



# MONITORING REPORT OF TEPEKISLA DAM & HYDROPOWER PLANT PROJECT

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|                           |                                                                                                                                                                                                                                                                                                                                              |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project title             | Tepekisla Dam & Hydropower Plant Project                                                                                                                                                                                                                                                                                                     |
| Project ID                | 2097                                                                                                                                                                                                                                                                                                                                         |
| Monitoring period         | 01/09/2020 to 30/11/2023                                                                                                                                                                                                                                                                                                                     |
| Original date of issue    | 22/02/2024                                                                                                                                                                                                                                                                                                                                   |
| Most recent date of issue | 18/06/2021                                                                                                                                                                                                                                                                                                                                   |
| Version                   | 0.2                                                                                                                                                                                                                                                                                                                                          |
| VCS Standard Version      | 4.3                                                                                                                                                                                                                                                                                                                                          |
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# PROJECT DETAILS

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

The project is located in the Middle Black sea Region of Turkey, within the province of Tokat province. The Project Activity is a hydropower plant with a total installed capacity of 69,627 MWe (2 x 32,99 MWe and 3,641 MWe). The main purpose of the project is to generate approximately 241,098 MWh/year<sup>1</sup> of electricity to supply the national grid using a renewable resource and tapping the significant hydropower potential in the region. Tepekisla Dam & Hydropower Plant Project is located in the village of Erbaa in the central county of Tokat on the Kelkit River (the longest tributary of the Yesilirmak river basin).

The plant comprises Tepekisla Dam, cofferdam of upstream and downstream, penstock, a head pond, a spillway, and a powerhouse and having 2 SAM turbines of the horizontal axis and one Francis turbines of the horizontal axis. The clean energy is produced by utilizing water flow from the thalweg elevation of 216 meters to 255,50 meters of tailwater elevation. Water is transmitted through 214.00 meters tailwater elevation in the Tepekisla HEPP via two penstocks which have 130 m in length and 5.00 meters in diameter, after turbined here the water is given again Kelkit River. In this case, 37 meters between 252.50 meters and 215.0 of elevation of Kelkit River is evaluated therefore productive lands of Niksar plain are preserved. The length of the energy transmission line is about 15 km. The water is transferred which has 3 (2 horizontal axis SAM and one horizontal axis Francis) turbines with a total installed capacity of 69.627 MWe and a three-phased synchronous generator is used. The turbine and generator manufacturer are Alstom. The manufacturer is a French company, acclaimed for its integrated power plants, power production services and air quality control systems. Alstom has been selected as the equipment provider because of its reliable quality products and technology, which is a grid friendly technology with low maintenance needs as well as low noise and low environmental impacts. There has been no new reservoir formation within the context of the project activity.

The project contributes positive environmental benefits as displacing the electricity generated by fossil fuel-fired power plants by utilizing renewable resources so as to avoid environmental pollution and GHG emissions. Thus, the project has a significant contribution to climate protection and to sustainable development in the region.

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<sup>1</sup> The Generation License has been provided to the DOE.

This monitoring period is from 1 September 2020 to 30 November 2023. During this monitoring period, the actualized net electricity generation is 453,239.642 MWh. The total emission reduction of this monitoring period is 214,834 tCO<sub>2</sub>e. The following table shows a full detail of the project's technical specifications:

Table 1: Technical specifications of the project

| Power Plant Building     |                   |                                                  |
|--------------------------|-------------------|--------------------------------------------------|
| Length                   | M                 | 58.3                                             |
| Width                    | M                 | 38.5                                             |
| Turbines                 |                   |                                                  |
| Brand/Model              |                   | Alstom-Kaplan and Francis                        |
| Type                     |                   | Horizontal axis SAM and Francis                  |
| Number of Units          |                   | 2+1                                              |
| Unit Rated Power         | MWe               | 2 * 32.993 + 1*3.641                             |
| Total Installed Capacity | MWe               | 69.627                                           |
| Project rated discharge  | m <sup>3</sup> /s | 213.00                                           |
| Transformer              |                   |                                                  |
| Type                     |                   | Outdoor Type, oily, three phased                 |
| Number of Units          |                   | 3                                                |
| Power of a Unit          | kVA               | 85,000                                           |
| Voltage                  | kV                | 11/154 kV (+/- 2 x 2.5 %)                        |
| Efficiency               | %                 | 99                                               |
| Type                     |                   | Internal Type, dry or silicone oil, three phased |
| Number of Units          |                   | 3                                                |
| Power of a Unit          | kVA               | 400                                              |
| Voltage                  | kV                | 11 (+/- 2 x 2.5 %) / 0.4 kV                      |
| Penstock                 |                   |                                                  |
| Number of Units          |                   | 2                                                |
| Inner Diameter           | m                 | 5                                                |
| Steel Thickness          | mm                | 14,09                                            |
| Length                   | m                 | 130                                              |

| Generator       |   |                                        |
|-----------------|---|----------------------------------------|
| Type            |   | Horizontal axis, three phased synchron |
| Number of Units |   | 3                                      |
| Power Factor    |   | 0,90                                   |
| Efficiency      | % | 98.5                                   |

Table 2 Project Timeline

| Milestone                                                  | Date                       |
|------------------------------------------------------------|----------------------------|
| Final Project Description Report for EIA Process           | April 2011                 |
| EIA approval (by the Ministry of Environment and Forestry) | 08 June 2011               |
| Water Usage Agreement                                      | 01 October 2012            |
| Generation Licence                                         | 15 November 2012           |
| Revised Feasibility Report                                 | January 2013               |
| Construction Contract                                      | 08 May 2013                |
| Permission letter for the use of forestry lands            | 12 June 2013               |
| Electromechanical Equipment Contract                       | 28 June 2013- 17 July 2013 |
| The letter related to credit condition from the financier  | 12 March 2013              |
| The date for start of construction (Site delivery record)  | 04 June 2013               |
| Partial Provisional Acceptance Date (3.755MWm/3.641MWe)    | 13 August 2015             |
| Partial Provisional Acceptance Date (33.431MWm/32.993MWe)  | 04 September 2015          |
| Partial Provisional Acceptance Date (33.431MWm/32.993MWe)  | 05 November 2015           |
| 1 <sup>st</sup> Monitoring Period                          | 13/08/2015-31/08/2020      |
| 2 <sup>nd</sup> Monitoring Period                          | 01/09/2020-30/11/2023      |

Table 3 Ex-ante vs achieved emission reduction

| Vintage               | Total Days | Expected amount of net GHG removals (t CO2e) | Amount achieved during this monitoring period (tCO2e) | Expected net electricity generation (MWh) | Amount achieved during this monitoring period (MWh) | Difference (%) |
|-----------------------|------------|----------------------------------------------|-------------------------------------------------------|-------------------------------------------|-----------------------------------------------------|----------------|
| 01/09/2020-31/12/2020 | 122        | 38,217                                       | 22,827                                                | 80,586.181                                | 48,158.850                                          | -67            |

|                           |      |         |         |             |             |     |
|---------------------------|------|---------|---------|-------------|-------------|-----|
| 01/01/2021<br>31/12/2021  | 365  | 114,337 | 42,598  | 241,098.000 | 89,869.370  | -63 |
| 01/01/2022-<br>31/12/2022 | 365  | 114,337 | 67,904  | 241,098.000 | 143,258.230 | -68 |
| 01/01/2023-<br>30/11/2023 | 334  | 104,626 | 81,505  | 220,621.184 | 171,953.192 | -28 |
| Total                     | 1186 | 371,517 | 214,834 | 783,403.364 | 453,239.642 | -42 |

Considering the difference between the amount achieved in this monitoring period and the ex-ante amount, lower than expected precipitation resulted in lower production. According to the official records published by the General Directorate of Meteorology, annual areal precipitation in the Black Sea Region, where the project is located, is lower than normal. Therefore, emission reductions for during this monitoring period lower than expectations.

## 1.2 Audit History

| Audit type   | Period                  | Program | Validation/verification body name | Number of years |
|--------------|-------------------------|---------|-----------------------------------|-----------------|
| Validation   | 25/02/2015              | VCS     | Re-consult                        | Ten years       |
| Verification | 13-08-2015 / 31-08-2020 | VCS     | Re-carbon                         | Five years      |
| Verification | 01-09-2020 / 30-11-2023 | VCS     | RINA                              | Three years     |

## 1.3 Sectoral Scope and Project Type

|                             |                                                          |
|-----------------------------|----------------------------------------------------------|
| Sectoral scope <sup>2</sup> | 1                                                        |
| Project activity type       | "Energy industries (renewable - / nonrenewable sources)" |

The respective sectoral scope is scope 1: "Energy Industry – Renewable-/Non-renewable Sources" Installed capacity of the project is 69,627 Mwe. There is no project activity type. (NA-Since this isn't an AFOLU project, the category is not applicable). The project is not a grouped project.

<sup>2</sup> Projects, activities, or methodologies may be developed under any of the 16 VCS sectoral scopes: <https://verra.org/programs/verified-carbon-standard/vcs-program-details/#sectoral-scopes>

## 1.4 Project Proponent

|                   |                                                                     |
|-------------------|---------------------------------------------------------------------|
| Organization name | Sanko Enerji Sanayi ve Ticaret A.Ş.                                 |
| Contact person    | Muhsin Dervişoğulları                                               |
| Title             | Project Development Manager                                         |
| Address           | 15 Temmuz Mah. Gülbahar Cad. No: 43 K: 6-7 34212 Güneşli / İstanbul |
| Telephone         | +90 444 87 65 / +90 212 410 46 66                                   |
| Email             | muhsin.dervisogullari@sankoenerji.com.tr                            |

## 1.5 Other Entities Involved in the Project

|                     |                                                                                 |
|---------------------|---------------------------------------------------------------------------------|
| Organization name   | Rüzgar Karbon ve Enerji Danışmanlık Sanayi Ticaret Limited Şirketi              |
| Role in the Project | Consultant                                                                      |
| Contact person      | Mrs. Çağla Balcı Eriş                                                           |
| Title               | Manager                                                                         |
| Address             | Göztepe Mah. Avcı Sok. Nursaray Apt. No:1 D:22 Kadıköy-İstanbul<br>34270 TURKEY |
| Telephone           | +90 216 355 09 68                                                               |
| Email               | cagla@ruzgardanismanlik.net                                                     |

## 1.6 Project Start Date

|                    |                                                                |
|--------------------|----------------------------------------------------------------|
| Project start date | 13-08-2015                                                     |
| Justification      | The date is the start date of the commissioning of the project |

## 1.7 Project Crediting Period

|                                                       |                                                                                                                                                                                                                                                     |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Crediting period                                      | <input type="checkbox"/> Seven years, twice renewable<br><input type="checkbox"/> Ten years, fixed<br><input checked="" type="checkbox"/> Other (state the selected crediting period and justify how it conforms with the VCS Program requirements) |
| Start and end date of first or fixed crediting period | The project crediting period is from 13/08/2015 to 12/08/2025.                                                                                                                                                                                      |

The Project's total crediting period is ten years renewable twice. This 2nd monitoring period includes 01/09/2020 to 30/11/2023 and belongs to first crediting period.

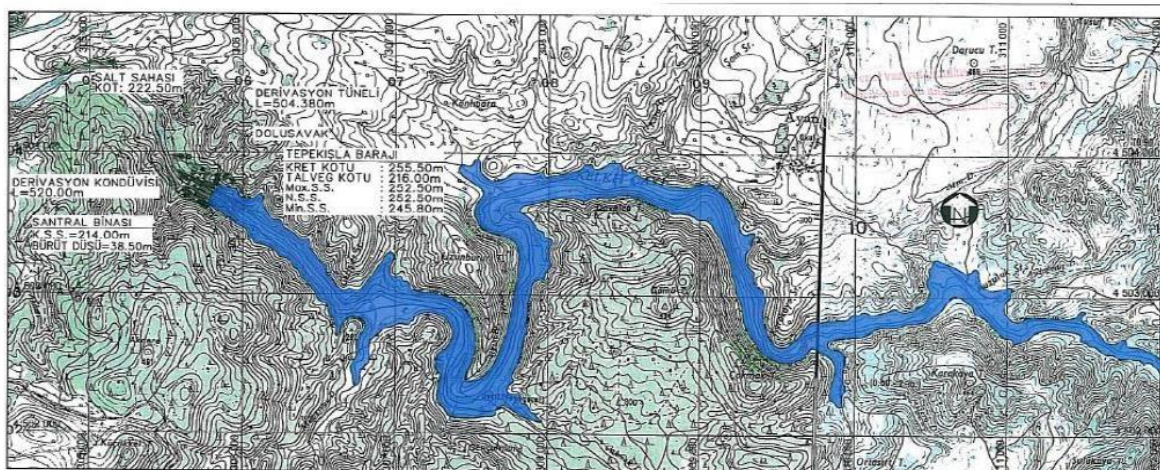
## 1.8 Project Location

The project site is located Kelkit river which one is the longest tributary of the Yesilirmak river basin in Turkey's Middle Black Sea Region, approximately 3.5 km to the south of the Doganyurt Nahiye center and 5.5 km upstream of Tepekisla village of Tokat. The project area is located 40° 39' 34" N -36° 42' 13" E coordinates. The following figures show the project's location.

Figure 1 Project Location



Figure 2 Plant Layout



## 1.9 Title and Reference of Methodology

| Type<br>(methodology,<br>tool or module). | Reference ID, if<br>applicable | Title                                                                                              | Version |
|-------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------|---------|
| Methodology                               | ACM0002                        | Largescale Consolidated Methodology - Grid-connected electricity generation from renewable sources | 15.0    |
| Tool                                      | Tool-07                        | Tool to calculate the emission factor for an electricity system                                    | 04.0    |
| Tool                                      | Tool-01                        | Tool for the demonstration and assessment of additionality                                         | 07.0    |
| Tool                                      | Tool-10                        | Tool to determine the remaining lifetime of equipment                                              | 01      |

## 1.10 Double Counting and Participation under Other GHG Programs

### 1.10.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program?

☐ Yes ☒ No

*If yes, provide required evidence of no double issuance as outlined by the VCS Standard.*

### 1.10.2 Registration in Other GHG Programs

Is the project registered or seeking registration under any other GHG programs?

☐ Yes ☒ No

*If yes, provide the registration number and all relevant details.*

## 1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions

### 1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the *VCS Program Definitions* for definitions of emissions trading program and binding emission limit.

☐ Yes ☒ No

### 1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the *VCS Program Definitions* for definition of GHG-related environmental credit system.

☐ Yes ☒ No

### 1.11.3 Supply Chain (Scope 3) Emissions

Do the project activities affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

☐ Yes ☒ No

*If yes:*

Is the project proponent(s) or authorized representative a buyer or seller of the product(s) (goods or services) that are part of a supply chain?

☐ Yes ☐ No

If yes:

Has the project proponent(s) or authorized representative posted a public statement on their website saying, "Carbon credits may be issued through the Verified Carbon Standard project [project ID] for the greenhouse gas emission reductions or removals associated with [project proponent or authorized representative organization name(s)] [name of product(s) whose emissions footprint is changed by the project activities]."

☐ Yes

☐ No

If yes to all:

*Provide evidence of the public statement. Evidence must be provided in this section or in an appendix.*

## 1.12 Sustainable Development Contributions

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

### SDG-7 Clean and Affordable Energy

The project contributes to the Sustainable Development Goal, Affordable and Clean Energy. During this monitoring period, the actualized net electricity generation is 880,495.95 MWh.

### SDG-8 Decent Work and Economic Growth

The project contributes to the Sustainable Development Goal, Decent Work and Economic Growth. Employment opportunities were provided for 21 personnel during the operation phase of the project.

### SDG-13 Climate Action

The project contributes to the Sustainable Development Goal, Climate Action. During this monitoring period, the actualized emission reduction is 214,834 tCO<sub>2</sub>e.

**Table 4: Sustainable Development Contributions**

| Row number | SDG Target | SDG Indicator                                                                                                                      | Net Impact on SDG Indicator                                   | Current Project Contributions                                                                   | Contributions Over Project Lifetime                                                                                                 |
|------------|------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 1)         | 7.2        | By 2030, increase substantially the share of renewable energy in the global energy mix                                             | Increase of renewable energy generated                        | During this monitoring period, the actualized net electricity generation is 453,239.642 MWh.    | The amount of electricity produced during the lifetime of the project is 2,410,980 MWh over the first ten year of project lifetime. |
| 2)         | 8.5        | By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with | Increase of quality and quantitative employment in the region | Currently 21 people are employed                                                                | 21 employees                                                                                                                        |
| 3)         | 13.2       | Integrate climate change measures into national policies, strategies, and planning                                                 | Reduction of the greenhouse gas emissions                     | During this monitoring period, the actualized emission reduction is 214,834 tCO <sub>2e</sub> . | The emission reduction amount over the first ten year of the project lifetime is 1,114,337 tCO <sub>2e</sub> .                      |

### 1.13 Commercially Sensitive Information

No commercially sensitive information has been excluded from the public version of the project description..

## 2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

### 2.1 Stakeholder Engagement and Consultation

#### 2.1.1 Stakeholder Identification

The stakeholder structure has not changed since validation. Details of the stakeholder structure are given in section 2.1.2.

#### 2.1.2 Stakeholder Consultation and Ongoing Communication

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ongoing consultation                | The contact information of the plant responsible exists at the Mukhtar, the project owner and local community are always in touch. The project owner regularly checks with the Mukhtar if any complaint or a request exists. Any complaint or need from the local community could directly be received by the project owner and appropriate contributions or improvements are made to the local community. |
| Date(s) of stakeholder consultation | The last site-visit was on 02/01/2024                                                                                                                                                                                                                                                                                                                                                                      |
| Communication of monitored results  | Stakeholders can directly reach the plant business manager if they have any complaints/opinions. In cases where stakeholders needed to be informed, the project owner informed the stakeholders through the headman.                                                                                                                                                                                       |
| Consultation records                | At the end of the stakeholder meeting, signatures were taken from the stakeholders. In case of any request/complaint, stakeholders can forward this issue to the Mukhtar or directly to the Business Manager.<br><br>This submitted request/complaint is documented. No complaints occurred during this monitoring period.                                                                                 |
| Stakeholder input                   | Generally, the stakeholders were pleased with the project. Since they have informed regarding the project at the first                                                                                                                                                                                                                                                                                     |

|  |                                                                                  |
|--|----------------------------------------------------------------------------------|
|  | stakeholder consultation process, they have no negative comments on the project. |
|--|----------------------------------------------------------------------------------|

### 2.1.3 Free, Prior, and Informed Consent

|                 |                                                                                                                                                           |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Consent         | Relevant permits were obtained during the validation period.                                                                                              |
| Outcome of FPIC | The project activity did not damage land, did not relocate people without their consent, and did not forcibly physically or economically displace people. |

### 2.1.4 Grievance Redress Procedure

| Grievances received                                                  | Resolution and outcome                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No negative inputs have been received during this monitoring period. | The grievance mechanism is in place, and this was also confirmed by the interviewed local villagers and Ayan and Tepekisla Villages Mukhtars during the site visit of the last verification. In addition, the contact information of the plant responsible is available in Mukhtars; any complaints or requests can be forwarded to the Project Owner. |

### 2.1.5 Public Comments

### 2.1.6

| Summary of comments received                                             | Actions taken |
|--------------------------------------------------------------------------|---------------|
| There hasn't been any public consultation during this monitoring period. | N/A           |

## 2.2 Risks to Stakeholders and the Environment

| Risk identified | Mitigation or preventative measure taken |
|-----------------|------------------------------------------|
|-----------------|------------------------------------------|

|                                                                                                   |                    |                                                                                                                                 |
|---------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Risks to stakeholder participation                                                                | No risk identified | Stakeholders are involved in every stage of informing about the project activity. The complaint mechanism is fully functioning. |
| Working conditions                                                                                | No risk identified | All necessary training regarding the health and safety of employees is provided.                                                |
| Safety of women and girls                                                                         | No risk identified | The project does not endanger the safety of girls and women.                                                                    |
| Safety of minority and marginalized groups, including children                                    | No risk identified | The project does not jeopardize the safety of minorities and isolated groups, including children.                               |
| Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials) | No risk identified | The project is a hydro energy project.                                                                                          |

## 2.3 Respect for Human Rights and Equity

### 2.3.1 Labor and Work

|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Discrimination and sexual harassment             | The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis.                                                                                                                                                                                                                                                                       |
| Management experience                            | No new organization was involved in the project design and implementation.                                                                                                                                                                                                                                                                                                                                                    |
| Gender equity in labor and work                  | The project does not reduce access to or control of resources for women. The project does not involve in any form discrimination in any kind of form. The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights.                                                                                                  |
| Human trafficking, forced labor, and child labor | Child labour, as defined by the ILO Minimum Age Convention, is not allowed. The Project Developer ensures that there is no forced labour, and that all employment is in compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. |

### 2.3.2 Human Rights

Turkey is a party to European Convention on Human Rights since 18.May. 1954.<sup>3</sup>

The project owner respects internationally proclaimed human rights including dignity, cultural property, and uniqueness of indigenous people. The project is not complicit in Human Rights abuses.

### 2.3.3 Indigenous Peoples and Cultural Heritage

There is no resettlement issue associated with the Project. There was not house in the project area, thus the project did not cause any resettlement.

### 2.3.4 Property Rights

All permits for the project site were obtained during the validation period.

|                                                   |     |
|---------------------------------------------------|-----|
| Disputes over rights to territories and resources | N/A |
| Respect for property rights                       | N/A |

### 2.3.5 Benefit Sharing

There is no benefit sharing in the project activity.

## 2.4 Ecosystem Health

|                                        | Risk identified    | Mitigation or preventative measure taken during the monitoring period |
|----------------------------------------|--------------------|-----------------------------------------------------------------------|
| Impacts on biodiversity and ecosystems | No risk identified | The project is a hydro energy project.                                |
| Soil degradation and soil erosion      | No risk identified | The project is a hydro energy project.                                |
| Water consumption and stress           | No risk identified | The project is a hydro energy project.                                |

<sup>3</sup>Please See Official Website of Ministry of Foreign Affairs of Turkey: <http://www.mfa.gov.tr/the-european-convention-on-human-rights.en.mfa>

|                      |                    |                                        |
|----------------------|--------------------|----------------------------------------|
| Usage of fertilizers | No risk identified | The project is a hydro energy project. |
|----------------------|--------------------|----------------------------------------|

#### 2.4.1 Rare, Threatened, and Endangered species

|                    |                                                                                                                                                                                                                                                                                 |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Species or habitat | There aren't any endangered species identified as potentially present within the Project boundary (including those that may route through the area). The Project does not potentially impact other areas where endangered species may be present through transboundary affects. |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### 2.4.2 Introduction of species

N/A

#### 2.4.3 Ecosystem conversion

The project is not an ARR, ALM, WRC or ACoGS project.

## 3 IMPLEMENTATION STATUS

### 3.1 Implementation Status of the Project Activity

The project was started construction on 04.06.2013. The first unit started commissioning on 13/08/2015. During the registration of the project, the project proponent was the Ark Enerji Üretimi Sanayi Ve Ticaret A.S (as project developer). Ark Enerji was taken with all its liabilities by Sanko Rüzgar Enerjisi Sanayi ve Ticaret A.Ş on 04/11/2015. Finally, Sanko Rüzgar Enerjisi Sanayi ve Ticaret A.Ş has been transferred to Sanko Enerji Sanayi ve Ticaret A.S. on 04/09/2019. Similarly, the shareholder structure was changed on 04/09/2019 and the Project has been transferred to Sanko Enerji Sanayi ve Ticaret A.S. The sole Project Proponent is Sanko Enerji Sanayi ve Ticaret A.S.

## 3.2 Deviations

### 3.2.1 Methodology Deviations

No deviation in the methodology has been applied to the project activity during this monitoring period.

### 3.2.2 Project Description Deviations

As the commissioning of the power plant has been realized on 13/08/2015, the start date of the first crediting period was revised as 13/08/2015. Thus, the first crediting period is including between 13th of August 2015 and 12th of August 2025. Clarifications about the project owner and other organizations involved in the project are included in Section 3.1.

## 3.3 Grouped Projects

This is not a grouped project.

## 3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes

☒ No

# 4 DATA AND PARAMETERS

## 4.1 Data and Parameters Available at Validation

|                                                                                                     |                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data / Parameter</b>                                                                             | <b>EG<sub>gross,y</sub></b>                                                                                                                              |
| <b>Data unit</b>                                                                                    | GWh                                                                                                                                                      |
| <b>Description</b>                                                                                  | Turkey's Gross Electricity Generated by primary energy source for the five most recent years (2008 - 2012)                                               |
| <b>Source of data</b>                                                                               | Turkish Electricity Transmission Company (TEIAS)                                                                                                         |
| <b>Value applied</b>                                                                                | Validated VCS Project Description (Version 3, dated 13/01/2015) of the Project, Section 3.1                                                              |
| <b>Justification of choice of data or description of measurement methods and procedures applied</b> | TEIAS (Turkish Electricity Transmission Company) is the official source for this data, providing the most up-to-date and accurate information available. |

|                        |                                         |
|------------------------|-----------------------------------------|
| <b>Purpose of Data</b> | Used for baseline emission calculation. |
| <b>Comments</b>        |                                         |

|                                                                                                     |                                                                                              |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| <b>Data / Parameter</b>                                                                             | <b>Cap<sub>BL</sub></b>                                                                      |
| <b>Data unit</b>                                                                                    | W                                                                                            |
| <b>Description</b>                                                                                  | Installed capacity of the hydro power plant after the implementation of the project activity |
| <b>Source of data</b>                                                                               | Project site                                                                                 |
| <b>Value applied</b>                                                                                | 0 (this is a new hydro power plant)                                                          |
| <b>Justification of choice of data or description of measurement methods and procedures applied</b> | The installed capacity has been determined based on recognized standards.                    |
| <b>Purpose of Data</b>                                                                              | Calculation of project emissions                                                             |
| <b>Comments</b>                                                                                     |                                                                                              |

|                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data / Parameter</b>                                                                             | <b>FC<sub>i,y</sub></b>                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Data unit</b>                                                                                    | Ton (m3 for Natural Gas)                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Description</b>                                                                                  | Amount of fossil fuel type i consumed in the project electricity system in year y                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Source of data</b>                                                                               | Turkish Electricity Transmission Company (TEIAS)                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Value applied</b>                                                                                | Validated VCS Project Description (Version 3) of the Project, Section 3.1 (Step 4)                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Justification of choice of data or description of measurement methods and procedures applied</b> | According to the Tool to Calculate the Emission Factor for an Electricity System version 04.0, the national average default value shall be used if values are reliable and documented in regional or national energy statistics / energy balances. TEIAS (Turkish Electricity Transmission Company) is the official source for this data, providing the most up-to-date and accurate information available. Therefore, the uncertainty for the data is low. |
| <b>Purpose of Data</b>                                                                              | To calculate the Operating Margin (OM) emission factor                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Comments</b>                                                                                     | -                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|                         |                                                     |
|-------------------------|-----------------------------------------------------|
| <b>Data / Parameter</b> | <b>NC<sub>vi,y</sub></b>                            |
| <b>Data unit</b>        | TJ/Ton (TJ/m3 for Natural Gas)                      |
| <b>Description</b>      | Net calorific value of fossil fuel type             |
| <b>Source of data</b>   | TEIAS website: "Heating Values of Fuels Consumed in |

|                                                                                              |                                                                                                                                                          |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                              | Thermal Power Plants in Turkey by the Electric Utilities” 2008- 2012                                                                                     |
| Value applied                                                                                | Validated VCS Project Description (Version 3) of the Project, Section 3.1                                                                                |
| Justification of choice of data or description of measurement methods and procedures applied | TEIAS (Turkish Electricity Transmission Company) is the official source for this data, providing the most up-to-date and accurate information available. |
| Purpose of Data                                                                              | To calculate the Operating Margin (OM) emission factor                                                                                                   |
| Comments                                                                                     | The conversion factor of 4.187 Joules/Cal is used                                                                                                        |

|                                                                                              |                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data / Parameter                                                                             | <b>EF<sub>CO2,i,y</sub></b>                                                                                                                                                                                    |
| Data unit                                                                                    | tCO <sub>2</sub> /MWh                                                                                                                                                                                          |
| Description                                                                                  | Default CO2 emission factor of fossil fuel type i                                                                                                                                                              |
| Source of data                                                                               | IPCC default values (as provided in Table 1.4, Chapter 1, Volume 2 (Energy), 2006 IPCC Guidelines for National Greenhouse Gas Inventory) are used.                                                             |
| Value applied                                                                                | Validated VCS Project Description (Version 3) of the Project, Section 3.1                                                                                                                                      |
| Justification of choice of data or description of measurement methods and procedures applied | There is no information on the fuel specific default emission factor in Turkey. Hence, IPCC values have been used as per the “Tool to calculate the emission factor for an electricity system (version 04.0)”. |
| Purpose of Data                                                                              | Used for baseline emission calculation.                                                                                                                                                                        |
| Comments                                                                                     |                                                                                                                                                                                                                |

|                                                                                              |                                                                                                                                                               |
|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data / Parameter                                                                             | <b>Electricity Imports</b>                                                                                                                                    |
| Data unit                                                                                    | GWh                                                                                                                                                           |
| Description                                                                                  | Electricity imported to the Grid from other countries                                                                                                         |
| Source of data                                                                               | Turkish Electricity Transmission Company (TEIAS)                                                                                                              |
| Value applied                                                                                | TEIAS                                                                                                                                                         |
| Justification of choice of data or description of measurement methods and procedures applied | TEIAS (Turkish Electricity Transmission Company) is the official source for this data, hence providing the most up-to-date and accurate information available |
| Purpose of Data                                                                              | To calculate the Operating Margin (OM) emission factor                                                                                                        |
| Comments                                                                                     |                                                                                                                                                               |

|                                                                                                     |                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data / Parameter</b>                                                                             | <b>Electricity capacity additions</b>                                                                                                                          |
| <b>Data unit</b>                                                                                    | MWh/yr                                                                                                                                                         |
| <b>Description</b>                                                                                  | Set of power capacity additions in the electricity system that comprise 20% of the system generation (in GWh) and that have been built most recently.          |
| <b>Source of data</b>                                                                               | Turkish Electricity Transmission Company (TEIAS)<br>Generation units put into operation in 2012, 2011 and 2010.                                                |
| <b>Value applied</b>                                                                                | Validated VCS Project Description (Version 3) of the Project, Section 2.4                                                                                      |
| <b>Justification of choice of data or description of measurement methods and procedures applied</b> | TEIAS (Turkish Electricity Transmission Company) is the official source for this data, hence providing the most up-to-date and accurate information available. |
| <b>Purpose of Data</b>                                                                              | To calculate the Operating Margin (OM) factor                                                                                                                  |
| <b>Comments</b>                                                                                     |                                                                                                                                                                |

|                                                                                                     |                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data / Parameter</b>                                                                             | <b><math>\eta_{m,y}</math></b>                                                                                                                                                                                                                                                    |
| <b>Data unit</b>                                                                                    | %                                                                                                                                                                                                                                                                                 |
| <b>Description</b>                                                                                  | Average net energy conversion efficiency of power unit m in year y                                                                                                                                                                                                                |
| <b>Source of data</b>                                                                               | UNFCCC web site: "Tool to calculate the emission factor for an electricity system".                                                                                                                                                                                               |
| <b>Value applied</b>                                                                                | Validated VCS Project Description (Version 3) of the Project, Annex 3                                                                                                                                                                                                             |
| <b>Justification of choice of data or description of measurement methods and procedures applied</b> | N/A                                                                                                                                                                                                                                                                               |
| <b>Purpose of Data</b>                                                                              | Used for baseline emission calculation.                                                                                                                                                                                                                                           |
| <b>Comments</b>                                                                                     | No official efficiency values based on each power plant or each fuel type is available in Turkey<br><br>Most natural gas power plants in Turkey are combined cycle, most coal power plants operate sub-critical and most liquid fuel power plants adopt an open cycle technology. |

|                         |                              |
|-------------------------|------------------------------|
| <b>Data / Parameter</b> | <b><math>EG_{m,y}</math></b> |
| <b>Data unit</b>        | MWh                          |

|                                                                                                     |                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>                                                                                  | Net electricity generated by power plant/unit m in year y                                                                                                      |
| <b>Source of data</b>                                                                               | Annex I of Turkish Electricity Transmission Company (TEIAS) Capacity Projection Report for 2011.                                                               |
| <b>Value applied</b>                                                                                | Validated VCS Project Description (Version 3) of the Project, Section 3.1 (Step 5)                                                                             |
| <b>Justification of choice of data or description of measurement methods and procedures applied</b> | TEIAS (Turkish Electricity Transmission Company) is the official source for this data, hence providing the most up-to-date and accurate information available. |
| <b>Purpose of Data</b>                                                                              | -                                                                                                                                                              |
| <b>Comments</b>                                                                                     | -                                                                                                                                                              |

|                                                                                                     |                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data / Parameter</b>                                                                             | <b>EF<sub>L,m,y</sub></b>                                                                                                                                                                                                                                                                                                                             |
| <b>Data unit</b>                                                                                    | kgCO <sub>2</sub> /GJ                                                                                                                                                                                                                                                                                                                                 |
| <b>Description</b>                                                                                  | The CO <sub>2</sub> emission factor of the grid power unit m (Default CO <sub>2</sub> emission factor of fossil fuel types are used)                                                                                                                                                                                                                  |
| <b>Source of data</b>                                                                               | IPCC default values (as provided in Table 1.4, Chapter 1, Volume 2 (Energy), 2006 IPCC Guidelines for National Greenhouse Gas Inventory) are used. Link:<br><a href="http://www.ipccnggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf">http://www.ipccnggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf</a> |
| <b>Value applied</b>                                                                                | Validated VCS Project Description (Version 3) of the Project, ANNEX 3 and Section 3 (Step 5)                                                                                                                                                                                                                                                          |
| <b>Justification of choice of data or description of measurement methods and procedures applied</b> | There is no information on the power unit specific emission factor in Turkey. Hence, IPCC values have been used as per the “Tool to calculate the emission factor for an electricity system (version 04.0.0)”.                                                                                                                                        |
| <b>Purpose of Data</b>                                                                              | -                                                                                                                                                                                                                                                                                                                                                     |
| <b>Comments</b>                                                                                     | -                                                                                                                                                                                                                                                                                                                                                     |

|                                                          |                                                                                                                                        |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data / Parameter</b>                                  | <b>w<sub>OM</sub></b>                                                                                                                  |
| <b>Data unit</b>                                         | percent                                                                                                                                |
| <b>Description</b>                                       | Weight of operating margin emissions factor                                                                                            |
| <b>Source of data</b>                                    | Tool to calculate the emission factor for an electricity system                                                                        |
| <b>Value applied</b>                                     | 0.5                                                                                                                                    |
| <b>Justification of choice of data or description of</b> | “Tool to calculate the emission factor for an electricity system (Version 04.0)”, suggests w <sub>OM</sub> = 0.5 and w <sub>BM</sub> = |

|                                            |                                                                                                                                         |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| measurement methods and procedures applied | 0.5 for the first crediting period, except wind and solar power plants. In the second and third crediting periods wOM=0.25 and wBM=0.75 |
| Purpose of Data                            | -                                                                                                                                       |
| Comments                                   | N/A                                                                                                                                     |

|                                                                                              |                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data / Parameter                                                                             | $w_{BM}$                                                                                                                                                                                                                                               |
| Data unit                                                                                    | rate                                                                                                                                                                                                                                                   |
| Description                                                                                  | Weight of built margin emissions factor                                                                                                                                                                                                                |
| Source of data                                                                               | Tool to calculate the emission factor for an electricity system                                                                                                                                                                                        |
| Value applied                                                                                | 0.5                                                                                                                                                                                                                                                    |
| Justification of choice of data or description of measurement methods and procedures applied | “Tool to calculate the emission factor for an electricity system (Version 04.0)”, suggests wOM = 0.5 and wBM = 0.5 for the first crediting period, except wind and solar power plants. In the second and third crediting periods wOM=0.25 and wBM=0.75 |
| Purpose of Data                                                                              | -                                                                                                                                                                                                                                                      |
| Comments                                                                                     | N/A                                                                                                                                                                                                                                                    |

|                                                                                              |                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data / Parameter                                                                             | $EF_{grid,CM,y}$                                                                                                                                                                                                                                            |
| Data unit                                                                                    | t CO <sub>2</sub> /MWh                                                                                                                                                                                                                                      |
| Description                                                                                  | Combined margin CO <sub>2</sub> emission factor for the project electricity system in year y                                                                                                                                                                |
| Source of data                                                                               | Tool to calculate the emission factor for an electricity system                                                                                                                                                                                             |
| Value applied                                                                                | 0.474                                                                                                                                                                                                                                                       |
| Justification of choice of data or description of measurement methods and procedures applied | The baseline emission factor is the weighted average of the Operating Margin Emission Factor and Build Margin Emission Factor. The “Tool to calculate the emission factor for an electricity system” (version 03.0) guideline procedures have been applied. |
| Purpose of Data                                                                              | To calculate the baseline emission.                                                                                                                                                                                                                         |
| Comments                                                                                     | -                                                                                                                                                                                                                                                           |

## 4.2 Data and Parameters Monitored

| Data / Parameter                                                | EG <sub>facility,y</sub>                                                                                                                                                                                                                     |                                        |                                             |                                            |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------------|--------------------------------------------|
| Data unit                                                       | MWh/yr                                                                                                                                                                                                                                       |                                        |                                             |                                            |
| Description                                                     | Quantity of net electricity generation supplied by the project plant/unit to the grid in year y                                                                                                                                              |                                        |                                             |                                            |
| Source of data                                                  | Main source is the monthly meter readings records (EPIAŞ data, also known as PMUM). Invoicing of the electricity production is carried out according to EPIAŞ data; thus, rendering the EPIAŞ data official source of electricity generation |                                        |                                             |                                            |
| Description of measurement methods and procedures to be applied | The net electricity generation supplied to the grid is measured continuously by meters (both main and spare) and recorded monthly.                                                                                                           |                                        |                                             |                                            |
| Frequency of monitoring/recording                               | Continuous measurement and at least monthly recording.                                                                                                                                                                                       |                                        |                                             |                                            |
| Value monitored                                                 |                                                                                                                                                                                                                                              | Electricity supplied to the grid (kWh) | Electricity consumption from the grid (kWh) | Net electricity supplied to the grid [kWh] |
|                                                                 | 01/09/2020-31/12/2020                                                                                                                                                                                                                        | 48,398,640                             | 239,790                                     | 48,158,850                                 |
|                                                                 | 01/01/2021-31/12/2021                                                                                                                                                                                                                        | 90,677,760                             | 808,390                                     | 89,869,370                                 |
|                                                                 | 01/01/2022-31/12/2022                                                                                                                                                                                                                        | 143,635,110                            | 376,880                                     | 143,258,230                                |
|                                                                 | 01/01/2023-30/11/2023                                                                                                                                                                                                                        | 172,207,322                            | 254,130                                     | 171,953,192                                |
|                                                                 | Total(01/09/2020-30/11/2023)                                                                                                                                                                                                                 | 454,918,832                            | 1,679,190                                   | 453,239,642                                |
|                                                                 | The project's electricity production is fed into the grid through the Erbaa TM-Almus TM EİH 154, kV.                                                                                                                                         |                                        |                                             |                                            |
| Monitoring equipment                                            | Meters are following the communiqué for Metering Devices to be used in Electricity Market.<br><br>The specification of old and current electricity meters is provided below                                                                  |                                        |                                             |                                            |

| OLD METERS                            |                  |
|---------------------------------------|------------------|
| Brand-Model                           | ITRON- SL761W071 |
| Serial Number of Main Meters          | 68010502-TM1     |
|                                       | 68010504-TM2     |
| Serial Number of Backup Meters        | 68010503-TM1     |
|                                       | 68010505-TM2     |
| Date of TEIAS test of all meters      | 24/08/2020       |
| Date of Last TEIAS test of all meters | 16/06/2022       |

Accuracy class: Active 0.2S – Reactive 2

During this monitoring period four metering tests were performed on 16/06/2022. All 4 meters have been changed on 12/10/2023 because of 10 years rule according to related regulation. And new meters details as below:

| CURRENT METERS                   |              |
|----------------------------------|--------------|
| Brand-Model                      | EMH LZQJ-XC  |
| Serial Number of Main Meters     | 12744468-TM1 |
|                                  | 12744470-TM2 |
| Serial Number of Backup Meters   | 12744469-TM1 |
|                                  | 12744471-TM2 |
| Date of TEIAS test of all meters | 12/10/2023   |

#### QA/QC procedures to be applied

Measurements are undertaken using energy meters.

- According to the Article 2 of the Communiqué of Meters in Electricity Sector<sup>4</sup>: 'The meters to be used in the electricity market shall be compliant with the standards of Turkish Standards Institute or IEC and have obtained "Type and System Approval" certificate from the Ministry of Trade and Industry.' Therefore, Ministry of Trade and Industry (Ministry) is responsible from control and calibration of the meters.
- Paragraph b) of the Article 9 of the 'Regulation of Metering and Testing of Metering Systems' (Regulation) of Ministry

<sup>4</sup> [http://www.epdk.gov.tr/documents/elektrik/mevzuat/teblig/elektrik/sayaclar\\_hakkinda/Elk\\_Tblg\\_Sayaclar.doc](http://www.epdk.gov.tr/documents/elektrik/mevzuat/teblig/elektrik/sayaclar_hakkinda/Elk_Tblg_Sayaclar.doc)

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            | <p>states that: 'b) Periodic tests of meters of electricity, water, coal gas, natural gas and current and voltage transformers are done every 10 years.' Therefore; periodic calibration of the meters have been done every 10 years. According to System Usage Agreement, TEIAS has made test for meters every 2 years.</p> <ul style="list-style-type: none"> <li>• As above mentioned, the data acquisition and management and quality assurance procedures that are anyway in place, no additional procedures have to be established for the monitoring plan. In addition to that the quantity of net electricity delivered to the grid will be cross checked with the meter reading records (OSF forms) provided to the company by TEIAS and internal reports provided to the head of the company by the plant manager.</li> <li>• The net electricity export/supplied to a grid is the difference between the measured quantities of the grid electricity export and the import. Main source is the monthly meter readings records (EPIAŞ data, was known as PMUM in the past). Data from remote automatic meter reading system (OSOS) is used for crosschecking. Invoicing of the electricity production is carried out according to EPIAŞ data; thus, rendering the EPIAŞ data official source of electricity generation.</li> </ul> |
| <b>Purpose of the data</b> | Calculation of net electricity supplied to the grid and thus baseline emissions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Calculation method</b>  | <p>The net electricity is calculated by:</p> <ol style="list-style-type: none"> <li>Subtracting self-consumption value from gross generation value for each month to find the net electricity supplied to the grid.</li> <li>Adding up all monthly net electricity values to calculate the total net electricity supplied to the grid during the monitoring period.</li> <li>Multiplying the total net electricity value with the CM emission factor.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Comments</b>            | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|                         |                                                                                              |
|-------------------------|----------------------------------------------------------------------------------------------|
| <b>Data / Parameter</b> | <b>Cap<sub>PJ</sub></b>                                                                      |
| <b>Data unit</b>        | MWe                                                                                          |
| <b>Description</b>      | Installed capacity of the hydro power plant after the implementation of the project activity |
| <b>Source of data</b>   | Project site                                                                                 |

|                                                                 |                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Description of measurement methods and procedures to be applied | SCADA system of the Project Activity                                                                                                                                                                                                                                                      |
| Frequency of monitoring/recording                               | Yearly                                                                                                                                                                                                                                                                                    |
| Value monitored                                                 | 69.627                                                                                                                                                                                                                                                                                    |
| Monitoring equipment                                            | The data is monitored from the electricity generation license which was granted by Energy Market Regulatory Authority. The company has not made any change on the project design up to know and therefore, there is no increase or decrease in the installed capacity of the power plant. |
| QA/QC procedures to be applied                                  | -                                                                                                                                                                                                                                                                                         |
| Purpose of the data                                             | Calculation of project emissions                                                                                                                                                                                                                                                          |
| Calculation method                                              | -                                                                                                                                                                                                                                                                                         |
| Comments                                                        |                                                                                                                                                                                                                                                                                           |

|                                                                 |                                                                                                                                 |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Data / Parameter                                                | $A_{PJ}$                                                                                                                        |
| Data unit                                                       | m <sup>2</sup>                                                                                                                  |
| Description                                                     | Area of the regulation pond measured in the surface of the water, after the implementation of the project activity when 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                               | Yearly.If the regulator area is changed.                                                                                        |
| Value monitored                                                 | 2,319,000 m <sup>2</sup>                                                                                                        |
| Monitoring equipment                                            | N/A                                                                                                                             |
| QA/QC procedures to be applied                                  | N/A                                                                                                                             |
| Purpose of the data                                             | Calculation of project emissions                                                                                                |

|                           |                                                                                                   |
|---------------------------|---------------------------------------------------------------------------------------------------|
| <b>Calculation method</b> | The Generation License.                                                                           |
| <b>Comments</b>           | Since there is no capacity increase, the same installed capacity during the registration is valid |

### 4.3 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 are complete, consistent, clear and accurate. The project is operated by Sanko Enerji Sanayi Ve Ticaret. A.S. which ensures the overall site management in accordance with Turkish Laws and technology providers' guidelines.

The Project Proponent is responsible to implement the monitoring report according to the UNFCCC rules and procedures. According to the Turkish Law and Regulations, the methods of monitoring the net electricity fed to the grid and quality control and assures are explained below:

Monitoring data is collected in accordance with the agreement done between the project owner and Turkish Electricity Transmission Company (TEIAS) which provides the infrastructure for the connection to the national grid. The metering system is defined in the agreement as two groups: main meter and spare meter. The design of the metering system is checked and approved by TEIAS before commissioning of the plant. The technical specifications of the power meters should be in line with Measure and Metering Devices Regulation by Ministry of Industry and Trade. In addition, the Communiqué for Power Meters announced by Energy Market Regulations Authority (EMRA) requires all meters to be in line with either Turkish Standards Institution or International Electro technical Commissions Standards. The meters are placed at the point the electricity is fed to the grid and sealed on behalf of both parties. This prevents any intervention and assures the accuracy and quality of the measurements. Concerning metering system accuracy, project participants must comply with relevant national legislation According to b) paragraph of the 9th Article of the Regulation of Metering and Testing of Metering Systems "periodic tests of meters of electricity, water, coal gas, natural gas and current and voltage transformer are done every 10 years. According to System Usage Agreement, TEIAS has made test for meters every 2 years Data is stored electronically, during the crediting period and at least two years after the last issuance of credits for the hydro farm project activity in the concerning crediting period. The Project Proponent is responsible for the storage of data received from the measuring devices.

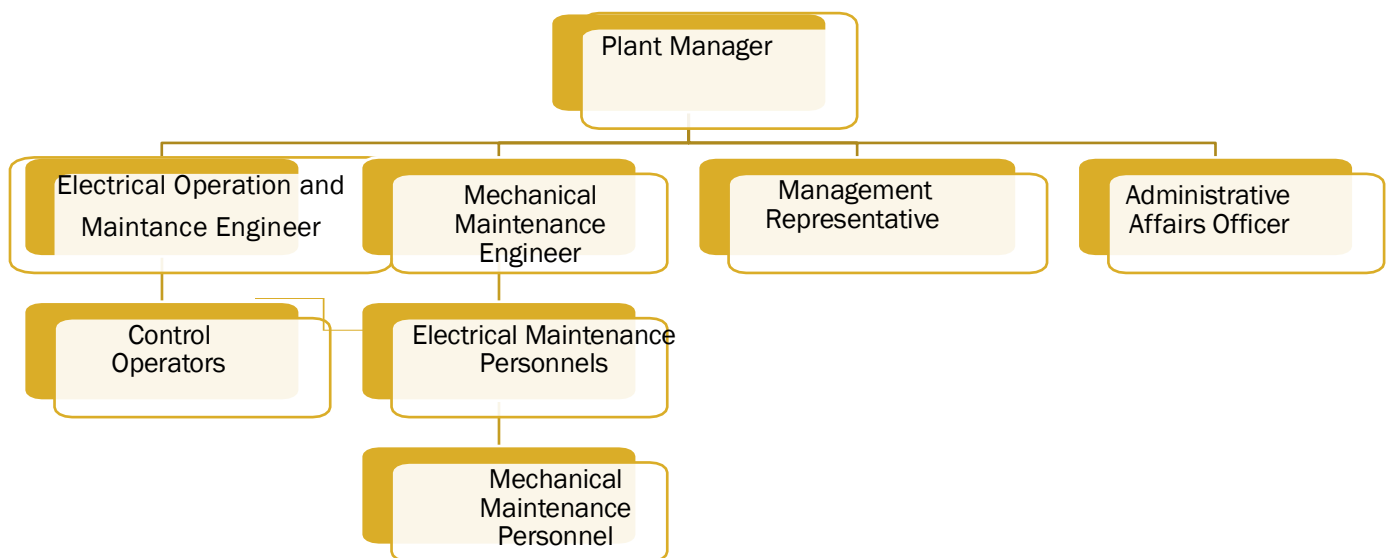
The main and spare meter readings are recorded monthly remote automatic meter reading system and cross-checked whether calibration is required. The capacity of the transmission line connected is medium voltage of 154 kVA, the accuracy class for power meters have been defined in the Communiqué for Power Meters as 0.2S class. The calibration will be implemented in accordance with the related standard procedures. The periodical maintenance is under the responsibility of TEIAS and has been fixed as once in 10 years as mentioned above. Since the meters are within TEIAS' province, TEIAS executes all the procedures for handling non-conformities. Therefore, the Project Participant does not have any internal auditing for this purpose.

### Operational and Management Structure

As described before, there are two main factors important for the calculation of emission reductions. The only relevant data that have to be monitored is only net electricity generation (EG<sub>facility,y</sub>) per year. Since project emission is zero no additional monitoring is required. The generation data are subject to the strict internal quality control systems of both parties.

The monthly meter reading documents are stored by Sanko Enerji Sanayi Ve Ticaret. A.S. and TEİAŞ. The settlement notification, which is issued by TEİAŞ and includes the meter reading data, is stored on a TEİAŞ file server and accessible for Sanko Enerji Sanayi Ve Ticaret. A.S. via a secured website. The meters themselves can always be read as plausibility check for verification. The other important parameter is the emission factor. It is approved according to strict quality control parameters from an independent external party. With this, no additional structures or processes must be implemented to insure the availability and high quality of the necessary data for monitoring. The Project Manager is responsible for all issues related to the project and operation of the plant. On the other hand, plant manager is responsible for daily operational processes of the plant, management of the plant personnel, and other technical and management issues for the plant. Electrical Engineers undertake the specific actions required by the monitoring plan, i.e. they measure the electricity generation, the electricity supplied to the Turkish grid by the power plant, the electricity imports and the amount of fuel consumed, if fuel is consumed. Mechanical Engineers ensure that all the instrumentations and devices to perform the monitoring work properly. Management Representative is the key coordinator for the development of the quality system. Administrative Officer act as the point of contact for all employees, providing administrative support and managing their queries. In total, there are twenty-one employees within the scope of the project. Roles and responsibilities have been summarized in the following chart.

Figure 3 Operation and Management diagram



# 5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

## 5.1 Baseline Emissions

$BE_y$ : Baseline emissions in year  $y$  (tCO<sub>2</sub>)

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

$EF_{grid,CM,y}$ : Combined margin CO<sub>2</sub> emission factor for grid connected power generation in year  $y$

$EF_{grid,CM,y}$  value is fixed as 0.474 tCO<sub>2</sub>/MWh for during the crediting period.

Calculation of  $EG_{PJ,y}$

Since the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity:

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

Where:

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

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

## 5.2 Project Emissions

There is no project emission resulting from the reservoir area of the Project Activity as the power density of the project is greater than 10W/m<sup>2</sup>.

The power density of the project activity is calculated as follows:  $PD = (Cap_{PJ} - Cap_{BL}) / (A_{PJ} - A_{BL})$

Where:

PD = Power density of the project activity, in W/m<sup>2</sup>

$Cap_{PJ}$  = Installed capacity of the hydro power plant after the implementation of the project activity (W)

$Cap_{BL}$  = Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero.

$A_{PJ}$  = Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m<sup>2</sup>)

$A_{BL}$  = Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m<sup>2</sup>) For new reservoirs, this value is zero

$Cap_{PJ}$  = 69,627,000 W

$Cap_{BL}$  = 0 (Justification: The project is a new hydro power plant)

$A_{PJ}$  = 2,319,000 m<sup>2</sup>

$A_{BL}$  = 0 (Justification: The project is a new hydro power plant)

Therefore;  $PD = (69,627,000 - 0) / (2,319,000 - 0) = 30.025 \text{ W/m}^2$

Since the Power Density of the Project is greater than 10 W/m<sup>2</sup>  $PE_y = 0$

### 5.3 Leakage Emissions

No leakage emissions are considered. This is in line with the registered PDD and applicable methodology ACM0002 version 15.0.0. Therefore, the leakage from the Project Activity is zero.

### 5.4 GHG Emission Reductions and Carbon Dioxide Removals

Also, according to ACM0002/Version 15 the emission reductions in year “y” should be calculated as the following formula:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

$ER_y$  = Emission reductions in year y (t CO<sub>2</sub>/yr).

$BE_y$  = Baseline emissions in year y (t CO<sub>2</sub>/yr)

$PE_y$  = Project emissions in year y (t CO<sub>2</sub>/yr)

$LE_y$  = Leakage emissions in year y (t CO<sub>2</sub>/yr).

y = Refers to a given period

Since  $PE_y$  and  $LE_y$  are assumed to be 0, emission reductions are equal to baseline emissions.

| Year                                                  | Baseline emissions or removals (tCO <sub>2</sub> e) | Project emissions or removals (tCO <sub>2</sub> e) | Leakage emissions (tCO <sub>2</sub> e) | Net GHG emission reductions or removals (tCO <sub>2</sub> e) |
|-------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------|----------------------------------------|--------------------------------------------------------------|
| September 2020                                        | 6,566                                               | 0                                                  | 0                                      | 6,566                                                        |
| October 2020                                          | 6,755                                               | 0                                                  | 0                                      | 6,755                                                        |
| November 2020                                         | 3,908                                               | 0                                                  | 0                                      | 3,908                                                        |
| December 2020                                         | 5,599                                               | 0                                                  | 0                                      | 5,599                                                        |
| <b>Total 2020 Vintage<br/>(01/09/2020-31/12/2020)</b> | <b>22,827</b>                                       | <b>0.00</b>                                        | <b>0.00</b>                            | <b>22,827</b>                                                |
| January 2021                                          | 3,999                                               | 0                                                  | 0                                      | 3,999                                                        |
| February 2021                                         | 2,948                                               | 0                                                  | 0                                      | 2,948                                                        |
| March 2021                                            | 2,597                                               | 0                                                  | 0                                      | 2,597                                                        |
| April 2021                                            | 4,432                                               | 0                                                  | 0                                      | 4,432                                                        |
| May 2021                                              | 4,868                                               | 0                                                  | 0                                      | 4,868                                                        |
| June 2021                                             | 4,003                                               | 0                                                  | 0                                      | 4,003                                                        |
| July 2021                                             | 5,828                                               | 0                                                  | 0                                      | 5,828                                                        |
| August 2021                                           | 5,961                                               | 0                                                  | 0                                      | 5,961                                                        |
| September 2021                                        | 3,298                                               | 0                                                  | 0                                      | 3,298                                                        |
| October 2021                                          | 2,114                                               | 0                                                  | 0                                      | 2,114                                                        |
| November 2021                                         | 1,694                                               | 0                                                  | 0                                      | 1,694                                                        |
| December 2021                                         | 856                                                 | 0                                                  | 0                                      | 856                                                          |
| <b>Total 2021 Vintage</b>                             | <b>42,598</b>                                       | <b>0.00</b>                                        | <b>0.00</b>                            | <b>42,598</b>                                                |

|                           |               |             |             |               |
|---------------------------|---------------|-------------|-------------|---------------|
| January 2022              | 3,394         | 0           | 0           | 3,394         |
| February 2022             | 7,671         | 0           | 0           | 7,671         |
| March 2022                | 4,610         | 0           | 0           | 4,610         |
| April 2022                | 6,687         | 0           | 0           | 6,687         |
| May 2022                  | 6,529         | 0           | 0           | 6,529         |
| June 2022                 | 5,828         | 0           | 0           | 5,828         |
| July 2022                 | 6,386         | 0           | 0           | 6,386         |
| August 2022               | 5,203         | 0           | 0           | 5,203         |
| September 2022            | 5,327         | 0           | 0           | 5,327         |
| October 2022              | 6,329         | 0           | 0           | 6,329         |
| November 2022             | 3,614         | 0           | 0           | 3,614         |
| December 2022             | 6,326         | 0           | 0           | 6,326         |
| <b>Total 2022 Vintage</b> | <b>67,904</b> | <b>0.00</b> | <b>0.00</b> | <b>67,904</b> |
| January 2023              | 3,894         | 0           | 0           | 3,894         |
| February 2023             | 2,500         | 0           | 0           | 2,500         |
| March 2023                | 4,346         | 0           | 0           | 4,346         |
| April 2023                | 7,141         | 0           | 0           | 7,141         |
| May 2023                  | 10,720        | 0           | 0           | 10,720        |
| June 2023                 | 13,405        | 0           | 0           | 13,405        |
| July 2023                 | 7,717         | 0           | 0           | 7,717         |
| August 2023               | 7,956         | 0           | 0           | 7,956         |

|                                                        |         |      |      |         |
|--------------------------------------------------------|---------|------|------|---------|
| September 2023                                         | 7,988   | 0    | 0    | 7,988   |
| October 2023                                           | 8,106   | 0    | 0    | 8,106   |
| November 2023                                          | 7,734   | 0    | 0    | 7,734   |
| Total 2023 Vintage<br>(01/01/2023-30/11/2023)          | 81,505  | 0.00 | 0.00 | 81,505  |
| Total for Monitoring Period<br>(01/09/2020-30/11/2023) | 214,834 | 0.00 | 0.00 | 214,834 |

| <u>Year</u>                    | <u>Ex-ante emissions reductions/removals</u> | <u>Achieved emissions reductions/removals</u> | <u>Percent difference</u> | <u>Justification for the difference</u>                                                                       |
|--------------------------------|----------------------------------------------|-----------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------|
| 01/09/2020-31/12/2020          | 38,217                                       | 22,827                                        | -67                       | Only last 3 months of the year. This is not correct compare with whole year production for Hydropower Project |
| 2021                           | 114,337                                      | 42,598                                        | -63                       | Annual areal precipitation in the Black Sea Region is lower than normal.                                      |
| 2022                           | 114,337                                      | 67,904                                        | -68                       | Annual areal precipitation in the Black Sea Region is lower than normal.                                      |
| 01/01/2023-30/11/2023          | 104,626                                      | 81,505                                        | -28                       | Annual areal precipitation in the Black Sea Region is lower than normal.                                      |
| TOTAL<br>01/09/2020-30/11/2023 | 371,517                                      | 214,834                                       | -42                       | Areal precipitation in the Black Sea Region is lower than normal.                                             |

# APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

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| Section | Information | Justification |
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# APPENDIX X: <TITLE OF APPENDIX>

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