUR |
| Yıl - Ay | : | 2022/09 |
| Belge Çeşidi | : | 01 |
| Mahiyet | : | ASIL |
| Kanun | : | 05510 |
| Onay Tarihi | : | 20.10.2022 |
| | : | 1E-87E56E111E-84E93E48E-70E-45E68E-53E-94E-40E-23E-5E-123E100E-53E-29E-119E-65E-9E38E-121E-52E-122R97R-64R-30R- |

| Sno | S.Güvenlik No | Adı | Soyadı | İlkSoyadı | Ücret TL | İkramiye TL | Gün | UÇG | Eksik gün | Ggün | Çgün | İÇN | EGN | Meslek Kod |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | [redacted] | İBRAHİM | DİNÇ | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3131.05 |
| 2 | | ERSİN | GÜLER | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3113.05 |
| 3 | | MUHAMMET | ÇELİK | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 7233.11 |
| 4 | | İBRAHİM | GERÇEKER | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3131.05 |
| 5 | | KENAN | ERDEM | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 5120.10 |
| 6 | | AHMET | AĞLAMIŞ | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3131.05 |
| 7 | | VEDAT | YILDIZ | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3131.05 |
| 8 | | DURMUŞ ALİ | ŞAHİN | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 8331.02 |
| 9 | | NAZIM | SAYDAM | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3131.05 |
| 10 | | ADEM | KARAGÖL | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3131.05 |
| 11 | | AHMET | KARAGÖL | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 7233.11 |
| 12 | | AHMET | YELBİZ | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3131.05 |
| 13 | | FARUK | ÇELİK | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3113.05 |
| 14 | | ALİ KÜRŞAT | KÜÇÜKALIÇ | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3131.05 |
| 15 | | ALİ | KOÇ | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3131.05 |
| 16 | | İBRAHİM | BAŞ | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3131.05 |
| 17 | | HASAN | DUMAN | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3131.05 |
| 18 | | KEMAL | BATUN | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 7233.11 |
| 19 | | VEYSEL | TERE | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3113.02 |
| 20 | | İLHAMİ | GÖKKOCA | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 2150.01 |
| 21 | | HÜSEYİN | TOY | | ---- | ---- | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 7233.11 |