



## MURAT HEPP PROJECT



Document Prepared By: 4K Earth Science Private Limited

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**Summary:**

4K Earth Science Private Limited (4KES) has been contracted by, “Ekobil Environmental Services and Consultancy Ltd.<sup>1</sup>” to undertake verification and certification for the greenhouse gas (GHG) emission reductions reported from ‘Murat HEPP Project’ for the monitoring period 01/10/2014 to 30/09/2020 in the initial monitoring report version 1.0 date 09/09/2021.

Murat HEPP Energy Electricity Generation and Trade Inc. (hereafter referred as the “project owner”) installed a large-scale runoff river hydroelectric power plant (HEPP) with an installed capacity of 35.478 MWe on the Göksu River flowing through Besni, Adıyaman in Turkey’s South-eastern Region. There are 6 units in the project. While the capacity of 3 units is 8686 kW, the capacity of the other 3 is 3577 kW.

The purpose of the project activity is to generate electricity and supply it into the public grid. The project activity reduces greenhouse gas (GHGs) emissions that would have otherwise occurred in the absence of the project activity by avoiding electricity generation from fossil fuel sources.

During this monitoring period (01-October-2014 to 30-September-2020) the project has produced a net total of 772,402.915 MWh electricity and a total amount of 502,058 tCO<sub>2</sub> of emission reduction. The monitoring period subject to this monitoring report is inclusive of first and last day of period.

A risk-based approach has been followed to perform the 2<sup>nd</sup> periodic verification of the project activity. In the course of the verification, 02 Corrective Action Requests (CARs), 01 Clarifications (CLs) and 00 Forward action request (FAR) were raised.

The management of the ‘Murat HEPP Energy Electricity Generation and Trade Inc. Co.<sup>2</sup>’ responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project final monitoring report Version 1.2 dated 20/02/2022. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the Ekobil Environmental Services and Consulting Ltd. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 1.2 dated 20/02/2022.

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<sup>1</sup> It is Ekobil Environmental Services and Consultancy Ltd. that contracted 4KES authorised by the project owner. Ekobil is responsible for writing the Monitoring report and the contracting of the VVB.

<sup>2</sup> The project proponent is Murat HEPP Energy Electricity Generation and Trade Inc., which is a subsidiary of Mehmet Güneş Construction, Trading and Industry Co. Ltd. Mehmet Güneş Construction Trading and Industry Co. Ltd is a family company owned by Mehmet Güneş and has been conducting both private and public construction works since 1970. For detailed information please visit the following web page: <http://www.mehmetgunesins.com/mg/index.php>

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01/10/2014 to 30/09/2020 based on the reported emission reductions in the final monitoring report Version 1.2 dated 20/02/2022 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, 4KES planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

**4KES confirms the following;**

**Reporting period:** 01/10/2014 to 30/09/2020

| 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) |
|--------------|-----------------------------------------------------|----------------------------------------------------|----------------------------------------|--------------------------------------------------------------|
| 2014         | 17,340                                              | 0                                                  | 0                                      | 17,340                                                       |
| 2015         | 1,10,283                                            | 0                                                  | 0                                      | 1,10,283                                                     |
| 2016         | 35,299                                              | 0                                                  | 0                                      | 35,299                                                       |
| 2017         | 59,670                                              | 0                                                  | 0                                      | 59,670                                                       |
| 2018         | 72,389                                              | 0                                                  | 0                                      | 72,389                                                       |
| 2019         | 1,16,685                                            | 0                                                  | 0                                      | 1,16,685                                                     |
| 2020         | 90,392                                              | 0                                                  | 0                                      | 90,392                                                       |
| <b>Total</b> | <b>502,058</b>                                      | <b>0</b>                                           | <b>0</b>                               | <b>502,058</b>                                               |

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# 1 INTRODUCTION

## 1.1 Objective

4KES has been commissioned by 'Ekobil Environmental Services and Consultancy Ltd.' to perform verification of its registered VCS project 'Murat HEPP Project' VCS 1344, for the reported GHG emission reductions for the given monitoring period 01/10/2014 to 30/09/2020 (both dates included). The VCS projects must undergo an independent third-party verification and certification of emission reductions as the basis for issuance of Voluntary Emission Reductions (VERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the project description (PD) and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.
- To confirm that the monitoring system is implemented and fully functional to generate Voluntary Emission Reductions (VERs/VCUs) without any double counting, and
- To establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.

## 1.2 Scope and Criteria

The scope of verification is to assess the claims and assumptions made in the VCS monitoring report (MR) against the VCS criteria, including but not limited to, VCS standard, applied methodology and other relevant rules and requirements established for VCS project activities.

The Verification is not meant to provide any consulting towards the project participants. However, stated requests for clarification and/or correction actions request may have provided inputs for improvement of the project design.

## 1.3 Level of Assurance

The verification team verified the complete monitoring data /14/, /15/, /16/ and /17/ for all the monitoring parameters of the monitoring plan against the Monitoring report /1.2/ and ER Calculation sheet /2.2/ and confirms that the reported emission reductions are free from any type of material errors. Remote audit was also conducted to verify the implementation and monitoring plan of the project activity. The implementation of the project activity (i.e. major equipment and the metering arrangement) was verified during the Zoom video conferencing and found in accordance with the monitoring report /1.2/ and registered VCS PD /04/. Verification team has also verified the technical details of the project equipments and metering arrangement with the supportive documents /09/, /10/, /15/ and /21/ and found correct. Therefore, 4KES confirms that the verification is conducted with reasonable level of assurance.

## 1.4 Summary Description of the Project

Murat HEPP Energy Electricity Generation and Trade Inc. (hereafter referred as the “project owner”) installed a large-scale runoff river hydroelectric power plant (HEPP) with an installed capacity of 35.478 MWe on the Göksu River flowing through Besni, Adıyaman in Turkey’s South-eastern Region. There are 6 units in the project. While the capacity of 3 units is 8686 kW, the capacity of the other 3 is 3577 kW.

The purpose of the project activity is to generate electricity and supply it into the public grid. The project activity reduces greenhouse gas (GHGs) emissions that would have otherwise occurred in the absence of the project activity by avoiding electricity generation from fossil fuel sources.

The project start date is 05/10/2012 /06/, the date of the six horizontal axis Francis turbines in the plant commenced electricity generation. From this date, the project continues to operate with full capacity. The total capacity of project capacity is verified from the remote audit, commissioning certificate /06/, technical specifications /09/ and photos /10/.

The commissioning date of each unit has been verified from commissioning certificates /06/.

The chosen monitoring period i.e. 01/10/2014 to 30/09/2020 is within the crediting period i.e. 05/10/2012 ending on 04/10/2022 which is accepted to the verification team.

The Project site is located in Turkey’s South-eastern Region, in Adıyaman province, in Besni town and on Göksu River. The closest village is called Sambayat and is approximately 3 km away from the diversion weir, 9 km from Murat I HEPP and 14 km away from Murat II HEPP.

Precise coordinates for the project activity are:

- Diversion weir: 37 ° 42'44.25"N, 38 ° 2'58.56"E

Power House:

- Murat I HEPP: 37 ° 36'51.99"N, 38 ° 5'36.76"E

Murat II HEPP: 37° 34'18.92"N, 38° 6'43.81"E

Verification team has verified the latitude and longitude through internet <https://www.latlong.net/> and found consistent.

During this monitoring period (01-October-2014 to 30-September-2020) the project has produced a net total of 772,402.915 MWh electricity and a total amount of 502,058 tCO<sub>2</sub> of emission reduction. The monitoring period subject to this monitoring report is inclusive of first and last day of period.

## 2 VERIFICATION PROCESS

The registered VCS project is undergoing 2<sup>nd</sup> verification under VCS (1<sup>st</sup> Crediting period), the approach adopted to ensure the quality of emission reductions is described in the following sections.

### 2.1 Method and Criteria

4KES assessed and determined whether the proposed implementation and operation of the project activity, and the steps taken to report emission reductions comply with the criteria and relevant guidance provided by the VCS Board. The validation/verification process consist of the following three phases;

- A desk review of the VCS PD and VCS MR
- follow up interviews with project stakeholders
- The resolution of outstanding issues and issuance of final report and opinion.

The prepared verification report and other supporting documents then undergo an internal quality control before being submitted to the Verra Secretariat for issuance of credits as per VCS standard version 4.

#### Duration of Verification:

|                           |            |
|---------------------------|------------|
| Verification Contract     | 01/09/2021 |
| Remote audit              | 09/10/2021 |
| Findings raised           | 10/10/2021 |
| Draft Verification Report | 11/12/2021 |
| Final Verification Report | 24/02/2022 |

## 2.2 Document Review

The verification is performed primarily as a document review of the approved VCS PD, Validation report and associated documents as stated in detail in appendix 1 of this document. The assessment is performed by a verification team using a protocol. The cross checks between information provided in the Monitoring report, VCS PD and information from sources other than those used, if available, the team's sectoral or local expertise and, if necessary, independent background investigations.

## 2.3 Interviews

Due to COVID-19 spread and air travel restrictions, Verification team could not conduct the site visit. As the situation is uncertain due to the increase spread of COVID-19 and hence VVB did not conduct site visit for this project activity. However, the verification team performed the Zoom remote interview with the PP representative, consultant and local stakeholders and reviewed documents to achieve a reasonable level of assurance in the verification. This is in line with Section 4.1.2 of the VCS Standard, v4.1 which does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications. No sampling procedures were adopted in document verification and all the document were cross checked to ensure conservative estimation of emission reduction. Kindly find below names of the persons interviewed (Zoom remote interview).

|                                                                                                                                           |                                                                                                                       |                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <b>Location</b>                                                                                                                           | The Project site is located in Turkey's South-eastern Region, in Adıyaman province, in Besni town and on Göksu River. |                                                                                |
| <b>Dates</b>                                                                                                                              | 09/10/2021                                                                                                            |                                                                                |
| <b>Key points discussed</b>                                                                                                               | <b>Name of person, interviewed</b>                                                                                    | <b>Designation, Organization</b>                                               |
| <b>Implementation, Monitoring, Operational data, Calibration, Data collection, QA/QC procedures, Calculation of ERs, VCS requirements</b> | Asli Sezer Ozcelik                                                                                                    | Manager, Ekobil Environmental Services and Consultancy Ltd.                    |
|                                                                                                                                           | Burak Bozkurt                                                                                                         | Murat HPP Manager, Murat HEPP Energy Electricity Generation and Trade Inc. Co. |
| <b>Sustainable development Impact, Complaints, Mode of communication, Environmental impact, any other concerns</b>                        | Mehmet Ali                                                                                                            | Stakeholder from Kızılca Mustafa Village, Adıyaman                             |
|                                                                                                                                           | Ömer Durmuş                                                                                                           | Stakeholder from Balka Village, Adıyaman                                       |
|                                                                                                                                           | Bülent Gülmüş                                                                                                         | Stakeholder from Başlı Village, Adıyaman                                       |

## 2.4 Site Inspections

Due to COVID-19 spread and restrictions on air travel, Verification team could not conduct the site visit. Since the situation is uncertain due to the increase spread of COVID-19 and hence VVB did not conduct site visit for this project activity. However, the verification team performed the Zoom remote interview with PP representative, consultant and local stakeholders and reviewed documents to achieve a reasonable level of assurance in the verification. This is in line with Section 4.1.2 of the VCS Standard, v4.1 which does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications.

## 2.5 Resolution of Findings

The objective of this step is to identify, discuss and conclude on the issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions. This is done based on the desk review and Zoom remote interview. The verification team prepares and/or updates a verification protocol (internal document) that records the conformities and non-conformities, which may be of following types;

CAR (Corrective Action Request) is raised if one of the following occurs:

- Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. All CARs and CLs raised by the 4KES during verification shall be resolved prior to submitting a request for issuance.

FAR (Forward Action Request) is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period.

During the Verification process, total 02 CAR and 01 CL were raised and resolved satisfactorily. No FAR was raised. The list of CARs/CLs/FARs raised and the response provided, the mean of

validation, reasons for their closure and references to correction in the relevant documents are provided in Appendix II of this report.

#### 2.5.1 Forward Action Requests

No FAR raised during the verification.

### 2.6 Eligibility for Validation Activities

4KES conducted the verification activity; the validation was performed by the other VVB. 4KES has a valid UNFCCC accreditation in the sectoral scope from UNFCCC. The accreditation scope can be checked from the below link: <http://cdm.unfccc.int/DOE/list/DOE.html?entityCode=E-0069>

## 3 VALIDATION FINDINGS

Use this section to provide details of all validation activities that took place during the verification, such as gap validation, validation of methodology deviations and project description deviations, and the inclusion of new project activity instances into grouped projects.

### 3.1 Participation under Other GHG Programs

The project is registered in VCS only, verification team confirms that it has checked that there is no double counting associated with project activity being participation of other GHG programs.

### 3.2 Methodology Deviations

One deviation has been applied by the PP during this monitoring period. Description of the deviation and the assessment on conservativeness of the deviation is provided below.

**Deviation:** During the monitoring plan, the following deviations are determined and the monitoring plan is revised: The source of the parameter “Quantity of net electricity generation supplied by the Project plant/unit to the grid in year y” was given as “Monthly Meter Reading Protocols” in the VCS PD. However, since TEIAS started to measure the produced electricity remotely, Monthly Meter Reading Protocols are not available. Therefore, the source of the parameter is defined as “Market Financial Settlement Center (PMUM) records which includes the exact electricity productions and tractions. PMUM records are the basis of the invoices made out to TEIAS.

The source for the cross-check of the amount of produced electricity is also revised as “OSF Forms” which are prepared by TEIAS after the remote measurements of the meters and sent to the plant engineer by e-mail at the end of each month.

With the legislation that came into force on 01/12/2011, the remote reading system was introduced by TEIAS. Since the start date of the project (05.10.2012), the production datas have been monitored with the remote reading system.

This deviation does not negatively impact the conservativeness of the quantification of GHG emission reductions or removals since this deviation is only related with the source of information. This change in the source of the information has no effect on the production data and the deviation is only related to the way the information is received.

Other than that there is no methodology deviation occurred during the current or previous monitoring periods.

**Justification:** Deviation has been applied under section 3.2.1 of the monitoring report /1.2/ and found OK. Further the deviation was also applied during the last verification for the same. Deviation has been verified during the remote audit, review of VCS-PD /04/ and “PROCEDURES AND PRINCIPLES REGARDING THE SCOPE OF AUTOMATIC METER READING SYSTEMS AND THE DETERMINATION OF COUNTER VALUES”, enter into force on 1/12/2011 /28/. This methodology deviation occurred with the legislation that came into force on 01/12/2011 /28/ which is before the start date of the project activity i.e. 05/10/2012. Since the start date of the project (05.10.2012), the production data have been monitored with the remote reading system.

The verification team is of the opinion that the approach followed by the PP is appropriately described and justified and the project remains in compliance with the VCS rules. The deviation does not overestimate the emission reduction and hence accepted to the verification team.

### 3.3 Project Description Deviations

One deviation has been applied by the PP during this monitoring period. Description of the deviation and the assessment on conservativeness of the deviation is provided below.

**Deviation:** The following project deviation is noticed during this monitoring period; The installed power of the project is given in the PD as 37.22 MWe however the actual realized value of the installed power is 35.478 MWe because of the design requirements of the OEM company. At time of preparing the final field application projects of Murat HPP due to the fields geographical reasons of the Project site such as slope and elevation amendment requirements the Project owner have need to revise the installed power in FSR report and on final application projects. Both of them (FSR and Project drawings) had been presented to DSI (General Directorate of State Hydraulic Works) and these have been reviewed and approved by DSI. After this approval the Project owner applied to EMRA for the amendment of the installed power on the license. Their request have been reviewed by EMRA and assessed to be approved for amendment, which is then the license have been amended according to the relevant request.

Since PDD was written and prepared during the project construction phase and the equipment was not installed at that time, such a difference in capacity occurred. The difference between the installed capacity of the project and the anticipated capacity was determined before the first monitoring and was given in detail in the first verification report of the project which covers the period of 05-October-2012 to 30-September-2014. This deviation occurred with the establishment of the equipment of the project. The actual capacity can be directly crosschecked with the plate photos.

The mentioned deviation does not impact applicability of the methodology as it only changes the installed capacity of the project activity and not the type or scale of the project. The additionality of the project activity is also not affected by this deviation since the project is between the limits checked with the sensitivity analysis. The deviation does not affect the appropriateness of the baseline scenario as it remains the same.

Other than this there is no methodology deviation occurred during the current or previous monitoring periods.

**Justification:** Verification team has verified the capacity of the project from the turbine/generator name plate capacity /10/ and found consistent. Project description deviation has been applied under section 3.2.2 of the monitoring report /1.2/ and found OK. Further the Project description deviation was also applied during the last verification for the same and there is no change in the capacity of the project since the previous monitoring period.

Deviation has been verified during the remote audit, review of VCS-PD /04/ and name plate capacity /10/. The difference between the installed capacity of the project and the anticipated capacity was determined before the first monitoring and was given in detail in the first verification report of the project.

This deviation does not impact any of these:

1. Applicability of the methodology as the project scale/type is not changed.
2. Additionality of the project activity as the change of capacity is within 10% which is already covered in the sensitivity analysis at the time of the registration of the project activity.
3. The baseline of the project activity.

The verification team is of the opinion that the approach followed by the PP is appropriately described and justified and the project remains in compliance with the VCS rules. The deviation does not overestimate the emission reduction and hence accepted to the verification team.

### 3.4 Grouped Project

The project is not a grouped project. Therefore, this section is not applicable.

## 4 VERIFICATION FINDINGS

### 4.1 Project Implementation Status

Murat HEPP Energy Electricity Generation and Trade Inc. (hereafter referred as the “project owner”) installed a large-scale runoff river hydroelectric power plant (HEPP) with an installed capacity of 35.478 MWe on the Göksu River flowing through Besni, Adıyaman in Turkey’s South-eastern Region. There are 6 units in the project. While the capacity of 3 units is 8686 kW, the capacity of the other 3 is 3577 kW.

The project start date is 05/10/2012 /06/, the date of the six horizontal axis Francis turbines in the plant commenced electricity generation. From this date, the project continues to operate with full capacity. The total capacity of project capacity is verified from the remote audit, commissioning certificate /06/, technical specifications /09/ and photos /10/.

The technical details of the turbine and generator were confirmed from the technical specifications /09/, photos /10/ and during Zoom remote interview.

The commissioning date of each unit has been verified from commissioning certificates /06/. All the units were commissioned before this monitoring period.

*During the process of validation, 4KES confirmed the capacity, unique identification of the project activity, estimated power generation, arrangement for evacuation of electricity generated, technical specifications, date of commissioning, arrangements for Operation & Maintenance (O&M) and necessary clearances for setting the project activity. List of documents reviewed during the course of verification is presented under Appendix I of this report.*

There was no major breakdown or shutdowns during the monitoring period which might affect the applicability of methodology or might cause material errors in emission reductions.

Energy meters were changed during this monitoring period and the details have been mentioned under section 4.2 of the monitoring report /1.2/ which have been verified from the supportive documents /15/ and found OK. The assessment team confirmed that there is no proposed or actual change to the project design during this monitoring period except a deviation as mentioned under section 3.3 of this report. The project design as mentioned in the registered VCS PD & monitoring report submitted is implemented and thus the same is acceptable to the assessment team. All required monitoring equipment's and procedures as mentioned in the registered VCS PD & monitoring report are available and implemented in an appropriate manner.

The organisational role and responsibility as mentioned in the registered VCS PD & monitoring report is followed onsite. All the monitoring equipment was calibrated as per the specified interval in the registered VCS PD & monitoring report. All the emergency preparedness as mentioned in the registered VCS PD & monitoring report is followed onsite and no discrepancies were found regarding the same.

Project activity provide local jobs and contributing to the improvement of infrastructure in the region. Section 1.11 of the Monitoring report has been checked and found OK. The project activity contributes positively to sustainable development which has been verified from the remote interview of the Local people (Section 2.3 of this report) and supportive documents /20/. Local stakeholders were happy with the project and shared positive feedback about the job creation and other sustainable development.

Based on the registered VCS PD /04/, the estimated ex-ante emission reductions for this monitoring period are 587,059 tCO<sub>2</sub>e however actual emission reductions corresponding to this monitoring period are 502,058 tCO<sub>2</sub>e. As the actual emission reduction are less than the estimated emission reduction, hence no impact on the project activity. VVB would like to clarify that the generation from hydro power plant is dependent on water availability which is not in the control of PP however overall the project has the emission reduction within the estimated value.

The hydrological proof /29/ about the Murat HPP production data is shared by the PP. In general, we can see that the electricity productions of the power plant are in harmony with the annual precipitation graph of the region.

The assessment team found that the project is in line with the registered VCS PD, monitoring report.

**Opinion:**

Assessment team concludes the following:

- a) There is no material discrepancies between project implementation and the project description provided in the registered PD/04/ except a deviation which is mentioned under section 3.3 of this report.
- b) The monitoring plan is implemented completely and monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and parameters) is appropriate.
- c) There is no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology.
- d) The GHG emission reductions or removals generated by the project have not included in an emissions trading program or any other mechanism that includes GHG allowance trading.
- e) The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification.
- f) The project is registered under VCS only.

In view of the information's as verified above the assessment team is able to conclude that the project has been implemented as described in the project description.

## 4.2 Safeguards

### 4.2.1 No Net Harm

Verification team has interviewed various local stakeholders and found no harm to air, water, noise etc. Local stakeholders were happy with the project and shared positive feedback about the job creation and other sustainable development which is also verified from the supportive document /20/. Hence verification team confirms that there are no any significant impacts due to implementation of project activity on air, water, Solid Waste, Waste Oils Hazardous Waste, Noise etc. which is also verified during the remote interview of stakeholders, Fish ladder photographs /24/, water passage records /27/ and EIA exemption certificate /22/ etc.

### 4.2.2 Local Stakeholder Consultation

The stakeholders consultation meeting was conducted on May 28th 2010 at the Yayla Cafe in Sambayat Town, Besni, Adiyaman Province. This date was chosen, as it was considered to be convenient to all the participants to attend.

An invitation was prepared for the Stakeholder Consultation and sent to the national and local policy makers via e-mail. For the participation of various groups of people to the meeting local head of the villages (Muhtar) and other male locals were asked to attend to the meeting with their spouses. The process was validated during the registration of project activity in VCS. VCS validation report verified to confirm the same. The PP had invited identified stakeholders well in advance with details of venue and time of meeting.

The ongoing communication is undertaken through stakeholder visits to the site or direct contact via telephone. Verification team has interviewed various local stakeholders and confirm that no negative comments about the project have been received. Stakeholders tend to focus on the positive sides of the project such as creation of employment, new facilities, infrastructure development etc. Stakeholders can directly visit or call the power plant when they have a problem. Since the project started, the project owners have not received any negative comments. Remote interview was held with stakeholders on October 09, 2021, at which stakeholders stated that they were satisfied with the project and they could easily contact the project owners whenever they wanted.

### 4.3 AFOLU-Specific Safeguards

Not Applicable.

### 4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM 0002 (version 13.0.0), the formulae given in the monitoring report /1.2/ and also based on the registered VCS-PD /04/.

**Parameters monitored:**

#### 4.4.1 EG<sub>PJ,y</sub> (MWh/yr)

Quantity of net electricity delivered to the grid in year y

|                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |  |       |            |                         |            |  |  |
|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--|-------|------------|-------------------------|------------|--|--|
|                                                                                                                       | Discussion and verification assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                         |  |       |            |                         |            |  |  |
| Purpose of data                                                                                                       | Data to be used for the calculation of Baseline Emissions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |  |       |            |                         |            |  |  |
| Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity) | <p>The Primary source of data is the main TEIAS meters recorded at Market financial Settlement Center (PMUM) records /16/. The secondary source of data is the OSF Forms: TEIAS signed statement for monthly electricity export and import corresponding to this monitoring period /17/.</p> <p>There are bidirectional meters. The meters belong to the grid operator TEİAŞ. These meters are placed on the switchgear station where the power plant gets connected to the Turkish national grid</p> <p>The electricity data is continuously measured by the energy meters. The data read through these meters are recorded monthly by TEİAŞ.</p> <p>There is one main and one check meter, each record the generation/import of electricity from project activity and transmit the electricity generated by each unit of generators.</p> <p>The details of the energy meters is mentioned under section 4.2 and section 4.3 of the monitoring report /1.2/. The accuracy class of the energy meters is 0.2s. The details of the energy meters used for this monitoring period is given below.</p> <table><tr><td>Meter</td><td>Main Meter</td><td>Back-up (Control) Meter</td></tr><tr><td colspan="3">Old meters</td></tr></table> |                         |  | Meter | Main Meter | Back-up (Control) Meter | Old meters |  |  |
| Meter                                                                                                                 | Main Meter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Back-up (Control) Meter |  |       |            |                         |            |  |  |
| Old meters                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |  |       |            |                         |            |  |  |

|                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |            |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|
|                                                                          | <b>Calibration Date</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2012       | 2012       |
|                                                                          | <b>Valid Until<sup>3</sup></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2022       | 2022       |
|                                                                          | <b>Brand</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Elster     | Elster     |
|                                                                          | <b>Type</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | A 1500     | A1500      |
|                                                                          | <b>Serial Number</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 424740     | 424741     |
|                                                                          | <b>Accuracy class</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.2S       | 0.2S       |
|                                                                          | <b>New meters (changed on 26/09/2020)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            |            |
|                                                                          | <b>Calibration Date</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 16/03/2020 | 16/03/2020 |
|                                                                          | <b>Valid Until<sup>4</sup></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2030       | 2030       |
|                                                                          | <b>Brand</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | EMH        | EMH        |
|                                                                          | <b>Type</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | LZQJ-XC    | LZQJ-XC    |
|                                                                          | <b>Serial Number</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 9798700    | 9798701    |
|                                                                          | <b>Accuracy class</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.2S       | 0.2S       |
|                                                                          | <p>Verification team has checked the meter details during the remote interview and photos /10/ and found OK.</p> <p>The meter needs to be calibrated every 10 years as per the government regulation /18/. Energy meters were changed on 26/09/2020 i.e. during this monitoring period as verified from the meter change document by TEIAS /15/. The old meters were factory calibrated and new meters were calibrated by TEIAS /15/. The calibration was covering the monitoring period.</p> |            |            |
| <b>Measuring/Reading/Recording frequency</b>                             | For all the meters involved, measurement is made continuous and recording is made monthly as verified from the monthly electricity data /16/ and remote zoom meeting. All the meters belong to grid operator TEIAS.                                                                                                                                                                                                                                                                           |            |            |
| <b>Data collection (from data generation, aggregation, to recording,</b> | <p><math>EG_{PJ,y} = EG_{export,y} - EG_{import,y}</math></p> <p>The electricity generation/consumption are measured every month</p>                                                                                                                                                                                                                                                                                                                                                          |            |            |

<sup>3</sup> Within the scope of the regulation in Turkey (<https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>), the stamp year is taken as basis year and the year it is stamped(2020) is counted as the first year, regardless of the date and the remaining period is calculated from the year it was stamped(2020+10 years).

<sup>4</sup> Within the scope of the regulation in Turkey (<https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>), the stamp year is taken as basis year and the year it is stamped(2020) is counted as the first year, regardless of the date and the remaining period is calculated from the year it was stamped(2020+10 years).

|                                   |                                                                                                                                                                                                                     |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>calculation and reporting)</b> | using energy meters.<br><br>Entity responsible: TEIAS                                                                                                                                                               |
| <b>Verified value</b>             | 772,402.915 MWh. The data has been verified from the TEIAS and EPIAS web portals which are government portals /16/ and hence accepted to the verification team. The data is available online which can be verified. |
| <b>Cross checks</b>               | NA                                                                                                                                                                                                                  |
| <b>QA/QC procedures applied</b>   | The energy meters are calibrated as per the government regulation which has been confirmed during the remote audit and the calibration records /15/.                                                                |

#### 4.4.2 Cap<sub>PJ</sub> (W)

Installed Capacity of the hydropower plant after the implementation of the project activity

|                                                                                                                              |                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                              | <b>Discussion and verification assessment</b>                                                                                                  |
| <b>Purpose of data</b>                                                                                                       | Power density calculation and Calculation of project emissions                                                                                 |
| <b>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</b> | Not Applicable                                                                                                                                 |
| <b>Measuring/Reading/Recording frequency</b>                                                                                 | Annually                                                                                                                                       |
| <b>Data collection (from data generation, aggregation, to recording, calculation and reporting)</b>                          | Name plate of each generator unit /10/.                                                                                                        |
| <b>Verified value</b>                                                                                                        | 35,478,000 W. The data has been verified from Technical specification of the project activity /09/ and name plate of each generator unit /10/. |
| <b>Cross checks</b>                                                                                                          | NA                                                                                                                                             |

|                          |    |
|--------------------------|----|
| QA/QC procedures applied | NA |
|--------------------------|----|

#### 4.4.3 APJ (m2)

Surface of the regulation pond after the implementation of the project activity, when the reservoir is full

|                                                                                                                       | Discussion and verification assessment                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Purpose of data                                                                                                       | Power density calculation and Calculation of project emissions                                                                                                                                                                                                                                                                                                                                                           |
| Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity) | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                           |
| Measuring/Reading/Recording frequency                                                                                 | Annually, The area was calculated by making coordinate readings around the border of the reservoir through topographical surveys or GPS readings. The technical drawing of the regulator area is based on topographical surveys. Based on the technical drawing, the reservoir area is calculated by a computer program. Verification team has checked the supportoive for the reservoir surface area /14/ and found OK. |
| Data collection (from data generation, aggregation, to recording, calculation and reporting)                          | The area was calculated by making coordinate readings around the border of the reservoir through topographical surveys or GPS readings. The technical drawing of the regulator area is based on topographical surveys. Based on the technical drawing, the reservoir area is calculated by a computer program. Verification team has checked the supportoive for the reservoir surface area /14/ and found OK.           |
| Verified value                                                                                                        | 640,471.91 m <sup>2</sup> . The data is found correct.                                                                                                                                                                                                                                                                                                                                                                   |
| Cross checks                                                                                                          | NA                                                                                                                                                                                                                                                                                                                                                                                                                       |
| QA/QC procedures applied                                                                                              | NA                                                                                                                                                                                                                                                                                                                                                                                                                       |

Opinion: The verification team confirms;

- The monitoring plan has been implemented as per the registered PD except a deviation as mentioned under section 3.2 of this report;
- The monitoring complies with the requirement of the applied methodologies;
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameters and confirms to the requirement of the PD;
- The values included in the monitoring report and corresponding emission reduction sheets are verified and included under each monitoring parameter, wherever appropriate;

#### Parameters not monitored/ex-ante:

##### 4.4.4 EGy (GWh)

Net electricity generated and delivered to the grid by all power sources serving the system, excluding low-cost/must-run units/plants, in year y

|                        | Discussion and verification assessment                                                                                                                             |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose of data</b> | Data used for Baseline emissions                                                                                                                                   |
| <b>Verified value</b>  | Indicated in the Table 12 of validated PD /04/.                                                                                                                    |
| <b>Source of value</b> | Validated ex-ante.<br><br>Annual development of installed capacity and generation in Turkey <sup>5</sup><br><br>Turkish Electricity Transmission Company Web Site. |
| <b>Justification</b>   | Values are checked from Table 12 in the registered PD /04/.                                                                                                        |

##### 4.4.5 FC<sub>i,y</sub> (m3 / tons (m3 for gaseous fuels))

Amount of fossil fuel consumed in the project electricity system by generation sources in year y

|                        | Discussion and verification assessment                                                                                                                                               |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose of data</b> | Data used for Baseline emissions                                                                                                                                                     |
| <b>Verified value</b>  | Indicated in the Table 11 of validated PD /04/.                                                                                                                                      |
| <b>Source of value</b> | Validated ex-ante.<br><br>TEIAS (Turkish Electricity Transmission Company)<br><br>Fuels consumed in thermal power plants in Turkey by the electric utilities for year y <sup>6</sup> |

<sup>5</sup> [http://www.teias.gov.tr/istatistik2010/front%20page%202010-ci%20kitap/kgucunkullanim\(13-21\)/13.xls](http://www.teias.gov.tr/istatistik2010/front%20page%202010-ci%20kitap/kgucunkullanim(13-21)/13.xls)

[http://www.teias.gov.tr/TurkiyeElektrikIstatistikleri/istatistik2010/front%20page%202010-ci%20kitap/uretim%20tuketim\(22-45\)/29\(06-2010\).xls](http://www.teias.gov.tr/TurkiyeElektrikIstatistikleri/istatistik2010/front%20page%202010-ci%20kitap/uretim%20tuketim(22-45)/29(06-2010).xls)

<sup>6</sup> [http://www.teias.gov.tr/istatistik2010/front%20page%202010-ci%20kitap/uretim%20tuketim\(22-45\)/40\(06-10\).xls](http://www.teias.gov.tr/istatistik2010/front%20page%202010-ci%20kitap/uretim%20tuketim(22-45)/40(06-10).xls)

|                      |                                                             |
|----------------------|-------------------------------------------------------------|
| <b>Justification</b> | Values are checked from Table 11 of the registered PD /04/. |
|----------------------|-------------------------------------------------------------|

#### 4.4.6 Electricity Imports (MWh)

Electricity transfers from connected electricity systems to the project electricity system by years (2008-2010)

|                        |                                                                                                                                                                                      |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <b>Discussion and verification assessment</b>                                                                                                                                        |
| <b>Purpose of data</b> | Data used for the Baseline emissions                                                                                                                                                 |
| <b>Verified value</b>  | Verified from registered PD /04/.                                                                                                                                                    |
| <b>Source of value</b> | Validated ex-ante.<br><br>TEIAS (Turkish Electrical Transmission Company)<br><br>Annual development of Turkey's gross electricity generation-imports exports and demand <sup>7</sup> |
| <b>Justification</b>   | Values are checked from Table 12 in the registered PD /04/.                                                                                                                          |

#### 4.4.7 Heat Value (TJ)

Amount of heat produced by the consumption of a unit quantity of fuel types consumed in thermal power plants.

|                        |                                                                                                                                                                                                  |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <b>Discussion and verification assessment</b>                                                                                                                                                    |
| <b>Purpose of data</b> | Data used for the Baseline emissions                                                                                                                                                             |
| <b>Verified value</b>  | Verified from registered PD /04/.                                                                                                                                                                |
| <b>Source of value</b> | Validated ex-ante.<br><br>TEIAS (Turkish Electricity Transmission Company)<br><br>Heating values of fuels consumed in thermal plants in Turkey by the electricity utilities (2010). <sup>8</sup> |
| <b>Justification</b>   | Values are checked from Table 11 in the registered PD /04/.                                                                                                                                      |

<sup>7</sup> [http://www.teias.gov.tr/istatistik2010/front%20page%202010-ççek%20kitap/ithalat-ihracat\(50-54\)/52.xls](http://www.teias.gov.tr/istatistik2010/front%20page%202010-ççek%20kitap/ithalat-ihracat(50-54)/52.xls)

<sup>8</sup> <http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2011/yak%C4%B1t46-49/49.xls>

#### 4.4.8 EF<sub>grid,OM,y</sub> (tCO<sub>2</sub>/MWh)

Simple operating margin CO<sub>2</sub> emission factor of the grid in year y

|                        | Discussion and verification assessment                                                                                                                                                                                                                                                                                                   |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose of data</b> | Data used for the Baseline emissions                                                                                                                                                                                                                                                                                                     |
| <b>Verified value</b>  | 0.657 (average of 3 years 2008, 2009 and 2010) Appendix 3 Table 8<br>Verified from registered PD /04/.                                                                                                                                                                                                                                   |
| <b>Source of value</b> | Value is calculated ex-ante and is fixed during the crediting period.<br><br>Calculated value as per "Tool to calculate the emission factor for an electricity system" (Version 3.0.0)<br><br>Fixed on the basis of 3-year generation-weighted average based on the most recent data available at the time of PDD submission (2008-2010) |
| <b>Justification</b>   | Values are checked from registered PD /04/.                                                                                                                                                                                                                                                                                              |

#### 4.4.9 NCV<sub>i,y</sub> (GJ/tonnes)

Net calorific value (energy content) of fossil fuel type *i* in year y

|                        | Discussion and verification assessment                                                                                                                                            |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose of data</b> | Data used for the Baseline emissions                                                                                                                                              |
| <b>Verified value</b>  | Verified from registered PD /04/.                                                                                                                                                 |
| <b>Source of value</b> | Validated ex-ante.<br><br>TEIAS (Turkish Electricity Transmission Company) Heating values of fuels consumed in thermal plants in Turkey by the electricity utilities <sup>9</sup> |
| <b>Justification</b>   | Values are checked from Table 11 in the registered PD /04/.                                                                                                                       |

#### 4.4.10 EF<sub>CO<sub>2</sub>,i,y</sub> (tCO<sub>2</sub>/GJ)

CO<sub>2</sub> emission factor of fossil fuel type *i* in year y

|                        | Discussion and verification assessment |
|------------------------|----------------------------------------|
| <b>Purpose of data</b> | Data used for the Baseline emissions   |
| <b>Verified value</b>  | Verified from registered PD /04/.      |
| <b>Source of value</b> | Validated ex-ante.                     |

<sup>9</sup> <http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2011/yak%C4%B1t46-49/46.xls>

|                      |                                                                                                                                                                                                                                                                                         |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      | IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in Table 1.4 and Annex 1 for sub bituminous of Chapter 1 of Volume 2 (Energy) of the 2006 IPCC Guidelines for National Greenhouse Gas Inventory.                                     |
| <b>Justification</b> | There is no information on the fuel specific default emission factor in Turkey, hence, IPCC values has been used as referred in the “Tool to calculate the emission factor for an electricity system, version 3.0.0”. Values are checked from Table 14; Table 15 in registered PD /04/. |

#### 4.4.11 $EF_{grid,BM,y}$ (tCO<sub>2</sub>/MWh)

Build operating margin CO<sub>2</sub> emission factor of the grid in year y

|                        |                                                                                                                                                                                                                                                                    |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <b>Discussion and verification assessment</b>                                                                                                                                                                                                                      |
| <b>Purpose of data</b> | Data used for the Baseline emissions                                                                                                                                                                                                                               |
| <b>Verified value</b>  | 0.643<br>Verified from registered PD /04/.                                                                                                                                                                                                                         |
| <b>Source of value</b> | Value is calculated ex-ante and is fixed during the crediting period.<br>Calculated ex-ante and comprised capacity addition of power plants between years 2006-2010 according to the “Tool to calculate emission factor for an electricity system, version 3.0.0.” |
| <b>Justification</b>   | Values are checked from registered PD /04/.                                                                                                                                                                                                                        |

#### 4.4.12 Capacity additions (GWh)

Name of the plant; Installed capacity (MW); Fuel type; generation (GWh);

|                        |                                                                                                                                                                                                                                                                                                                                     |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <b>Discussion and verification assessment</b>                                                                                                                                                                                                                                                                                       |
| <b>Purpose of data</b> | Data used for the Baseline emissions                                                                                                                                                                                                                                                                                                |
| <b>Verified value</b>  | Verified from registered PD /04/.                                                                                                                                                                                                                                                                                                   |
| <b>Source of value</b> | Validated ex-ante.<br>Capacity additions to the grid that comprises 20% of the total generation (2006-2010)<br>Generation units put into operation in 2006;2007;2008;2009;2010<br><a href="http://www.teias.gov.tr/projeksiyon/KAPASITEPROJEKSIYON_U2011.pdf">http://www.teias.gov.tr/projeksiyon/KAPASITEPROJEKSIYON_U2011.pdf</a> |
| <b>Justification</b>   | Values are checked from Annex 3 Baseline Information in registered PD /04/.                                                                                                                                                                                                                                                         |

#### 4.4.13 $EF_{grid,CM,y}$ (tCO<sub>2</sub>/MWh)

Combined margin CO2 emission factor in year y

|                        | Discussion and verification assessment                                                                                                  |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose of data</b> | Data used for the Baseline emissions                                                                                                    |
| <b>Verified value</b>  | 0.650<br>Verified from registered PD /04/.                                                                                              |
| <b>Source of value</b> | Value is calculated ex-ante and is fixed during the crediting period.<br>Calculated data applied to the equation 5 in the validated PD. |
| <b>Justification</b>   | Values are checked from registered PD /04/.                                                                                             |

#### Opinion:

In the opinion of assessment team, the assumptions, emission factors and default values that were applied in the calculations have been justified.

#### Assessment of Data and Calculation of GHG emission reductions:

According to the approved methodology ACM 0002 (Version 13.0.0) Emission Reductions are calculated as

$$ER_y = BE_y - PE_y$$

Where:

$ER_y$  Emission reductions in year y (t CO2e)

$BE_y$  Baseline Emissions in year y (t CO2)

$PE_y$  Project Emissions in year y (t CO2e)

#### Baseline Emissions

Baseline emissions are determined using the formula:

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

Where:

$BE_y$  Baseline emissions in year y (tCO2)

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

$EF_{grid,CM,y}$  Combined margin CO2 emissions factor in year y (tCO2/MWh)

And

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

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

The Combined margin CO<sub>2</sub> emissions factor in year y (tCO<sub>2</sub> /MWh),  $EF_{grid,CM,y}$ , is fixed ex-ante for the duration of the crediting period and is 0.650 tCO<sub>2</sub>e /MWh. The following table is the Baseline emissions of the project calculated for the monitoring period.

The following table is the Baseline emissions of the project calculated for the monitoring period.

|               |           | A-Gross Electricity Production | B-Self Electricity Consumption | C-Net electricity production C=A-B | Baseline Emissions = $EG_{PP-net,y} * EF_{CM}$ |
|---------------|-----------|--------------------------------|--------------------------------|------------------------------------|------------------------------------------------|
|               | Symbol    | $EG_{PP-gross,y}$              | $EG_{PP-self\ consumption,y}$  | $EG_{PP-net,y}$                    | BE1                                            |
| YEAR          | Units     | MWh                            | MWh                            | MWh                                | tCO <sub>2</sub> e                             |
| 2014          | October   | 4,927.817                      | 20.050                         | 4,907.767                          | 3,190.049                                      |
|               | November  | 8,039.287                      | 15.435                         | 8,023.852                          | 5,215.504                                      |
|               | December  | 13,811.943                     | 65.170                         | 13,746.773                         | 8,935.402                                      |
| Total in 2014 |           | 26,779.047                     | 100.655                        | 26,678.392                         | 17,340 (round down)                            |
| 2015          | January   | 21,393.507                     | 0.539                          | 21,392.968                         | 13,905.429                                     |
|               | February  | 22,097.978                     | 0.017                          | 22,097.961                         | 14,363.675                                     |
|               | March     | 25,006.839                     | 0.070                          | 25,006.769                         | 16,254.400                                     |
|               | April     | 24,629.275                     | 0.138                          | 24,629.137                         | 16,008.939                                     |
|               | May       | 25,189.956                     | 0.000                          | 25,189.956                         | 16,373.471                                     |
|               | June      | 15,005.338                     | 0.008                          | 15,005.330                         | 9,753.465                                      |
|               | July      | 8,369.064                      | 8.781                          | 8,360.283                          | 5,434.184                                      |
|               | August    | 5,563.156                      | 22.666                         | 5,540.490                          | 3,601.319                                      |
|               | September | 4,988.771                      | 22.949                         | 4,965.822                          | 3,227.784                                      |
|               | October   | 6,477.811                      | 15.774                         | 6,462.037                          | 4,200.324                                      |
|               | November  | 5,601.715                      | 21.016                         | 5,580.699                          | 3,627.454                                      |
|               | December  | 5,459.556                      | 24.231                         | 5,435.325                          | 3,532.961                                      |
| Total in 2015 |           | 169,782.966                    | 116.189                        | 169,666.777                        | 110,283 (round                                 |

|               |               |            |         |            | down)               |
|---------------|---------------|------------|---------|------------|---------------------|
| 201<br>6      | January       | 9,224.059  | 10.684  | 9,213.375  | 5,988.694           |
|               | February      | 10,222.984 | 5.068   | 10,217.916 | 6,641.645           |
|               | March         | 13,524.073 | 0.797   | 13,523.276 | 8,790.129           |
|               | April         | 6,959.242  | 13.257  | 6,945.985  | 4,514.890           |
|               | May           | 3,850.881  | 29.904  | 3,820.977  | 2,483.635           |
|               | June          | 2,070.682  | 39.624  | 2,031.058  | 1,320.188           |
|               | July          | 0.000      | 56.960  | -56.960    | - 37.024            |
|               | August        | 0.000      | 57.964  | -57.964    | - 37.677            |
|               | Septembe<br>r | 1,364.198  | 43.582  | 1,320.616  | 858.400             |
|               | October       | 1,616.986  | 42.256  | 1,574.730  | 1,023.575           |
|               | November      | 1,742.761  | 43.096  | 1,699.665  | 1,104.782           |
|               | Decembe<br>r  | 4,109.748  | 35.018  | 4,074.730  | 2,648.575           |
| Total in 2016 |               | 54,685.614 | 378.210 | 54,307.404 | 35,299 (round down) |
| 201<br>7      | January       | 7,991.112  | 14.792  | 7,976.320  | 5,184.608           |
|               | February      | 5,977.635  | 19.328  | 5,958.307  | 3,872.900           |
|               | March         | 18,968.968 | 0.000   | 18,968.968 | 12,329.829          |
|               | April         | 20,786.411 | 0.016   | 20,786.395 | 13,511.157          |
|               | May           | 13,396.695 | 0.244   | 13,396.451 | 8,707.693           |
|               | June          | 5,816.702  | 17.806  | 5,798.896  | 3,769.282           |
|               | July          | 2,971.514  | 38.866  | 2,932.648  | 1,906.221           |
|               | August        | 2,312.104  | 41.982  | 2,270.122  | 1,475.579           |
|               | Septembe<br>r | 648.680    | 1.386   | 647.294    | 420.741             |
|               | October       | 2,697.000  | 3.700   | 2,693.300  | 1,750.645           |
|               | November      | 5,162.949  | 24.651  | 5,138.298  | 3,339.894           |
|               | Decembe<br>r  | 5,259.853  | 26.701  | 5,233.152  | 3,401.549           |
| Total in 2017 |               | 91,989.623 | 189.472 | 91,800.151 | 59,670 (round down) |
| 201           | January       | 11,399.737 | 11.500  | 11,388.237 | 7,402.354           |

|               |           |             |         |             |                      |
|---------------|-----------|-------------|---------|-------------|----------------------|
| 8             |           |             |         |             |                      |
|               | February  | 13,274.226  | 0.000   | 13,274.226  | 8,628.247            |
|               | March     | 20,728.965  | 1.171   | 20,727.794  | 13,473.066           |
|               | April     | 11,990.280  | 0.056   | 11,990.224  | 7,793.646            |
|               | May       | 12,816.764  | 2.504   | 12,814.260  | 8,329.269            |
|               | June      | 5,523.688   | 19.225  | 5,504.463   | 3,577.901            |
|               | July      | 2,365.571   | 37.609  | 2,327.962   | 1,513.175            |
|               | August    | 1,341.620   | 44.974  | 1,296.646   | 842.820              |
|               | September | 1,476.327   | 41.336  | 1,434.991   | 932.744              |
|               | October   | 5,092.195   | 27.223  | 5,064.972   | 3,292.232            |
|               | November  | 5,187.139   | 20.941  | 5,166.198   | 3,358.029            |
|               | December  | 20,379.704  | 1.831   | 20,377.873  | 13,245.617           |
| Total in 2018 |           | 111,576.216 | 208.370 | 111,367.846 | 72,389 (round down)  |
| 2019          | January   | 23,623.828  | 0.008   | 23,623.820  | 15,355.483           |
|               | February  | 20,719.740  | 0.497   | 20,719.243  | 13,467.508           |
|               | March     | 23,680.309  | 0.963   | 23,679.346  | 15,391.575           |
|               | April     | 22,879.331  | 0.522   | 22,878.809  | 14,871.226           |
|               | May       | 24,832.376  | 0.000   | 24,832.376  | 16,141.044           |
|               | June      | 19,455.560  | 0.000   | 19,455.560  | 12,646.114           |
|               | July      | 12,390.575  | 0.000   | 12,390.575  | 8,053.874            |
|               | August    | 7,716.304   | 8.999   | 7,707.305   | 5,009.748            |
|               | September | 2,574.128   | 34.450  | 2,539.678   | 1,650.791            |
|               | October   | 5,535.587   | 16.255  | 5,519.332   | 3,587.566            |
|               | November  | 5,198.518   | 20.895  | 5,177.623   | 3,365.455            |
|               | December  | 11,008.207  | 15.280  | 10,992.927  | 7,145.403            |
| Total in 2019 |           | 179,614.463 | 97.869  | 179,516.594 | 116,685 (round down) |
| 2020          | January   | 18,090.164  | 0.000   | 18,090.164  | 11,758.607           |
|               | February  | 21,942.485  | 0.000   | 21,942.485  | 14,262.615           |

|                      |           |                    |                  |                    |                            |
|----------------------|-----------|--------------------|------------------|--------------------|----------------------------|
|                      | March     | 24,947.646         | 0.000            | 24,947.646         | 16,215.970                 |
|                      | April     | 24,094.332         | 0.000            | 24,094.332         | 15,661.316                 |
|                      | May       | 21,830.892         | 0.012            | 21,830.880         | 14,190.072                 |
|                      | June      | 12,351.570         | 0.000            | 12,351.570         | 8,028.521                  |
|                      | July      | 7,891.319          | 9.321            | 7,881.998          | 5,123.299                  |
|                      | August    | 5,281.317          | 25.461           | 5,255.856          | 3,416.306                  |
|                      | September | 2,708.343          | 37.523           | 2,670.820          | 1,736.033                  |
| <b>Total in 2020</b> |           | <b>139,138.068</b> | <b>72.317</b>    | <b>139,065.751</b> | <b>90,392 (round down)</b> |
| <b>Grand Total</b>   |           | <b>773,565.997</b> | <b>1,163.082</b> | <b>772,402.915</b> | <b>502,058</b>             |

### Project Emissions

The Project emissions are calculated with the formula mentioned in ACM0002 / Version 13 as:

$$PE_{HP,y} = \frac{EF_{Res} \cdot TEG_y}{1000}$$

Where:

$PE_{HP,y}$  = Emission from reservoir expressed as tCO<sub>2</sub>e/year

$EF_{Res}$  = Default emission factor for emissions from reservoirs of hydro power plants in year y (CO<sub>2</sub>e /MWh)

$TEG_y$  = Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (MWh).

The power density of the project activity is calculated as follows:

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

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

$Cap_{PJ} = 35,478,000 \text{ W}$

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

$A_{PJ} = 640,471.91 \text{ m}^2$

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

Therefore;

$PD = (35,478,000 - 0) / (640,471.91 - 0) = 55.39 \text{ W/m}^2$

Therefore;

The project has a power density of 55.39 W/m<sup>2</sup> therefore:

$PE_{HP, y} = 0$

Although there are auxiliary diesel generators installed within the project boundary, the emissions from these have been deemed negligible as per the ACM0002 (version 13.0.0) methodology which is found OK.

### Leakage

No leakage has been considered for the project activity.

### Emission reductions

Emission reductions are calculated as follows:

$ER_y = BE_y = EGP_{J,y} * EF_{grid,CM,y}$   
**= 502,058 tCO<sub>2</sub>e (Rounded down)**

**Opinion:**

The verification team confirms that

- The complete data set for the identified and required parameters for the operational days in the current monitoring period was available;
- The reported data has been cross checked with available records, as indicated in the section 4.4 above under each monitored data, wherever appropriate;
- The baseline, project and leakage emissions have been determined in accordance with the requirement of the applied methodologies, as contained in the final monitoring report and corresponding emission reductions spreadsheet;
- The assumptions, emission factors and default values used are justified, as indicated in the section 4.4 above

#### 4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Evidences (Documents/Zoom interviews) referred for verification of individual monitoring parameter and fixed parameters are defined under section 4.4. Cross-checks performed on the reported data has been referred under the individual monitoring parameters under section 4.4 of this report. We further confirm that, sufficient evidence covering the entire monitoring period and at the required frequency were available. A list of referred documents for verification is also included in Appendix 1 of this report.

Further verification team confirm that:

- *The reliability of the evidence, and the source and nature of the evidence for the determination of GHG emission reductions or removals was checked during the verification and found OK.*
- *The information flow from data generation and aggregation, to recording, calculation and final transposition into the monitoring report has been checked and found OK.*
- *The energy meters are calibrated as per the government regulation which has been confirmed during the remote audit and the calibration records /15/. Further information has been provided under monitoring parameter table under section 4.4 of this report.*

Verification team confirm the sufficiency of quantity, and appropriateness of quality, of the evidence used to determine the GHG reductions and removals.

#### 4.6 Non-Permanence Risk Analysis

Not applicable.

## 5 VERIFICATION CONCLUSION

4K Earth Science Pvt. Ltd (4KES), contracted by 'Ekobil Environmental Services and Consultancy Ltd.', has performed the independent verification of the emission reductions for the VCS project activity (VCS ID- 1344) "Murat HEPP Project" in Turkey for the monitoring period 01-October-2014 to 30-September-2020 as reported in the Monitoring Report Version 1.2 dated 20/02/2022. The Murat HEPP Energy Electricity Generation and Trade Inc. Co.<sup>10</sup> and the respective project proponent are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity. It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity.

4KES commenced the verification on the basis of the baseline and monitoring methodology ACM 0002 version 13.0.0, the monitoring plan contained in the registered VCS PD /04/ and VCS guidelines version 4, Monitoring Report (Version 1.2 dated 20/02/2022) as per the process described under Section 2 of this report.

4KES verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. 4KES planned and performed the verification by obtaining evidence and other information and explanations that 4KES considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated. Verification team further confirm that project complies with the verification criteria for projects and their GHG emission reductions or removals set out in VCS Version 4, including any qualifications or limitations.

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<sup>10</sup> The project proponent is Murat HEPP Energy Electricity Generation and Trade Inc., which is a subsidiary of Mehmet Güneş Construction, Trading and Industry Co. Ltd. Mehmet Güneş Construction Trading and Industry Co. Ltd is a family company owned by Mehmet Güneş and has been conducting both private and public construction works since 1970. For detailed information please visit the following web page: <http://www.mehmetgunesins.com/mg/index.php>

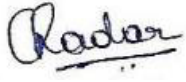
In our opinion the GHG emissions reductions reported for the project activity for the period 01-October-2014 to 30-September-2020 are fairly stated in the Monitoring Report Version 1.2 dated 20/02/2022. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM 0002, version 13.0.0, and the VCS standard.

Verification period: From 01-October-2014 to 30-September-2020

Verified GHG emission reductions and removals in the above verification period:

| 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) |
|--------------------------------------|-----------------------------------------------------|----------------------------------------------------|----------------------------------------|--------------------------------------------------------------|
| 2014 (from 01/10/2014 to 31/12/2014) | 17,340                                              | 0                                                  | 0                                      | 17,340                                                       |
| 2015 (from 01/01/2015 to 31/12/2015) | 1,10,283                                            | 0                                                  | 0                                      | 1,10,283                                                     |
| 2016 (from 01/01/2016 to 31/12/2016) | 35,299                                              | 0                                                  | 0                                      | 35,299                                                       |
| 2017 (from 01/01/2017 to 31/12/2017) | 59,670                                              | 0                                                  | 0                                      | 59,670                                                       |
| 2018 (from 01/01/2018 to 31/12/2018) | 72,389                                              | 0                                                  | 0                                      | 72,389                                                       |
| 2019 (from 01/01/2019 to 31/12/2019) | 1,16,685                                            | 0                                                  | 0                                      | 1,16,685                                                     |
| 2020 (from 01/01/2020 to 30/09/2020) | 90,392                                              | 0                                                  | 0                                      | 90,392                                                       |
| <b>Total</b>                         | <b>502,058</b>                                      | <b>0</b>                                           | <b>0</b>                               | <b>502,058</b>                                               |

Approved by



Chandrakala R.

Director

4K Earth Science Private Limited

Date: 24-Debruary-2022

Place: Bangalore, India

# APPENDIX I: LIST OF DOCUMENTS

|      |                                                                                                                                                                                                                                      |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /1/  | /1.1/ Monitoring Report, Version 1.0, dated 09/09/2021 (Initial Version)<br>/1.2/ Monitoring Report, Version 1.2 dated 20/02/2022 (Final Version)                                                                                    |
| /2/  | /2.1/ Draft Emission Reduction calculation sheet (corresponding to initial Version of VCS MR)<br>/2.2/ Final Emissions Reduction calculation Sheet (corresponding to final Version of VCS MR)                                        |
| /3/  | VCS Standard Version 4.1                                                                                                                                                                                                             |
| /4/  | Registered VCS PD version 04 dated 19/02/2013                                                                                                                                                                                        |
| /5/  | Web-Link for the Registered project activity for Validation Report and Grid Emission factor calculation<br><a href="https://registry.verra.org/app/projectDetail/VCS/1344">https://registry.verra.org/app/projectDetail/VCS/1344</a> |
| /6/  | Certificate of commissioning of 6 Units                                                                                                                                                                                              |
| /7/  | Connection Agreement (Agreement between TEİAŞ and the PP)                                                                                                                                                                            |
| /8/  | System Usage Agreement (Agreement between TEİAŞ and the PP)                                                                                                                                                                          |
| /9/  | Technical specification of the main equipments (Turbine, Generator etc.)                                                                                                                                                             |
| /10/ | Photographic evidence<br>Name plate photos of major equipment<br>Turbine and Generator name plates<br>Main and back-up meters displaying the serial numbers (photos)                                                                 |
| /11/ | Training record to the employees                                                                                                                                                                                                     |
| /12/ | Single line diagram along with meter location                                                                                                                                                                                        |
| /13/ | Production licence                                                                                                                                                                                                                   |
| /14/ | Reservoir surface area                                                                                                                                                                                                               |
| /15/ | Calibration certificates for the energy meters corresponding to this monitoring period along with the supportive for the meter change                                                                                                |
| /16/ | Monthly export and import values available on the TEİAS and EPIAS PORTAL which are government authorities                                                                                                                            |
| /17/ | OSF Forms: TEİAS signed statement for monthly electricity export and import corresponding to this monitoring period.                                                                                                                 |

|      |                                                                                                                                                                                                                                                                                        |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /18/ | Periodic calibration is indicated as 10 years in article 9 of the following regulation:<br><a href="https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&amp;MevzuatTur=7&amp;MevzuatTertip=5">https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&amp;MevzuatTur=7&amp;MevzuatTertip=5</a> |
| /19/ | Organization structure                                                                                                                                                                                                                                                                 |
| /20/ | Sustainable parameters supportive:<br><br>List of employees, Photos submitted, Training records                                                                                                                                                                                        |
| /21/ | Video captured by PP for the project site                                                                                                                                                                                                                                              |
| /22/ | EIA Exemption certificate                                                                                                                                                                                                                                                              |
| /23/ | VCS MR filling template<br><br><a href="https://verra.org/project/vcs-program/rules-and-requirements/">https://verra.org/project/vcs-program/rules-and-requirements/</a>                                                                                                               |
| /24/ | Fish ladder photographs                                                                                                                                                                                                                                                                |
| /25/ | Water usage agreement with DSI-State Water Works                                                                                                                                                                                                                                       |
| /26/ | Revised FSR                                                                                                                                                                                                                                                                            |
| /27/ | Minimum water passage records                                                                                                                                                                                                                                                          |
| /28/ | PROCEDURES AND PRINCIPLES REGARDING THE SCOPE OF AUTOMATIC METER READING SYSTEMS AND THE DETERMINATION OF COUNTER VALUES, enter into force on 1/12/2011                                                                                                                                |
| /29/ | Hydrological Proof for this monitoring period                                                                                                                                                                                                                                          |

## APPENDIX II: VERIFICATION FINDINGS

**Table 1. Remaining FAR from validation and/or previous verifications**

No FAR raised during the validation and 1<sup>st</sup> verification of the project activity.

| FAR ID                                               | Xx | Section no. | Date: DD/MM/YYYY        |
|------------------------------------------------------|----|-------------|-------------------------|
| <b>Description of FAR</b>                            |    |             |                         |
|                                                      |    |             |                         |
| <b>Project participant response</b>                  |    |             | <b>Date: DD/MM/YYYY</b> |
|                                                      |    |             |                         |
| <b>Documentation provided by project participant</b> |    |             |                         |
|                                                      |    |             |                         |

|                       |                         |
|-----------------------|-------------------------|
| <b>DOE assessment</b> | <b>Date: DD/MM/YYYY</b> |
|                       |                         |

**Table 2. CL from this verification**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |                    |     |                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------|-----|-------------------------|
| <b>CL ID</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 01 | <b>Section no.</b> | 4.1 | <b>Date: 10/10/2021</b> |
| <b>Description of CL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |    |                    |     |                         |
| Turbine and generators capacity mentioned in the submitted Monitoring period /1.1/ are not consistent with the registered VCS PD /04/ however no justification has been provided.                                                                                                                                                                                                                                                                                                                                                              |    |                    |     |                         |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |                    |     | <b>Date: 08/11/2021</b> |
| The capacities in PD are taken from the estimated capacity values from feasibility and vary as mechanical and electrical power. The installed power of the project is given in the PD as 37.22 MWe however the actual realized value of the installed power is 35.478 MWe because of the design requirements of the OEM company. These values can be checked by the photos of name plates of the turbines and generators.                                                                                                                      |    |                    |     |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |    |                    |     |                         |
| <a href="https://app.box.com/s/xogkba42qo1ki3c7jnxr3d7ts3hjncp0">https://app.box.com/s/xogkba42qo1ki3c7jnxr3d7ts3hjncp0</a>                                                                                                                                                                                                                                                                                                                                                                                                                    |    |                    |     |                         |
| <a href="https://app.box.com/s/kbkxhmoj3ty3r42airy0nk4fijlg2tyc">https://app.box.com/s/kbkxhmoj3ty3r42airy0nk4fijlg2tyc</a>                                                                                                                                                                                                                                                                                                                                                                                                                    |    |                    |     |                         |
| <b>DOE assessment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |                    |     | <b>Date: 11/12/2021</b> |
| Clarification has been provided by the PP and found convincing. Verification team has verified the capacity of the project from the turbine/generator name plate capacity /10/ and found consistent. Project description deviation has been applied under section 3.2.2 of the monitoring report /1.2/ and found OK. Further the Project description deviation was also applied during the last verification for the same and there is no change in the capacity of the project since the previous monitoring period. Hence this CL is closed. |    |                    |     |                         |

**Table 3. CAR from this verification**

|                                                                                                                                                                                           |    |                    |       |                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------|-------|-------------------------|
| <b>CAR ID</b>                                                                                                                                                                             | 01 | <b>Section no.</b> | 4.2.2 | <b>Date: 10/10/2021</b> |
| <b>Description of CAR</b>                                                                                                                                                                 |    |                    |       |                         |
| Under section 2.2 of the submitted MR /1.1/, PP need to mention the mechanism for on-going communication with local stakeholders (as per MR filling template).                            |    |                    |       |                         |
| <b>Project participant response</b>                                                                                                                                                       |    |                    |       | <b>Date: 08/11/2021</b> |
| Relevant information is added under the section 2.2 as follows:<br>There is no obstacle for the stakeholders to physically reach the project area and also they can communicate by phone. |    |                    |       |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                      |    |                    |       |                         |
| Please see section 2.2 of the revised MR.                                                                                                                                                 |    |                    |       |                         |
| <b>DOE assessment</b>                                                                                                                                                                     |    |                    |       | <b>Date: 11/12/2021</b> |
| Correction has been done in the revised MR /02/ and found OK. Hence this CAR is closed.                                                                                                   |    |                    |       |                         |
| <b>CAR ID</b>                                                                                                                                                                             | 02 | <b>Section no.</b> | 4.4   | <b>Date: 25/08/2021</b> |
| <b>Description of CAR</b>                                                                                                                                                                 |    |                    |       |                         |

|                                                                                                                                                                                                                     |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Meters were changed during this monitoring period (as verified during the remote audit), however no information has been provided for the same under section 4.2 of the monitoring report /1.1/.                    |                         |
| <b>Project participant response</b>                                                                                                                                                                                 | <b>Date:</b> 08/11/2021 |
| Relevant information is added under the section 4.2.                                                                                                                                                                |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                                                |                         |
| Please see section 2.2 of the revised MR.                                                                                                                                                                           |                         |
| <b>DOE assessment</b>                                                                                                                                                                                               | <b>Date:</b> 11/12/2021 |
| Corrections have been done in the revised MR /02/ and found OK. The supportive document for the meter change and calibration /15/ has been verified and found the information consistent. Hence this CAR is closed. |                         |

**Table 4. FAR from this verification**

No FAR raised during this verification.

|                                                      |           |                    |                         |
|------------------------------------------------------|-----------|--------------------|-------------------------|
| <b>FAR ID</b>                                        | <b>**</b> | <b>Section No.</b> | <b>Date:</b> DD/MM/YYYY |
| <b>Description of FAR</b>                            |           |                    |                         |
|                                                      |           |                    |                         |
| <b>Project participant response</b>                  |           |                    | <b>Date:</b> DD/MM/YYYY |
|                                                      |           |                    |                         |
| <b>Documentation provided by project participant</b> |           |                    |                         |
|                                                      |           |                    |                         |
| <b>DOE assessment</b>                                |           |                    | <b>Date:</b> DD/MM/YYYY |
|                                                      |           |                    |                         |

## APPENDIX III: TEAM COMPETENCE

| <u><b>Certificate of Competence</b></u> |                                                                                                                                          |                       |                    |                         |                           |                         |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------|-------------------------|---------------------------|-------------------------|
| <b>Name</b>                             | <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms.                                                                  | Chetan Swaroop Sharma |                    |                         |                           |                         |
| <b>Qualification Procedure</b>          | Fulfil the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects. |                       |                    |                         |                           |                         |
| <b>Appointed to work as:</b>            |                                                                                                                                          |                       |                    |                         |                           |                         |
|                                         | <b>CDM Validator/Verifier</b>                                                                                                            | <b>Team Leader</b>    | <b>Team Member</b> | <b>Technical Expert</b> | <b>Technical Reviewer</b> | <b>Financial Expert</b> |
| <b>Appointed</b>                        | Yes                                                                                                                                      | Yes                   | Yes                | Yes                     | Yes                       | No                      |

|                                                    |                                                         |         |                                 |
|----------------------------------------------------|---------------------------------------------------------|---------|---------------------------------|
| Appointed Date                                     | 27-04-2021                                              |         |                                 |
| <b>Authorized to work as Technical Expert for:</b> |                                                         |         |                                 |
| Authorized Technical Area                          | Sectoral Scope                                          | TA Code | Technical Area within the scope |
|                                                    | Energy industries (renewable - / non-renewable sources) | 1.1     | Thermal energy generation       |
|                                                    | Energy industries (renewable - / non-renewable sources) | 1.2     | Renewables                      |
|                                                    | Energy distribution                                     | 2.1     | Energy distribution             |
|                                                    | Energy demand                                           | 3.1     | Energy demand                   |
|                                                    | Waste handling and disposal                             | 13.1    | Solid waste and wastewater      |
|                                                    | Waste handling and disposal                             | 13.2    | Manure                          |
| <b>Authorized to work as Local Expert for:</b>     |                                                         |         |                                 |
| Country/Countries                                  | India                                                   |         |                                 |
| <b>Compliance check by:</b> Anand S. R.            |                                                         |         |                                 |

|                                         |                                                                                                                                           |                       |             |                  |                    |                  |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------|------------------|--------------------|------------------|
| <b><u>Certificate of Competence</u></b> |                                                                                                                                           |                       |             |                  |                    |                  |
| Name                                    | <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms.                                                                   | Ma Paa Puratchikkanal |             |                  |                    |                  |
| Qualification Procedure                 | Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects. |                       |             |                  |                    |                  |
| <b>Appointed to work as:</b>            |                                                                                                                                           |                       |             |                  |                    |                  |
|                                         | CDM Validator/Verifier                                                                                                                    | Team Leader           | Team Member | Technical Expert | Technical Reviewer | Financial Expert |
| Appointed                               | Yes                                                                                                                                       | Yes                   | Yes         | Yes              | Yes                | No               |
| Appointed Date                          | 27-04-2021                                                                                                                                |                       |             |                  |                    |                  |

|                                                    |                                                         |                |                                        |
|----------------------------------------------------|---------------------------------------------------------|----------------|----------------------------------------|
|                                                    |                                                         |                |                                        |
| <b>Authorized to work as Technical Expert for:</b> |                                                         |                |                                        |
| <i>Authorized Technical Area</i>                   | <b>Sectoral Scope</b>                                   | <b>TA Code</b> | <b>Technical Area within the scope</b> |
|                                                    | Energy industries (renewable - / non-renewable sources) | 1.1            | Thermal energy generation              |
|                                                    | Energy industries (renewable - / non-renewable sources) | 1.2            | Renewables                             |
|                                                    | Energy demand                                           | 3.1            | Energy demand                          |
|                                                    | Construction                                            | 6.1            | Construction                           |
|                                                    | Waste handling and disposal                             | 13.1           | Solid waste and wastewater             |
|                                                    | Waste handling and disposal                             | 13.2           | Manure                                 |
|                                                    | Agriculture                                             | 15.1           | Agriculture                            |
|                                                    |                                                         |                |                                        |
|                                                    |                                                         |                |                                        |
| <b>Authorized to work as Local Expert for:</b>     |                                                         |                |                                        |
| <i>Country/Countries</i>                           | India and Sri Lanka                                     |                |                                        |
|                                                    |                                                         |                |                                        |
| <b><u>Compliance check by:</u></b> Anand S. R.     |                                                         |                |                                        |

## APPENDIX IV: ABBREVIATIONS

|     |                                 |
|-----|---------------------------------|
| BM  | Build Margin                    |
| CAR | Corrective Action Request       |
| CDM | Clean Development Mechanism     |
| CL  | Clarification Request           |
| EB  | Executive Board                 |
| EIA | Environmental Impact Assessment |
| ER  | Emission Reductions             |

|                  |                                                       |
|------------------|-------------------------------------------------------|
| FAR              | Forward Action Request                                |
| GHG              | Greenhouse Gases                                      |
| IPCC             | Intergovernmental Panel for Climate Change            |
| MP               | Monitoring Period                                     |
| MR               | Monitoring Report                                     |
| MW               | Mega Watt                                             |
| MWh              | MegaWatt hour                                         |
| PD               | Project Description                                   |
| PP               | Project proponent                                     |
| QA/QC            | Quality Assurance/Quality Control                     |
| tCO <sub>2</sub> | Tonnes of Carbon Dioxide                              |
| UNFCCC           | United Nations Framework Convention on Climate Change |
| VCS              | Verified Carbon Standard                              |
| VCSA             | Verified Carbon Standard Association                  |
| VCU              | Verified Carbon Unit                                  |