MONITORING REPORT: 2ND VERIFICATION

Document Prepared by

Masat Enerji Elektrik Üretim ve Ticaret Anonim Şirketi (as Project Owner)

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

Project Title	Midilli Hydroelectric Power Plant
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Prepared By	Masat Enerji Elektrik Üretim ve Ticaret Anonim Şirketi & Life İklim ve Enerji Ltd. Şti.
Contact	Address : Cumhuriyet Caddesi 48/3B Pegasus Evi Harbiye Şişli ISTANBUL, TURKEY Telephone : +90 212 240 2820

CONTENTS

1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

Masat Enerji Elektrik Üretim ve Tic. AŞ. constructed a 32.548 MWe capacity Hydroelectric Power plant. Midilli Hydroelectric Power Plant (Midilli HPP in short) is a project that was designed and planned to be constructed on Yeşilırmak River, Amasya Turkey. Yeşilırmak River, which is one of the biggest rivers in Turkey, and gives its name to the Yeşilırmak basin that makes up one of the 26 big river catchments of Turkey. The purpose of the project is to supply electricity to the Turkish power grid, from a renewable source.

The Project Activity (PA) utilizes the Yeşilırmak river water in a diversion-type run-of-river hydro power scheme to generate electricity with zero carbon emissions for the Turkish Power Grid. The PA will be displacing electricity that would otherwise be generated by the existing grid of the host country. Annual gross electricity production by the PA was estimated to be 124,050 MWh during the registration of the project under VERRA.

Therefore the Project Activity was expected to lead to an emission reduction of 63,761 tonnes CO2e annually. In the first monitoring period (between 27/12/2014 and 30/06/2014), the project was observed to produce 60,934.349 MWh of net electricity and 31,320 tCO2e of emission reductions.

The environmental impacts of the project are kept to a minimum level and all the regulations that are in act in the host country, Turkey, are obeyed during the construction and operation stages of the Midilli HPP project. At the planning stage these impacts have been investigated and were presented to the Ministry of Environment and Urban Planning (MoEUP), in the form of a Project Introductory File (PIF). The provincial directorate of MoEUP in Amasya province examined the report, and the project was granted an EIA not Necessary certification. Considering that the project will be using the water resource that is also essential for the aquatic life in the area, there is a fish ladder (fish passage way) within the regulator for the downstream and upstream movement of the fish, to facilitate fish migration.

Midilli HPP produces GHG emission free, clean electricity, which is fed into the national Turkish grid. All Turkish power plants are connected to this grid[1] and are dispatched centrally by the Turkish grid operator Türkiye Elektrik İletim A.Ş (**TEİAŞ**) and its Market Financial Settlement Centre (Turkish: Piyasa Mali Uzlastirma Merkezi; **EPIAS**). The electricity supplied to the national grid is dominated by thermal power plants. As Midilli HPP is a run-of-river HPP, the electricity amount supplied to the grid

1 The only exemption are the isolated autoproducer plants, where the plant operators use the generated electricity directly for their own demand..

depends on external physical conditions, i.e. the flow rate at Yeşilırmak River, 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. Concluding, the electricity produced by Midilli 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 below.

The total GHG emission reductions or removal generated in the first monitoring period is 31,320 tCO_2 during the first crediting period, between 27/12/2014 and 30/06/2014 including start and end dates. And for this monitoring period (Second monitoring period), the total GHG emission reductions or removal generated is 183,208 tCO2/MP.

Vintage		actual ERy (tCO2e)	estimated ERy (tCO2e)	% by year
1.07.2014	31.12.2014	5,914	32,143	-82%
1.01.2015	31.12.2015	35,097	63,761	-45%
1.01.2016	31.12.2016	38,657	63,761	-39%
1.01.2017	31.12.2017	22,908	63,761	-64%
1.01.2018	31.12.2018	19,249	63,761	-70%
1.01.2019	31.12.2019	40,534	63,761	-36%
1.01.2020	30.06.2020	20,849	31,793	-34%
Total		**183,208**	382,741	-52%

As aforementioned above, Midilli 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.

The project activity includes a hydro power plant which has total installed capacity of 32.548 MWe. Technical Summary of the project is given in the table below.

Table 1 Technical Summary of the Project[2]

INFORMATION ABOUT INVESTMENT REGION	
1/25.000 Sized Map Names	G35-c2, G36-d1
Project Coordinates	501225, 4510793
Province	Amasya
District	Taşova
Basin Name	Yeşilırmak
River Name / Main Branch Name	Yeşilırmak
Catchment Area (km2)	21,542.80 km²
Average Flow Rate (m3/sec)	46.42 m³/sec

[2] Registered PD

Average Annual Total Flow (hm3)	1,553.48 hm³
Q…..Dam spillway design flow rate (m3/sec)	780.7 m³/sec
REGULATOR TYPE	
Regulator Type	Regulator Type
Crest Altitude (m)	380 m
Maximum Operating Level (m)	378 m
Minimum Operating Level (m)	371 m
Thalveg Altitude (m)	371 m
Powerstation Tail Water Altitude (m)	340 m
Transmission Structure Type	Channel + Tunnel
Transmission Structure Length (m)	13,435 m
Transmission Structure Slope (j)	0.00015(K)/0.00032(T)
PENSTOCK / CHANNEL / TUNNEL	
Penstock Diameter (m)	3 x 3 m + 1 x 1 m
Penstock Length (m)	230 m
Penstock Wall Thickness (mm)	8 mm
TURBİNE INFORMATION	
Turbine Type	Francis
Number of Unıts	4
Gross Head (m)	4 x 38.00 m
Net Head (m)	3 x 33.94 m; 1 x 30,32 m
Project Flow Rate (m3/sec)	3 x 34.23 m³/sec - 1 x 4 m³/sec
GENERATOR INFORMATION	
Installed Capacity (MW)	32.548 MW
Total Energy (GWh)	124,050 GWh
Total Production Hours (h)	
Dam Voltage (kV)	3 x 10.6 kV; 1 x 6.3 kV
Energy Transmission Line Section	33 kV

1.2 Sectoral Scope and Project Type

According to applied methodology, Midilli HPP falls under sectoral scope no. 1 "Energy Industries (renewable/non-renewable)". The project type is Renewable Energy (REN). More specifically, it is a run-of-river HPP project. Midilli HPP is not a grouped project if referring to the relevant VCS rules. Referring to CDM rules it is also neither a project bundle nor a debundled component of a large scale project activity.

1.3 Project Proponent

Organization name	Masat Enerji Elektrik Üretim ve Tic. A.Ş.
Contact person	Merve Balcı

Title	Energy Investment Manager
Address	Cumhuriyet Caddesi 48/3B Pegasus Evi Harbiye Şişli ISTANBUL, TURKEY
Telephone	+90 212 240 2820
Email	merve.balci@masatenerji.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	Oğulcan Demirtaş
Title	Carbon Consultant
Address	Oğuzlar Mahallesi, 1377. Sk. No:19, 06520 Çankaya/Ankara/ TURKEY
Telephone	+90 312 481 2142
Email	ogulcan.demirtas@lifeenerji.com

1.5 Project Start Date

The Project was commissioned and started to feed energy to the grid on 27 December 2012[3]. This is the date on which the project started to produce emission reductions.

1.6 Project Crediting Period

The start date of the crediting period is 27/12/2012. The expected technical and economic lifetime is 30 years.[4]

In accordance with VCS rules, The project crediting period is 10 years; 27/12/2012-26/12/2022 (both days included).
As in accordance with VCS version, the intention is to renew the crediting period.[5] For this reason, the crediting period is renewable twice. (Total crediting period will be 30 years)

3 Commissioning Letter by Ministry of Energy and Natural Sources dated 27.12.2012.

4 Registered PD.
5 Registered PD.

1.7 Project Location

Project is located on Yeşilırmak River which is also located at Black Sea Geographical Region of Turkey. The province where the project is located is Amasya.

The following table shows the exact coordinates of the main project structures, as it is also shown in the following figure (Figure 1).

Table 2. Coordinates of the Project Location

	Weir	Power House
Latitude:	40°41'14.56"N	40” 44.691’ N
Longitude:	35°53'56.58"E	36” 01.171’ E

Figure 1 Location of Project in Country and Region

1.8 Title and Reference of Methodology

Approved consolidated baseline and monitoring methodology ACM0002 “Large-scale Consolidated Methodology; Grid-connected electricity generation from renewable sources.” Version 14.0.0.

The Approved Methodology refers to the following tools:

“Tool for the demonstration and assessment of additionality” (Version 07.0.0; EB 70 -Annex 8)

“Tool to calculate the emission factor for an electricity system”. (Version 04.0.0; EB 75-Annex 15)

"Guidelines on the assessment of investment analysis” (Version 5; EB62-Annex 5)

1.9 Participation under other GHG Programs

Midilli HPP does not participate in any GHG program other than the VCS.

1.10 Other Forms of Credit

No GHG related environmental credits are applied to the Turkish power sector.

1.11 Sustainable Development

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, NOx, or Particulate Matter, as well.

As for social impacts, significant positive employment effects occured 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 generation[6]. 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.

[6] https://www.mevzuat.gov.tr/MevzuatMetin/1.5.5346.pdf

Table 3. Sustainable Development Goals Outcomes

Sustainable Development Goals Targeted	Most relevant SDG Target	SDG Impact
		Indicator (Proposed or SDG Indicator)
SDG 13: Climate Action (mandatory)	**13.3 by emission reduction**	13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula
SDG 7: Affordable and clean energy	**7.2 by using renewable energy systems**	7.2.1 Renewable energy share in the total final energy consumption

Sustainable Development Goals Targeted	SDG Impact	Actual Results	Units or Products
Climate action	**SDG 13**	CO2: 183,208 tCO2/MP	
Affordable and clean energy	**SDG 7**	356,441.82 MWh/MP renewable energy.	

2 SAFEGUARDS

2.1 No Net Harm

No negative environmental and socio-economic impacts have been observed/recorded for this project. During the construction phase, fish passes were made for fish species at the project site. On the other hand, environmental flow rates are regularly controlled by the State Hydraulic Works. For this reason, it is not possible to leave a less than expected environmental flow rate at the project site. Consequently, the main negative effects that may arise from a hydroelectric power plant are thus ruled out.

2.2 Local Stakeholder Consultation

Since the project activity was less than 50 MW, the host country regulations didn't request the project activity to perform a full EIA. Therefore there was not a stake holder consultation meeting held within the framework of an SEIA. However, in order to explain the issues related to the project and especially in order to inform the land owners about the expropriation process the Energy Market Regulatory Agency have organized a stake holder's consultation meeting.

When the site had been visited to collect information for the Social Carbon Standard Point Zero Report, it has been contacted to the village heads (muhtars) of the nearby settlements and it has been talked with the local government officers who are in charge of the issues like environmental monitoring.

To be able to confirm the occurrence of the mentioned EMRA organized, expropriation related stake holder consultation meeting, this was asked to the Muhtar's. Mr Muharrem Kelce, the Muhtar of the Kızılkışlacık village, explained that there really occurred one such meeting to explain the project's aspects and the expropriation process that would affect their lands.

In site-visits to the local representation of the Ministry of the Environment and Urban Planning, it was asked if any possible environmental disturbance the project activity could have cause, during construction and operation stages of the project. It was revealed in the conversations that during the construction period there were some issues related to dusting, but this problem is not existing at the time of this version of the PDD as the project activity is now operational.

More information about the acceptance of the project and relationship between the project management and local stakeholders can be found in the Point Zero Social Carbon Report prepared for the project activity.

In general it has been observed that there has been some issues raised by the stakeholders during the construction phase of the project, and local inhabitants attributed these issues mainly to the attitudes former owners of the project activity. The government official were happy with the project as the project was in compliance with the host country regulations (The Environmental Law (No. 2872), which was published in

Turkish Official Gazette No. 18132 dated August 11, 1983 and revised in Turkish Official Gazette No. 26167 dated May 13, 2006 (Law No. 5491)).

Both of the muhtars that were interviewed about the project activity and the local government offices also noted that the communication between the Midilli HPP management and the local inhabitants were based on an ad hoc relationship, where the local inhabitants were always welcome to visit, and that they were able to reach the project activity management via cell phone, any time they needed.

Within this monitoring period as well, both of the muhtars were interviewed about the project activities. In addition to the fact that they reported that they had no problems with the project, both of them said that they were still able to reach the project activity management via cell phone, any time they needed. Consequently, no negative comment or feedback received during the conversation with the Muhtars.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The measure applied for the project is use of renewable energies as power generation based on renewable hydropower energy.

The project activity includes a hydro power plant which has total installed capacity of 32.548 MWe. The project flowchart regarding how the project activity is operating and the boundary of the project activity (indicated in broken red line) is outlined in the following figure.

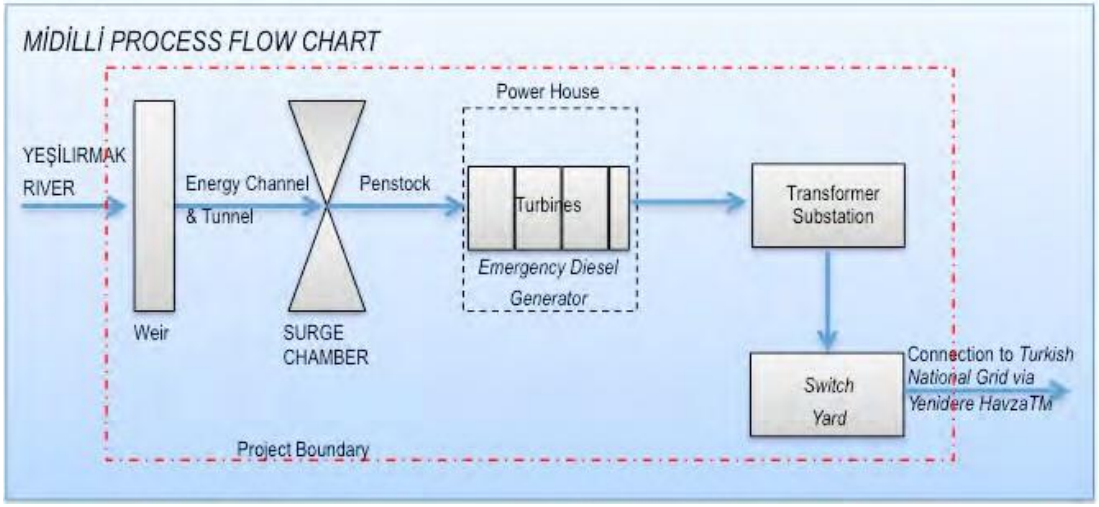

Figure 2 Flow chart showing the basic operational principles of the project activity, and the project boundary

The project start date is 27 December 2012. Since that date, during the time of official commissioning committee site visit, there occurred a flooding event due to the failure of a discharge valve in July, 2013 and this caused disruption of electricity production. The recovery form the accident took about 4 months.

The project is using Four Francis type turbines. The working principle of the Francis turbine is such that the water coming from the penstock is transferred to the inlet scroll, which distributes the water equally around the wicket gates. Water passes through the wicket gates, which controls the amount of water passing through the turbine, before reaching the runner. This in effect controls the power output of the hydroelectric power plant. The wicket gates also adjust the angle of the water reaching to the runner. After passing through the wicket gates, the water reaches the runner. The water pressure forces the runner to rotate. The rotation speed of the runner can be in the range of 80 to 1000 revolutions per minute. The water continues its motion downward under the runner to the exit pipe. The exit pipe discharges the water to the environment as low pressure water. The rotational motion of the runner is transferred to an electric generator. The generated electricity is converted to a high voltage current and is transferred to the grid to be consumed. The following figure exhibits the working principle of a Vertical axis Francis Turbine. The following figure exhibits the working principle of a Vertical axis Francis Turbine.

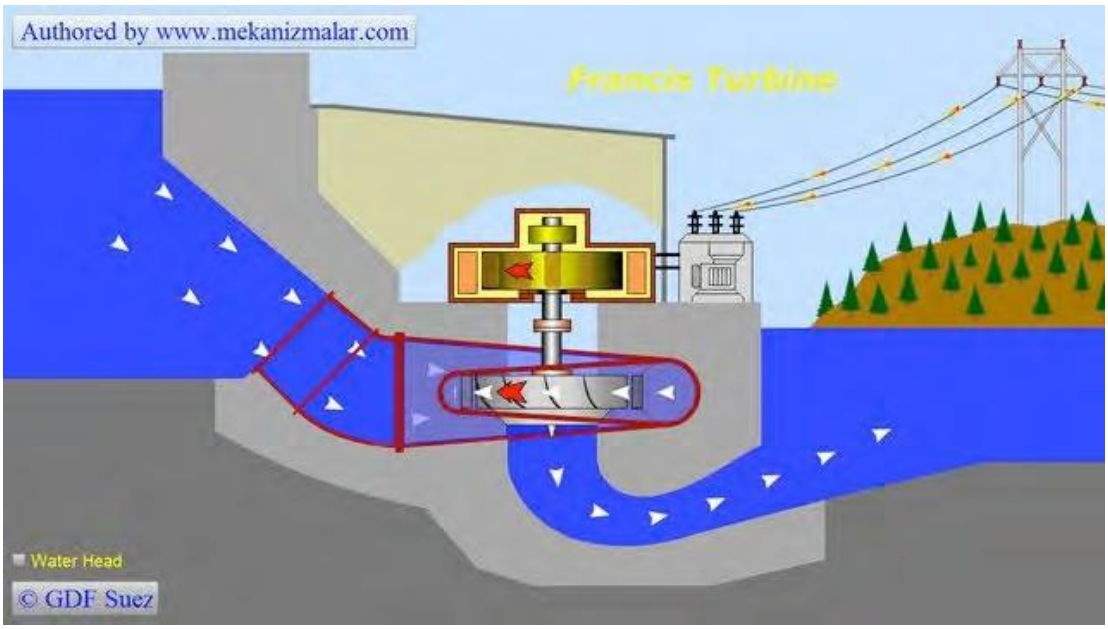

Figure 3 the working principle of a Francis type turbine

Technical description of the Project Activity, the main technical characteristics obtained from final revised and DSİ approved feasibility report and latest information based on the final water usage agreement of the Project Activity and its general properties of the facilities are provided under the title the Summary Description of the Implementation Status of the Project of this report.

Concluding, the electricity produced by Midilli 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 below.

During the monitoring period, the water supply to the project was less than it is projected in feasibility studies due to the climate effects. Therefore operational time and periods of turbine units were arranged according to water supply continuously.

There was not any occasion that could impact the applicability of the project and the methodology applied. There was not any issue related to the metering devices in terms of recording, calibrating or inconsistency. All errors for monitoring period were handled by Electrical Engineers and Technicians occupied by Project Proponent and did not affect the generation. The basic source of generation data is the Main Meters located in power station. There are four meters set to measure the quantity of net electricity supplied to grid as one couple is the main and one couple is the backup meters. Main Meters located in power station have Brand Name as Elster and Serial Numbers as 00464220&00464222 and Accuracy Class as Class 0.5S. Backup Meters located in power station have Brand Name as Elster and Serial Numbers as 00464221&00464223 and Accuracy Class as Class 0.5S. The meters initial test report is dated 27/12/2012 by TEİAŞ. The meter devices will be calibrated once in 10 years to ensure compliance with the national regulations and legislations. The calibration of main and backup meters will be valid until 27/12/2022. On the other hand, as it can be understood from the single line diagram of the project (Figure 4). The collected date from the main meter 1 and main meter 2 can be read from the control meter as a single value. In other words, the monthly reported meter readings by the main meters, will be cross-checked against the main control meter readings (EPIAS) with the serial number 00436796 located at the Midilli HPP Power house.

Table 4 Technical Specifications of Electricity Meters[7]

Name	Brand & Model	Serial Number	Accuracy Class	Protocol Date
Main Meter 1	ELSTER & A1500	00464220	0.5S	24/06/2014 28/06/2016 29/06/2018 13/07/2020
Back-up Meter 1	ELSTER & A1500	00464221	0.5S	
Main Meter 2	ELSTER & A1500	00464222	0.5S	24/06/2014 28/06/2016 29/06/2018 20/08/2020
Back-up Meter 2	ELSTER & A1500	00464223	0.5S	
Control Meter (Main)	ELSTER & A1500	00436796	0.5S	Calibration Date: 03/03/2011
Control Meter (Back-up)	ELSTER & A1500	00436795	0.5S	

[7] Test Protocols of Meters

Table 5 Milestone Table of the Project

Date	Project Milestones
21.04.2006	Water usage agreement signed with DSI
07.12.2006	The Electricity Production License is grante activity
29.05.2007	Permits granted to set up construction work camp
15.08.2007	Investment Decision Date
31.01.2008	The EMRA decision for expropriation is issued
01.09.2008	Revised FSR Issued
12.06.2008	Turbine Contract Signed
23.06.2010	The New loan agreement is signed
15.06.2011	EIA Exemption certification issued
12.04.2012	Factory Calibration date of meters
09.12.2012	Grid connection agreement signed
27.12.2012	Test of Meters prior to project commissioning
27.12.2012	Substantial Operation of Unit 2 & 4
10.07.2013	3rd unit discharge valve failed and caused flooding of the facility
30.09.2013	Unit 3 was activated for the first time after the flood
25.10.2013	Unit 2 activated for the first time after flood.
24.12.2013	Substantial Operation of Unit 1 & 3
24.12.2013	Unit number 1 and 3 acceptances was sustained.
12.04.2022	End of Calibration validity
26.12.2022	End of the first crediting period
15-17.06.2014	The project site is visited with the DOE
30.06.2014	Final Validation Report
27.12.2012	Start Date of the First Monitoring Period
30.06.2014	End Date of the First Monitoring Period
01.07.2014	Start Date of the Second Monitoring Period
30.06.2020	End Date of the Second Monitoring Period

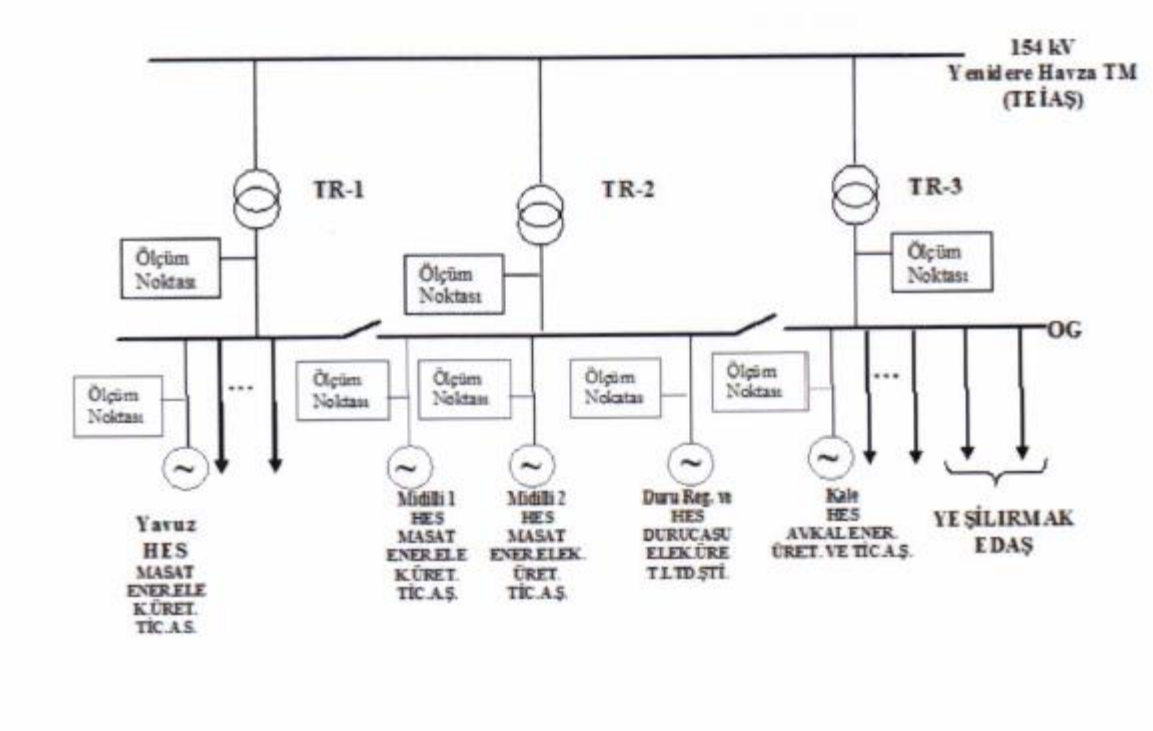

Figure 4 Single Line Diagram of Midilli HEPP

3.2 Deviations

2.3.1 Methodology Deviations

As it was also indicated in Section 2.6 of the validated Project Description Document V.2.00, dated 27/06/2014, The UNFCCC methodology of ACM0002/ Version 14.0.0 and its related tools have been applied without many deviations.

With the exception of the below Monitoring parameter:

Data / Parameter:	**APJ**
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.
Measured /Calculated /Default:	Indirectly measured based on the reservoir area map provided in Annex 5.
Source of data:	Surface area determined using the lake surface area map provided in Annex-5 of this PD.
Description of measurement methods and procedures to be applied:	The reservoir area corresponding to maximum operational level has been determined via the topographic map showing the lake area, presented in Annex 5.
Frequency of monitoring/recording:	IS not going to be monitored as it is fixed and cannot alter.
Value applied:	26,000
Monitoring equipment:	-
QA/QC procedures to be applied:	N/A

Calculation method:	N/A
Any comment:	-

The rational for this can be explained as follows:

Although the methodology (ACM002, v.14.0.0) requires reservoir area to be monitored, since the power density of the project activity is very large, and the area flooded due to the project activity cannot exceed the above given amount (26,000 m2; See also Appendix-2: The Map Showing the Reservoir Area of the Project Activity), the parameter related to the reservoir area is not going to be monitored during the crediting period for Midilli HPP Project.

2.3.2 Project Description Deviations

There is no project description deviation during monitoring period.

3.3 Grouped Projects

Midilli Hydro Power Plant Project is a single project not a grouped project activity.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	**FCi,y**
Data unit	Volume Unit (cubic meter)
Description	Amount of fuel *i* consumed by relevant power plants in Turkey in years, 2010, 2011, 2012.
Source of data	Official publications at the Turkish Electricity Transmission Company (TEIAŞ) Web Site (https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletim-istatistikleri)
Value applied	Please see Annex 2-Table-1, in the Validated PDD.
Justification of choice of data or description of measurement methods and procedures applied	Once for each crediting period using the most recent three historical years for which data is available at the time of submission of the CDM- PDD to the DOE for validation
Purpose of Data	Data used for the calculation of $EF_{grid,OM,Simple,y}$
Comments	Data used is taken from the TEİAŞ website, which is the website of the Turkish Electricity Distribution Company. The data published on the TEİAŞ website is the most up-to date and reliable data available for the Turkish grid.

Data / Parameter	NCVi,y

Data unit	GJ/Mass or Volume Unit
Description	Net Calorific Values for fossil fuel type i in year, for the years 2010, 2011 and 2012
Source of data	Regional or national average default values that are reliable and documented in national energy statistics of the Turkish Electricity Transmission Company Web Site(https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletim-istatistikleri)
Value applied	Please see Annex-2-Table-5, in the Validated PDD.
Justification of choice of data or description of measurement methods and procedures applied	Data used is taken from the TEİAŞ website, which is the website of the Turkish Electricity Distribution Company. The data published on the TEİAŞ website is the most up-to date and reliable data available for the Turkish grid.
Purpose of Data	Calculation of baseline emissions
Comments	Data used for the calculation of EFgrid,OM,Simple,y. As data on the NCV is not published directly on the TEİAŞ website, this data is calculated using the heating values of fuels and the volume or mass of fuels consumed for each year.

Data / Parameter	**$EF_{CO2,I,,y}$**
Data unit	tCO2/GJ
Description	CO_2 emission factor or fossil fuel type i in year *y*
Source of data	IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in Table 2.2 “Default Emission Factors for Stationary Combustion in the Energy Industries” of chapter 2 of volume 2 of the 2006 IPCC Guidelines on National GHG Inventories[8]
Value applied	Please see Annex 2-Table-2, in the Validated PDD.
Justification of choice of data or description of measurement methods and procedures applied	According to the “Tool to calculate the emission factor for an electricity system” version 04.0.0 , if values provided by the fuel supplier of the power plants in invoices or regional or national average defaults values are not available the IPCC default values at the lower limit of uncertainty must be used
Purpose of Data	Calculation of baseline emissions
Comments	Data used both for the calculation of $EF_{grid,OM,Simple,y}$ and $EF_{EL,m,y}$

Data / Parameter	**EG_y**

[8] http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf

Data unit	MWh
Description	Net electricity generated in the project electricity system in other words, net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost / must-run power plants / units, in year y
Source of data	Official publications at the Turkish Electricity Transmission Company (TEIAS http://www.teias.gov.tr) web site[9]
Value applied	Please see Annex 2-Table 3 and Table 4, in the Validated PDD.
Justification of choice of data or description of measurement methods and procedures applied	Data used is taken from the TEİAŞ website, which is the website of the Turkish Electricity Distribution Company. The data published on the TEİAŞ website is the most up-to-date and reliable data available for the Turkish grid.
Purpose of Data	Calculation of baseline emissions
Comments	Data is used for the calculation of $EF_{grid,OM,Simple,y}$

Data / Parameter	**$EG_{m,y}$**
Data unit	MWh
Description	Net electricity generated and delivered to the grid by power unit m in year y
Source of data	Turkish Electricity Transmission Company Web Site (www.teias.gov.tr). Data is extracted from the relevant annexes of the capacity projection reports for the years 2010, 2011 and 2012 and the projects that are listed in Gold Standard Registry[10], VCS Project Database[11]
Value applied	Please see Annex 2-Table 8 of the Registered PDD.
Justification of choice of data or description of measurement methods and procedures applied	Data used is taken from the TEİAŞ website, which is the website of the Turkish Electricity Distribution Company. The data published on the TEİAŞ website is the most up-to-date and reliable data available for the Turkish grid.
Purpose of Data	Calculation of baseline emissions
Comments	Data is used for the calculation of $EF_{grid,BM,y}$

[9] https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletim-istatistikleri

[10] http://www.markit.com/sites/en/products/environmental/markit-environmental-registry-public-view.page

[11] https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=1&t=1
https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Pipeline&a=2&t=4&pl=1

Data / Parameter	**$EF_{grid,CM,y}$**
Data unit	tCO_2/MWh
Description	The combined margin emissions factor
Source of data	The calculation of the combined margin (CM) emission (EF grid,CM,y) is based on option (a) Weighted average CM method of TOOL07:Tool to calculate the emission factor for an electricity system v.4.0. and presented in detail in VCS PD - Project Design Document
Value applied	0.5140016
Justification of choice of data or description of measurement methods and procedures applied	The relevant data is calculated by data provided in TEIAS web-site, IPCC default values, data provided in web-sites of VERRA/VCS and GS4GG. The web-site of TEIAS is official source of most updated and reliable data available for the Turkish grid. The web-sites of VERRA/VCS Association and GS4GG Gold Standard Foundation are the source of low-cost / must-run power plant units.
Purpose of Data	Calculation of baseline emission
Comments	Data is used for the calculation of emission reduction

Data / Parameter	$\eta_{m,y}$
Data unit	-
Description	Average net energy conversion efficiency of power unit m in year y
Source of data	The default values provided at the Annex 1 of the "Tool to calculate emission factor for an electricity sector (Version 04.0.0)" are used
Value applied	Please see Annex 1 of the "Tool to calculate emission factor for an electricity sector (Version 04.0.0)"
Justification of choice of data or description of measurement methods and procedures applied	According to the "tool to calculate emission factor for an electricity system if documented manufacturer's specifications or data from the utility, the dispatch center or official records are not available then the default values given in Annex 1 of the tool shall be used. The first two options are not available for the power plants supplying the Turkish grid, therefore the default values are used.
Purpose of Data	Calculation of baseline emission
Comments	Data used for the calculation of EFgrid,BM,y

4.2 Data and Parameters Monitored

Data / Parameter	$EG_{PP\text{-}Gorss\ Generation,\ y}$
Data unit	MWh
Description	Quantity of electricity exported by the power plant to the Grid for self-consumption, in year y
Source of data	The Primary source of data will be the TEIAS meter readings recorded remotely and accessible via the EPIAS/MFRC web site. These meters are located at the Yenidere Transformer Station of TEIAŞ. The secondary source of data will be the bi-directional meters located at the Midilli HPP Powerhouse.
Description of measurement methods and procedures to be applied	Measurements are to be made by electricity meters that belong to the grid operator, TEIAŞ. There are two meters that record the electricity coming over two different lines identified as Midilli 1 and Midilli 2. The internal consumption data is the sum of the amount of electricity recorded to be imported from the grid by these two main meters. The meters are be in compliance with the collected data. Data will be used to calculate the net electricity supplied to the grid. The meter readings are accessible via an Automatic Meter Reading Software remotely by the project owner, via a software, and data is automatically recorded to the EPIAS/MFRC servers to be obtained as monthly screen outputs. Only the main meter readings are accessible but there are back up meters to ensure data recording in case of main meter failure.
Frequency of monitoring/recording	Recorded continuously, read remotely by TEIAS, and accessible monthly via the EPIAS/MFRC web site, Reported annually on the Monitoring Report.
Value monitored	356,464.84 MWh/MP (The details for the recorded data within this monitoring period is provided in Appendix 1: Monthly Electricity Generation Data.)
Monitoring equipment	Main Electricity Meter-1 : “ANA SAYAÇ” ELSTER A 1500 Serial Number: 0464220 Main Electricity Meter-2: ANA SAYAÇ” ELSTER A 1500 Serial Number: 0464222 Back-up Electricity “YEDEK SAYAÇ”-1: ELSTER A 1500 Serial Number: 464221 (data is only obtained if there is a failure in the main meter-1, the readings are not recorded or kept otherwise) Back-up Electricity “YEDEK SAYAÇ”-2: ELSTER A 1500 Serial Number: 464223 (data is only obtained if there is a failure in the main meter-1, the readings are not recorded or kept otherwise)

	Control Meter at Power House : ELSTER A 1500 Serial Number: 00436796 Back up of the Control Meter at Power House : ELSTER A 1500 Serial Number: 00436795 (data is only obtained if there is a failure in the main meter-1, the readings are not recorded or kept otherwise) All meters are in compliance with the communiqué for Metering Devices to be used in the Electricity Market. They have an accuracy class of Class 0,5S indicating an accuracy range of ±0.5%. The meters was calibrated by TEİAŞ according to regulation of legislation on 27th of December, 2012. The meter devices will be calibrated once in 10 years to ensure compliance with the national regulations and legislations of "article 9.b, Regulation on Inspection of Meters and Metering Devices" published on official gazette No:22000 dated 24.07.1994.[12]
QA/QC procedures to be applied	Measurements are carried out in compliance with the communiqué for Metering Devices to be used in the Electricity Market. The minimum accuracy of the meters are Class 0,5S, that is to say should be within the ±0.5% (±0.005) range. The monthly reported meter readings by the main meters, will be cross-checked against the Main control meter with the serial number 00436796 located at the Midilli HPP Power house.
Purpose of the data	Calculation of baseline emissions
Calculation method	The net electricity is calculated by: a) Subtracting self-consumption value from gross generation value for each month to find the net electricity supplied to the grid. b) 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	Data will be used to calculate net electricity supplied to the grid.

[12] http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod=7.5.6381&MevzuatIliski=0&sourceXmlSearch

Data / Parameter	**$EG_{PP\text{-}Self\ consumption,\ y}$**
Data unit	MWh
Description	Quantity of electricity imported by the power plant to the Grid for self-consumption, in year y
Source of data	The Primary source of data will be the TEIAS meter readings recorded remotely and accessible via the EPIAS/MFRC web site7. These meters are located at the Yenidere Transformer Station of TEIAŞ. The secondary source of data will be the bi-directional meters located at the Midilli HPP Powerhouse.
Description of measurement methods and procedures to be applied	Measurements are to be made by electricity meters that belong to the grid operator, TEIAŞ. There are two meters that record the electricity coming over two different lines identified as Midilli 1 and Midilli 2. The internal consumption data is the sum of the amount of electricity recorded to be imported from the grid by these two main meters. The meters are be in compliance with the collected data. Data will be used to calculate the net electricity supplied to the grid. The meter readings are accessible via an Automatic Meter Reading Software remotely by the project owner, via a software, and data is automatically recorded to the EPIAS/MFRC servers to be obtained as monthly screen outputs. Only the main meter readings are accessible but there are back up meters to ensure data recording in case of main meter failure.
Frequency of monitoring/recording	Recorded continuously, read remotely by TEIAS, and accessible monthly via the EPIAS/MFRC web site, Reported annually on the Monitoring Report.
Value monitored	23.02 MWh/MP (The details for the recorded data within this monitoring period is provided in Appendix 1: Monthly Electricity Generation Data.)
Monitoring equipment	Main Electricity Meter-1 : “ANA SAYAÇ” ELSTER A 1500 Serial Number: 0464220 Main Electricity Meter-2: ANA SAYAÇ” ELSTER A 1500 Serial Number: 0464222 Back-up Electricity “YEDEK SAYAÇ”-1: ELSTER A 1500 Serial Number: 464221 (data is only obtained if there is a failure in the main meter-1, the readings are not recorded or kept otherwise) Back-up Electricity “YEDEK SAYAÇ”-2: ELSTER A 1500 Serial Number: 464223 (data is only obtained if there is a failure in the main meter-1, the readings are not recorded or kept otherwise) Control Meter at Power House : ELSTER A 1500 Serial Number: 00436796

	Back up of the Control Meter at Power House : ELSTER A 1500 Serial Number: 00436795 (data is only obtained if there is a failure in the main meter-1, the readings are not recorded or kept otherwise) All meters are in compliance with the communiqué for Metering Devices to be used in the Electricity Market. They have an accuracy class of Class 0,5S indicating an accuracy range of ±0.5%. The meters was calibrated by TEİAŞ according to regulation of legislation on 27th of December, 2012. The meter devices will be calibrated once in 10 years to ensure compliance with the national regulations and legislations of "article 9.b, Regulation on Inspection of Meters and Metering Devices" published on official gazette No:22000 dated 24.07.1994.[13]
QA/QC procedures to be applied	Measurements are carried out in compliance with the communiqué for Metering Devices to be used in the Electricity Market. The minimum accuracy of the meters are Class 0,5S, that is to say should be within the ±0.5% (±0.005) range. The monthly reported meter readings by the main meters, will be cross-checked against the Main control meter with the serial number 00436796 located at the Midilli HPP Power house.
Purpose of the data	Calculation of baseline emissions
Calculation method	The net electricity is calculated by: a) Subtracting self-consumption value from gross generation value for each month to find the net electricity supplied to the grid. b) 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	Data will be used to calculate net electricity supplied to the grid.

[13] http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod=7.5.6381&MevzuatIliski=0&sourceXmlSearch

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	Project site
Description of measurement methods and procedures to be applied	Determined via the turbine plates
Frequency of monitoring/recording	Yearly
Value monitored	(((3 x 10,754)+1,161) MWm/ ((3 x 10,485)+1,093) MWe) Total (33.423 MWm / 32.548 MWe)
Monitoring equipment	Installed equipment on site
QA/QC procedures to be applied	-
Purpose of the data	Calculation of baseline emissions, Calculation of project emissions
Calculation method	The identical generator capacities are calculated as sum of each unit.
Comments	-

4.3 Monitoring Plan

Objectives of the monitoring program

The Monitoring plan is developed to ensure that the Project Activity is well organized from the start in terms of the collection and archiving of complete and reliable data that is needed to ensure reliable and accurate measurements of actual emission reductions.

Data to be monitored

Given that the emission factor is calculated on an ex-ante basis, the first data to be monitored is the electricity net supplied to the grid.

The second data to be monitored is the installed capacity of the Project Activity. Using the SCADA system installed capacity will be measured automatically.

Monitoring procedures

The monitoring will be conducted by the Verified Emission Reduction (VER) Monitoring Team. The VER Team Members, and their position and duties for the monitoring is outlined in the following table:

Position	Responsibility
Midilli HPP Manager	Day to day operation of the Midilli HPP, • Compliance of the project activity with the host country rules and regulations • Coordination of the data collection and recording for the monitoring report.
Chief Electrical Technician	• Day to day follow up of electrical equipment • Recording and monitoring of the electricity generation data via the meters located at the Midilli Powerhouse. • Making regular checks of the consistency of the backup meters to ensure the operation of the main meters.
Accounts Manager	• Data keeping for power sales • Extracting the main meter readings from the EPIAS/MFRC website with the help of the account credentials assigned to the project owner.
Chief Mechanical Technician	• Day to day operation of the power plant Keeping records of malfunctions and repairs

The power imported from the grid and exported to the grid is recorded continuously via two bidirectional meters located at Yenidere Transformation Station that belongs to the Grid operator TEIAŞ.

The total electricity import and the total electricity export of the project activity is measured via two meters that measure the generation over two feeders that carry electricity from the power house to the Yenidere Transformation station via a short cable. The data is measured continuously and recorded on an hourly basis to the EPIAS/MFRC servers.

Data can be accessed remotely via the Automated Meter Reading Software installed to the project owners computers, but is continuously recorded to the EPIAS/MFRC servers.

Each month the internal and external consumption recorded hourly by the meters are extracted and saved onto excel spread sheets, for each meter.

Data used for the calculation of $EG_{PP\text{-self consumption, y}}$ $EG_{PP\text{-gross, y}}$ parameters are the summation of the outputs provided via two meters, Midilli Ana-1 and Midilli Ana-2. The EPIAS/MFRC servers automatically calculate the overall grid loss of the country and reflect it in the monthly meter reading outputs of each meter, alongside with the direct meter readings. The amount indicated with loss are not used in the emission reduction calculations as the loss calculated by the grid operator is beyond the project boundary.

Monitoring equipment

Electricity meters

The main and back-up electricity meter are bi-directional for quantifying the electricity delivered by the Project Activity to the grid.

The meters are in compliance with the standards of the Turkish Standards Institute and have obtained a "Type and System Approval" certificate from the Ministry of Trade and Industry. In case there are modifications to the standards, the modified standard shall be valid; and in case a valid standard is cancelled or abolished, the new standard shall be valid. The standards that are used are TS-620 EN 60044-1 and TS718 IEC60044.2 for main and back-up meters, respectively. The sensitivity of the main and secondary meters are CI = 0.5S for active and reactive energy. The meters shall be factory calibrated by the manufacturer before installation.

Records of the meter (type, made, model and calibration documentation) is retained in the quality control system.

Data collecting and recording

I. The net electricity generation by the project activity. Based on the baseline scenario presented above, this amount of electricity would have been produced by the Turkish National Grid.

The electricity produced is sold to TEİAŞ. Therefore, TEİAŞ measures the electricity produced as the summation of two main meters and two Back-up meters:

Meters:

a. Main Electricity Meter-1: ELSTER A1500 SL761: -Serial Number: 464220
b. Main Electricity Meter-2: ELSTER A1500 SL761: -Serial Number: 464222
c. Back-up Electricity Meter-2: ELSTER A1500 SL761: -Serial Number: 464221
d. Back-up Electricity Meter-2: ELSTER A1500 SL761: -Serial Number: 464223

These meters are placed at the TEIAŞ Yenidere TM (Transformer Station). The Summation of the data recorded by the Main meter 1 and 2 will provide official data which will be remotely read remotely and recorded continuously to the EPIAS/MFRC serves for invoicing. TEİAŞ also conducts the calibration and maintenance of these meters and thus, ensures the accuracy and quality of the measurements. The quality standards that the meters need to comply is "The ICE/TSE 62053-22: Electricity metering equipment (a.c) – Particular requirements - Part 22: Static meters for active energy (Classes 0,2 S and 0,5 S)" The calibration of the meters are done and the meters will be checked continuously if there is a difference of ±0.5 % in the readings of the main and the back-up meters, the calibration is repeated.

At the end of each month, the monthly generation is accessed remotely via the EPIAS/MFRC web site by the Project owners account manager to determine the invoiced generation amount. In case of failure of any of the main meters, their relevant control meters are used to determine the invoiced generation amount.

The net electricity produced in year y is calculated by subtracting the total electricity consumed by the hydroelectric power plant, from the gross electricity generation. After obtaining the net electricity production value, the emission reductions will be calculated by multiplying the net electricity with the Ex-

ante Combined Margin Emission Factor calculated above.

Measuring Installed Capacity

By means of the SCADA system established in the plant all kinds of technical parameters related with turbines and generators including installed capacity will be measured and stored in the system on real time basis. The installed capacity of the plant will be measured from SCADA once a year while the plant is operated with full load and the related data will be stored as per the monitoring program.

Data management

At the end of each month, electricity supplied to the grid will be transferred into an electronic spread sheet titled raw data, so that it can be processed for verified emission reduction calculations. The data to be measured for installed capacity will be entered into an electronic spread sheet at the end of each year. The electronic files will be backed up on both hard drives and on a Compact Discs (CD).

Quality Control and Assurance (QC/QA)

All of the main and back-up meters located at Yenidere TM (Transformation Station) are owned and installed by the grid operator, TEIAS. The Project Owner has signed an agreement with the grid operator to specify the QA procedure for measurement and calibration to ensure the measurement accuracy of the main and back-up meters are in compliance with national regulations. The Calibrations of the electricity meters are valid for the next 10 years after calibration,

The grid operator's Metering Officer should be notified of any failure of one of the meters. TEIAS is the only one entity, authorized to deal with fixing, calibrating, or changing the meters, which will be done either by the grid operator or by a company authorized by the grid operator. The Project Owner will keep electricity export and import records via the meters that are located at the powerhouse, to which the recorded data will be compared.

All written documentation such as maps, drawings, the EIA and the Feasibility study, will be stored and will be made available to the verifier so that the reliability of the information may be checked.

All the data and documentation related to the verification will be archived for minimum two years after the end of the first crediting period.

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 14[14]. 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 (BE_y) are calculated based on the following formula a:

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

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 emissions factor in year y (tCO_2/MWh)

And

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

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

The Combined margin CO_2 emissions factor in year y (tCO_2/MWh), $EF_{grid,CM,y,}$ is fixed ex-ante for the duration of the crediting period, and is 0.5140016 tCO_{2e}/MWh.

For 2014:

BEy= EGPJ,y X EFgrid,CM,y

[14] Please visit the methodolgy.

BEy =11,505.94 MWh (EGPJ,y) X 0.5140016 tCO2e/MWh (EFgrid,CM,y) =5,914 tCO2e

For 2015:

BEy= EGPJ,y X EFgrid,CM,y

BEy= 68,283.05 MWh (EGPJ,y) X 0.5140016 tCO2e/MWh (EFgrid,CM,y) =35,097 tCO2e

For 2016:

BEy= EGPJ,y X EFgrid,CM,y

BEy= 75,209.67 MWh (EGPJ,y) X 0.5140016 tCO2e/MWh (EFgrid,CM,y) =38,657 tCO2e

For 2017:

BEy= EGPJ,y X EFgrid,CM,y

BEy= 44,568.19 MWh (EGPJ,y) X 0.5140016 tCO2e/MWh (EFgrid,CM,y) =22,908 tCO2e

For 2018:

BEy= EGPJ,y X EFgrid,CM,y

BEy= 37,451.16 MWh (EGPJ,y) X 0.5140016 tCO2e/MWh (EFgrid,CM,y) =19,249 tCO2e

For 2019:

BEy= EGPJ,y X EFgrid,CM,y

BEy= 78,859.83 MWh (EGPJ,y) X 0.5140016 tCO2e/MWh (EFgrid,CM,y) =40,534 tCO2e

For 2020:

BEy= EGPJ,y X EFgrid,CM,y

BEy= 40,563.98 MWh (EGPJ,y) X 0.5140016 tCO2e/MWh (EFgrid,CM,y) =20,849 tCO2e

For the second monitoring period in total:

BEy= EGPJ,y X EFgrid,CM,y

BEy= 356,441.82 MWh (EGPJ,y) X 0.5140016 tCO2e/MWh (EFgrid,CM,y) =183,208 tCO2e

The collected data is kept by Masat Enerji Elektrik Üretim ve Ticaret A.Ş. during the crediting period and until two years after the last issuance of VCUs for the Midilli HPP project activity for the crediting period under consideration.

5.2 Project Emissions

As the methodology states the PEy in case of a hydro power project can be calculated: “Emissions from

water reservoirs of hydro power plants ($PE_{HP,y}$)

For hydro power project activities that result in new reservoirs and hydro power project activities that result in the increase of existing reservoirs, project proponents shall account for CH_4 and CO_2 emissions from the reservoir, estimated as follows:”

> “...the power density of the project activity (PD) is greater than 4 W/m^2 and less than or equal to 10 W/m^2:”

The maximum lake level is observed to be Xm, rounding up this value gives a maximum water level of Y m

at this level reservoir lake covers an aerial extent of 26,000 m^2[15]. The project capacity during the monitoring period was 33,548 MW therefore the power density of the project calculates as (33,548,000/26,000= 1290.31 W/m^2) which is >10 W/m^2 therefore:

$PE_{HP, y} = 0$

Where:

$PE_{HP,y}$ Project emissions from water reservoirs (tCO_2e/yr)

Although there will be auxiliary diesel generators installed within the project boundary, the emissions from these have been deemed negligible as per the ACM0002 (version 14.0.0) methodology.

5.3 Leakage

Leakage emissions are neglected and assumed as zero as per the Methodology.

5.4 Net GHG Emission Reductions and Removals

According to ACM0002, emission reductions are calculated as

$$ER_y = BE_y - PE_y - LE_y$$

where

ER_y	=	Emission reductions in year y (t CO_2/yr)
BE_y	=	Baseline emissions in year y (t CO_2/yr)
PE_y	=	Project emission in year y (t CO_2/yr)
LE_y	=	Leakage emissions in year y (t CO_2/yr)

[15] See: Appendix 2

Table 6 Net GHG Emission reductions or removals data for monitoring period (tCO2e)

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
2014(01/07-31/12)	5,914	0	0	5,914
2015	35,097	0	0	35,097
2016	38,657	0	0	38,657
2017	22,908	0	0	22,908
2018	19,249	0	0	19,249
2019	40,534	0	0	40,534
2020(01/01-30/06)	20,849	0	0	20,849
Total	**183,208**	0	0	**183,208**

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)
Jul.14	1260.67	0.38	1,260.30
Aug.14	1257.92	0.48	1,257.44
Sep.14	2834.19	0.06	2,834.13
Oct.14	1840.52	1.00	1,839.52
Nov.14	1663.82	0.08	1,663.74
Dec.14	2651.24	0.42	2,650.82
Sum 2014	11508.36	2.42	11,505.94
Jan.15	2624.14	0.03	2,624.11
Feb.15	2662.26	0.05	2,662.22
Mar.15	9662.78	7.72	9,655.06
Apr.15	14571.60	0.01	14,571.59
May.15	5785.86	0.25	5,785.61
Jun.15	5054.19	0.45	5,053.75
Jul.15	4177.17	0.00	4,177.17
Aug.15	3575.02	1.86	3,573.16
Sep.15	4855.97	0.00	4,855.97
Oct.15	6187.09	0.20	6,186.89
Nov.15	5024.87	0.04	5,024.83
Dec.15	4113.07	0.37	4,112.70
Sum 2015	68294.02	10.97	68,283.05
Jan.16	4990.23	0.59	4,989.64

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)
Feb.16	8937.51	0.00	8,937.51
Mar.16	11311.77	0.00	11,311.77
Apr.16	6642.12	0.02	6,642.10
May.16	8203.32	0.00	8,203.32
Jun.16	9704.32	0.00	9,704.31
Jul.16	4875.24	0.01	4,875.23
Aug.16	5518.55	0.00	5,518.54
Sep.16	6418.79	0.00	6,418.79
Oct.16	3568.55	0.20	3,568.36
Nov.16	2171.86	0.00	2,171.86
Dec.16	2869.51	1.27	2,868.23
Sum 2016	75211.76	2.09	75,209.67
Jan.17	2600.37	0.00	2,600.36
Feb.17	3620.97	1.70	3,619.27
Mar.17	6937.76	0.01	6,937.74
Apr.17	6833.61	0.00	6,833.61
May.17	4781.11	0.01	4,781.10
Jun.17	6330.55	0.00	6,330.55
Jul.17	2664.70	0.00	2,664.70
Aug.17	2936.86	1.47	2,935.39
Sep.17	2445.20	0.00	2,445.20
Oct.17	2190.75	0.60	2,190.15
Nov.17	1326.53	0.32	1,326.21
Dec.17	1904.19	0.28	1,903.91
Sum 2017	44572.59	4.40	44,568.19
Jan.18	2766.77	0.30	2,766.47

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)
Feb.18	2879.95	0.01	2,879.94
Mar.18	6654.62	0.01	6,654.61
Apr.18	2577.24	0.01	2,577.23
May.18	4867.22	0.02	4,867.21
Jun.18	3211.96	1.89	3,210.07
Jul.18	2905.40	0.00	2,905.40
Aug.18	3235.95	0.00	3,235.95
Sep.18	3184.17	0.00	3,184.17
Oct.18	1719.48	0.51	1,718.98
Nov.18	1440.64	0.02	1,440.62
Dec.18	2010.58	0.07	2,010.50
Sum 2018	37453.98	2.82	37,451.16
Jan.19	5564.82	0.10	5,564.72
Feb.19	6127.76	0.01	6,127.75
Mar.19	6421.30	0.01	6,421.29
Apr.19	7035.33	0.01	7,035.32
May.19	8107.96	0.00	8,107.95
Jun.19	5316.96	0.00	5,316.96
Jul.19	6087.95	0.00	6,087.95
Aug.19	6838.01	0.01	6,838.00
Sep.19	7122.50	0.10	7,122.40
Oct.19	6540.58	0.09	6,540.49
Nov.19	6520.69	0.00	6,520.69
Dec.19	7176.30	0.00	7,176.30
Sum 2019	78860.15	0.32	78,859.83
Jan.19	5073.33	0.00	5,073.33

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)
Feb.19	5161.16	0.00	5,161.16
Mar.19	7783.31	0.00	7,783.31
Apr.19	8058.08	0.00	8,058.08
May.19	7729.58	0.00	7,729.58
Jun.19	6758.53	0.01	6,758.52
Sum 2020	40563.99	0.01	40,563.98
Total Sum	***356464.84***	***23.02***	***356,441.82***

APPENDIX 2: < THE MAP SHOWING THE RESERVOIR AREA OF THE PROJECT ACTIVITY >