



**Verified Carbon
Standard**

MONITORING REPORT: 2ND VERIFICATION

Aslancık Elektrik Üretim A.Ş. (as Project Owner)

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

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

Aslancık Hydro Power Plant Project (herein referred to as Aslancık HEPP in short) is a run-of-river dam-based hydro power plant project developed by Aslancık Elektrik Üretim A.Ş. (referred to as the “project proponent” from here on). The project has an installed capacity of 120MWm/98 MWe, which annually feeds emission free electricity into the national grid in Turkey. Aslancık HPP displaces electricity from the current generation mix, which is based to a large amount on thermal power plants and affects the planned capacity extension of the electricity system. Aslancık HPP leads to Greenhouse Gas (GHG) emission reductions, which are to be accounted for by verifying and issuing carbon credits under the current Verified Carbon Standard (VCS) Version 4.2 (referred to as VCS version 4.2. in short).

Aslancık HPP generates electricity and feeds it into the national Turkish grid by using the renewable energy source of the current of Harşit Creek, which arises from Cimli, Karakaban and Kostan mountains in the surrounding of the town of Gümüşhane in the district and province of the same name. The watercourse passes the town of Torul in the district of the same name in Gümüşhane province, and then flows through Kürtün district. The Aslancık dam axis is located some 1.5 km North of the town of Doğankent. The energy tunnel stretches over a distance of some 13 km alongside the Harşit Creek watercourse, ending in the power plant which is located some 1.5 km East of the village of Soğukpınar. It is a run of river dam-based project.

Aslancık HPP comprises a barrage and reservoir, a diversion structure, an energy tunnel and penstock and the powerhouse with the electro-mechanic equipment. The power generation is achieved by installing and operating a run-of-river HPP comprising 2 Vertical Francis turbines with a rated capacity of 60 MWm/49MWe each. The installed capacity totals 120 MWm/98 MWe only because this is the maximum use of the turbine combination. The estimated annual electricity production is 428,624 MWh/yr. Further details on project technology are provided in the table below.

Aslancık HPP produces GHG emission free, clean electricity, which is fed into the national Turkish grid. All Turkish power plants are connected to this grid and are dispatched centrally by the Turkish grid operator Türkiye Elektrik İletim A.Ş. (TEİAŞ) and its Enerji Piyasaları İşletme A.Ş. (EPIAŞ) (Energy Exchange Istanbul - EXIST). The electricity supplied to the national grid is dominated by thermal power plants. As Aslancık HPP is a run-of-river HPP, the electricity amount supplied to the grid depends on external physical conditions, i.e., the flow rate at Harşit Creek, though it is regulated to a certain extent by an appropriate management of the planned reservoir. In contrast, the thermal power plants connected to the national grid can fully be regulated.

Table 1. Technical data

HYDROLOGY			
Precipitation area: 3,109 km ²		Long term average flow at the dam/barrage: 45.11 m ³ /s -1,420.57 hm ³ /a	
RESERVOIR			
Maximum (minimum) operating water altitude/level: 183m (180m)			
Total storage volume: 1.636 hm ³		Lake area: 0.175 km ²	
BULKHEAD/COFFERDAM AND DIVERSION			
Altitude of the upstream (downstream) cofferdam: 176m (166m)			
Dimensions of the diversion channel: 12m · 7m		Length: 330m	
DAM/BARRAGE			
Type: Concrete weight	Crest elevation: 185m		Thalweg elevation: 165m
Height from thalweg/Dam height: 20m		Height from foundation: 29m	
WATER INTAKE STRUCTURE			
Control: Rolling cofferdam cover		Invert elevation: 171m	
Dimension of the clear aperture: 2 · 5.5m · 12m		Limit of submergence: 3.5m – 6.5m	
GRAVEL PASS			
Type: Orifice radial cover	Invert elevation: 165m	Dimensions of the radial covers: 6m · 2.95m	
SPILLWAY/OVERFALL			
Location and type: on the stem, radial cover, frontal acceptance			
Number of radial covers: 3		Dimensions of the radial covers: 13.3m · 15.12m	
ENERGY TUNNEL			
Type: Reverse-U Cross section (modified horseshoe), concrete coated			
Tunnel inside diameter: 5.5m		Tunnel length (up to steel coating): 12,907m	
Length and diameter of the Steel coated tunnel: 160m / 4.5m circular			
VALVE CHAMBER			
Type: On the place	Dimensions: 18.5m · 8m	Equipment: 1 · 4,500mm butterfly valve	
SURGE CHAMBER			
Type: Vertical cylindrical shaft	Shaft diameter: 22m	Top of shaft elevation: 205m	
Shaft altitude: 50m	Maximum water level: 200m	Minimum water level: 155.5m	
PENSTOCK			
Diameter: 4,500mm	Length: 238m	Bifurcation area: 3,200mm (diameter) / 2 · 18=36m (length)	
POWER HOUSE			
Type: Half submerged	Number of units: 2	Nominal/Rated installed capacity: 2 · 60 MW	
Turbine: Vertical Francis		Maximum gross head: 134.5m	Unit discharge/flow rate: 51.1m ³ /s
Dimensions: 36.8m · 17m		Altitude (max.): 39.8m	Elevation of Environment: 58m
SWITCHYARD			
Type: Open-air switchyard	Operating voltage: 13.8/154	Dimensions : 42m · 81m	

The project also includes a fish passage, which has a base slope of 15% and clear width of 1.20 meters. Minimum flow of water is also maintained and measured continuously.

Concluding, the electricity produced by Aslancık HPP displaces power generation by thermal power plants, which leads to savings in fuel combustion and thus to the reduction of GHG emissions, as specified and explained in detail in *Section 5*.

For the second monitoring period, which corresponds to the period between 01/01/2020 and 30/04/2022, the net electricity generation for Aslancık HPP has been recorded as 618,874 MWh. In line with this net generation, the actual emission reduction has been calculated as 329,859 t CO₂e. The table below includes the differences in the estimated and actual achieved emission reductions.

Table 2. Estimated and actual emission reduction comparison

Vintage		actual ERy (tCO ₂ e)	estimated ERy (tCO ₂ e)	% by year
01/01/2020	31/12/2020	152,994	223,495	-32%
01/01/2021	31/12/2021	106,807	222,884	-52%
01/01/2022	30/04/2022	70,058	73,277	-4%
Total		329,859	519,656	-37%

As aforementioned above, Aslancık 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 lower than estimated amount since electricity generated is also lower than the estimated amount of electricity. Within the scope of this project reservoir area whose detailed data are given in *Table 1* was formed for the installation of the plant. Further Technical description of installed technology and equipment is given in the table below.

Table 3. Technical description of Aslancık HPP's installed technology and equipment

Equipment	Specifications
Hydraulic Turbine- 1 & Hydraulic Turbine-2	Vertical Axis Francis Turbine(RAINBOW) Output Power: 60 MWm/49 MWe Head:127 m Flow Rate: 51.1 m ³ /s Velocity: 333,3r/min Serial Numbers of Turbine 1 and Turbine 2: 3977
Generator-1 & Generator-2	Producer Firm: KONCAR Type: S 5186-18 Phase No/Frequency: 3/50 Hz Serial Number Generator 1: 24406 Serial Number Generator 1: 24407 Nominal Power: 66,66 MVA

	Velocity: Velocity: 333,3r/min Power Factor:0.9 Excitation Voltage:187 V Excitation Current:786 A
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Aslancık A.Ş. operates the HPP as Independent Power Producer (IPP) and has obtained the respective production license from the Turkish Energy Market Regulatory Authority (EPDK) on 20-03-2008. The commissioning date for the project is 08-03-2014 and started operations with an installed capacity of 93 MWe. However, on 18-12-2017, its capacity was increased from 93 MWe to 98 MWe. The Provisional Acceptance Certificate for the new installed capacity was approved on the same date, 18-12-2017. The plant was in continued operation during monitoring period i.e. 01-Jan-2020 to 30-Apr-2022.

1.2 Sectoral Scope and Project Type

The project is a large-scale one that involves electricity generation from renewable sources; therefore, it is categorized in the sectoral scope 1 “Energy Industry – Renewable -/Non-renewable Sources” according to the UNFCCC definition.¹

The project consists of a dam and a hydroelectric power plant; it is not a part of a grouped project.

1.3 Project Proponent

Organization name	Aslancık Elektrik Üretim A.Ş.
Contact person	Suat Odaman
Title	Project Representative
Address	Burhaniye, Kısıklı Cd. No: 65/1, 34676 Üsküdar/İstanbul TURKEY
Telephone	+90 216 680 30 30
Email	info@aslancikelektrik.com.tr

¹ See <https://cdm.unfccc.int/DOE/scopes.html>

1.4 Other Entities Involved in the Project

Organization name	Life İklim ve Enerji Ltd. Şti.
Role in the Project	Project Developer
Contact person	İnci Hazal Özcan
Title	Project Developer
Address	Oğuzlar Mahallesi, 1377. Sokak, No: 19/9, 06520 Çankaya /Ankara TURKEY
Telephone	+90 312 481 21 42
Email	incihazal.ozcan@lifeenerji.com

1.5 Project Start Date

According to VCS version 4.2, the project start date is defined as the “Date on which the project began generating GHG emission reductions or removals.”²

For Aslancık HPP, this is the date of commissioning, i.e., 08/03/2014, see *Table 6* in *Section 3.1*.

1.6 Project Crediting Period

The start date of the crediting period is the start date, as indicated in Section 1.5. above, i.e., 08/03/2014. Under rules, a 10-year crediting period is chosen for Aslancık HPP. The crediting period begins on 08/03/2014 and ends on 07/03/2024 - both days included.

As stipulated in VCS version 4.2³, the intention is to renew the crediting period. For this reason, the crediting period is renewable twice. (Total crediting period will be 30 years)

1.7 Project Location

Aslancık HPP is located in the Doğankent and Tirebolu districts of Turkey’s Giresun province in the Black Sea. The dam axis is located some 1.5-kilometers North of Doğankent. The energy tunnel stretches over a distance of some 13 kilometers alongside the Harşit Creek watercourse, ending in the power plant which is located some 1.5-kilometers East of Soğukpınar Village.

Figure 1. Location of Giresun province in Turkey’s Black Sea region

² See VCS Standard Version 4.2, Section 3.7. https://verra.org/wp-content/uploads/2022/02/VCS-Standard_v4.2.pdf [VCS Standard v4.2]

³ VCS Standard v4.2, Section 3.8



Figure 2. Doğankent and Tirebolu districts in Giresun province

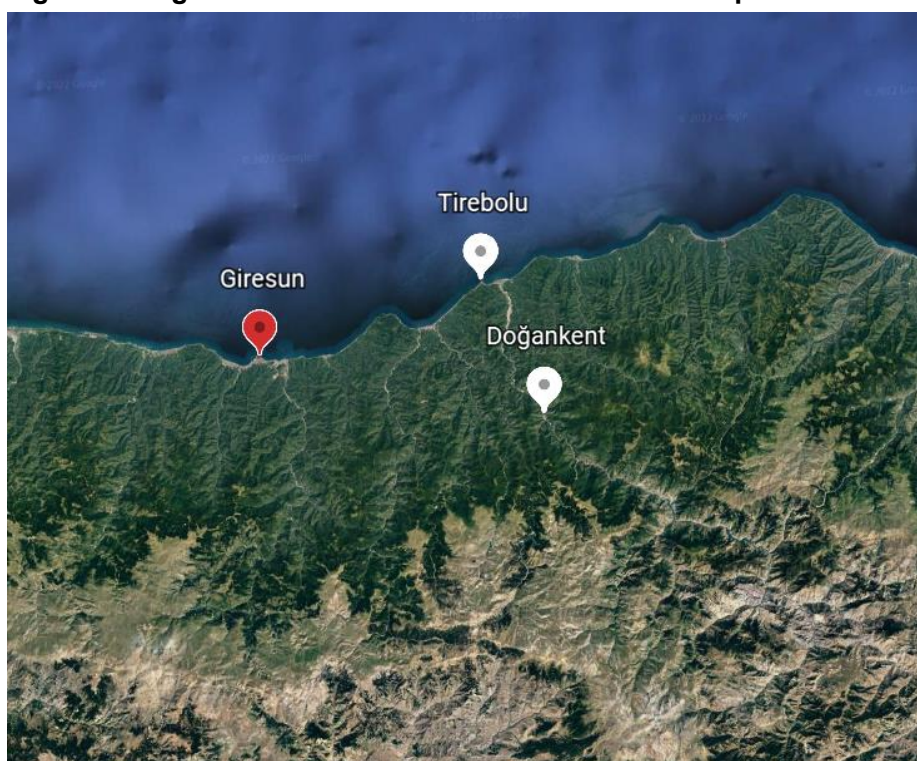


Figure 3. Location of Aslancık HPP

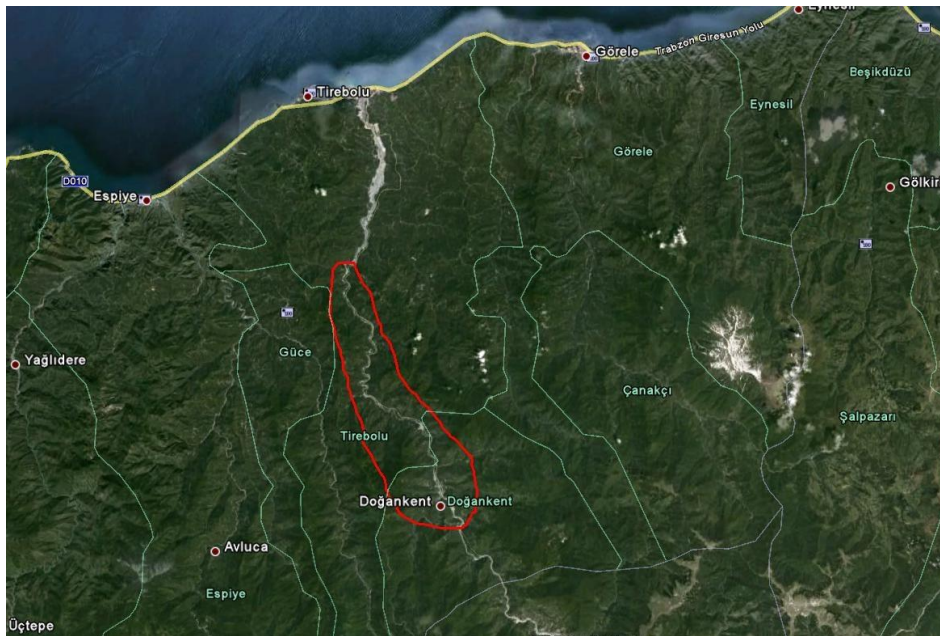


Figure 4. Location of Aslancık HPP project components

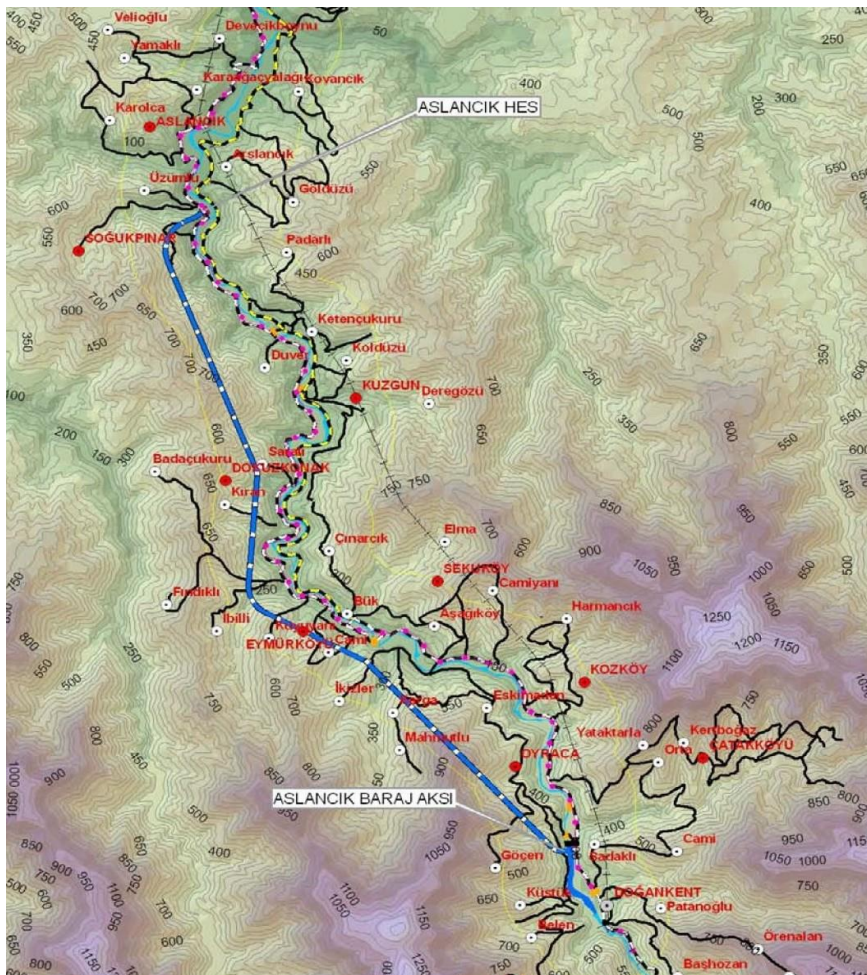


Table 4. Coordinates for Aslancık HPP project components

Unit	Longitude	Latitude
Powerhouse	40°54'27"09"N	38°50'45"33"E
Dam Axis	40°49'7"32"N	38°54'47"90"E
	40°49'6"70"N	38°54'38"38"E
Energy Tunnel	40°49'4"20"N	38°54'38"26"E
	40°54'41"26"N	38°50'45"56"E

1.8 Title and Reference of Methodology

The UNFCCC Clean Development Mechanism (CDM) is a VCS approved GHG program. Concluding methodologies and methodology elements approved under the CDM may be used for VCS projects.

The United Nations approved consolidated baseline, and monitoring methodology applicable to this project is "Consolidated Methodology for Grid-connected electricity generation from renewable sources," Version 12.3.0, valid as of 02/03/2012 (referred to as **ACM0002** from here on).

ACM0002 refers to the following tools:

- "Tool to calculate the emission factor for an electricity system" Version 2.2.1 valid as of 29/09/2011 (referred to as **Tool 7** from here on)
- "Tool for the demonstration and assessment of additionality" Version 06.0.0, valid as of 25/11/2011 (referred to as the **Tool 1** from here on)

1.9 Participation under other GHG Programs

The project has not been registered or is seeking registration under any other GHG programs.

1.10 Other Forms of Credit

The project activity is neither included in an emissions trading program nor does it take place in a jurisdiction or sector in which binding limits are established on GHG emissions.

1.11 Sustainable Development Contributions

Building a HPP contributes to a sustainable expansion path of the Turkish energy system, as it serves the steadily growing electricity demand in an environmentally suitable way. The project also contributes to dissemination of state-of-the-art new renewable energy (REN) technology. This helps strengthening those pillars of Turkish energy supply that are based on ecologically sound and domestically sourced technology.

No significant negative ecological impacts can be expected from the proposed project activity. Aslancık HPP has undergone a full environmental impact assessment (EIA) according to Turkish

law. The EIA Report was submitted on 01/02/2008, leading to environmental approval of the project by Turkey's Environment and Urbanization Ministry on 02/04/2008.⁴

In fact, there are essential positive environmental effects, as highly polluting electricity generation technologies is displaced by the project. Pollution not only comprises greenhouse gases but other local air pollutants such as SO₂, NO_x, or Particulate Matter, as well.

As for social impacts, significant positive employment effects occurred especially during the construction and installation period. Management, operation and maintenance of the HPP creates permanent jobs which require high qualification, contributing to capacity building and know-how dissemination in Turkey. Moreover, since it is a renewable energy project, it contributes to achieve nationally stated sustainable development priorities which were indicated like in the law on use of renewable energy resources for electricity generation⁵. Introduction purpose of this Law; the use of renewable energy resources for electrical energy generation to spread these resources to the economy in a reliable, economical and quality manner, decreasing greenhouse gas emissions, utilizing wastes, protecting the environment and developing the manufacturing sector needed to achieve these objectives. Moreover, sustainable development goals outcomes and the actual results of the contributed sustainable development indicators by the project during the monitoring period is given in the table given below.

The project owner has provided employment to a total of 34 people during the crediting period. While 19 of these employees are directly employed by the project owner, the remaining 15 consists of outsourced security personnel. The project owner has informed that the plant had 21 employees but 2 of them resigned during the monitoring period and relocated to other cities in Turkey.

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⁴ Please refer to the registered Project Design Document Section 5 for the EIA report's summary.

⁵ <https://www.mevzuat.gov.tr/MevzuatMetin/1.5.5346.pdf>

Table 5: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
<i>Sequential row number</i>	<i>SDG Target number</i>	<i>Number and text of SDG indicator or, if no official SDG indicator is applicable, user-defined indicator</i>	<i>Indicate the project's contribution to the SDG Indicator (implemented activities to increase or decrease)</i>	<i>Brief description of the quantifiable impact of the project's activities related to the SDG indicator, during the monitoring period.</i>	<i>Brief description of the cumulative quantifiable impact of the project's activities related to the SDG indicator, over the project lifetime.</i>
1)	7.2	7.2.1 Renewable energy share in the total final energy consumption	Implemented activities to increase	The project activity provides 98 MW installed capacity of renewable energy. It delivered 618,874 MWh zero-emission electricity to the national grid for the second monitoring period.	The project activity has been supplying clean renewable energy to the grid since 2014. The project owner has been complying with the targeted SDGs and the project's implementation is going on without any issues. Some 4,181,688 MWh of electricity is expected to be generated during the crediting period.
2)	8.5	Job opportunities created	Implemented activities to increase	During the monitoring period 2 employees were recruited.	Total 34 people will be maintained during over project lifetime.

3)	13.2	Tones of greenhouse gas emissions avoided	Implemented activities to increase	The project activity directly contributed to the targeted SDG by achieving 329,859 tCO ₂ of emission reductions during the second monitoring period, through clean energy generation and displacing emission-intensive energy in the national grid.	The project owner operates the plant since 2014 and has been reducing emissions without any issue. 2,228,840 t CO ₂ of emission reductions are expected to occur during this crediting period.
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2 SAFEGUARDS

2.1 No Net Harm

No negative environmental and socio-economic impacts have been observed/recorded for this project. Domestic solid wastes are disposed in accordance with the “Regulation on Waste Management”. Solid wastes are be collected in separate closed-lid garbage bins, and then be transferred to solid waste containers. The wastes are separated and disposed by type, such as plastics, paper, cardboard and handed over to the recycling facility officials. In addition, there is generation of domestic wastewater originating from the employees working at site. The wastewater is be collected in sealed septic tanks. The accumulated wastewater in the septic tank is collected by the municipality with a vacuum truck and will be sent to the nearest facility for disposal.

2.2 Local Stakeholder Consultation

A logbook, which was delivered to the Aslancık Village head during the first monitoring period, is still maintained at the village head’s office. Information was provided to the locals by the village head, regarding the whereabouts of the book. Local stakeholders from the village are able to provide feedbacks and/or complaints via the village head and the logbook. The logbook and contact information of the authorized person from the owner company is available at village head’s office. The village head also confirmed that during the period that covers the second monitoring period, no negative comments or complaints were received regarding the operation of Aslancık HPP.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

For the implementation of the project activity, the first was taken in 2007 with the agreement with State Hydraulic Works on the agreement to use water sources. The power plant was commissioned on 08/03/2014. Since then, the project has been operating normally, and no special events have occurred having an impact on GHG emission reductions or monitoring. The table below provides an overview of the project’s development steps.

Table 6. Project timeline

Project development step	Date
Agreement on use of water resources with (State Hydraulic Works – DSİ)	17/01/2007

Finalization of EIA Report	01/02/2008
Granting of EPDK production license	20/03/2008
Environmental Approval by Environmental and Urbanization Ministry	02/04/2008
Grid connection agreement with TEİAŞ	01/07/2008
Contract for power line	30/11/2010
Commissioning for second unit	07/03/2014
Commissioning for first unit	19/09/2014
Start date of the first crediting period	08/03/2014
Start date of the first monitoring period	08/03/2014
Revision of generation license to 98 MWe	18/12/2017
End date of the first monitoring period	31/12/2019
Start of the second monitoring period	01/01/2020
Current TEİAŞ System Usage Agreement	05/03/2021
End of the second monitoring period	30/04/2022

3.2 Deviations

2.1.1 Methodology Deviations

There are no methodology deviations for this monitoring period.

2.1.2 Project Description Deviations

During the first monitoring period, the project went for a capacity increase and added 5 MWe of power to its installed capacity. On 18/12/2017 the plant's capacity was increased from 93 MWe to 98 MWe. After this capacity increase, renewable electricity generation amount still occurred and occurs lower than estimated electricity generation amount in registered PD. For this reason, the project is still additional. In registered PD, the start date of the crediting period was given as the expected date of commissioning, i.e., 01/10/2013. However, project got its provisional acceptance protocol on 07/03/2014 and started operating on 08/03/2014. Therefore, start date of the crediting period was taken as 08/03/2014.

Furthermore, the regulation that arranged the frequency of measuring instruments' calibration was revised. According to the revised regulation, the calibration frequency is 10 years, whereas it was 5 years in the previous version. In addition, TEİAŞ also has an internal procedure in which they test the meters in every two years, however this is not based on regulation but per the system usage agreement with the project owner.⁶

⁶ TEİAŞ System Usage Agreement, p. 12

Two parameters, A_{PJ} and Cap_{PJ} have been added to this MR in Section 4.2. These parameters were not included in the registered PD and the previous MR of the first monitoring period. However, as per requirements of the applied methodology ACM0002 version 12.3, these parameters are added in Section 4.2. of this MR and they will be monitored for the remaining crediting period. Secondly, the reservoir area that was included for project emission calculations in the PD was retrieved from the feasibility report. However, when the project was actualized, the reservoir area was constructed to be less than what was calculated in the feasibility report. The project's reservoir area is about 160,000 m². The area of the reservoir is measured when the reservoir is full. The above deviations do not impact the appropriateness of the baseline scenario, additionality, or applicability of the methodology.

3.3 Grouped Projects

Aslancık HPP is a single project and is not part of a grouped project activity.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	$FC_{HV,i,y}$																																																															
Data unit	Tcal																																																															
Description	Amount of fuel combusted for electricity production in Turkey in the years 2008-2010.																																																															
Source of data	[TEİAŞ Statistics]; https://webapi.teias.gov.tr/file/97edee23-52d9-4a8d-a7b5-168caac13cfe?download																																																															
Value applied	Conversion of Fuel Use Data in Turkish Electricity Sector 2008-2010 from Tcal to TJ <table><tr><th></th><th colspan="2">2008</th><th colspan="2">2009</th><th colspan="2">2010</th></tr><tr><th></th><th>[Tcal]</th><th>[TJ]</th><th>[Tcal]</th><th>[TJ]</th><th>[Tcal]</th><th>[TJ]</th></tr><tr><td>Hard Coal+Imported Coal+Asphaltite</td><td>33,310</td><td>139,462</td><td>35,130</td><td>147,081</td><td>39,546</td><td>165,573</td></tr><tr><td>Lignite</td><td>108,227</td><td>453,125</td><td>97,652</td><td>408,848</td><td>96,551</td><td>404,240</td></tr><tr><td>Fuel Oil</td><td>20,607</td><td>86,277</td><td>15,160</td><td>63,471</td><td>8,569</td><td>35,877</td></tr><tr><td>Diesel Oil</td><td>1,328</td><td>5,560</td><td>1,830</td><td>7,663</td><td>209</td><td>877</td></tr><tr><td>LPG</td><td>0</td><td>0</td><td>1</td><td>5</td><td>0</td><td>0</td></tr><tr><td>Naphta</td><td>113</td><td>473</td><td>84</td><td>353</td><td>105</td><td>440</td></tr><tr><td>Natural Gas</td><td>189,057</td><td>791,544</td><td>186,266</td><td>779,858</td><td>194,487</td><td>814,279</td></tr></table>		2008		2009		2010			[Tcal]	[TJ]	[Tcal]	[TJ]	[Tcal]	[TJ]	Hard Coal+Imported Coal+Asphaltite	33,310	139,462	35,130	147,081	39,546	165,573	Lignite	108,227	453,125	97,652	408,848	96,551	404,240	Fuel Oil	20,607	86,277	15,160	63,471	8,569	35,877	Diesel Oil	1,328	5,560	1,830	7,663	209	877	LPG	0	0	1	5	0	0	Naphta	113	473	84	353	105	440	Natural Gas	189,057	791,544	186,266	779,858	194,487	814,279
	2008		2009		2010																																																											
	[Tcal]	[TJ]	[Tcal]	[TJ]	[Tcal]	[TJ]																																																										
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Natural Gas	189,057	791,544	186,266	779,858	194,487	814,279																																																										
Justification of choice of data or description of measurement	Data is necessary to calculate the OM emission factor, see equation (3) and equation (4) in Section 3.1.2. Step 4 of Registered PDD. Data source is published by state-owned company TEİAŞ.																																																															

methods and procedures applied	
Purpose of Data	Calculation of baseline emissions.
Comments	No additional comments

Data / Parameter	EF _{CO₂,i,y} / EF _{CO₂,i,m,y}																																																																																																
Data unit	tCO ₂ /TJ																																																																																																
Description	Carbon emission factors of fuels used for combustion for electricity production by fuel type (IPCC default values at the lower limit of the uncertainty at a 95% confidence interval)																																																																																																
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories, table 1.4, pp. 1.23 and 1.24.																																																																																																
Value applied	CO ₂ Emissions from Power Production in Turkey 2008-2010 <table><tr><th>Fuel type/year</th><th>FC_{HV} [TJ]</th><th>EF_{CO₂,i,y} [tCO₂/yr]</th><th>Emissions [ktCO₂] (FC_{HV} · EF_{CO₂} / 1000)</th></tr><tr><td>Hard Coal+Imported Coal</td><td>139,462</td><td>89.5</td><td>12,482</td></tr><tr><td>Lignite</td><td>453,125</td><td>90.9</td><td>41,189</td></tr><tr><td>Fuel Oil</td><td>86,277</td><td>75.5</td><td>6,514</td></tr><tr><td>Diesel Oil</td><td>5,560</td><td>72.6</td><td>404</td></tr><tr><td>Naphta</td><td>473</td><td>69.3</td><td>33</td></tr><tr><td>Natural Gas</td><td>791,544</td><td>54.3</td><td>42,981</td></tr><tr><td>Subtotal 2008</td><td></td><td></td><td>103,602</td></tr><tr><td>Hard Coal+Imported Coal</td><td>147,081</td><td>89.5</td><td>13,164</td></tr><tr><td>Lignite</td><td>408,848</td><td>90.9</td><td>37,164</td></tr><tr><td>Fuel Oil</td><td>63,471</td><td>75.5</td><td>4,792</td></tr><tr><td>Diesel Oil</td><td>7,663</td><td>72.6</td><td>556</td></tr><tr><td>LPG</td><td>5</td><td>61.6</td><td>0</td></tr><tr><td>Naphta</td><td>353</td><td>69.3</td><td>24</td></tr><tr><td>Natural Gas</td><td>779,858</td><td>54.3</td><td>42,346</td></tr><tr><td>Subtotal 2009</td><td></td><td></td><td>98,047</td></tr><tr><td>Hard Coal+Imported Coal</td><td>165,573</td><td>89.5</td><td>14,819</td></tr><tr><td>Lignite</td><td>404,240</td><td>90.9</td><td>36,745</td></tr><tr><td>Fuel Oil</td><td>35,877</td><td>75.5</td><td>2,709</td></tr><tr><td>Diesel Oil</td><td>877</td><td>72.6</td><td>64</td></tr><tr><td>Naphta</td><td>440</td><td>69.3</td><td>30</td></tr><tr><td>Natural Gas</td><td>814,279</td><td>54.3</td><td>44,215</td></tr><tr><td>Subtotal 2010</td><td></td><td></td><td>98,582</td></tr><tr><td>Total 2008 – 2010</td><td></td><td></td><td>300,232</td></tr></table>	Fuel type/year	FC _{HV} [TJ]	EF _{CO₂,i,y} [tCO ₂ /yr]	Emissions [ktCO ₂] (FC _{HV} · EF _{CO₂} / 1000)	Hard Coal+Imported Coal	139,462	89.5	12,482	Lignite	453,125	90.9	41,189	Fuel Oil	86,277	75.5	6,514	Diesel Oil	5,560	72.6	404	Naphta	473	69.3	33	Natural Gas	791,544	54.3	42,981	Subtotal 2008			103,602	Hard Coal+Imported Coal	147,081	89.5	13,164	Lignite	408,848	90.9	37,164	Fuel Oil	63,471	75.5	4,792	Diesel Oil	7,663	72.6	556	LPG	5	61.6	0	Naphta	353	69.3	24	Natural Gas	779,858	54.3	42,346	Subtotal 2009			98,047	Hard Coal+Imported Coal	165,573	89.5	14,819	Lignite	404,240	90.9	36,745	Fuel Oil	35,877	75.5	2,709	Diesel Oil	877	72.6	64	Naphta	440	69.3	30	Natural Gas	814,279	54.3	44,215	Subtotal 2010			98,582	Total 2008 – 2010			300,232
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	Calculation of $EF_{EL,m,y}$			
	Fuel type	$\eta_{m,y}$	$EF_{CO_2,m,y}$ [t CO ₂ /TJ]	$EF_{EL,m,y}$ [t CO ₂ /MWh]
	Fuel Oil	39.50%	75.50	688.10
	Lignite	39.00%	90.90	839.08
	Natural Gas	60.00%	54.30	325.80
	Supercritical Coal	45.00%	89.50	716.00
	CFBS Coal	40.00%	89.50	805.50
Justification of choice of data or description of measurement methods and procedures applied	Data is necessary to calculate both OM and BM emission factors. See equation (3) p. 32 Section 3.1.2. Step 4 of Registered PDD for OM. See equation (9) p. 37 Section 3.1.2. Step 5 of Registered PDD for BM. Data source is proposed and accepted by ACM0002.			
Purpose of Data	Calculation of baseline emissions.			
Comments	No additional comments			

Data / Parameter	EI_y
Data unit	GWh
Description	Gross electricity imports to the Turkish national grid 2008-2010.
Source of data	[TEİAŞ Statistics]; https://webapi.teias.gov.tr/file/6fb14194-adf4-47d4-b9b2-d38b8ff351ed?download
Value applied	Calculation of Net Electricity Generation in Turkey (GWh) not Including Low Cost/Must-Run Sources and Including Electricity Imports for the Years 2008-2010

unit: GWh		2008	2009	2010
I	$EG_{TOTAL,y,GROSS}$	198,418	194,813	211,208
II	$EG_{TOTAL,y,NET}$	189,762	186,619	203,046
III=II/I	net-to-gross relation	95.64%	95.79%	96.14%
IV	Geothermal and Wind	1,009	1,931	3,585
V	Hydro	33,270	35,958	51,796
VI=IV+V	$EG_{LC-MR,y,GROSS}$	34,279	37,889	55,381
VII	EI_y	789	812	1,144
XIII = I – VI+VII	$EG_{y,GROSS}$	164,928	157,736	156,971
IX=XIII*III	EG_y	157,733	151,101	150,905
TOTAL 2008-2010		459,739		

Justification of choice of data or description of measurement methods and procedures applied	Data is necessary for calculating electricity generation from sources included in OM emission factor calculation, see equation (5) Section 3.1.2. Step 4 of Registered PDD. Data source is published by state-owned company TEİAŞ.
Purpose of Data	Calculation of baseline emissions.
Comments	No additional comments

Data / Parameter	EG _{TOTAL,y,GROSS}																																																										
Data unit	GWh																																																										
Description	Gross electricity production in Turkey in 2008-2010.																																																										
Source of data	[TEİAŞ Statistics]; https://webapi.teias.gov.tr/file/2decedef-6570-487e-babf-334839f99100?download																																																										
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Justification of choice of data or description of measurement methods and procedures applied	Data is necessary as a basis for calculating OM generation, see equation (5) Section 3.1.2. Step 4 of Registered PDD. Data is also the basis for calculating the overall Turkish net-to-gross generation relation which is again necessary to estimate																																																										

	net generation from sources not considered as low-cost/must-run for OM emission factor, see equation (6) Section 3.1.2. Step 4 of Registered PDD and net generation from sources added to the system most recently and representing 20% of total generation for BM emission factor, see equation (8) Section 3.1.2. Step 5 of Registered PDD. Data source is published by state-owned company TEİAŞ.
Purpose of Data	Calculation of baseline emissions.
Comments	No additional comments

Data / Parameter	EG _{TOTAL,y,NET}																																																										
Data unit	GWh																																																										
Description	Net electricity production in Turkey in 2008-2010.																																																										
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Justification of choice of data or description of measurement methods and procedures applied	Data is the basis for calculating net-to-gross relation for Turkish electricity generation which is again necessary to estimate net generation from sources not considered as low-cost/must-run for OM emission factor, see equation (6) Section 3.1.2. Step 4 of Registered PDD. Net-to-gross generation relation is also necessary for estimating net generation from sources added to the system																																																										

	most recently and representing 20% of total generation for BM emission factor, see equation (8) Section 3.1.2. Step 5 of Registered PDD. Data source is published by state-owned company TEİAŞ.
Purpose of Data	Calculation of baseline emissions.
Comments	No additional comments

Data / Parameter	Capacity additions
Data unit	MW
Description	Power plants most recently added to the Turkish electricity system and representing 20% of total current (i.e. 2010) generation
Source of data	https://www.epdk.gov.tr/Detay/DownloadDocument?id=aYZlyqYrK0I= For 2008: TEİAŞ: Türkiye elektrik enerjisi 10 yıllık üretim kapasite projeksiyonu (2009–2018); http://www.artienerji.com.tr/rapor/TEIAS_PROJEKSIYON_OZETI.pdf For 2009: TEİAŞ: Türkiye elektrik enerjisi 10 yıllık üretim kapasite projeksiyonu (2010–2019); pp. 98-101. https://www.epdk.gov.tr/Detay/DownloadDocument?id=U9pJ8bHmpsU= For 2010: [TEİAŞ Projection]; http://www.artienerji.com.tr/rapor/TEIAS_PROJEKSIYON_OZETI.pdf
Value applied	See Appendix 2 of this document for the list of power plants included in the BM calculation.
Justification of choice of data or description of measurement methods and procedures applied	Data is the basis for estimating net generation included in BM emission factor, see equation (8) Section 3.1.2. Step 5 of Registered PDD. Data sources are published by state-owned company TEİAŞ.
Purpose of Data	Calculation of baseline emissions.
Comments	No additional comments

Data / Parameter	EG_{m,y,GROSS}
Data unit	GWh

Description	Annual gross generation of the power plants most recently added to the system and representing 20% of total current (i.e. 2010) gross generation in Turkey.						
Source of data	For EÜAŞ plants: [TEİAŞ Statistics] https://webapi.teias.gov.tr/file/fe8f99b2-3b06-41ca-a56f-b138989ef1d5?download For all other plants: [TEİAŞ Projection], pp. 90-101.						
Value applied	Annual Net Generation of BM Plants <table border="1"> <tr> <td>EG_{m,y,GROSS} [GWh]</td><td>40,510.00</td></tr> <tr> <td>net-to-gross relation</td><td>96.14%</td></tr> <tr> <td>EG_{m,2010} [GWh]</td><td><u>38,946.31</u></td></tr> </table>	EG _{m,y,GROSS} [GWh]	40,510.00	net-to-gross relation	96.14%	EG _{m,2010} [GWh]	<u>38,946.31</u>
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net-to-gross relation	96.14%						
EG _{m,2010} [GWh]	<u>38,946.31</u>						
Justification of choice of data or description of measurement methods and procedures applied	Data is the basis for determining net generation of BM plants as included in the BM emission factor, see equation (8) Section 3.1.2. Step 5 of Registered PDD. Net generation of BM emission plants is then used for estimating BM emissions as included in the BM emission factor, see equation (6) Section 3.1.2. Step 5 of Registered PDD. Data sources are published by state-owned company TEİAŞ.						
Purpose of Data	Calculation of baseline emissions.						
Comments	No additional comments						

Data / Parameter	EG _{LC-MR,y,GROSS}
Data unit	GWh
Description	Gross electricity production from low-cost/must-run sources in Turkey 2008- 2010.
Source of data	[TEİAŞ Statistics]; https://webapi.teias.gov.tr/file/2decedef-6570-487e-babf-334839f99100?download
Value applied	Calculation of Net Electricity Generation in Turkey (GWh) not Including Low Cost/Must-Run Sources and Including Electricity

	Imports for the Years 2008-2010				
	unit: GWh		2008	2009	2010
	I	EG _{TOTAL,y,GROSS}	198,418	194,813	211,208
	II	EG _{TOTAL,y,NET}	189,762	186,619	203,046
	III=II/I	net-to-gross relation	95.64%	95.79%	96.14%
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	IX=XIII*III	EG _y	157,733	151,101	150,905
	TOTAL 2008-2010		459,739		
Justification of choice of data or description of measurement methods and procedures applied	Data is necessary for calculating electricity generation from sources included in OM emission factor calculation, see equation (5) Section 3.1.2. Step 4 of Registered PDD.. Data source is published by state-owned company TEİAŞ.				
Purpose of Data	Calculation of baseline emissions.				
Comments	No additional comments				

4.2 Data and Parameters Monitored

Data / Parameter	EG _{facility, y}
Data unit	MWh
Description	Quantity of net electricity generation supplied by Aslancık HPP to the grid
Source of data	The data from the Electricity Meters are the basis for the settlement notification of EPIAŞ. Data are gathered electronically from the meters by TEİAŞ and stored in secured website of EPIAŞ, which is accessible to project developer with a private password. For monitoring, web screenshots from EPIAŞ are used as source of data.
Description of measurement methods and	Continuous measuring of electricity exported to and imported from the grid by Aslancık HPP, i.e., 100% of the data is monitored, and no sampling is applied.

procedures to be applied	
Frequency of monitoring/recording	The electricity meters work continuously. Responsible TEİAŞ staff conducts data read-outs monthly and publishes results online in Aslancık Elektrik Üretim A.Ş.'s EPIAŞ account. Data is cross-checked and recorded monthly by responsible Aslancık HPP's staff.
Value monitored	618,874 MWh ⁷
Monitoring equipment	Regarding the electricity meters: two meters were placed (one main and one reserve). The fact that two meters are installed in a redundant manner keeps the uncertainty level of the only parameter for baseline calculation low. High data quality of this parameter is in the interest of not only the emission reduction monitoring, but also paramount for the business relation between the plant operator and the electricity buyer. On the last day of each month, the production index is taken from the main as well as the reserve meter by EPIAŞ (a state institution responsible for electricity market settlement operations) via Automatic Meter Reading System (OSOS). In following month, EPIAŞ issue electricity generation records for each generation unit that can be accessed by plant operators via logging to secured website. These records are used to monitor net monthly generation of the power plant. For each month, the net electricity amount supplied to the grid is calculated by electricity fed into grid minus electricity withdrawn from the grid available in EPIAŞ records. On-site readings are used to cross-check the EPIAŞ records. TEİAŞ sends an electronic spreadsheet that includes daily and monthly electricity generation and withdrawn amounts for each power plant. Thus, cross-check source is the on-site meter readings. Since 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. Thus, with this procedure, monitoring is sufficient and no extra monitoring has to be implemented.

⁷ Please refer to Appendix 1 for the data's details.

The above-described measurement method follows Article 81 of the official regulation “Electricity Market Balancing and Settlement Regulation”.

The specification of electricity meters is provided in table given below. All meters were manufactured in 2021. Because the power plant has two units, there is a main and backup meter for both units; making the total meter number 4 (four).

Name	Brand & Model	Serial Number	Accuracy Class	Calibration Date
Main Meter 1	EMH & LZQJ - XC	11172808	1S	22/03/2022
Back-up Meter 1	EMH & LZQJ - XC	11172809	1S	
Main Meter 2	EMH & LZQJ - XC	11172810	1S	
Back-up Meter 2	EMH & LZQJ - XC	11172811	1S	

The meters were installed on 22/03/2022, where they were tested and calibrated by experts and approved by TEİAŞ. Per the relevant regulation, the meters need to be replaced in 10 years, until 22/03/2032. Information for the previous meters is provided below.

Name	Brand & Model	Serial Number	Accuracy Class	Calibration Date
Main Meter 1	ELSTER A1500	464256	0.5S	23/10/2013
Back-up Meter 1	ELSTER A1500	464257	0.5S	23/10/2013
Main Meter 2	ELSTER A1500	471006	0.5S	08/04/2014
Back-up Meter 2	ELSTER A1500	471007	0.5S	08/03/2014

QA/QC procedures to be applied	The calibration of the meters is conducted every 10 years but per the system usage agreement, TEİAŞ carries out periodic tests for every two years. The latest tests for the former meters were conducted on 18/09/2020. The newly installed meters were installed and calibrated on 22/03/2022. For this reason, the next TEİAŞ test of the meters are expected to take place until 22/03/2024. Technicians, employees of Aslancık HES conduct readings from two meters from the project site and sends it to TEİAŞ. By this way, a cross-check is done. Moreover, continuously these two meters are compared with each other and if any differences are detected the necessary control measures are taken. According to the Article 2 of the Communiqué: ‘The meters to be used in the electricity market shall be compliant with the standards of Turkish Standards Institute or IEC and have obtained “Type and System Approval” certificate from the Ministry of Trade and Industry.’ Therefore, Ministry of Trade and Industry (Ministry) is responsible from control and calibration of the meters. paragraph b) of the Article 9 of the 'Regulation of Metering and Testing of Metering Systems' 7 (Regulation) of Ministry states that: ‘ b) Periodic tests of meters of electricity, water, coal gas, natural gas and current and voltage transformers are done every 10 years’ . Therefore, periodic calibration of the meters will be done every 10 years.
Purpose of the data	Calculation of baseline emissions
Calculation method	The net electricity is calculated by: - Subtracting self-consumption value from gross generation value for each month to find the net electricity supplied to the grid. - Adding up all monthly net electricity values to calculate the total net electricity supplied to the grid during the monitoring period. Multiplying the total net electricity value with the CM emission factor.
Comments	Provide any additional comments
Data / Parameter	CapPJ

Data unit	W
Description	Installed capacity of the hydro power plant after the implementation of the project activity.
Source of data	Energy Market Regulatory Authority (EMRA) website, turbine plates
Description of measurement methods and procedures to be applied	The EMRA website ⁸ contains all licensed electricity generation facilities, along with their current installed capacities. Further, the turbine plates installed at site are also proof of capacity.
Frequency of monitoring/recording	Yearly
Value monitored	120 MWm/98 MWe
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of the data	Compliance with applied methodology, and power density calculations.
Calculation method	N/A
Comments	-

Data / Parameter	A_{PJ}
Data unit	m ²
Description	Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full.
Source of data	Project Site
Description of measurement methods and procedures to be applied	Measured from topographical surveys and maps

⁸ <https://lisans.epdk.gov.tr/epvys-web/faces/pages/lisans/elektrikUretim/elektrikUretimOzetSorgula.xhtml>

Frequency of monitoring/recording	Yearly
Value monitored	160,000
Monitoring equipment	Measured from topographical surveys, maps, satellite pictures
QA/QC procedures to be applied	N/A
Purpose of the data	Compliance with applied methodology, and power density calculations.
Calculation method	Measured from topographical surveys, maps, satellite pictures
Comments	-

4.3 Monitoring Plan

Monitoring is a key procedure to verify the proposed project's real and measurable emission reductions. The monitoring plan has been established to guarantee the proposed project's real, measurable and long-term GHG emission reductions.

The monitoring plan for Aslancık HPP has been done in line with the applied methodology, which is ACM0002. In line with the information provided in Section 4.2., the only parameter that was available for monitoring between 01/01/2020 and 30/04/2022 was electricity supplied to the grid per year, which is denominated with $EG_{\text{facility},y}$. As per the methodology TEİAŞ has installed one main electricity meter and one back-up electricity meter at the substation to which Aslancık HPP power plant is connected. The fact that two meters are installed for each unit keeps the uncertainty level of the only parameter for baseline calculation low. High data quality of this parameter is in the interest of not only the emission reduction monitoring, but also paramount for the business relation between the plant operator and the electricity buyer. The former electricity meters, details provided below, were replaced in 22/03/2022 as their 10-year period for change had come. The latest tests for the former meters were conducted on 18/09/2020.

Table 7. Aslancık HPP former meters

Name	Brand	Model	Serial Number	Accuracy Class	First Index Protocol Date
Main Meter 1	ELSTER	A1500	464256	0,5S	23/10/2013
Back-up Meter 1	ELSTER	A1500	464257	0,5S	23/10/2013
Main Meter 2	ELSTER	A1500	471006	0,5S	08/04/2014

Name	Brand	Model	Serial Number	Accuracy Class	First Index Protocol Date
Back-up Meter 2	ELSTER	A1500	471007	0,5S	08/03/2014

below. After the first index protocol, the former meters were subjected to TEİAŞ tests on 02/10/2014, 27/10/2015, 10/10/2017 and 18/09/2020. The newly installed electricity meters have 1S accuracy level and have been installed and calibrated by TEİAŞ on 22/03/2022. Details of the new meters are provided in the table

Table 8. Aslancık HPP current meters

Name	Brand	Model	Serial Number	Accuracy Class	First Index Protocol Date
Main Meter 1	EMH	LZQJ - XC	11172808	1S	22/03/2022
Back-up Meter 1	EMH	LZQJ - XC	11172809	1S	
Main Meter 2	EMH	LZQJ - XC	11172810	1S	
Back-up Meter 2	EMH	LZQJ - XC	11172811	1S	

TEİAŞ performs read-out on these electricity meters at 00:00 of the first day of each month and calculate monthly net electricity fed into the grid. Upon performing monthly data read out on the primary data source, i.e., main electricity meter located at the substation, TEİAŞ publishes the results online on the EPIAŞ website.

The EPIAŞ website is accessible to the project proponent with their unique user ID and password. The project owner can access and monitor the electricity generation data 24 hours a day. Once accessed, the project owners are able to call electricity generation and consumption reports of their own projects. The same reports are used by them for invoicing purposes. The electricity generation data are reported on a monthly basis. The data can be reached after the 15th day of the following month. The procedure involves accessing the website and then the electricity generation and consumption data for each month covering the monitoring period, and taking screenshots of the data.

At the end of the monitoring period, the sum of data from the monthly readings by EPIAŞ will be transferred to an excel sheet, which will also include the Combined Margin (CM) emission factor. All data monitored under the monitoring plan will be kept in electronic form and hard copy for 2 years after the end of the crediting period. This way the baseline approach will be as transparent as possible.

As the project owner, Aslancık Elektrik Üretim A.Ş. is responsible for running the HPP and compliance with the VER monitoring plan, storing data about power sales, invoicing and purchasing.

It is also responsible for electrical operations and recording and monitoring of relevant data and periodic reporting.

For the elaboration and quality assurance of the monitoring report, Life İklim ve Enerji Ltd. Şti., an expert in the project mechanisms who already supported the project design, is assigned. The company is responsible for emission reduction calculations, preparing monitoring reports, and periodical verification process.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

The baseline scenario is identified according to the “Baseline Methodology Procedure” of ACM0002 Version 12.3.0⁹. Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated via the following formula:

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

where,

BE_y	=	Baseline emissions in year y (t CO 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” (t CO ₂ /MWh)”

The calculation of $EG_{PJ,y}$ is different for Greenfield plants, retrofits and replacements, and capacity additions. If the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, then:

⁹ Please refer to the methodology.

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

where,

$EG_{PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
$EF_{\text{facility},y}$	=	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

5.2 Project Emissions

The project activity involves no emissions, except from a diesel generator used for emergency backup purposes. The possible emissions from the use of fossil fuels for the back up or emergency purposes by the operation of this diesel generator are neglected according to the methodology¹⁰.

The power density (PD) for the Aslancık HEPP is calculated according to the directions given in the methodology¹¹:

$$PD(W/m^2) = \frac{\text{Installed Capacity}}{\text{Reservoir Surface Area}}$$

$$PD \left(\frac{W}{m^2} \right) = \frac{98,000,000 W}{160,000 m^2} = 612.5 W/m^2$$

Since installed capacity of the project was increased from 93 MWe to 98 MWe , project's power density is calculated different than given in the PD. The reservoir area that was included for project emission calculations in the PD was retrieved from the feasibility report. However, when the project was actualized, the reservoir area was constructed to be less than what was calculated in the feasibility report. The project's reservoir area is about 160,000 m². The area of the reservoir is measured when the reservoir is full.

5.3 Leakage

ACM0002 describes this section as “[...] emissions potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use [...] are neglected.”¹²

¹⁰ Please refer to the methodology: Section 5.4.1. Fossil fuel combustion ($PE_{FF,y}$), Paragraph 32, page 11.

¹¹ Please refer to the methodology (paragraph 37, pages 12-13).

¹² ACM0002 v.20, Section 5.6.

Therefore, the leakage emissions are quantified as “0.”

5.4 Net GHG Emission Reductions and Removals

According to ACM0002, emission reductions are calculated as,

$$ER_y = BE_y - PE_y$$

where

ER_y = Emission reductions in year y (t CO₂e/yr)

BE_y = Baseline emissions in year y (t CO₂e/yr)

PE_y = Project emissions in year y (t CO₂e/yr)

as,

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

and,

$$PE_y = 0$$

then, the emission reduction formula should be as follows:

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

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2020	152,994	0	0	152,994
2021	106,807	0	0	106,807
2022 (01/01/2022 – 30/04/2022)	70,058	0	0	70,058
Total	329,859	0	0	329,859

APPENDIX 1: <MONTHLY ELECTRICITY GENERATION DATA>

Months	METERING DEVICE Electricity supplied to the grid (MWh) (1)	METERING DEVICE Electricity consumption from the grid (MWh) (2)	METERING DEVICE Net electricity supplied to the grid[MWh] (3) =(1)-(2)
Jan-20	10,968.56	100.33	10,868.23
Feb-20	21,607.03	77.14	21,529.90
Mar-20	43,593.93	47.22	43,546.71
Apr-20	45,492.76	40.17	45,452.59
May-20	49,394.17	26.25	49,367.93
Jun-20	25,404.77	47.53	25,357.24
Jul-20	30,833.58	44.35	30,789.22
Aug-20	19,175.16	57.29	19,117.87
Sep-20	3,284.80	66.06	3,218.74
Oct-20	6,707.84	69.45	6,638.39
Nov-20	17,847.19	63.09	17,784.09
Dec-20	13,459.63	86.56	13,373.07
Sum 2020	287,769.42	725.44	287,043.98
Jan-21	10,403.95	83.49	10,320.46
Feb-21	10,486.88	68.47	10,418.41
Mar-21	20,474.30	87.44	20,386.87
Apr-21	28,056.78	63.77	27,993.01
May-21	20,150.86	56.67	20,094.20
Jun-21	14,059.77	56.58	14,003.19
Jul-21	27,280.08	50.96	27,229.12
Aug-21	19,923.20	55.22	19,867.98
Sep-21	11,444.44	66.47	11,377.97
Oct-21	10,776.02	63.11	10,712.91
Nov-21	11,314.02	74.69	11,239.33
Dec-21	16,829.79	84.05	16,745.74
Sum 2021	201,200.08	810.91	200,389.18
Jan-22	18,625.27	83.44	18,541.83
Feb-22	21,832.89	73.27	21,759.62
Mar-22	30,852.01	74.28	30,777.73
Apr-22	60,372.88	10.74	60,362.14
Sum 2022	131,683.03	241.72	131,441.31
Total Sum	620,652.53	1,778.07	618,874.47

APPENDIX 2: <POWER PLANTS INCLUDED IN THE BM CALCULATION>

Year	Power Plant	Cap. (MW)	Bus. Model	Fuel type	Gen. (GWh)	Commissionary date
2008	AKKÖY I HES	101.94	IPP	Hydro	408.00	18/09/2008
2008	TAYFUN HES	0.82	IPP	Hydro	5.00	10/10/2008
2008	TORUL HES	105.60	EÜAŞ	Hydro	322.00	16/10/2008
2008	HAMZALI HES	16.70	IPP	Hydro	117.00	08/11/2008
2008	SARMAŞIK I HES	21.04	IPP	Hydro	96.00	28/11/2008
2008	SARMAŞIK II HES	21.58	IPP	Hydro	108.00	28/11/2008
2008	DEĞİRMENÜSTÜ HES	25.70	IPP	Hydro	70.58	05/12/2008
2008	DATÇA RES	8.10	IPP	Wind	22.99	18/12/2008
2008	ODA YERİ	2.83	IPP	REN	22.24	29/12/2008
2009	ALKİM ALKALİ KİMYA (Cihanbeyli/KONYA)	0.40	Autop.	Lignite	3.00	01/01/2009
2009	ANTALYA ENERJİ (İlave)	41.80	IPP	N.Gas	302.10	01/01/2009
2009	CAM İŞ ELEKTRİK (Mersin) (İlave)	126.10	IPP	N.Gas	1,008.00	01/01/2009
2009	ENTEK KÖSEKÖY (İztek) (Düzeltilme)	12.40	IPP	N.Gas	98.68	01/01/2009
2009	GÜL ENERJİ ELKT. ÜRET. SN. VE TİC. A.Ş.	24.30	IPP	N.Gas	170.00	01/01/2009
2009	İÇDAŞ ÇELİK (İlave)	270.00	IPP	CFBS	1,923.33	01/01/2009
2009	NUH ÇİMENTO SAN. TİC. A.Ş.(Nuh Çim.) (İlave)	47.00	Autop.	N.Gas	329.00	01/01/2009
2009	ORTADOĞU ENERJİ (ODA YERİ) (İlave)	9.90	IPP	REN	77.79	01/01/2009
2009	PETKİM ALİAĞA (Aliağa) (Düzeltilme-İlave)	52.00	Autop.	Fuel oil	364.00	01/01/2009
2009	SÖNMEZ ELEKTRİK (Uşak) (İlave)	8.70	IPP	N.Gas	67.08	01/01/2009
2009	TÜPRAŞ RAFİNERİ (Aliağa/İzmir)	24.70	Autop.	N.Gas	170.00	01/01/2009
2009	TÜPRAŞ O.A.RAFİNERİ (Kırıkkale) (Düzeltilme)	10.00	Autop.	Fuel oil	70.00	01/01/2009
2009	ZORLU ENERJİ (B.Karıştıran) (İlave)	49.50	IPP	N.Gas	394.97	01/01/2009
2009	BAKİ ELEKTRİK ŞAMLI RÜZGAR	36.00	IPP	Wind	176.00	29/01/2009
2009	DATÇA RES (Datça)	21.50	IPP	Wind	61.01	29/01/2009
2009	TAŞOVA YENİDEREKÖY	2.00	IPP	Hydro	10.00	30/01/2009

	HES (HAMEKA A.Ş.)					
2009	ITC-KA ENERJİ MAMAK KATI ATIK TOP.MERK.	2.80	IPP	REN	21.06	04/02/2009
2009	ERDEMİR(Ereğli-Zonguldak)	37.60	Autop.	N.Gas	227.01	06/02/2009
2009	TEKTÜĞ (Erkenek)	12.50	IPP	Hydro	50.00	26/02/2009
2009	TAV İSTANBUL TERMİNAL İŞLETME. A.Ş.	6.52	Autop.	N.Gas	54.56	06/03/2009
2009	AYEN ENERJİ A.Ş. AKBÜK RÜZGAR	31.50	IPP	Wind	123.00	19/03/2009
2009	BAĞIŞLI REG. VE HES (CEYKAR ELEKT.)	9.90	IPP	Hydro	33.11	21/03/2009
2009	KASAR DUAL TEKSTİL SAN. A.Ş. (Çorlu)	5.70	Autop.	N.Gas	38.00	26/03/2009
2009	GÜRMAT ELEKT. (GÜRMAT JEOTERMAL)	47.40	IPP	REN	313.00	02/04/2009
2009	DEĞİRMENÜSTÜ EN. (KAHRAMANMARAŞ)	12.90	IPP	Hydro	35.42	16/04/2009
2009	DELTA ENERJİ ÜRETİM VE TİC.A.Ş.	60.00	IPP	N.Gas	467.00	21/04/2009
2009	KEN KİPAŞ ELKT. ÜR.(KAREN) (K.Maraş)	17.50	IPP	N.Gas	75.36	23/04/2009
2009	TESKO KİPA KİTLE PAZ. TİC. VE GIDA A.Ş.	2.30	Autop.	N.Gas	18.00	27/04/2009
2009	SİLOPİ ELEKTRİK ÜRETİM A.Ş.	135.00	IPP	CFBS	945.00	02/05/2009
2009	LAMAS III - IV HES (TGT ENERJİ ÜRETİM)	35.70	IPP	Hydro	150.00	06/05/2009
2009	BAĞIŞLI REG. VE HES (CEYKAR ELEKT.)	19.70	IPP	Hydro	65.89	07/05/2009
2009	TOCAK I HES (YURT ENERJİ ÜRETİM SN.)	4.80	IPP	Hydro	13.00	08/05/2009
2009	BEYOBASI EN. ÜR. A.Ş. (SIRMA HES)	5.90	IPP	Hydro	23.00	23/05/2009
2009	CARGILL TARIM VE GIDA SAN. TİC. A.Ş.	0.10	Autop.	REN	0.70	26/05/2009
2009	MAURİ MAYA SAN. A.Ş.	2.00	Autop.	N.Gas	16.52	28/05/2009
2009	ÖZYAKUT ELEK. ÜR.A.Ş. (GÜNEŞLİ HES)	1.20	IPP	Hydro	5.33	29/05/2009
2009	YPM SEVİNDİK HES (Suşehri/SİVAS)	5.70	IPP	Hydro	36.00	09/06/2009
2009	YPM GÖLOVA HES (Suşehri/SİVAS)	1.10	IPP	Hydro	3.00	10/06/2009
2009	BEREKET ENERJİ (KOYULHİSAR HES)	42.00	IPP	Hydro	329.00	12/06/2009
2009	MARMARA PAMUKLU MENS. SN.TİC.A.Ş.	34.90	Autop.	N.Gas	271.11	18/06/2009
2009	KALEN ENERJİ (KALEN I - II	15.65	IPP	Hydro	52.00	19/06/2009

	HES)					
2009	ALİZE ENERJİ (ÇAMSEKİ RES)	20.80	IPP	Wind	82.00	24/06/2009
2009	CİNDERE HES (Denizli)	19.10	IPP	Hydro	59.60	02/07/2009
2009	ŞİRİKÇİOĞLU EL.(KOZAK BENDİ VE HES)	4.40	IPP	Hydro	15.00	08/07/2009
2009	AKUA ENERJİ (KAYALIK REG. VE HES)	5.80	IPP	Hydro	39.00	15/07/2009
2009	ORTADOĞU ENERJİ (KÖMÜRCÜODA)	5.80	IPP	REN	45.00	15/07/2009
2009	İTC-KA ENERJİ (SİNCAN)	2.80	IPP	REN	22.00	17/07/2009
2009	ALİZE ENERJİ (KELTEPE RES)	18.90	IPP	Wind	66.65	23/07/2009
2009	KAYEN ALFA ENERJİ (KALETEPE HES)	10.20	IPP	Hydro	37.00	23/07/2009
2009	OBRUK HES	212.40	EÜAŞ	Hydro	473.00	29/07/2009
2009	GLOBAL ENERJİ (PELİTLİK)	8.55	IPP	N.Gas	65.27	31/07/2009
2009	RASA ENERJİ (VAN)	78.60	IPP	N.Gas	500.06	31/07/2009
2009	ROTOR ELEKTRİK (OSMANİYE RES)	57.50	IPP	Wind	217.22	07/08/2009
2009	ÜTOPYA ELEKTRİK (DÜZOVA RES)	15.00	IPP	Wind	46.00	11/08/2009
2009	ANADOLU ELEKTRİK (ÇAKIRLAR HES)	16.20	IPP	Hydro	60.00	13/08/2009
2009	ÖZTAY ENERJİ (GÜNAYŞE REG.VE HES)	8.30	IPP	Hydro	29.00	13/08/2009
2009	AKÇAY HES ELEKTRİK ÜR. (AKÇAY HES)	28.80	IPP	Hydro	95.00	14/08/2009
2009	DENİZLİ ELEKTRİK (EGE I HES)	0.90	IPP	Hydro	4.00	27/08/2009
2009	AK ENERJİ (AYYILDIZ RES)	15.00	IPP	Wind	51.00	05/09/2009
2009	SOMA ENERJİ ÜRETİM (SOMA RES)	45.00	IPP	Wind	150.00	05/09/2009
2009	SAYALAR RÜZGAR (Doğal Enerji)	3.60	IPP	Wind	11.24	06/09/2009
2009	MAZI 3 RES ELEKT.ÜR. A.Ş. (MAZI 3 RES)	22.50	IPP	Wind	78.75	09/09/2009
2009	BAKİ ELEKTRİK ŞAMLI RÜZGAR	33.00	IPP	Wind	161.33	11/09/2009
2009	FİLYOS ENERJİ (YALNIZCA REG. VE HES)	14.40	IPP	Hydro	67.00	16/09/2009
2009	BORASKO ENERJİ (BANDIRMA RES)	45.00	IPP	Wind	179.21	18/09/2009
2009	ERVA ENERJİ (KABACA REG. VE HES)	4.25	IPP	Hydro	16.50	23/09/2009
2009	ELESTAŞ ELEKTRİK	5.10	IPP	Hydro	20.00	27/09/2009

	(YAYLABEL HES)					
2009	BELEN ELEKTRİK BELEN RÜZGAR-HATAY	30.00	IPP	Wind	95.00	02/10/2009
2009	ELESTAŞ ELEKTRİK (YAZI HES)	1.10	IPP	Hydro	6.00	02/10/2009
2009	YAPISAN (KARICA REG. ve DARICA I HES)	48.50	IPP	Hydro	164.00	10/10/2009
2009	DALSAN ALÇI SAN. VE TİC. A.Ş.	1.20	Autop.	N.Gas	9.00	14/10/2009
2009	MAURİ MAYA SAN. A.Ş.	0.30	Autop.	N.Gas	2.48	16/10/2009
2009	AK GIDA SAN. VE TİC. A.Ş. (Pamukova)	7.50	Autop.	N.Gas	61.00	17/10/2009
2009	ALİZE ENERJİ (SARIKAYA RES) (Şarköy)	28.80	IPP	Wind	96.00	19/10/2009
2009	ERVA ENERJİ (KABACA REG. VE HES)	4.25	IPP	Hydro	16.50	29/10/2009
2009	AKSA ENERJİ (MANİSA) (İlave)	62.90	IPP	N.Gas	498.07	01/11/2009
2009	TÜM ENERJİ (PINAR REG. VE HES)	30.10	IPP	Hydro	138.00	06/11/2009
2009	REŞADİYE 3 HES (TURKON MNG ELEKT.)	22.30	IPP	Hydro	175.00	11/11/2009
2009	SELKASAN KAĞIT PAKETLEME MALZ. İM.	9.90	Autop.	N.Gas	73.00	11/11/2009
2009	ÖZYAKUT ELEK. ÜR.A.Ş. (GÜNEŞLİ HES)	0.60	IPP	Hydro	2.67	13/11/2009
2009	SARITEPE HES (GENEL DİNAMİK SİS.EL.)	2.45	IPP	Hydro	10.00	19/11/2009
2009	AKSA ENERJİ (Antalya) (İlave)	616.20	IPP	N.Gas	4,744.74	01/12/2009
2009	UZUNÇAYIR HES (Tunceli)	27.30	IPP	Hydro	107.20	02/12/2009
2009	YEŞİLBAŞ ENERJİ (YEŞİLBAŞ HES)	14.00	IPP	Hydro	56.00	04/12/2009
2009	TAV İSTANBUL TERMİNAL İŞLETME. A.Ş.	3.28	Autop.	N.Gas	27.44	12/12/2009
2009	ÇELİKLER TAHAH. İNŞ. (RİXOX GRAND)	2.00	Autop.	N.Gas	16.00	15/12/2009
2009	FALEZ ELEKTRİK ÜRETİMİ A.Ş.	11.70	IPP	N.Gas	88.00	16/12/2009
2009	KÖRES KOĞADAĞ RES (Urta/İZMİR)	15.00	IPP	Wind	56.00	23/12/2009
2009	YAPISAN (KARICA REG. ve DARICA I HES)	48.50	IPP	Hydro	164.00	23/12/2009
2009	SARITEPE HES (GENEL DİNAMİK SİS.EL.)	2.45	IPP	Hydro	10.00	24/12/2009
2009	ÖZGÜR ELEKTRİK (AZMAK II REG.VE HES)	6.33	IPP	Hydro	20.00	25/12/2009
2009	SİLOPI ELEKTRİK ÜRETİM	44.80	IPP	Fuel oil	315.00	31/12/2009

	A.Ş. (ESENBOĞA)⁶²					
2010	SELİMOĞLU REG. VE HES	8.80	IPP	Hydro	35.00	07/01/2010
2010	TUZLA JEOTERMAL	7.50	IPP	REN	55.00	13/01/2010
2010	KULP IV HES (YILDIZLAR EN.ELK.ÜR.AŞ.)	12.30	IPP	Hydro	41.00	13/01/2010
2010	ROTOR ELEKTRİK (OSMANİYE RES)	20.00	IPP	Wind	75.56	14/01/2010
2010	CİNDERE HES (ilave)	9.10	IPP	Hydro	28.40	21/01/2010
2010	ETİ SODA	24.00	Autop.	Lignite	144.00	22/01/2010
2010	CAN TEKSTİL	13.03	Autop.	N.Gas	100.00	28/01/2010
2010	ALTINMARKA	4.60	Autop.	N.Gas	37.02	28/01/2010
2010	BAYBURT HES (BAYBURT ENERJİ ÜRET.)	14.63	IPP	Hydro	51.00	28/01/2010
2010	UZUNÇAYIR HES (Tunceli) (ilave)	27.35	IPP	Hydro	107.40	28/01/2010
2010	ALAKIR HES (YURT ENERJİ ÜRETİM)	2.06	IPP	Hydro	6.00	29/01/2010
2010	GAZİANTEP ÇÖP BİOGAZI	1.13	IPP	REN	8.60	01/02/2010
2010	AKBAŞLAR	1.54	Autop.	N.Gas	12.08	18/02/2010
2010	PETA MÜHENDİSLİK EN. (MURSAL II HES)	4.50	IPP	Hydro	19.00	19/02/2010
2010	ASA ENERJİ (KALE REG.ve HES)	9.57	IPP	Hydro	32.00	19/02/2010
2010	HETAŞ HACISALİHOĞLU (YILDIZLI HES)	1.20	IPP	Hydro	5.00	23/02/2010
2010	ODA YERİ	4.20	IPP	REN	33.00	24/02/2010
2010	ASMAKİNSAN (BANDIRMA 3 RES)	20.00	IPP	Wind	70.83	26/02/2010
2010	GLOBAL ENERJİ (PELİTLİK)	3.50	IPP	N.Gas	26.72	26/02/2010
2010	KONYA ŞEKER SAN. VE TİC. A.Ş.⁶³	6.00	Autop.	Lignite		26/02/2010
2010	RASA ENERJİ (VAN)	26.20	IPP	N.Gas	166.69	03/03/2010
2010	SOMA ENERJİ ÜRETİM (SOMA RES)	4.50	IPP	Wind	15.00	10/03/2010
2010	ROTOR ELEKTRİK (OSMANİYE RES)	17.50	IPP	Wind	66.11	10/03/2010
2010	DOĞUBAY ELEKTRİK (SARİMEHMET HES)	3.10	IPP	Hydro	10.00	11/03/2010
2010	DENİZ ELEKTRİK (SEBENOBA RES)	10.00	IPP	Wind	36.67	12/03/2010
2010	AKDENİZ ELEKTRİK (MERSİN RES)	33.00	IPP	Wind	100.00	19/03/2010
2010	AKSA ENERJİ (ANTALYA)	25.00	IPP	N.Gas	192.50	20/03/2010
2010	MENDERES GEOTERMAL DORA-2	9.50	IPP	REN	73.00	26/03/2010

2010	NURYOL ENERJİ (DEFNE REG. VE HES)	7.23	IPP	Hydro	22.00	26/03/2010
2010	ASMAKINSAN (BANDIRMA 3 RES)	4.00	IPP	Wind	14.17	26/03/2010
2010	ÖZGÜR ELEKTRİK (AZMAK 1 REG.VE HES)	5.90	IPP	Hydro	21.50	01/04/2010
2010	BİRİM HİDR. ÜRETİM AŞ. (ERFELEK HES)	3.25	IPP	Hydro	9.50	03/04/2010
2010	BEYTEK EL.ÜR. A.Ş. (ÇATALOLUK HES)	9.54	IPP	Hydro	31.00	07/04/2010
2010	NİSAN E.MEKANİK EN. (BAŞAK REG. HES)	6.85	IPP	Hydro	22.00	09/04/2010
2010	BOREAS ENERJİ (OREAS 1 ENEZ RES)	15.00	IPP	Wind	49.00	09/04/2010
2010	BERGAMA RES EN. ÜR. A.Ş. ALIĞA RES	52.50	IPP	Wind	207.08	09/04/2010
2010	ROTOR ELEKTRİK (OSMANIYE RES)	17.50	IPP	Wind	66.11	09/04/2010
2010	UZUNÇAYIR HES (Tunceli) (İlave)	27.35	IPP	Hydro	107.40	11/04/2010
2010	FIRTINA ELEKTRİK ÜR. A.Ş. (SÜMER HES)	21.60	IPP	Hydro	70.00	16/04/2010
2010	FRİTOLAY	0.06	Autop.	REN		21/04/2010
2010	FRİTOLAY ⁶⁴	0.33	Autop.	REN		21/04/2010
2010	BAKRAS EN. ELKT.ÜR. A.Ş. ŞENBÜK RES	15.00	IPP	Wind	47.00	22/04/2010
2010	YILDIZLI ENTEGRE AĞAÇ (Kocaeli)	12.40	Autop.	N.Gas	80.00	22/04/2010
2010	ALİZE ENERJİ (KELTEPE RES)	1.80	IPP	Wind	6.35	28/04/2010
2010	KAR-EN KARADENİZ EL.A.Ş. ARALIK HES	12.41	IPP	Hydro	56.00	30/04/2010
2010	İTC-KA ENERJİ (SİNCAN)	1.40	IPP	REN	11.00	30/04/2010
2010	ATAER ENERJİ ELEKTRİK ÜRETİM A.Ş.	49.00	IPP	N.Gas	277.89	05/05/2010
2010	BİRİM HİDR. ÜRETİM AŞ. (ERFELEK HES)	3.25	IPP	Hydro	9.50	14/05/2010
2010	CENGİZ ENERJİ SAN. VE TİC. A.Ş. (Tekkeköy)	101.95	IPP	N.Gas	802.00	22/05/2010
2010	KARADENİZ EL.ÜRET. (UZUNDERE-1 HES)	31.10	IPP	Hydro	82.50	27/05/2010
2010	AKIM ENERJİ (CEVİZLİK REG. VE HES)	91.40	IPP	Hydro	330.00	28/05/2010
2010	ÇAKIT HES (ÇAKIT ENERJİ A.Ş.)	20.18	IPP	Hydro	96.00	01/06/2010
2010	CEYHAN HES (OŞKAN HES) (ENOVA EN.)	23.89	IPP	Hydro	98.00	03/06/2010

2010	ERENLER REG. ve HES (BME BİR.MÜT.EN.)	45.00	IPP	Hydro	85.00	04/06/2010
2010	ROTOR ELEKTRİK (GÖKÇEDAĞ RES)	20.00	IPP	Wind	75.56	05/06/2010
2010	SOMA ENERJİ ÜRETİM (SOMA RES)	7.20	IPP	Wind	24.00	10/06/2010
2010	PAŞA REG. VE HES (ÖZGÜR ELEKTRİK)	8.68	IPP	Hydro	34.00	11/06/2010
2010	GÜZELÇAY-1 HES (İLK ELEKTRİK ENERJİ)	3.14	IPP	Hydro	16.67	15/06/2010
2010	KALE REG. VE HES (KALE ENERJİ ÜR.)	34.14	IPP	Hydro	116.00	16/06/2010
2010	BERGAMA RES EN. ÜR. A.Ş. ALIĞA RES	37.50	IPP	Wind	147.92	16/06/2010
2010	MAZI-3 RES ELEKT.ÜR. A.Ş. (MAZI-3 RES)	7.50	IPP	Wind	26.25	18/06/2010
2010	UĞUR ENERJİ ELEKTRİK ÜRETİM TİC. VE SAN. A.Ş.	48.20	IPP	N.Gas	405.14	21/06/2010
2010	ERİKLİ AKOÇAK REG. ve AKOÇAK HES	41.25	IPP	Hydro	128.50	30/06/2010
2010	ÇAMLIKAYA REG. VE HES	5.65	IPP	Hydro	19.00	30/06/2010
2010	BORASKO ENERJİ (BANDIRMA RES)	12.00	IPP	Wind	47.79	30/06/2010
2010	AKSA ENERJİ (ANTALYA)	25.00	IPP	N.Gas	192.50	01/07/2010
2010	DİNAR HES (ELDA ELEKTRİK ÜRETİM)	4.44	IPP	Hydro	15.00	03/07/2010
2010	DAMLAPINAR HES (CENAY ELEKTRİK ÜR.)	16.42	IPP	Hydro	92.00	08/07/2010
2010	DİM HES (DİLER ELEKTRİK ÜRETİM)	38.25	IPP	Hydro	123.00	08/07/2010
2010	ALTEK ALARKO ELEKTRİK SANTRALLARI	60.10	IPP	N.Gas	415.57	10/07/2010
2010	ÖZGÜR ELEKTRİK (AZMAK-1 REG.VE HES)	5.90	IPP	Hydro	21.50	10/07/2010
2010	KİRPİLİK REG. VE HES (ÖZGÜR ELEKTRİK)	6.24	IPP	Hydro	22.00	11/07/2010
2010	YAVUZ REG. VE HES (MASAT ENERJİ)	22.50	IPP	Hydro	83.00	14/07/2010
2010	EREN ENERJİ ELEKTRİK ÜRETİM A.Ş.	160.00	IPP	CFBS	1,068.24	15/07/2010
2010	ZİYARET RES (ZİYARET RES ELEKTRİK)	12.50	IPP	Wind	50.00	15/07/2010
2010	FLOKSER TEKSTİL (Çerkezköy/TEKİRDAĞ)	5.20	Autop.	N.Gas	42.00	17/07/2010
2010	KAYABÜKÜ REG. VE HES (ELİTE ELEKT.)	14.58	IPP	Hydro	49.00	21/07/2010
2010	RB KARESİ İTHALAT	8.60	Autop.	N.Gas	65.00	23/07/2010

	İHRACAT TEKSTİL					
2010	SOMA ENERJİ ÜRETİM (SOMA RES)	7.20	IPP	Wind	24.00	28/07/2010
2010	SOMA ENERJİ ÜRETİM (SOMA RES)	6.30	IPP	Wind	21.00	28/07/2010
2010	ERİKLİ AKOCAK REG. ve AKOCAK HES	41.25	IPP	Hydro	128.50	29/07/2010
2010	CENGİZ ENERJİ SAN. VE TİC. A.Ş. (Tekkeköy)	101.95	IPP	N.Gas	802.00	31/07/2010
2010	GÖK REG. ve HES (GÖK ENERJİ EL. SAN.)	10.01	IPP	Hydro	43.00	06/08/2010
2010	BULAM REG. VE HES (MEM ENERJİ ELK.)	7.03	IPP	Hydro	32.40	10/08/2010
2010	KESKİNOĞLU TAVUKÇULUK VE DAM. İŞL.	3.50	Autop.	N.Gas	25.00	11/08/2010
2010	SOMA RES (BİLGİN RÜZGAR SAN. EN.ÜR.)	32.50	IPP	Wind	110.86	13/08/2010
2010	BİNATOM ELEKTRİK ÜRETİM A.Ş.	2.00	IPP	N.Gas	13.00	17/08/2010
2010	CAN ENERJİ ELEKTRİK ÜR. A.Ş.(Tekirdağ)	29.10	IPP	N.Gas	203.00	19/08/2010
2010	KURTOĞLU BAKIR KURŞUN SAN. A.Ş.	1.59	Autop.	N.Gas	12.00	19/08/2010
2010	CEYHAN HES (BERKMAN HES)(ENOVA EN.)	12.61	IPP	Hydro	51.50	20/08/2010
2010	GÜDÜL I REG. VE HES (YAŞAM ENERJİ)	2.36	IPP	Hydro	14.00	25/08/2010
2010	SÖNMEZ ELEKTRİK(Uşak)	33.24	IPP	N.Gas	256.28	26/08/2010
2010	KARŞIYAKA HES (AKUA ENERJİ ÜRET.)	1.59	IPP	Hydro	8.00	28/08/2010
2010	CEYHAN HES (BERKMAN HES)(ENOVA EN.)	12.61	IPP	Hydro	51.50	28/08/2010
2010	İTC ADANA BİOKÜTLE SANT.	9.90	IPP	REN	80.00	02/09/2010
2010	BELEN ELEKTRİK BELEN RÜZGAR-HATAY	6.00	IPP	Wind	19.00	02/09/2010
2010	TEKTUĞ ELEKTRİK (ANDIRIN HES)	40.50	IPP	Hydro	106.00	03/09/2010
2010	ÜTOPYA ELEKTRİK (DÜZOVA RES)	15.00	IPP	Wind	46.00	03/09/2010
2010	SELEN ELEKTRİK (KEPEZKAYA HES)	28.00	IPP	Hydro	124.00	06/09/2010
2010	REŞADİYE 2 HES (TÜRKON MNG ELEKT.)	26.14	IPP	Hydro	210.00	17/09/2010
2010	KOZAN HES (SER-ER ENERJİ)	4.00	IPP	Hydro	9.00	21/09/2010
2010	SOMA RES (BİLGİN RÜZGAR SAN. EN.ÜR.)	27.50	IPP	Wind	93.81	23/09/2010

2010	KIRKA BORAKS(Kırka) (Eti Maden İŞİ.) (İlave)	10.00	Autop.	N.Gas	65.93	29/09/2010
2010	KAHRAMAN REG. VE HES (KATIRCIOĞLU)	1.42	IPP	Hydro	6.00	30/09/2010
2010	NARİNKALE REG. VE HES (EBD ENERJİ)	3.10	IPP	Hydro	10.00	30/09/2010
2010	SOMA ENERJİ ÜRETİM (SOMA RES)	9.00	IPP	Wind	30.00	01/10/2010
2010	ENERJİ-SA (BANDIRMA)	930.80	IPP	N.Gas	7,540.00	07/10/2010
2010	ERENKÖY REG. VE HES (TÜRKERLER)	21.46	IPP	Hydro	87.00	07/10/2010
2010	UĞUR ENERJİ ELEKTRİK ÜRETİM TİC. VE SAN. A.Ş.	12.00	IPP	N.Gas	100.86	07/10/2010
2010	ZİYARET RES	22.50	IPP	Wind	90.00	13/10/2010
2010	KAHTA I HES (ERDEMYILDIZ ELEK. ÜRT.)	7.12	IPP	Hydro	35.00	14/10/2010
2010	ROTOR ELEKTRİK (GÖKÇEDAĞ RES)	2.50	IPP	Wind	9.44	15/10/2010
2010	ULUABAT KUVVET TUNELİ VE HES	48.51	IPP	Hydro	186.00	27/10/2010
2010	SABUNSUYU II HES (ANG ENERJİ ELK.)	7.35	IPP	Hydro	21.00	28/10/2010
2010	EREN ENERJİ ELEKTRİK ÜRETİM A.Ş.	600.00	IPP	Sup. Coal	4,005.88	01/11/2010
2010	BURÇ BENDİ VE HES (AKKUR ENERJİ)	27.33	IPP	Hydro	113.00	04/11/2010
2010	KARADENİZ EL. ÜRET. (UZUNDERE-1 HES)	31.10	IPP	Hydro	82.50	07/11/2010
2010	GÜZELÇAY II HES (İLK ELEKTRİK ENERJİ)	4.96	IPP	Hydro	26.33	11/11/2010
2010	KUYUCAK RES (ALİZE ENERJİ ÜRET.)	8.00	IPP	Wind	34.38	11/11/2010
2010	MURGUL BAKIR (Ç.Kaya) (İlave)	19.60	IPP	Hydro	40.17	11/11/2010
2010	SOMA RES (BİLGİN RÜZGAR SAN. EN.ÜR.)	30.00	IPP	Wind	102.33	11/11/2010
2010	MARMARA PAMUKLU MENSUCAT (İlave)	26.20	Autop.	N.Gas	203.53	25/11/2010
2010	ULUABAT KUVVET TUNELİ VE HES	48.51	IPP	Hydro	186.00	25/11/2010
2010	REŞADİYE 1 HES (TÜRKON MNG ELEKT.)	15.68	IPP	Hydro	126.00	26/11/2010
2010	EGEMEN 1 HES (ENERSİS ELEKTRİK)	8.82	IPP	Hydro	31.88	26/11/2010
2010	ALİAĞA ÇAKMAKTEPE ENERJİ (İlave)	69.90	IPP	N.Gas	558.40	26/11/2010
2010	YEDİGÖZE HES (YEDİGÖZE)	155.33	IPP	Hydro	474.00	02/12/2010

	ELEKTRİK)					
2010	SÖNMEZ ELEKTRİK(Uşak)	2.56	IPP	N.Gas	19.74	07/12/2010
2010	KUYUCAK RES (ALİZE ENERJİ ÜRET.)	17.60	IPP	Wind	75.63	09/12/2010
2010	UMUT III REG. VE HES (NİSAN ELEKTR.)	12.00	IPP	Hydro	26.00	13/12/2010
2010	TÜPRAŞ RAFİNERİ (İZMİT)	0.90	Autop.	N.Gas	5.82	15/12/2010
2010	POLYPLEX EUROPA POLYESTER FİLM	7.81	Autop.	N.Gas	61.00	16/12/2010
2010	ALTEK ALARKO ELEKTRİK SANTRALLARI	21.90	IPP	N.Gas	151.43	18/12/2010
2010	SARES RES (GARET ENERJİ ÜRETİM)	15.00	IPP	Wind	60.00	22/12/2010
2010	FEKE 2 BARAJI VE HES (AKKUR ENERJİ)	69.34	IPP	Hydro	223.00	24/12/2010
2010	EGEMEN 1B HES (ENERSİS ELEKTRİK)	11.10	IPP	Hydro	40.12	28/12/2010
2010	EREN ENERJİ ELEKTRİK ÜRETİM A.Ş.	600.00	IPP	Sup. Coal	4,005.88	29/12/2010
2010	RASA ENERJİ (VAN)	10.10	IPP	N.Gas	64.26	29/12/2010
2010	KALKANDERE REG. VE YOKUŞLU HES	14.54	IPP	Hydro	63.00	30/12/2010
2010	TURGUTTEPE RES (SABAŞ ELEKTRİK ÜR.)	22.00	IPP	Wind	64.00	30/12/2010
2010	İNTERNATİONAL HOSPİTAL İSTANBUL AŞ.	0.77	Autop.	N.Gas	6.00	31/12/2010