SANIBEY DAM AND HYDROELECTRIC POWER PLANT

Document Prepared by GAIA Climate

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1 PROJECT DETAILS

1.1 Summary Description of the Project

The Sanibey Dam and Hydroelectric Power Plant (Sanibey Dam and HEPP) is a registered Project under Verra Registry with ID Number 1100. The project activity involves the installation of a 310.66 MWe also energy structures consisting of two penstocks and a power plant building including two units having outputs of 155.33 MWe each are located on the downstream of the dam body. The plant is located on the Seyhan River basin, in Turkey Eastern Mediterranean Region.

Conditions prior to the project activity is the continuation of the current situation, which is the continuation of energy supply by grid-connected units which are mainly fossil fired power plants. Therefore, the main purpose of the project is to generate approximately 966.53 GWh/year[1] of electricity to supply the national grid using a renewable hydropower resource. The project activity reduces greenhouse gases (GHGs) emissions that would have otherwise occurred in the absence of the project activity by avoiding electricity generation from fossil fuel sources. The average annual emission reductions of the proposed Project during its second crediting period are estimated to be 446,150 tons of CO2e (tCO_2e) and a total of 4,461,500 tCO_2e over 10 years of the second crediting period.

1.2 Sectoral Scope and Project Type

Sectoral Scope Number:1

Sectoral Scope: Energy industries (renewable - / non-renewable sources)

Sanibey Dam and HEPP is not a grouped project.

1.3 Project Eligibility

- The project is developed as per ACM0002 version 21.0, which is an approved CDM methodology under Verra.

- Sanibey Dam and HEPP is a hydropower plant; thus is an eligible project type as per eligible project types and scope under renewable energy activity requirements.

[1] Generation Licence

- The project displaces the same amount of electricity generated by fossil-fired power plants; thereby helping reduce the weight of electricity generation by fossil-fired power plants in the national grid. This means the project is eligible under VCS program.

- The project meets the general eligibility criteria under renewable energy activity requirements as described below:

- Project type: hydro, as discussed above, the project type is eligible.

- Project location: the project is in Adana province of Turkey. Thus, the project is eligible.

- Project scale: the project activity is a 310.66 MWe hydropower plant and thus qualifies under large-scale projects.

- The project is not registered under different standards or I-REC; therefore, no double-counting is made.

1.4 Project Design

This is the project's second crediting period and there is no design change. This is not a grouped project. The project includes a single location and installation only.

Eligibility Criteria

N/A

1.5 Project Proponent

Organization name	Sanko Enerji Sanayi ve Ticaret A.Ş.
Contact person	Muhsin Dervişoğulları
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1.6 Other Entities Involved in the Project

Organization name	Gaia Finansal Danışmanlık Hizmetleri Ticaret Limited Şirketi (Gaia Climate)
Role in the project	Consultant
Contact person	Gediz Kaya
Title	Manager
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1.7 Ownership

The legal ownership of the plant and the products generated by the project activity is Sanko Enerji Sanayi ve Ticaret A.Ş.

Gaia Climate acts as the consultant to the Project.

1.8 Project Start Date

The start date of the project activity is 02.12.2010 which is the date when the project is commissioned, and the first electricity generation.

1.9 Project Crediting Period

The first crediting period was from 02.12.2010 until 01.12.2020 with two times renewable crediting period of 10 years. The second crediting period is between 02.12.2020 and 01.12.2030.

1.10 Project Scale and Estimated GHG Emission Reductions or Removals

Project Scale	
Project	
Large project	X

Year	Estimated GHG emission reductions or removals (tCO_2e)
From 2nd December to 31st December 2020	36,669
2021	446,150
2022	446,150
2023	446,150
2024	446,150
2025	446,150
2026	446,150
2027	446,150
2028	446,150
2029	446,150
From January 1 st to 2nd December 2030	409,481
Total estimated ERs	4,461,500
Total number of crediting years	10
Average annual ERs	446,150

1.11 Description of the Project Activity

The Project includes the installation of two Vertical axis Francis turbines each with an installed capacity of 155.33 MWe working separately. [2]

The purpose of the project is to reduces greenhouse gas emissions that would have otherwise occurred in the absence of the project activity by avoiding electricity generation from fossil fuel sources both in the operating margin and build margin of the system.

In addition, the project has positive environmental and economic contributions as the following.

- By means of low carbon technology, environmental pollution and GHG emissions are significantly reduced,
- Contributing to the economic development of the country by providing sustainable energy,
- Increasing the income and local standard of living by providing job opportunities for the local people.

According to the initial registered PDD and validation report, the average lifetime of the equipment and Project is 35 years.

The following table shows a full detail of the project's technical specifications:

Dam and Cofferdams		
Type		Concerete Faced Rock Fill
Height above Thalweg	m	105
Height above Foundation	m	130
Crest Width	m	8
Crest Length	m	400
Crest Elevation	m	240
Turbines		
Brand		ALSTOM POWER
Type		Vertical axis Francis
Number of Units		2
Unit Capacities (Each)	MWm/MWe	158.5/155.33
Total Installed Capacity	MWm/MWe	317/310.66
Serial Numbers of Water Turbins		AHT YED 01 / AHT YED 02
Transformer		
Type		Outdoor type, oily, three phased
Number of Units		3
Power of a Unit	MVA	175

[2] Electricity Generation Licence Provided to VVB

Voltage	kV	14.4/380
Generator		
Brand		ALSTOM
Number of Generators		2
Power	MWA	175
Type		Three Phases Y 2 VG 175-167
Serial Number		2VG 175-167
Rated Voltage	V	14400
Rated Current	A	7016
Frequency	Hz	50

Table 1: Sanibey Dam and HEPP's Technical properties

1.12 Project Location

The Project site is located in the Seyhan river basin in Turkey, in Eastern Mediterranean Region, in the boundaries of Imamoglu and Aladag district, Adana province; the project is located between 37º24'- 37º38' north latitudes and 35° 25'- 35° 35' east longitudes.[3]

The following figures show the project's location.

Figure 1: Satellite image of the Project

[3] Google Earth screenshot of the coordinates has been provided to the DOE.

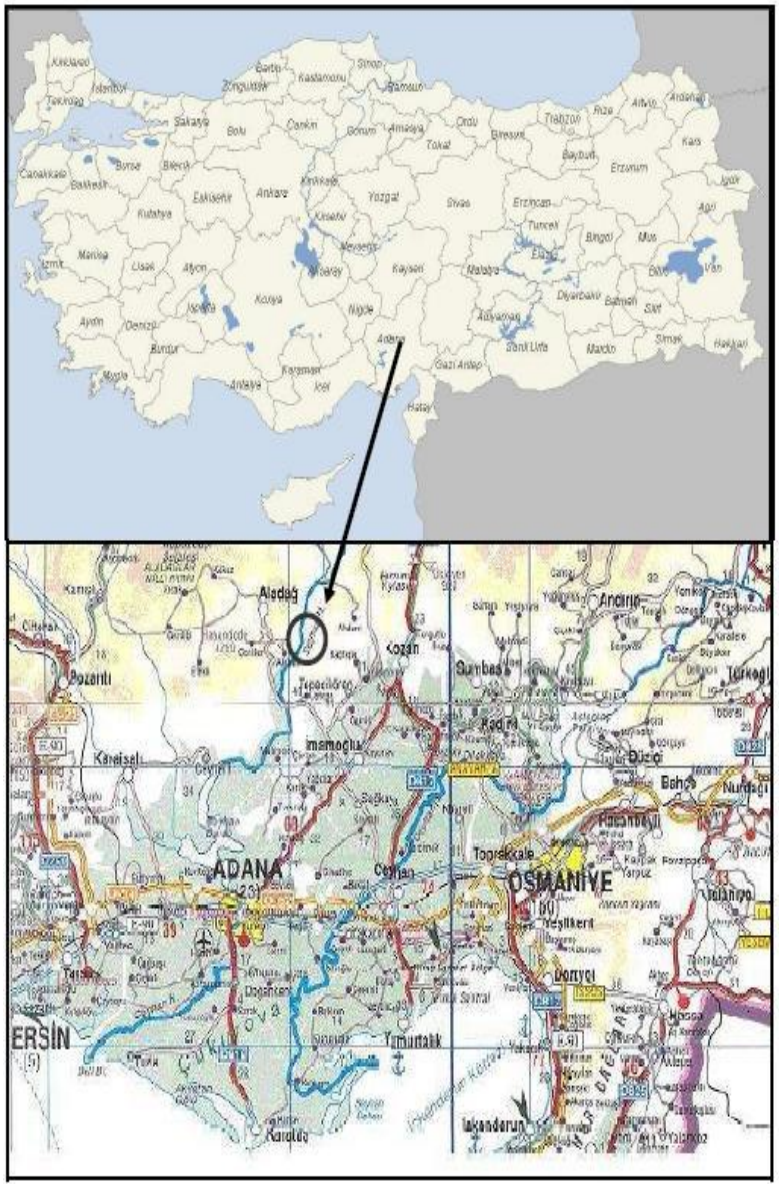


Figure 2: Location of the Project

1.13 Conditions Prior to Project Initiation

The Sanibey Dam and HEPP reduces greenhouse gas emissions that would have otherwise occurred in the absence of the project activity by avoiding electricity generation from fossil fuel sources both in the operating margin and build margin of the system. The average annual emission reductions of the proposed project are estimated to be 446,150 tones of CO2e (tCO_2e). Baseline scenario is the same as the conditions existing prior to the project initiation. Please see Section 3.4.

1.14 Compliance with Laws, Statutes and Other Regulatory Frameworks

The applicable mandatory laws that have been applied for the project are:

- Electricity market law no:6446[4]: this law aims to ensure the development of a financially sound and transparent electricity market operating in a competitive environment under the provisions of civil law. It also underlines the need to produce sufficient, high quality, low cost, and environmentally friendly electricity to consumers. The text also provides guidelines to structure the autonomous regulation and the supervision of the market.

- Law on the use of renewable energy sources for electric energy generation[5] (Law No: 5346): the purpose of this law is to expand the utilization of renewable energy sources for generating electric energy, to benefit from these resources in a secure, economic, and qualified manner, to increase the diversification of energy resources, to reduce greenhouse gas emissions, to assess waste products, to protect the environment and to develop the related manufacturing industries for realizing these objectives.

- Environmental law[6] (Law No 2872): this law came into force in 1983, it considers the environment as a single domain, aiming not only to prevent and eliminate environmental pollution but also to allow the management of land and natural resources in an integrated manner. According to its basic principles, and as also stated in the constitution, citizens as well as the state bear responsibility for environmental protection.

- The project complies with all aforementioned laws as its activity aims at generating electricity by using a renewable resource: hydroelectric power; in a sufficient, low-cost, and environmentally friendly manner, using the latest technology available on the market. Moreover, an Environmental Impact Assessment (EIA) had been carried out and the results of this study concluded that the project activity has no significant impacts on the environment.

1.15 Participation under Other GHG Programs

1.15.1 Projects Registered (or seeking registration) under Other GHG Program(s)

Sanibey Dam and HEPP has not been registered under any other GHG programs

1.15.2 Projects Rejected by Other GHG Programs

As Sanibey Dam and HEPP has not been registered under any other GHG programs, it has also not been rejected by any other GHG programs.

[4] https://www.resmigazete.gov.tr/eskiler/2013/03/20130330-14.htm

[5] https://www.mevzuat.gov.tr/mevzuatmetin/1.5.5346.pdf

[6] https://www.mevzuat.gov.tr/mevzuatmetin/1.5.2872.pdf

1.16 Other Forms of Credit

1.16.1 Emissions Trading Programs and Other Binding Limits

Sanibey Dam and HEPP is neither included in an emissions trading program or any other mechanism that includes GHG allowance trading. It is not registered to standards such as Gold Standard, Global Carbon Council operating in Turkey, and the CDM program does not accept projects originating in Turkey.

1.16.2 Other Forms of Environmental Credit

Sanibey Dam and HEPP is not registered with any I-REC or environmental credit program.

1.17 Sustainable Development Contributions

• Sustainable Development Goals Targeted	• Most relevant SDG Target	• Indicator
• 13 Climate Action (mandatory)	• Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	• Number of countries that have communicated the strengthening of institutional, systemic, and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions
• 7 Affordable and Clean Energy	• By 2030, increase substantially the share of renewable energy in the global energy mix	• Renewable energy share in the total final energy consumption
• 8 Decent Work and Economic Growth	• By 2030, achieve full and productive employment and decent work for all women and men	• Unemployment rate, by sex, age and people with disabilities

Table 3: Impacted SDGs

SDG 7: Affordable and Clean Energy

The baseline scenario for the project is no project, thus leading to generation into the relevant grid which is dominated by fossil fuel. The clean energy generated by the project is calculated based on the amount of electricity generated by the project per annum. The project is expected to generate 966.53 GWh of clean energy per annum. The net generation has been calculated as below:

Net Generation (MWh) = Electricity Supplied to the Grid (MWh)– Electricity Consumption from the Grid (MWh)

Both electricity supplied to the grid and electricity consumption from the grid has been identified and approved by EPIAS. By means of electricity generation through hydropower, Sanibey Dam and HEPP contributes to the following target 7.2 “By 2030, increase substantially the share of renewable energy in the global energy mix”.

SDG 8: Decent Work and Economic Growth

There are 30 employees in the operation phase of the project there by contributing to the following indicators 8.5.2 “Unemployment rate, by sex, age and persons with disabilities” and following target: “8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value”

SDG13: Climate Action:

The project leads to an emission reduction of 446,150 tCO_2 per annum. The project contributes to the following indicator 13.3.2 “Number of countries that have communicated the strengthening of institutional, systemic and individual capacity- building to implement adaptation, mitigation, and technology transfer, and development actions” and to the following target 13.3 “Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning”

The project is expected to generate 966.53 GWh of clean energy, leads to an emission reduction of 446,150 tCO_2 per annum and there are 30 employees in the operation phase of

the project. In this way, it achieves the goals of nationally stated sustainable development priorities of Turkey (INDC)[7].

1.18 Additional Information Relevant to the Project

Leakage Management

Potential leakage emissions in the context of power sector projects are emissions that arise from the project activities such as power plant construction, fuel handling, and land inundation. According to ACM0002 / Version 21.0, such emissions do not need to be considered.

Commercially Sensitive Information

Sanko Enerji Sanayi ve Ticaret A.Ş. does not find it ethical to announce these social and financial aids, therefore this is commercially sensitive information that needs to be excluded from the public version of the VCS PD that will be displayed on the VCS Project Database.

Further Information

N/A

2 SAFEGUARDS

2.1 No Net Harm

Throughout its construction and operational phase during its first crediting period, Sanibey Dam and HEPP has not created any harm neither environmentally nor socio-economically as also indicated in the project documents belonging to its first crediting period. For its second crediting period, the Project Owner will continue to ensure the continuation of contributions to the socio-economic development in the project area. The recent examples are:

- A robotic coding class was designed in a high school in İmamoğlu, and robotic coding materials were placed in it.
- Each year, 10 university students are given education scholarships,
- Every year, 10 university students are provided with internship opportunities at the workplace,

[7] https://unfccc.int/sites/default/files/NDC/2022-06/The_INDC_of_TURKEY_v.15.19.30.pdf

- Environmental cleaning works were carried out for 4 months by hiring 30 people from the surrounding villages.
- The round-trip travel fees of Aladağ District Anatolian high school students to Trabzon for the sports competition were paid,
- 27 football uniforms were purchased for a high school in Aladağ District to be worn during football matches.
- A cultural trip to Mersin was organized in order to provide morale motivation for the young people who are preparing for the exam in Akören town of Aladağ District.
- Mastaş construction equipment worked for 150 hours in total for the needs of the surrounding villages.
- With respect to the second crediting period,
- In Sanibey, the Adana Water and Sewerage Administration conducts monthly environmental inspections of the enterprise. Within the scope of the DSI Seyhan basin protection project, upstream and downstream water samples are taken once in every 3 months and analyzed, the results are not shared with the enterprise.

2.2 Local Stakeholder Consultation

The announcements, the meeting was held on December 12th, 2006, in the conference room of the Akoren Municipality building in Aladag district of Adana province. The meeting which started at 14:00 under the chairmanship of the Adana Provincial Directorate of Environment and Forestry received a broad participation.

There is an active grievance mechanism. In summary, the mechanism works as follows. In addition, a digital platform was created for demands and requests. All requests are tracked digitally. With the hierarchy of Operations Manager, Corporate Communications Officer, CFO, CEO, Coordinator, demands are evaluated in the digital environment, and solutions are sought. There are no updates to the project design. And the work done to collect public grievances is mentioned below

- There is a “Public Relations Team” that act as a bridge between the project and those affected by the project (regional people, non-governmental organizations, national and local organizations, and authorities, other parties related to the project, etc.). The team is work throughout the business to create a positive relationship based on open communication and mutual respect.
- The Public Relations team consists of a team of 4 people, namely the Public Relations Officer and the Operations Manager.

- Obtaining information, requests, and complaints to be handled and examined within a maximum of 7 working days.

- Corrective actions, if any, to be taken as a result of the examination of the requests are notified to the requesters by the Public Relations Officer.
    - Requests other than those related to infrastructure will be finalized within 30 days.
    - Complaints about the infrastructure will be finalized as soon as possible so that they do not cause problems in the daily lives of the people of the region.
    - For each request received, the Information, Request, and Complaint Form is filled out. After the form is filled out by the Public Relations Officer, the Operations Manager is informed to take the necessary action.
    - After the applicable action is finalized as a result of the request/complaint, the Information Acquisition, Request, and Complaint Closing Form is filled, and the relevant person will be informed.

No negative comments have been received regarding the project until now and the grievance mechanism continues to work and will continue throughout the crediting period.

A meeting/discussion will be planned to collect the grievances and a public announcement will be made in the upcoming monitoring period.

2.3 Environmental Impact

According to the Turkish law, a comprehensive EIA is required to the projects which have a 25 MW or exceeding amount of installed capacity. EIA positive decision has been published on 06.06.2007. In terms of its dimension, Sanibey Dam and HEPP falls under the EIA requirement zone. Hence, an EIA report has been carried out and it has concluded that the project activity will not lead to significant negative impacts. The lenders of the Project are Equator Principles Financial Institutions (EPFIs) which have adopted these Principles in order to ensure that the projects financed by themselves are developed in a manner that is socially responsible and reflect sound environmental practices. Within this framework, besides the Turkish Legislation, the Project is also required to comply with the International Finance Corporation (IFC) Performance Standards (PS') on Social and Environmental Sustainability which form the basis of these Principles.

Furthermore, it will contribute to improve the environmental situation in the region and in the country. Avoiding fossil fuel-based electricity, it will enhance the air quality and help reduce the adverse effects on the climate. Renewable technologies for the electricity generation will be introduced and sustainable development will be promoted.

The EIA report did not only assess the environmental impacts, but it also presented a monitoring plan to be implemented during construction and operation phases. Monitoring Forms has been prepared and presented to the Ministry within periods of six months.

A summary of the potential negative environmental impacts and measures to be taken by the project participant to mitigate them is presented as follows:

In Sanibey, operational environmental audits are carried out monthly by the Adana Water and Sewerage Administration. Within the scope of DSI Seyhan basin protection project, upstream and downstream water samples are taken once in 3 months and analyzed, the results are not shared with the enterprise, there is no other commitment.

All wastes were handled in accordance with the relevant legislation. Sample recordings were submitted to VVB.

2.4 Public Comments

The new public comment process was not executed because this is renewal of crediting period process.

2.5 AFOLU-Specific Safeguards

N/A

3 APPLICATION OF METHODOLOGY

3.1 Title and Reference of Methodology

The approved baseline and monitoring methodology selected for the proposed project activity is: ACM0002 version 21.0 “Grid connected electricity generation from renewable sources” The methodology also refers to the latest approved versions of the following tools, which are applied by the project:

TOOL01: “Tool for the demonstration and assessment of additionality”, Version 7.0

TOOL07: "Tool to calculate the emission factor for an electricity system” version 7.0

TOOL11: "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" version 03.0.1.

3.2 Applicability of Methodology

The choice of the ACM0002 methodology is accurate since the proposed project activity respects all the applicability conditions required. Details of “Methodological Tool: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” are given under section 3.4.

ACM0002 version 21 applicability conditions	Project activity applicability
This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units; (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s).	The project activity is a Greenfield grid connected run-of-river hydropower project.
In case the project activity involves the integration of a BESS, the methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Integrate BESS with a Greenfield power plant; (b) Integrate a BESS together with implementing a capacity addition to (an) existing solar photovoltaic or wind power plant(s)/unit(s); (c) Integrate a BESS to (an) existing solar photovoltaic or wind power plant(s)/unit(s) without implementing any other changes to the existing plant(s); (d) Integrate a BESS together with implementing a retrofit of (an) existing solar photovoltaic or wind power plant(s)/unit(s).	The project activity is a integrate BESS with a Greenfield power plant hence the methodology is applicable
In case of Greenfield project activities applicable under paragraph 5 (a) above, the project participants shall demonstrate that the BESS was an integral part of the design of the renewable energy project activity (e.g. by referring to feasibility studies or investment decision documents);	Feasibility studies or investment decision documents were provided when initial PDD period. Since this is a renewal of the crediting period of the project, the relevant documents cannot be provided.

In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (7) of the methodology ACM0002, is greater than 4 W/m2; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7) of the methodology ACM0002, is greater than 4 W/m2; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (7) of the methodology ACM0002, is lower than or equal to 4 W/m2, all of the following conditions shall apply: (i) The power density calculated using the total installed capacity of the integrated project, as per equation (8) of the methodology ACM0002, is greater than 4 W/m2 ; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m2 shall be: a.)Lower than or equal to 15 MW; and b.) Less than 10 percent of the total installed capacity of integrated hydro power project.	The project activity involves the construction of a dam with a dam lake surface area of 14,299,206 m2 The power density (PD) for this reservoir area is calculated as follows: PD = 310,660,000 W/14,299,206 m2 21.73 W/m2 PD = W/m2 PD > 10 W/m2, therefore, according to the methodology, there will be no emissions from the reservoir. There is no change in the project technology; hence no change in the project density of the project has occurred.
In the case of integrated hydro power projects, the project proponent shall: (a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute the generation capacity of the integrated hydro power project; or	Not applicable as the proposed project activity does not involves integrated hydro power projects

(b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of a specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for a minimum five years prior to implementation of CDM project activity.	
The methodology is not applicable to: (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case, the baseline may be the continued use of fossil fuels at the site; (b)Biomass fired power plants/units.	This condition is not applicable to the project activity as it does not involve switching from fossil fuel to renewable energy at the site of the project activity, nor biomass fired power plants/units.
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	The project activity does not involve capacity additions, retrofits, rehabilitations or replacements
In addition, the applicability conditions included in the tools referred to below apply.	Applicability conditions of the applied tools are justified

Table 4: Applicability Conditions

From the above, it is concluded that the project activity meets all the applicability conditions of the methodology ACM0002 version 21.0 "Grid connected electricity generation from renewable sources".

The total installed capacity of project activity is 310.66 MW which is applicable as per large-scale project activities methodology and the capacity will remain the same hence the project activity will always be large-scale activities throughout the crediting period and thereafter.

Selected methodology has been applied together with the “tool to calculate the emission factor for an electricity system, version 7.0” and “tool for assessment and demonstration of additionality, version 7.0” and tool 11 , “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period”, version 03.0.1

Tool 01 “Tool for the demonstration and assessment of additionality”: The project uses relevant tool together with ACM0002 methodology. No new methodology is used. Since the tool is included in ACM0002, its application is mandatory.

According to the methodology baseline scenario has been identified as “the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources”.

Tool 07 “Tool to calculate the emission factor for an electricity system”: This tool is used for the calculation of OM, BM and CM and applicable since the project activity includes grid power plants and supplies electricity to the grid and the project is not a CDM project but a voluntary project following CDM rules. CO2 emission factor for the displacement of electricity generated by power plants in an electricity system is determined by Ministry of Energy and Natural Resources Turkey, OM and BM values.

Tool 11 “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period”: This tool is used to determine the validity of the current baseline and in the case of invalid baseline for the next crediting period, the tool provides an approach to update the baseline as required by paragraph 49 (a) of the modalities and procedures of the clean development mechanism.

3.3 Project Boundary

According to the ACM0002 methodology version 21.0, the project boundary is defined as: the spatial extent of the project boundary includes the project power plant/unit and all power plants/units connected physically to the electricity system that the CDM project power plant is connected to.

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

Source		Gas	Included?	Justification/Explanation
Baseline	CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity	CO_2	Yes	Main emission source.
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source

Source		Gas	Included?	Justification/Explanation
Project	Emissions during construction and operation of the project activity	CO_2	No	Minor emission source
		CH_4	No	CH_4 emissions are neglected as the project activity's power density is above 10.
		N_2O	No	Minor emission source

Table 5: Emission Sources Included in the Project Boundary

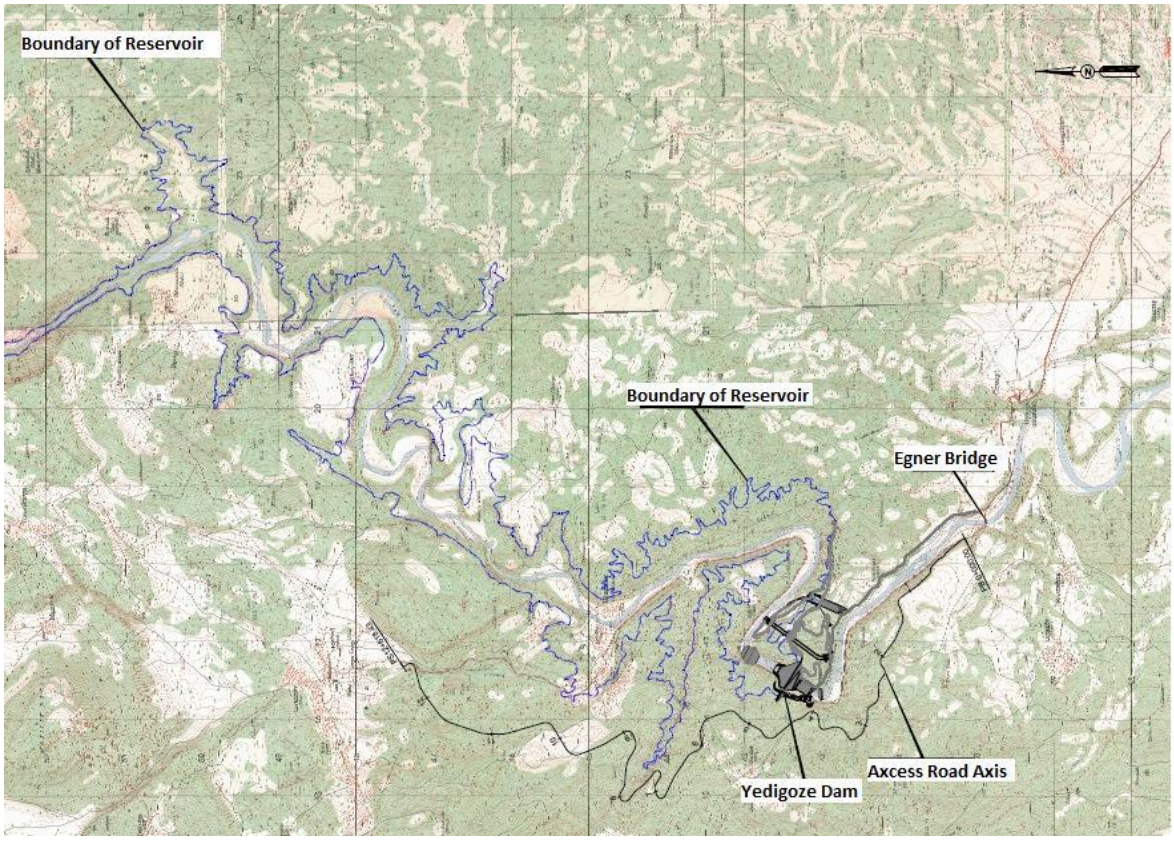


Figure 3: Sanibey Dam and Hydroelectric Power Plant Layout

3.4 Baseline Scenario

In this project, version 21.0 of the ACM0002 methodology was applied and the basic scenario was defined in accordance with the procedure specified in the relevant tools. How each step in the procedure in the applied methodology is implemented is explained and the outcome of each step is clearly documented. Project complies with all the requirements of the methodology.

Project activity is Greenhouse Power Plant installation as defined in the methodology, baseline scenario is electricity supplied to the grid by the project activity; It is generated by operating grid-connected power plants and adding new generation sources, as reflected in the combined margin (CM) calculations described in TOOL07.

The project applies for a renewal of the crediting period under the requirements of Verra; therefore the Methodological Tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period", Version 03.0.1 has been applied to demonstrate that the baseline of the project is still valid.

The Tool proceeds as follows:

STEP 1: Assess the validity of the current baseline for the next crediting period

STEP 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

STEP 1.2: Assess the impact of circumstances

STEP 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

STEP 1.4: Assessment of the validity of the data and parameters

STEP 2: Update the current baseline and the data and parameters

STEP 2.1: Update the current baseline

STEP 2.2: Update the data and parameters

Step 1: The "Procedures for the renewal of the crediting period of a registered CDM project activity" approved by the CDM Executive Board require assessing the impact of new relevant national and/or sectoral policies and circumstances on the baseline. The validity of the current baseline is assessed using the following Sub-steps:

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies.

The Project baseline is the "grid-connected electricity generation from renewable sources". The Project is still in compliance with Electricity Market Law with Number 4628 and dated 03/03/2001, with the recent Electricity Market Law numbered 6446 dated 14/03/2013[8] and Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy

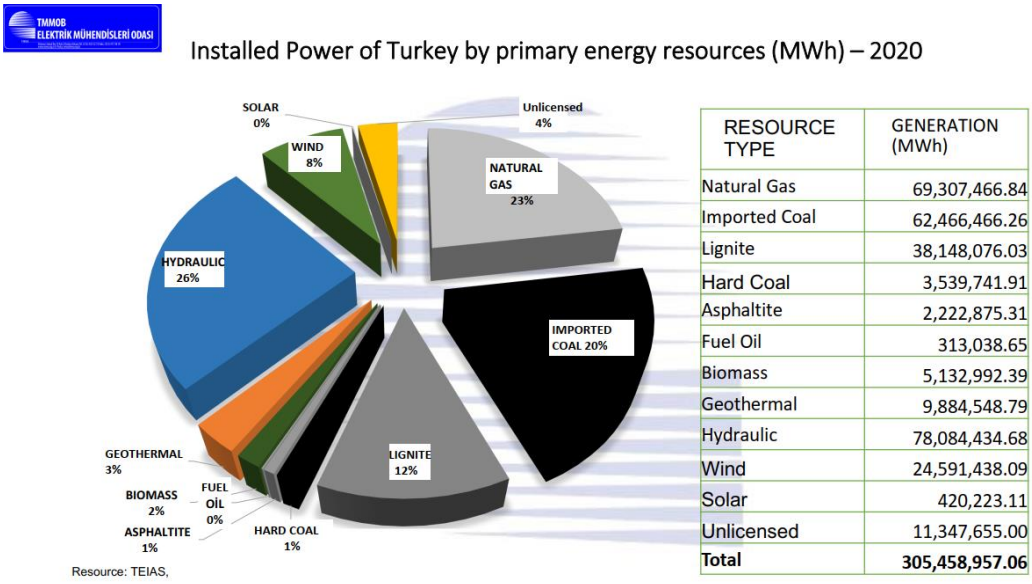
[8] https://www.resmigazete.gov.tr/eskiler/2013/03/20130330-14.htm

with Number 5346 and dated 18/05/2005[9]. There are no changes or revisions of these laws and legislation.

The conclusion is that the baseline of the project activity complies and will continue to comply with the laws and regulations in the sector for the next crediting period.

Step 1.2: Assess the impact of circumstances

The electricity generation is predominantly composed by fossil fuel fired power plants in Turkey. Please see below the diagram delineating Turkey's total installed power by primary energy sources.



RESOURCE TYPE	GENERATION (MWh)
Natural Gas	69,307,466.84
Imported Coal	62,466,466.26
Lignite	38,148,076.03
Hard Coal	3,539,741.91
Asphaltite	2,222,875.31
Fuel Oil	313,038.65
Biomass	5,132,992.39
Geothermal	9,884,548.79
Hydraulic	78,084,434.68
Wind	24,591,438.09
Solar	420,223.11
Unlicensed	11,347,655.00
Total	**305,458,957.06**

Figure 4: Installed power of Turkey by primary energy sources in 2020

In addition, as stated in the 5-year projection of TEIAS (Turkish Electricity Transmission Company), it is obvious that fossil fuels would continue to be the main source for electricity generation. High growth rate of energy demand is forecasted to continue over coming decade. The report justifies that fossil fuels will be dominant in the electricity generation mix, with an expected share of 30% in 2025. Wind energy will only have a limited share of 10.6 % by 2025. Please see below the Figure 4 illustrating the capacity projection of Turkey for years 2020-2025.[10]

[9] http://eski.jmo.org.tr/mevzuat/mevzuat_detay.php?kod=131

10 https://www.teias.gov.tr/ilgili-raporlar

(%)

YILLAR	2020	2021	2022	2023	2024	2025
LİNYİT	10,6	10,1	9,7	9,4	9,6	9,9
T.KÖMÜR+ASFALTİT	1,3	1,2	1,2	1,2	1,1	1,1
İTHAL KÖMÜR	9,4	10,2	9,8	9,5	9,2	8,9
DOĞALGAZ	26,8	25,5	24,7	24,0	23,2	22,5
URANYUM	0,0	0,0	0,0	1,1	2,1	3,1
DİĞER	0,7	0,7	0,7	0,6	0,6	0,6
JEOTERMAL	1,7	1,7	1,9	1,9	1,9	1,8
BİYOKÜTLE	1,2	1,8	1,8	1,7	1,7	1,6
HİDROLİK	32,3	31,2	31,1	30,4	29,6	28,8
RÜZGAR	9,2	9,6	10,3	10,2	10,2	10,6
GÜNEŞ	7,0	8,0	8,9	9,9	10,7	11,0
TOPLAM	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**

Figure 5: Capacity projection of Turkey for years 2020-2025

In conclusion, the conditions that were used to determine the baseline emissions in the first crediting period are still valid; therefore, Step 1.2 is justified.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

The baseline scenario identified at the validation of the project activity during the first crediting period was the continuation of grid-connected electricity generation from renewable sources. As for Sanibey Dam and HEPP, the same circumstances are still valid. No investment from the project's proponent or a third party (or parties) has been envisioned later specifically for the project. Thus, this step is not applicable. There is no change with respect to the technology of Sanibey Dam and HEPP.

Since there are neither changes with regard to the investment nor changes in its technology, the validity of the baseline scenario during the first crediting period has been justified; therefore Step 1.3 has been justified.

Step 1.4: Assessment of the validity of the data and parameters

As per the methodology ACM0002 version 21.0, the baseline scenario has been identified as "the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources". Therefore the emissions reduction calculations are based on two main parameters: the energy generation and the grid emission factor.

As for the continuation of the baseline scenario during the second crediting period, only the grid emission factor should be updated for the purpose of the crediting period renewal and the new grid emission factor shall be multiplied by the energy generation that has always been monitored.

Step 2: Update the current baseline and the data and parameters

Step 2.1: Update the current baseline

As justified above, the project baseline for the next crediting period is the use of electricity from the national grid, and the latest version of the approved applicable methodology ACM0002 version 21.0, "Large-scale Consolidated baseline methodology for grid-connected electricity generation from renewable sources" has been followed.

Step 2.2: Update the data and parameters

The emission factor of the grid has been updated as per the Tool, "Tool to calculate the emission factor for an electricity system" version 07.0.

According to the Tool 07, three options have been provided in paragraph 17 (a). For Sanibey Dam and HEPP, Option 1 for national EF by the Turkish Republic Ministry of Energy as 0.4616 tCO_2/MWh has been selected. Combined margin (CM) emissions factor calculation with national values of operating margin (OM) and build margin (BM) is shown below.

For the emission factors, that were used to calculate estimated emission reductions, publication of Turkish Ministry of Energy and Natural Resources, which is indicating Turkey's National Electric Grid Emission Factor for the year of 2020 was used. Publication includes calculated Emission Factor values that are Operating Margin (OM), Growth Based Margin (Build Margin-BM) and Combined Margin (CM) Emission Factors, for the relevant year with usage of the IPCC's Clean Development Methodology Tool 07-V07.0. The Ministry has calculated the factors as using the "Tool to calculate the emission factor for an electricity system". Since it was updated in 20/09/2022 by the Ministry, these factors have been used for emission reduction calculation.

It's been published as 0.7424 tCO_2/MWh by the Ministry of Energy and Natural Resources.[11]

It's been published as 0.3680 tCO_2/MWh by the Ministry of Energy and Natural Resources.[12]

Combined Margin (CM) (Hydroelectric): 0.4616 tCO_2/MWh[13]

3.5 Additionality

Project is additional and there is no need additionality assessment analysis since this is crediting period renewal process.

The additionality analysis carried out in the PDD of the first crediting period proves that the project activity is additional.

[11] https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Bform2020.pdf

[12] https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Bform2020.pdf

[13] https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Bform2020.pdf

As per Tool 11 “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” Version 3.0.1, demonstration of additionality is not required unless Step 1 is justified.

The HEPP project is a project that is not required to be implemented within the scope of any legal legislation in Turkey. It is a voluntarily made project.

In respect to the regulatory surplus requirement as part of the additionality assessment at renewal of crediting period, please see below the following applicable mandatory laws and regulations:

-Electricity Market Law: This Law aims to ensure the development of a financially sound and transparent electricity market operating in a competitive environment under the provisions of the civil law. It also underlines the needs to produce a sufficient, high quality, low cost and environmentally friendly electricity to consumers.

-Environmental Law, considers the environment as a single domain, aiming not only to prevent and eliminate environmental pollution, but also to allow the management of land andnatural resources in an integrated manner.

-Regulation on procedures and principles of signing the agreement of water resources utilization to generate electricity for the electricity market,

-Regulation on Environmental Impact Assessment,

During the second crediting period, the Project Proponent acknowledges and ensures that the project complies with all aforementioned laws as its activity aims at generating electricity by using a renewable resource: hydroelectric power; in a sufficient, low-cost and environmentally-friendly manner, using the latest technology available on the market.

3.6 Methodology Deviations

No deviation occurred from the related methodology used in this project.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

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 as follows:

$$BEy = EGPJ,y \times EFgrid, CM,y \quad \textbf{(1)}$$

Where:

BE_y	=	Baseline emissions in year y (t CO2/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 CO2 emission factor for grid connected power generation in year y calculated using the latest version of "TOOL07: Tool to calculate the emission factor for an electricity system" (t CO2/MWh)

Calculation of $\mathbf{EFgrid,M,y}$ Based on pre-calculated values by Turkish Government, Ministry of Energy and Natural Resources, document "TURKEY NATIONAL ELECTRICITY NETWORK EMISSION FACTOR INFORMATION FORM[14]", the applicable grid emission factor value to calculate the emission reductions of the Hydro power plant project(other renewables) is 0.4616 tCO_2/MWh.
Since the BM , OM and CM values are calculated by Turkish Ministry of Energy and Natural Resources, those factors are calculated and updated regularly.
For Build margin factor calculation, Chronological order of power generation plants from TEİAŞ Load Dispatch Department with commissioning dates, plant names, fuel types, installed power values, electricity generation for the calculated year were used as input data. Consequently, Turkish Ministry of Energy and Natural Resources calculated ; EF,grid,BM,y : 0.3680 tCO_2/MWh.
For Operating margin factor calculation, Chronological order of power generation plants from TEİAŞ Load Dispatch Department with, fuel types, electricity generation for the calculated year were used as input data. By using all the data which were mentioned above, Turkish Ministry of Energy and Natural Resources calculated; EF,grid,OM,y : 0.7424 tCO_2/MWh.
The combined margin emission factor is calculated by using weighted average CM as per tool formula below:

[14] https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Bform2020.pdf

$$EF_{grid,CM,y} = EF_{grid,OM,y} * w_{OM} + EF_{grid,BM,y} * w_{BM} \quad \textbf{(2)}$$

BE_y	=	Baseline emissions in year y (t CO2)
$EG_{facility,y}$	=	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)
$EF_{grid,y}$	=	Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO2/MWh)

According to the Tool for hydro power generation project activities for the second crediting period: wOM = 0.25 and wBM = 0.75

CM (OM*0.25 + BM*0.75)	0.4616 tCO_2/MWh
(0.7424 * 0.25)+(0.3680 * 0.75)	

Baseline Emission: $BE_y = EG_{PJ,y} \cdot EF_{grid,CM,y}$ = 966,530 * 0.4616 = 446,150 tCO_2e

4.2 Project Emissions

Project emissions are calculated as follows:

$$PEy=PEFF,+PEGP,y+PEHP,y \quad \textbf{(3)}$$

Where:

PE_y	=	Project emissions in year y (t CO_2e/yr)
$PE_{FF,y}$	=	Project emissions from fossil fuel consumption in year y (t CO_2/yr)
$PE_{GP,y}$	=	Project emissions from the operation of dry, flash steam or binary geothermal power plants in year y (t CO_2e/yr)
$PE_{HP,y}$	=	Project emissions from water reservoirs of hydro power plants in year y (t CO_2e/yr)

Fossil fuel consumption ($PE_{FF,y}$)

The project's internal consumption is approximately 500 kVA, which can be considered negligible. This consumption will be satisfied from the electricity generation when the plant is in operation or from the grid when the plant is not in operation. Eventually, if there is no electricity available in the grid and the plant is not in operation the internal consumption will be satisfied from a diesel generator, but this could rarely occur. If diesel engines would be used, emissions associated would be calculated according to the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" and considered as project emissions. Therefore:

$PE_{FF,y} = 0$

Emissions of non-condensable gases from the operation of geothermal power plants ($PE_{GP,y}$)

Since the project activity does not involve the operation of a geothermal power plant,

$PE_{GP,y} = 0$

Emissions from water reservoirs of hydropower plants ($PE_{HP,y}$)

The project activity is a Greenfield run-of-river hydropower project. The water is diverted using a diversion wall structure to the power canal and then to the powerhouse. The water will be fed back to the river through the tailrace canal. The diversion structure results in a regulation pond with a surface area of 14,299,206 m^2, which does not affect in any way the volumes of existing reservoirs downstream of the project.

The power density (PD) for this regulation pond is calculated as follows:

PD = 310,660,000 W/14,299,206 m2

PD = 21.73 W/m2

PD > 10 W/m2

Therefore, $PE_{HP,y}=0$

Hence, $PE_y = 0$

4.3 Leakage

As per ACM0002 Version 21.0, leakage emissions do not need to be considered.

4.4 Net GHG Emission Reductions and Removals

$$ER_y = BE_y - PE_y \quad \textbf{(4)}$$

Where:

ER_y	=	Emission reductions in year y (t CO_2e/yr)
BE_y	=	Baseline emissions in year y (t CO_2/yr)
PE_y	=	Project emissions in year y (t CO_2e/yr)

As per the tool, the PE_y equals to zero. Thus, the project emissions are equal to the baseline emissions.

Total installed capacity = 310.66 MW

Net electricity delivered to grid ($EG_{PJ,y}$) = 966.53 GWh / yr

Grid emission factor ($EF_{grid,CM,y}$) = 0.4616

Baseline emissions(BE_y) = Emission reductions (ER_y), since Project emissions (PE_y) is zero.

$BE_y = EG_{PJ,y} \cdot EF_{grid,CM,y} = 966,530 * 0.4616 = 446,150\ tCO_2e$

Year	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated net GHG emission reductions or removals (tCO_2e)
From 2nd December to 31st December 2020	36,669	0	0	36,669
2021	446,150	0	0	446,150
2022	446,150	0	0	446,150
2023	446,150	0	0	446,150
2024	446,150	0	0	446,150
2025	446,150	0	0	446,150
2026	446,150	0	0	446,150
2027	446,150	0	0	446,150
2028	446,150	0	0	446,150
2029	446,150	0	0	446,150
From January 1 st to 2nd December 2030	409,481	0	0	409,481
Total	4,461,500	**0**	**0**	4,461,500

5 MONITORING

5.1 Data and Parameters Available at Validation

Data / Parameter	$EF_{grid,CM,y}$
Data unit	tCO_2/MWh
Description	Combined margin CO_2 emission factor for grid-connected power generation in year y
Source of data	Turkish Government Ministry of Energy and Natural Resources
Value applied	0.4616
Justification of choice of data or description of measurement methods and procedures applied	EFgrid,CM,y was calculated by the Turkish Ministry of Energy and Natural Resources using Version 7.0 of TOOL 7: “Tool to calculate the emission factor for an electricity system” and published in "TURKEY NATIONAL ELECTRICITY NETWORK EMISSION FACTOR INFORMATION FORM".[15]
Purpose of Data	Calculation of baseline emissions
Comments	-

5.2 Data and Parameters Monitored

Data / Parameter	$EG_{PJ,y}$
Data unit	MWh/year
Description	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
Source of data	EPİAŞ records.
Description of measurement methods and procedures to be applied	Continuous measurements are to be made by two sets (one main and one reserve) of meters. These meters are sealed and fully controlled by TEIAS. Measurements will be used for the calculation of the net electricity generation supplied by the project to the grid.

[15] https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Bform2020.pdf

Frequency of monitoring/recording	Continuous measurement, monthly recording
Value applied	966 530
Monitoring equipment	The model of meter (ACE SL7000 series developed for Turkey) which will be used in the powerhouse is produced by Actaris and is in line with the EMRA requirements for electricity meters. The meters used for the project activity are EMH LZQJ-XC. The serial numbers are 8923679 and 8923681 (main meters) and 8923680 and 8923682 (backup meters). The accuracy class of the meters is 0.2s.
QA/QC procedures to be applied	TEIAS obtains the readings from the meters remotely and reports them in a spread sheet (for measurement control and will store the data discharged from the meters electronically) to the Plant engineer. EPİAŞ records are main source, TEİAŞ meter readings are cross-check source. Re-calibration periods are defined by national metrology institutes country by country and in Turkey this period is defined as 10 years16.
Purpose of data	Calculation of baseline emissions
Calculation method	N/A
Comments	Estimated net electricity generation was taken from Generation License.

Meters	
Brand	EMH
Type	LZQJ-XC
Accuracy Class	0.2s
Serial Number of Main Meters	Main meter 1: 8923679 Main meter 2: 8923681
Serial Number of Backup Meters	Backup meter 1: 8923680 Backup meter 2: 8923682

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

Data / Parameter	A_{PJ}
Data unit	m^2
Description	Area of the resarvoir 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, maps, satellite pictures etc.
Frequency of monitoring/recording	Once in each monitoring period
Value applied	14,299,206
Monitoring equipment	Topographical surveys, maps, satellite pictures
QA/QC procedures to be applied	The readings will be done during the period when the water flow is high to have the largest reservoir area and to satisfied the conservative principles.
Purpose of data	
Calculation method	N/A
Comments	-

Data / Parameter	Cap_{PJ}
Data unit	MW
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	Supplier information on the equipment.
Frequency of monitoring/recording	Once in each monitoring period

Value applied	310.66
Monitoring equipment	N/A
QA/QC procedures to be applied	Supplier information on the related equipment and the existence of the equipment will be checked. Also, this information may be checked from EMRA (Energy Market Regulatory Authority) website.
Purpose of data	-
Calculation method	N/A
Comments	-

5.3 Monitoring Plan

The purpose of the monitoring plan is to ensure that the monitoring and calculation of emission reductions of the proposed Project within the crediting period is complete, consistent, clear and accurate.

The project is operated by Sanko Enerji Sanayi ve Ticaret A.Ş. which ensures the overall site management in accordance with Turkish Laws and technology providers' guidelines.

The monitoring will be performed in-house by the project proponent:

1. Plant Engineer is responsible for the control of the electricity supplied to the grid and imported from the grid with TEIAS. The electricity measurements are made by TEIAS remotely. In addition to the measurements made by TEIAS, the internal SCADA system (MIKRONIKA program of SYNDES ENERGIA) measures the produced electricity. The plant engineer checks these electricity measurement records and reports to the Operations Manager of the plant.
2. Mechanical Engineers will ensure that all the instrumentations and devices to perform the monitoring are working properly.
3. Accounting Manager will be in charge of providing the electricity sales receipts to the Operations Manager of the plant.
4. Operations Manager will be the VER coordinator. He will be in charge of:

    a) Ensuring that instrumentations and devices are available and properly suited to perform efficiently the monitoring.

    b) Communicating and coordinating the monitoring tasks of all business units.

    c) Developing, executing, analyzing and improving the VER Monitoring/Reporting Procedures. This includes the crosschecking and consolidation (with multiple sources whenever possible) of the data obtained from the electrical engineers and the

accounting manager. He will also record this operation properly to be able to provide it to the VVB during the verification process.

d) Calculating and report the emission reductions, and

e) Organizing in-house seminars to inform and train the company staff to the monitoring procedures.

Please refer to Figure 5 where the site organizational chart is presented.

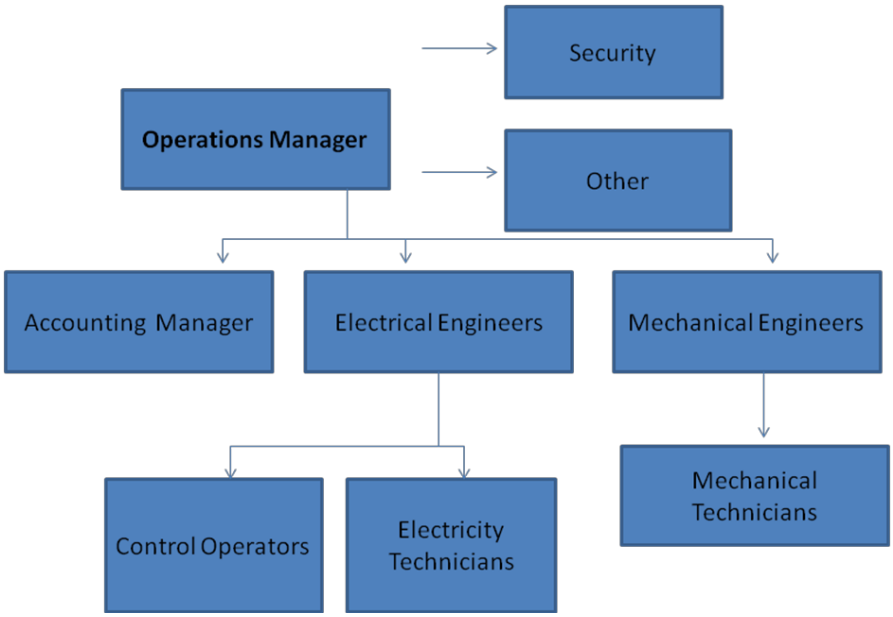


Figure 6: Organizational Chart

The monitoring report will be submitted at the end of every year for the verification of VVB. The report will cover the monitoring of grid-connected power generation, check report, report on calculation of the emission reductions and records of monitoring instrument repair and calibration, etc.

The meter which will be used in the powerhouse is produced by EMH and is in line with the EMRA requirements for electricity meters. (Please find the information on the technical specifications of the meter and its declaration of conformity on the product website.)

Also, the electricity meter fully conforms to or exceeds all relevant IEC standards for electronic metering equipment. The electricity meter ensures long term stability of the accuracy and achieves a maintenance free design which makes unnecessary the re-calibration of the meter. However, re-calibration periods are defined by national metrology institutes country by country and in Turkey this period is defined as 10 years[17].

Besides, in order to measure the electricity production figure of the plant accurately, there will be two sets of meters in the powerhouse. One is the main meter for measuring and the other

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

is the check meter for control. Both of these meters are metering the energy in two directions (consumption and production). If there is a measuring difference between these two meters and one of the parties (TEIAS or the company) requests for calibration of the meters, in this case, the meters will be calibrated without waiting for the periodic calibration date. (TEIAS System Usage Agreement, Art 3, B./2./b))[18]. There is no need for any additional internal audit process since this calibration process is done by another third party under the control of TEIAS. The project owner does not interfered with the calibration of the meters in Turkey according to the local standards.

On the other hand, the emission reductions will be calculated according to the measurements of the main electricity meter, since the electricity production invoices are made out based on this meter. EPİAŞ records are main source, TEİAŞ meter readings are cross-check source. The project developer is not responsible for the transmission losses; therefore, transmission losses are not included. During each monitoring period, the invoices will be presented to the VVB, together with the calculation details.

The Electrical Engineers will receive sufficient and continuous training in terms of monitoring and verification on aspects such as meter's reading and calibration and reading's recording, adjustment and reporting. One of the personnel from the team will be giving the mentioned training once a year. If new personnel are hired, they will have to follow up a training program and will be trained in the specific skills required to carry out the Monitoring Plan.

Data is recorded for each crediting period and maintained at least 2 years after its end. The company will establish a dedicated maintenance system to ensure the data availability for the required period.

[18] TEİAŞ System Usage Agreement Template