



**Verified Carbon
Standard**

TATAR HYDRO ELECTRICITY POWER PLANT



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.¹” to undertake verification and certification for the greenhouse gas (GHG) emission reductions reported from ‘Tatar Hydro Electricity Power Plant’ for the monitoring period 14/11/2013 to 31/07/2021 in the initial monitoring report version 1.0 date 18/08/2021.

Darenhes Elektrik Üretimi A.Ş. constructed Tatar Hydro Electric Power Plant (HPP) on the Peri Stream, within the jurisdiction of Tunceli and Elazığ Provinces. The purpose of the project is electricity production using the potential energy of Peri Stream as a renewable resource. The construction and operation of the Tatar Hydro Electric Power Plant (HPP) is delaying the addition of conventional thermal power plants to the Turkish National Electricity Grid.

The set capacity of Tatar HEPP is 128.22 MWe, with 2 turbines of 64.11 MWe each. The first unit was commissioned in 14/11/2013. Later on, the second unit was commissioned in 12/12/2013. From this date, the project continues to operate with full capacity. The project start date is 14/11/2013 since the first unit was commissioned in that day.

During this monitoring period (14-November-2013 to 31-July-2021) the project has produced a net total of 2,265,059 MWh electricity and a total amount of 1,222,788 tCO₂e 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 1st periodic verification of the project activity. In the course of the verification, 04 Corrective Action Requests (CARs), 02 Clarifications (CLs) and 00 Forward action request (FAR) were raised.

The management of the ‘Darenhes Elektrik Üretim A.Ş.’ 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 1.01 dated 02/09/2021. 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 1.01 dated 02/09/2021.

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 14/11/2013 to 31/07/2021 based on the reported emission reductions in the final monitoring report Version 1.01 dated 02/09/2021 for the same period.

¹ 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.

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: 14/11/2013 to 31/07/2021

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2013	23,288	0	0	23,288
2014	59,104	0	0	59,104
2015	197,815	0	0	197,815
2016	152,038	0	0	152,038
2017	80,092	0	0	80,092
2018	179,657	0	0	179,657
2019	257,355	0	0	257,355
2020	186,671	0	0	186,671
2021	86,768	0	0	86,768
Total	1,222,788	0	0	1,222,788

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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 'Tatar Hydro Electricity Power Plant' VCS 1205, for the reported GHG emission reductions for the given monitoring period 14/11/2013 to 31/07/2021 (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 /10/, /11/, /14/, /15/ and /16/ 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/ and /20/ and found correct. Therefore, 4KES confirms that the verification is conducted with reasonable level of assurance.

1.4 Summary Description of the Project

Darenhes Elektrik Üretimi A.Ş. constructed Tatar Hydro Electric Power Plant (HPP) on the Peri Stream, within the jurisdiction of Tunceli and Elazığ Provinces. The purpose of the project is electricity production using the potential energy of Peri Stream as a renewable resource. The construction and operation of the Tatar Hydro Electric Power Plant (HPP) is delaying the addition of conventional thermal power plants to the Turkish National Electricity Grid.

The set capacity of Tatar HEPP is 128.22 MWe, with 2 turbines of 64.11 MWe each. The first unit was commissioned in 14/11/2013. Later on, the second unit was commissioned in 12/12/2013. From this date, the project continues to operate with full capacity. The project start date is 14/11/2013 since the first unit was commissioned in that day. The total capacity of project capacity is verified from the remote audit, commissioning certificate /06/, technical specifications /09/, photos /10/ and production license /13/, Connection agreement /07/, System Usage agreement /08/.

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

The chosen monitoring period i.e. 14/11/2013 to 31/07/2021 is within the crediting period i.e. 14/11/2013 to 13/11/2023 which is accepted to the verification team. The monitoring period i.e. 14/11/2013 to 31/07/2021 is more than 6 years however exemption has been taken for the same from VCS /22/.

The project is located at the East Anatolian geographical region of Turkey within the jurisdictions of Elazığ and Tunceli Provinces. The project is located at the Northern Euphrates Catchment over the Peri Stream, between 38°91' Northern Latitudes and 39°87' Eastern Longitudes. The coordinates of the Dam Body and the Powerhouse are given below:

Coordinates of the dam body and the powerhouse

	Dam Body		Power House	
	Latitude	Longitude	Latitude	Longitude
Point 1	38°51'57.78"N	39°49'14.58"E	38°52'0.28"N	39°49'1.37"E
Point 2	38°51'55.77"N	39°49'4.80"E	38°51'58.11"N	39°48'58.24"E

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

During this monitoring period (14-November-2013 to 31-July-2021) the project has produced a net total of 2,265,059 MWh electricity and a total amount of 1,222,788 tCO₂e 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 1st verification under VCS (1st 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	30/06/2021
Remote audit	24/08/2021
Findings raised	25/08/2021
Draft Verification Report	13/09/2021
Final Verification Report	23/09/2021

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 nationwide lockdown due to COVID-19 spread, Verification team could not conduct the site visit. Since the date of closure of lockdown 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, site person, 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, v4.0 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).

Location	The project is located at the East Anatolian geographical region of Turkey within the jurisdictions of Elazığ and Tunceli Provinces.	
Dates	24/08/2021	
Key points discussed	Name of person, interviewed	Designation, Organization
Implementation, Monitoring, Operational data, Calibration, Data collection, QA/QC procedures, Calculation of ERs, VCS requirements	Fatih Baydar	Trading Deputy Manager, PP
	Funda Yenici	Commercial Contracts Manager, PP
	Yavuz ZİREK	TATAR HPP Operation Manager
	Dr. G.Asılı Sezer Özçelik	Ekobil Environmental Services and Consultancy Ltd. (Project Consultant)
	Ms. Zeynep Artaç	Ekobil Environmental Services and Consultancy Ltd. (Project Consultant)
Sustainable development Impact, Complaints,	Mr. Özgür	Çiftlik Village
	Mr. Galip	Nişankaya Village

Mode of communication, Environmental impact, any other concerns		
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2.4 Site Inspections

Due to nationwide lockdown due to COVID-19 spread, Verification team could not conduct the site visit. Since the date of closure of lockdown 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, site person, 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, v4.0 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 04 CAR and 02 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

Not Applicable.

3.3 Project Description Deviations

In the validated PD, it is stated that the project start date is 01/11/2013 or the commercial operation date. First unit of the project was commissioned in 14/11/2013 as verified from the commissioning certificate /06/, hence project start date and crediting period start date has been considered as 14/11/2013 under the Monitoring report /1.2/ which is 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

Darenhes Elektrik Üretimi A.Ş. constructed Tatar Hydro Electric Power Plant (HPP) on the Peri Stream, within the jurisdiction of Tunceli and Elazığ Provinces.

The set capacity of Tatar HEPP is 128.22 MWe, with 2 turbines of 64.11 MWe each. The first unit was commissioned in 14/11/2013. Later on, the second unit was commissioned in 12/12/2013. From this date, the project continues to operate with full capacity. The project start date is 14/11/2013 since the first unit was commissioned in that day. The total capacity of project capacity is verified from the remote audit, commissioning certificate /06/, technical specifications /09/, photos /10/ and production license /13/, Connection agreement /07/, System Usage agreement /08/.

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. 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 /19/. Local stakeholders were happy with the project and shared positive feedback about the job creation and other sustainable development.

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/.
- 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 /19/. 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 /23/, water passage report by DSI /25/ and EIA affirmation certificate /26/ etc.

4.2.2 Local Stakeholder Consultation

The project owner has organized two stakeholders meetings within the framework of the EIA process. The first meeting was held on 15 February, 2006 at 10:00 o'clock in the town hall of the Karakoçan Municipality, Elazığ, and the second meeting was held the next day on 16th February 2006, at 14:00 o'clock, next to the Elmalık village Gendarme station, in Munzur Kebap Restaurant (the Place of Hüseyin Usta) in Elmalık village – Mazgirt / TUNCELİ. 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 meeting was held with stakeholders on August 24, 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/.

Parameter monitored:

4.4.1 EGPP-self consumption, y (MWh)

Quantity of electricity imported by the power plant from the Grid for self consumption, 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)	The Primary source of data is the main TEIAS meters recorded at the monthly reading protocols, the column related to electricity obtained from the Grid. The secondary source of data is the PMUM/MFRC web site screen shots, the column with the heading UECM. There are bidirectional meters. The meters belong to the grid operator TEIAŞ. These meters are placed on the switchgear station where the power plant gets connected to the Turkish national grid The electricity data is continuously measured by the energy meters. The data read through these meters are recorded monthly by TEIAS. There are two main meters, each record the generation/import of electricity from each line that transmit the electricity generated by each unit of generators, and there are two back-up meters, for each one of these main meters. 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. <table border="1"> <thead> <tr> <th>Meter</th><th colspan="2">Main Meters</th><th colspan="2">Back-Up Meters</th></tr> </thead> <tbody> <tr> <td>Function</td><td>Group 1</td><td>Group 2</td><td>Group 1</td><td>Group 2</td></tr> <tr> <td>Location</td><td>At the</td><td>At the</td><td>At the</td><td>At the</td></tr> </tbody> </table>				Meter	Main Meters		Back-Up Meters		Function	Group 1	Group 2	Group 1	Group 2	Location	At the	At the	At the	At the
Meter	Main Meters		Back-Up Meters																
Function	Group 1	Group 2	Group 1	Group 2															
Location	At the	At the	At the	At the															

	ed	plant	plant	plant	plant
	Serial No	471008	471010	471009	471011
	Calibration	2012	2012	2012	2012
	Validity ²	2022	2022	2022	2022
	Meter	Main Meters		Back-Up Meters	
	Function	Group 1	Group 2	Group 1	Group 2
	Located	At the plant	At the plant	At the plant	At the plant
	Serial No	9420077	9420079	9420078	9420080
	Calibration	2020	2020	2020	2020
	Validity	2030	2030	2030	2030
	Model	EMH	EMH	EMH	EMH
	Type	LZQJ-XC	LZQJ-XC	LZQJ-XC	LZQJ-XC
	Accuracy Class	0.2s	0.2S	0.2S	0.2S
Verification team has checked the meter details during the remote interview and photos /10/ and found OK. The meter needs to be calibrated every 10 years as per the government regulation /17/. Energy meters were changed on 12/04/2020 i.e. during this monitoring period as verified from the meter change document by TEIAS /15/. The old meters and the new meters were factory calibrated and the calibration was covering the					

² 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(2012) is counted as the first year, regardless of the date and the remaining period is calculated from the year it was stamped(2012+10 years).

	monitoring period.
Measuring/Reading/Recording frequency	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.
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The electricity generation/consumption are measured every month using energy meters. Entity responsible: TEIAS
Verified value	7,366.46 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.
Cross checks	NA
QA/QC procedures applied	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 EGPP-gross, y (MWh)

Quantity of electricity produced by the power plant, in 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)	The Primary source of data is the main TEIAS meters recorded at the monthly reading protocols, the column related to electricity obtained from the Grid. The secondary source of data is the PMUM/MFRC web site screen shots, the column with the heading UECM. There are bidirectional meters. The meters belong to the grid operator TEIAS. These meters are placed on the switchgear station where the power plant gets connected to the Turkish national grid The electricity data is continuously measured by the energy meters. The data read through these meters are recorded monthly by TEIAS. There are two main meters, each record the generation/import of electricity from each line that transmit the electricity generated by each unit of

generators, and there are two back-up meters, for each one of these main meters.

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.

Meter	Main Meters		Back-Up Meters	
Function	Group 1	Group 2	Group 1	Group 2
Located	At the plant	At the plant	At the plant	At the plant
Serial No	471008	471010	471009	471011
Calibration	2012	2012	2012	2012
Validity ³	2022	2022	2022	2022
Meter	Main Meters		Back-Up Meters	
Function	Group 1	Group 2	Group 1	Group 2
Located	At the plant	At the plant	At the plant	At the plant
Serial No	9420077	9420079	9420078	9420080
Calibration	2020	2020	2020	2020
Validity	2030	2030	2030	2030
Model	EMH	EMH	EMH	EMH

³ 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(2012) is counted as the first year, regardless of the date and the remaining period is calculated from the year it was stamped(2012+10 years).

	Type	LZQJ-XC	LZQJ-XC	LZQJ-XC	LZQJ-XC
	Accuracy Class	0.2s	0.2S	0.2S	0.2S
	Verification team has checked the meter details during the remote interview and photos /10/ and found OK. The meter needs to be calibrated every 10 years as per the government regulation /17/. Energy meters were changed on 12/04/2020 i.e. during this monitoring period as verified from the meter change document by TEIAS /15/. The old meters and the new meters were factory calibrated and the calibration was covering the monitoring period.				
Measuring/Reading/Recording frequency	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.				
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The electricity generation/consumption are measured every month using energy meters. Entity responsible: TEIAS				
Verified value	2,272,425.66 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.				
Cross checks	NA				
QA/QC procedures applied	The energy meters are calibrated as per the government regulation which has been confirmed during the remote audit and the calibration records /15/.				

4.4.3 Cap_{PJ} (W)

Installed capacity of the hydropower plants after the implementation of the Project Activity.

	Discussion and verification assessment
Purpose of data	To calculate power density

Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Not Applicable
Measuring/Reading/Recording frequency	Once for each monitoring period
Data collection (from data generation, aggregation, to recording, calculation and reporting)	Technical specification of the project activity /09/ and name plate of each generator unit /10/
Verified value	128.22 MWe. The data has been verified from Technical specification of the project activity /09/ and name plate of each generator unit /10/.
Cross checks	NA
QA/QC procedures applied	NA

4.4.4 APJ (m2)

Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full.

	Discussion and verification assessment
Purpose of data	Power density calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Not applicable

Measuring/Reading/Recording frequency	Indirectly measured based on depth readings from the SCADA system. Verification team has checked the calculation and found OK. This verified from the graph /14/ and from the scada screen during remote audit.
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The reservoir area corresponding to maximum operational level has been determined as a certain value according to the topographical maps And a correlation graphic that exhibits the relationship between the water depth, reservoir area and the volume of the reservoir is plotted against a graphic.
Verified value	10,830,000 m ² . 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;
- 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:

4.4.5 FC_{i,y} (Volume Unit (cubic meter))

Amount of fuel i consumed by relevant power plants in Turkey in years, 2008, 2009, 2010.

	Discussion and verification assessment
Purpose of data	Data used for the calculation of EF _{grid-OM,Simple,y}
Verified value	Verified from registered PD /04/.
Source of value	Validated ex-ante. Official publications at the Turkish Electricity Transmission Company (TEİAŞ) Web Site
Justification	Values are checked from Annex 2 in the registered PD /04/.

4.4.6 NCV_{i,y} (GJ/Mass or Volume Unit)

Net Calorific Values for fossil fuel type i in year, for the years 2008, 2009 and 2010

	Discussion and verification assessment
Purpose of data	Data used for the calculation of EF _{grid,OM,Simple,y}
Verified value	Verified from registered PD /04/.
Source of value	Validated ex-ante. Regional or national average default values that are reliable and documented in national energy statistics of the Turkish Electricity Transmission Company Web Site (http://www.teias.gov.tr/istatistik2010/front%20page%202010-ççek%20kitap/yakit46-49/49.xls http://www.teias.gov.tr/istatistik2010/front%20page%202010-ççek%20kitap/yakit46-49/47.xls)
Justification	Values are checked from Annex 2 in the registered PD /04/.

4.4.7 EF_{CO2,i,y} (tCO₂/GJ)

CO₂ emission factor of fossil fuel type i in year y

	Discussion and verification assessment
Purpose of data	Data used both for the calculation of EF _{grid,OM,Simple,y} and EF _{EL,m,y}
Verified value	Verified from registered PD /04/.
Source of value	Validated ex-ante. IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories, (http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf)
Justification	Values are checked from Annex 2-Table-2 in registered PD /04/.

4.4.8 EG_y (MWh)

Net electricity generated in the project electricity system in other words, net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost / must-run power plants / units, in year y

	Discussion and verification assessment
Purpose of data	Data used both for the calculation of EF _{grid,OM,Simple,y}

Verified value	Verified from registered PD /04/.
Source of value	Validated ex-ante. Turkish Electricity Transmission Company Web Site.
Justification	Values are checked from Annex 2-Table-3 and Table-4 in the registered PD /04/.

4.4.9 $EG_{m,y}$ (MWh)

Net electricity generated and delivered to the grid by power unit m in year y

	Discussion and verification assessment
Purpose of data	Data used for the calculation of $EF_{grid,BM,y}$
Verified value	Verified from registered PD /04/.
Source of value	Validated ex-ante. Turkish Electricity Transmission Company Web Site (www.teias.gov.tr). Data is extracted from the relevant annexes of the capacity projection reports for the years 2008, 2009 and 2010.
Justification	Values are checked from Annex 2-Table 8 in the registered PD /04/.

4.4.10 $\eta_{m,y}$ (%)

Average net energy conversion efficiency of power unit m in year y

	Discussion and verification assessment
Purpose of data	Data used for the calculation of $EF_{grid,BM,y}$
Verified value	Verified from registered PD /04/.
Source of value	Validated ex-ante. The default values provided at the Annex 1 of the “Tool to calculate emission factor for an electricity sector (Version 03.0.0)” are used.
Justification	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 CO₂ emissions factor in year y (tCO₂ /MWh), $EF_{grid,CM,y}$, is fixed ex-ante for the duration of the crediting period and is 0.53985 tCO₂e /MWh. 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 = $EG_{PP-net,y} \times EF_{CM}$
	Symbol	$EG_{PP-gross,y}$	$EG_{PP-self}$ consumption, y	$EG_{PP-net,y}$	BE1
YEAR	Units	MWh	MWh	MWh	tCO ₂ e
2013	November	10,257.615	35.914	10,221.701	5,518.185
	December	32,979.775	63.089	32,916.69	17,770.073
Total in 2013		43,237.39	99.00	43,138.39	23,288
2014	January	4,566.947	112.658	4,454.289	2,404.648

	February	10,564.588	85.857	10,478.731	5,656.943
	March	9,136.683	95.941	9,040.742	4,880.645
	April	9,159.621	90.408	9,069.213	4,896.015
	May	4,230.145	95.641	4,134.504	2,232.012
	June	643.483	96.759	546.724	295.149
	July	12,443.220	96.287	12,346.933	6,665.492
	August	29,032.996	78.659	28,954.337	15,630.999
	September	21,556.801	89.874	21,466.927	11,588.921
	October	3,461.632	112.243	3,349.389	1,808.168
	November	5,899.576	120.329	5,779.247	3,119.926
	December	0.000	138.209	-138.209	-74.612
Total in 2014		110,695.692	1,212.865	109,482.827	59,104
2015	January	5,288.631	143.870	5,144.761	2,777.399
	February	5,143.901	122.540	5,021.361	2,710.782
	March	40,832.197	76.877	40,755.320	22,001.760
	April	61,415.476	36.795	61,378.681	33,135.281
	May	67,464.580	28.112	67,436.468	36,405.577
	June	37,137.376	53.210	37,084.166	20,019.887
	July	32,720.907	66.376	32,654.531	17,628.549
	August	33,724.827	68.437	33,656.390	18,169.402
	September	28,135.761	67.798	28,067.963	15,152.490
	October	21,994.104	86.796	21,907.308	11,826.660
	November	15,536.420	89.658	15,446.762	8,338.934
	December	17,980.558	106.922	17,873.636	9,649.082
Total in 2015		367,374.738	947.391	366,427.347	197,815
2016	January	0.000	142.063	-142.063	-76.693
	February	21,228.033	93.295	21,134.738	11,409.588
	March	21,006.458	85.444	20,921.014	11,294.209
	April	37,436.110	85.444	37,350.666	20,163.757
	May	52,596.169	45.884	52,550.285	28,369.271
	June	13,129.521	84.247	13,045.274	7,042.491

	July	14,348.085	91.965	14,256.120	7,696.166
	August	38,280.253	67.736	38,212.517	20,629.027
	September	24,234.321	81.929	24,152.392	13,038.669
	October	45,137.560	57.308	45,080.252	24,336.574
	November	5,240.184	115.908	5,124.276	2,766.340
	December	10,064.574	118.323	9,946.251	5,369.484
Total in 2016		282,701.268	1,069.546	281,631.722	152,038
2017	January	350.747	136.744	214.003	115.530
	February	4,617.379	112.660	4,504.719	2,431.873
	March	23,492.079	88.070	23,404.009	12,634.654
	April	22,984.771	84.962	22,899.809	12,362.462
	May	4,312.709	100.280	4,212.429	2,274.080
	June	894.134	92.221	801.913	432.913
	July	16,549.322	87.339	16,461.983	8,887.002
	August	14,476.683	90.420	14,386.263	7,766.424
	September	14,890.432	86.592	14,803.840	7,991.853
	October	43,941.521	58.105	43,883.416	23,690.462
	November	2,662.586	105.229	2,557.357	1,380.589
	December	356.217	125.995	230.222	124.285
Total in 2017		149,528.580	1,168.617	148,359.963	80,092
2018	January	26,022.245	93.595	25,928.650	13,997.582
	February	30,587.845	67.519	30,520.326	16,476.398
	March	56,638.376	34.485	56,603.891	30,557.611
	April	42,216.875	32.328	42,184.547	22,773.328
	May	20,819.632	65.913	20,753.719	11,203.895
	June	22,270.100	62.860	22,207.240	11,988.579
	July	41,321.504	52.651	41,268.853	22,278.990
	August	34,973.124	56.393	34,916.731	18,849.797
	September	2,165.994	96.277	2,069.717	1,117.337
	October	28,332.162	69.659	28,262.503	15,257.512
	November	0.000	110.254	-110.254	-59.521

	December	28,257.590	72.902	28,184.688	15,215.504
Total in 2018		333,605.447	814.836	332,790.611	179,657
2019	January	28,357.482	76.192	28,281.290	15,267.65
	February	33,373.576	61.255	33,312.321	17,983.66
	March	53,440.560	34.875	53,405.685	28,831.06
	April	71,783.077	10.941	71,772.136	38,746.19
	May	90,256.601	1.134	90,255.467	48,724.41
	June	70,159.492	20.838	70,138.654	37,864.35
	July	34,025.956	62.776	33,963.180	18,335.02
	August	35,640.363	61.791	35,578.572	19,207.09
	September	29,779.862	39.985	29,739.877	16,055.07
	October	18,827.385	82.348	18,745.037	10,119.51
	November	3,072.990	107.491	2,965.499	1,600.92
	December	8,663.457	105.155	8,558.302	4,620.20
Total in 2019		477,380.801	664.781	476,716.020	257,355
2020	January	37,921.897	69.816	37,852.081	20,434.446
	February	19,316.574	85.524	19,231.050	10,381.882
	March	44,889.517	53.307	44,836.210	24,204.828
	April	51,170.165	36.126	51,134.039	27,604.711
	May	64,687.183	24.821	64,662.362	34,907.976
	June	10,051.816	99.964	9,951.852	5,372.507
	July	30,756.592	72.431	30,684.161	16,564.844
	August	24,651.754	81.583	24,570.171	13,264.207
	September	19,580.718	81.185	19,499.533	10,526.823
	October	24,306.441	74.227	24,232.214	13,081.761
	November	7,109.113	92.707	7,016.406	3,787.807
	December	12,208.831	94.249	12,114.582	6,540.057
Total in 2020		346,650.601	865.940	345,784.661	186,671
2021	January	27,865.980	52.054	27,813.926	15,015.348
	February	16,523.693	75.054	16,448.639	8,879.798
	March	27,879.102	75.559	27,803.543	15,009.743

	April	23,146.560	75.702	23,070.858	12,454.803
	May	37,712.862	63.085	37,649.777	20,325.232
	June	22,586.988	80.419	22,506.569	12,150.171
	July	5,535.961	101.609	5,434.352	2,933.735
Total in 2020		161,251.146	523.482	160,727.664	86,768
Grand Total		2,272,425.66	7,366.46	2,265,059.20	1,222,788

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 tCO₂e/year

EF_{Res} = Default emission factor for emissions from reservoirs of hydro power plants in year y (CO₂e /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/m²

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 (m²)

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 (m²). For new reservoirs, this value is zero

$$\text{Cap}_{PJ} = 128,220,000 \text{ W}$$

$$\text{Cap}_{BL} = 0 \text{ (since the project is a new hydro power plant)}$$

$$\text{A}_{PJ} = 10,830,000 \text{ m}^2$$

$$\text{A}_{BL} = 0 \text{ (Justification: The project is a new hydro power plant)}$$

Therefore;

$$\text{PD} = (128,220,000 - 0) / (10,830,000 - 0) = 11.84 \text{ W/m}^2$$

Therefore;

The project has a power density of 11.84 W/m² therefore:

$$\text{PE}_{\text{HP}, y} = 0$$

Leakage

No leakage has been considered for the project activity.

Emission reductions

Emission reductions are calculated as follows:

$$\begin{aligned} \text{ER}_y &= \text{BE}_y = \text{EG}_{PJ,y} - \text{EF}_{\text{grid}, \text{CM}, y} \\ &= 1,222,788 \text{ tCO}_2\text{e (Rounded down)} \end{aligned}$$

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. 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.

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- 1205) "Tatar Hydro Electricity Power Plant" in Turkey for the monitoring period 14-November-2013 to 31-July-2021 as reported in the Monitoring Report Version 1.01 dated 02/09/2021. The Darenhes Elektrik Üretim A.Ş. 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 1.01 dated 02/09/2021) 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.

In our opinion the GHG emissions reductions reported for the project activity for the period 14-November-2013 to 31-July-2021 are fairly stated in the Monitoring Report Version 1.01 dated 02/09/2021. 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 14-November-2013 to 31-July-2021

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

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2013	23,288	0	0	23,288
2014	59,104	0	0	59,104
2015	197,815	0	0	197,815
2016	152,038	0	0	152,038
2017	80,092	0	0	80,092
2018	179,657	0	0	179,657
2019	257,355	0	0	257,355
2020	186,671	0	0	186,671
2021	86,768	0	0	86,768

Total	1,222,788	0	0	1,222,788
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Approved by



Chandrakala R.

Director

4K Earth Science Private Limited

Date: 23-September-2021

Place: Bangalore, India

APPENDIX I: LIST OF DOCUMENTS

/1/	/1.1/ Monitoring Report, Version 1.0, dated 18/08/2021 (Initial Version) /1.2/ Monitoring Report, Version 1.01 dated 02/09/2021 (Final Version)
/2/	/2.1/ Draft Emission Reduction calculation sheet (corresponding to initial Version of VCS MR) /2.2/ Final Emissions Reduction calculation Sheet (corresponding to final Version of VCS MR)
/3/	VCS Standard Version 4
/4/	Registered VCS PD version 2.1 dated 30/10/2013
/5/	Web-Link for the Registered project activity for Validation Report and Grid Emission factor calculation https://registry.verra.org/app/projectDetail/VCS/1205
/6/	Certificate of commissioning of 2 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 Name plate photos of major equipments Generator name plates Main and back-up meters displaying the serial numbers (photos)
/11/	Training record
/12/	Single line diagram along with meter location
/13/	Production licence
/14/	Graph to identify the reservoir's surface area using the water level measurements Correlation graph - Reservoir volume and 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/	Periodic calibration is indicated as 10 years in article 9 of the following regulation: https://www.mevzuat.gov.tr/File/GeneratePdf?mevzuatNo=6381&mevzuatTur=KurumVeKurulusYonetmeligi&mevzuatTertip=5
/18/	Organization structure
/19/	Sustainable parameters supportive: List of employees, Training records
/20/	Video captured by PP for the project site
/21/	VCS MR filling template https://verra.org/project/vcs-program/rules-and-requirements/
/22/	Exemption letter from VCS for monitoring period of more than 6 years
/23/	Fish ladder photographs
/24/	Water usage agreement with DSI-State Water Works
/25/	Minimum water passage Monitored by the state hydraulic works (Audit records)
/26/	EIA Affirmative Certificate

APPENDIX II: VERIFICATION FINDINGS

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

No FAR raised during the validation of the project activity.

FAR ID	Xx	Section no.	Date: DD/MM/YYYY
Description of FAR			
Project participant response			Date: DD/MM/YYYY
Documentation provided by project participant			
DOE assessment			Date: DD/MM/YYYY

Table 2. CL from this verification

CL ID	01	Section no.	3.3	Date: 25/08/2021
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Description of CL	
As per the registered VCS PD /04/, 01/11/2013 is the project start date however 14/11/2013 has been considered as a start date under the submitted Monitoring report /1.1/. No justification has been provided for the changes.	
Project participant response	Date: 02/09/2021
As per the registered VCS PD, it is stated that the project Start Date is: 01/11/2013 (Or the commercial operation date, which ever happens first). First unit of the project was commissioned in 14/11/2013. Therefore project start date is 14/11/2013.	
Documentation provided by project participant	
https://app.box.com/s/b0yde0e0wxzvf0z01ojmymfhrx609s7	
DOE assessment	Date: 13/09/2021
Clarification has been provided by the PP and found OK. Verification team has checked the certificate of commissioning of the project units /06/ and verified the commissioning date. PP has considered the start date and crediting period start date as per the commissioning of the first unit i.e. 14/11/2013 which is found OK. Hence this CL is closed.	

CL ID	02	Section no.	4.4	Date: 25/08/2021
Description of CL				
For the monitoring parameter Cap_{PI} (under section 4.2 of the MR /1.1/), the mentioned capacity 127,340,000 W is not consistent with the capacity mentioned on page 2 of the MR i.e. 128.22 MWe.				
Project participant response				Date: 02/09/2021
Parameter Cap _{PI} is corrected.				
Documentation provided by project participant				
Please see revised version of the MR.				
DOE assessment				Date: 13/09/2021
Correction has been done in the revised MR /1.2/ and found OK. The capacity of the project activity i.e. 128.22 MWe has been verified from the commissioning certificate /06/, Manufacturer specification /09/ etc. Hence this CL is closed.				

Table 3. CAR from this verification

CAR ID	01	Section no.	4.4	Date: 25/08/2021
Description of CAR				
Under the ER calculation sheet /2.1/, the reported electricity data (for few months e.g. December 2013) is not matching with the supportive documents /16/.				
Project participant response				Date: 02/09/2021
December 2013 is corrected. There may be minor errors while the data is transferred to excel by the company.				
Documentation provided by project participant				

Please see revised ER calculation sheet.	
DOE assessment	Date: 13/09/2021
Correction has been done in the revised ER sheet /2.2/ and found consistent with the source /16/. Hence this CAR is closed.	

CAR ID	02	Section no.	4.1	Date: 25/08/2021
Description of CAR				
In accordance with the VCS MR template /21/;				
1. Following need to be provided under section 1.1 of the monitoring report /1.1/:				
- A summary description of the implementation status of the technologies/ measures (e.g., plant, equipment, process, or management or conservation measure) included in the project. - The relevant implementation dates (e.g., dates of construction, commissioning, and continued operation periods).				
2. Under section 2.1 of the monitoring report /1.1/:				
PP need to Summarize any potential negative socio-economic impacts.				
Project participant response				Date: 02/09/2021
1.Relevant implementation dates are added. Implementation status are added.				
2.Under section 2.1 necessary information is added.				
Documentation provided by project participant				
Please see revised version of MR.				
DOE assessment				Date: 13/09/2021
1. Correction has been done in the revised MR /1.2/ and found OK. Hence this part of CAR is closed.				
2. Correction has been done in the revised MR /1.2/ and found OK. Hence this part of CAR is closed.				

CAR ID	03	Section no.	4.1	Date: 25/08/2021
Description of CAR				
Under section 1.6 of the submitted monitoring report /1.1/, crediting period has been mentioned as 10 years however the period mentioned i.e. 14.11.2013-13.10.2023 is less than 10 years.				
Project participant response				Date: 02/09/2021
Section 1.6 is corrected as 14.11.2013-13.11.2023				
Documentation provided by project participant				
Please see revised version of the MR (section 1.6)				
DOE assessment				Date: 13/09/2021
Correction has been done in the revised MR /1.2/ and found OK. Hence this CAR is closed.				

CAR ID	04	Section no.	4.4	Date: 25/08/2021
Description of CAR				

Under section 4.3 of the monitoring report /1.1/,	
1. PP has only mentioned the energy meters calibration year. PP need to mention the exact calibration date.	
2. Meters were changed during this monitoring period (as verified during the remote audit), however no information has been provided for the same.	
Project participant response	Date: 02/09/2021
1. 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).	
2. Some information about the meter change is added.	
Documentation provided by project participant	
1. Please see revised version of the MR.	
2. https://app.box.com/s/uvrt88y6nedux1glrbrros2g93789ne8	
DOE assessment	Date: 13/09/2021
1. Clarification has been provided by the PP and found OK. Hence this part of CAR is closed.	
2. Correction has been done in the revised MR /1.2/ and found OK. Verification team has verified the calibration details along with meter change records /15/ and found consistent with the revised MR /1.2/. Hence this part of CAR is closed.	

Table 4. FAR from this verification

No FAR raised during this verification.

FAR ID	xx	Section No.	Date: DD/MM/YYYY
Description of FAR			
Project participant response			Date: DD/MM/YYYY
Documentation provided by project participant			
DOE assessment			Date: DD/MM/YYYY

APPENDIX III: TEAM COMPETENCE

<u>Certificate of Competence</u>		
Name	☒ Mr.	Chetan Swaroop Sharma

	☐ Ms.					
Qualification Procedure	Fulfills the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
Appointed to work as:						
	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					
Authorized to work as Technical Expert for:						
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		
Authorized to work as Local Expert for:						
Country/Countries	India					
Compliance check by: Anand S. R.						

<u>Certificate of Competence</u>		
Name	☒ Mr. ☐ Ms.	Ma Paa Puratchikkanal

Qualification Procedure	<i>Fulfil the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.</i>					
Appointed to work as:						
	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert
<i>Appointed</i>	Yes	Yes	Yes	Yes	Yes	No
<i>Appointed Date</i>	27-04-2021					
Authorized to work as Technical Expert for:						
<i>Authorized Technical Area</i>	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 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		
Authorized to work as Local Expert for:						
<i>Country/Countries</i>	India					
<u>Compliance check by:</u> 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 ₂	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