



**Verified Carbon
Standard**

VALIDATION REPORT OF TATAR HYDROELECTRICITY POWER PLANT



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Project title	Tatar Hydroelectricity Power Plant
Project ID	1205
Crediting period	14-November-2023 to 13-November-2033
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Client	Darenhes Elektrik Üretim A.Ş.
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Summary:

Earthood Services Limited (hereafter referred to as Earthood) has been contracted to validate the project activity " **Tatar Hydroelectricity Power Plant** " (VCS ID- 1205). The project proponent and the legal owner is Darenhes Elektrik Üretim A.Ş., ensuring compliance with the applicable requirements outlined in the VCS program guidelines and standards (VCS Standard Version 4.7/06/ and VCS Program Guide Version 4.4/07/). The project uses the VCS methodology, ACM0002 (Version 22.0)/04/. The project corresponds to the generation of clean electricity from hydropower plant and supplying the electrical power to the grid of Türkiye.

The objective of the validation is to perform a complete and independent review of the proposed project activity against the applicable VCS requirements, including the baseline, monitoring plan, and compliance with the relevant VCS and host country criteria. These are validated to ensure that the project design, as documented, is sound and reasonable, and that it fits the established standards. Validation is a prerequisite for all the VCS projects, and it is viewed as vital to give stakeholders assurance about the project's quality and expected emission reductions. The VVB's aim is to perform a complete, independent evaluation of the project activity.

The scope is the validation of renewal of crediting period for the project activity and is described as an objective and independent review of the project description (PD). The VCS PD/02/ is compared to the relevant criteria and guidance documents provided by VCS, including the VCS Program Guide/07/, VCS Standard/06/, Program Definitions/17/, and Issuance Process/23/ in order to ensure that the project currently meets the applicability conditions of the chosen baseline and monitoring methodology, ACM0002: Grid-connected electricity generation from renewable sources v22.0/04/.

The scope of the revalidation is to establish that:

- The proposed project activity complies with the corresponding registered VCS-PD and the latest version of the renewed VCS-PD.
- The Proposed project activity complies with all relevant VCS rules and requirements. The VCS renewal of crediting period was based on the updated VCS-PD, estimated emission reduction calculation spreadsheet, information from current validated VCS-PD and supporting documents made available to the Earthood by the project participants.
- The proposed monitoring plan complies with all requirements of applied methodology.

The validation, which was conducted following Earthood's internal quality procedures, consisted of the following phases:

a) Document review, involving:

- A review of data and information.
- Cross checks between information provided in the VCS PD/02/ and information from sources other than those used, if available, and if necessary independent background investigations.

b) Follow-up actions (e.g., site visit and telephone or email interviews), including:

- Interviews with relevant stakeholders in the host country, personnel with knowledge of the project design and implementation.
- Cross checks between information provided by interviewed personnel (i.e., by checking sources or other interviews) to ensure that no relevant information has been omitted.

c) Reference to available information relating to projects or technologies similar to the proposed project activity under validation of renewal of crediting period (RCP).

d) Review, based on the approved methodology being applied, of the appropriateness of formulae and accuracy of calculations.

A risk-based approach has been followed to perform this validation of RCP. During the validation process, a total of 6 findings were raised, which includes 05 Corrective Action Requests (CARs), 01 Clarification Requests (CLs) and 00 Forward Action Requests (FARs). The project proponent has successfully closed all the issues raised.

The VCS PD/02/, emissions reduction calculations/03/, and accompanying documents provided are all in compliance with VCS criteria. The validation of the RCP was completed with a reasonable level of assurance and no uncertainties were found related to the project activity validation.

Earthood Services Limited (hereafter referred to as Earthood) certifies that the project meets the requirements of the VCS PD template, v4.3, the VCS Standard, v4.7/06/, and the applied methodology: ACM0002: Grid-connected electricity generation from renewable sources v22.0/04/. The estimated annual average and total emission reductions from the project activity, for the crediting period 14/11/2023 to 13/11/2033 (both days inclusive) are expected to be 192,425 tCO₂e average annually and 1,924,250 tCO₂e over the crediting period and has been successfully validated under VCS. Earthood issues a positive validation opinion, certifying that the project meets the applicable VCS standards and thereby proposing that it be registered.

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1 INTRODUCTION

1.1 Objective

Earthood Services Limited has been contracted to carry out validation of the renewal of crediting period for the VCS project activity “Tatar Hydroelectricity Power Plant” against the relevant requirements of VCS programme guidelines and standard (VCS Standard Version 4.7/06/ & VCS Program Guide Version 4.4/07/). The title of the project activity is “Tatar Hydroelectricity Power Plant” and its VCS ID is 1205. The project activity is located on the Peri Stream, within the jurisdiction of Tunceli and Elazığ Provinces of Türkiye.

The purpose of this validation of Renewal of Crediting period is to have an independent third-party assessment of whether the project activity conforms to the qualification criteria set out in the VCS Standard, version 4.7/06/ to attain real, measurable, additional, and permanent emission reductions. The validation statement opinion is a written assurance that:

- The project complies with all the applicable VCS requirements and can generate the emission reductions stated over the project’s second crediting period.
- The validation of RCP followed the requirements of the current version of the VCS Standard, version 4.7/06/ and VCS Program Guide, version 4.4/07/ to ensure the quality and consistency of the validation work and the report.
- The project shall result in emission reductions as declared by the organisation or GHG project’s GHG assertion.

In order to fulfil the above objectives, the VVB assigned the task of assessment to validation team that is collectively qualified as per Earthood’s QMS manual and other internal requirements. The data reported is accurate, complete, consistent, transparent, and free of material error or omission.

1.2 Scope and Criteria

The scope of the validation of the renewal of crediting period is to establish/verify that:

- The project activity is in accordance with rules and legislation of the host country (Türkiye).
- The project activity is in accordance with all relevant VCS rules and requirements, which includes the following: VCS Program Guide v.4.4/07/ and VCS Standard v.4.7/06/, Program Definitions v.4.5/17/, Registration and Issuance Process v.4.5/23/ and VCS Validation and Verification Manual v.3.2/08/, including additionality, proof of title and compliance with local laws.
- The project activity is in accordance with the conditions of the latest version of applied VCS Methodology: ACM0002: Grid-connected electricity generation from renewable sources v22.0/04/.

The validation of the renewal of crediting period is based on the registered VCS-PD, revised VCS-PD and estimated GHG emission reduction calculations. The validation of the renewal of crediting period is based on the data provided to Earthood as well as the contract terms. The validation of the renewal of crediting period is not intended to provide any consulting towards the Client. However, indicated requests for forward and/or corrective actions may provide information for improving project monitoring to reduce GHG emissions. The validation of Renewal of crediting period of the project activity process is divided into four stages:

1. Desk review of Project Description (PD)
 - Evaluation of data and information
 - Cross-checks between information provided in the VCS PD/02/ and the registered VCS PD/29/ alongside information obtained from other sources using all available resources without regard to the project proponent's information.
2. On-site visit and follow-up interviews with project stakeholders
 - Telephone, email, or direct on-site interviews with relevant stakeholders in the host country with professionals with expertise of the project development.
 - Cross-checking the information provided by interviewed people with the information provided by the project proponent using all available means.
3. Reference to publicly available information about projects or technologies that are similar to the project under validation and review, using the accepted methodology for formulae and calculation accuracy.
4. The final validation report and opinion, as well as the resolution of remaining concerns

1.3 Reasonableness of Assumptions

☐ Limited Level of Assurance

☒ Reasonable Level of Assurance

The approach used by Earthood for validation of the renewal of crediting period is built on a thorough understanding of the risks associated with reporting data on GHG emissions and the controls used to mitigate them. Earthood conducted the validation of RCP by reviewing substantiating evidence and other relevant information and explanations from sources to provide reasonable assurance that estimated GHG emission reductions are fairly reported.

In the draft validation report (prepared by validation team), the information provided is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by Earthood were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable VCS and CDM (Clean Development Mechanism)

requirements as appropriate. The technical review team is collectively required to possess technical expertise of all the technical area/sectoral scopes the project activity relates to. All team members of the technical review team are independent of the validation team. The report approved by the Technical Manager is endorsed by the Managing Director, who is overall responsible for ensuring quality, before final release.

In our opinion the estimated and actual GHG emissions reductions were calculated correctly based on the approved baseline and monitoring methodologies ACM0002: Grid-connected electricity generation from renewable sources v22.0/04/. The assessment result has a reasonable level of assurance in validation that GHG assertions are free of material errors, omissions, and misrepresentations. The document reviewed are included under Appendix 2 of this report.

1.4 Summary Description of the Project

The summary description of the project activity has been illustrated in section 1.1 of VCS PD/02/ appropriately. As per the given details in VCS PD, information was assessed on-site and found to be consistent. The project activity “Tatar Hydroelectricity Power Plant” involves generation of clean electricity from hydroelectric power plant. The project is an initiative undertaken voluntarily by its proponent. There are no regulatory constraints pertaining to the Hydro Power project in the host country's laws and regulations. The project proponent is Darenhes Elektrik Üretim A.Ş. and is the legal/project owner of the hydropower plant.

The project activity is located on the Peri Stream, within the jurisdiction of Tunceli and Elazığ Provinces of Türkiye and is expected to generate 421,270 MWh annually/03/. The Hydropower plant consists of two Francis type turbines with a capacity of 64.11 MWe each, totaling to 128.22 MWe which has been checked through the generation license/26/, feasibility study report/18/. The VCS Project activity “Tatar Hydroelectricity Power Plant” is located downstream of two state-owned dams, namely Özlüce Dam (170 MW) and Kiğı Dam (140 MW), as well as two privately owned dams, Seyrantepe (57 MW) and Pembelik (127 MW). Clean energy produced from the project activity will be supplied to Türkiye grid which will reduce equivalent amount of anthropogenic emissions emitted from the grid connected fossil fuel based power plants or by the addition of new plants. The Commissioning of first unit was on 14/11/2013 and is the start date of the project activity and the second unit was commissioned on 12/12/2013 as per the commissioning certificates/12/.

The project activity is going to reduce an estimated amount of 192,425 tCO₂e average annually and 1,924,250 tCO₂e over the crediting period i.e. 14/11/2023 to 13/11/2033 (both days inclusive). As per section 3.8 of VCS Standard v.4.7/06/, The project start date of a non-AFOLU project is the date on which the project began generating GHG emission reductions or carbon dioxide removals. The date of Commissioning Certificate/12/ as described in VCS PD/02/ is 14/11/2013 which can therefore be termed as start date for the project activity.

2 VALIDATION PROCESS

2.1 Method and Criteria

Earthood has been contracted for the validation of the renewal of crediting period of the project activity “Tatar Hydroelectricity Power Plant” (VCS ID- 1205). The project proponent and the legal owner is Darenhes Elektrik Üretim A.Ş., ensuring compliance with the applicable requirements outlined in the VCS program guidelines and standards (VCS Standard Version 4.7/06/ and VCS Program Guide Version 4.4/07/. The project uses the VCS methodology, ACM0002 (Version 22.0)/04/ which is classified as sectoral scope 1 “Energy industries (renewable - / non-renewable sources)”. The following were included in the validation of renewal of Crediting period:

- Contract with PP for the scope and appointment of validation team and technical review team.
- Completeness check of VCS PD/01/.
- Desk review of VCS PD/01/ and estimated GHG emission reduction calculation sheet/03/.
- Site inspection by validation team.
- Follow up interviews with representatives of Project Proponent and relevant stakeholders
- Reporting and closure of findings (CARs/CLs/FARs) and preparation of draft validation report
- Independent technical review of the draft validation report and final/ revised documentation (e.g. VCS PD, corresponding estimated ER calculation sheet and evidence)
- Issuance of the final validation report.

In accordance with the VCS Validation and verification manual/08/, VVBs must confirm that the validation can be completed within the relevant validation deadline, relative to the project start date (i.e, the date the project starts generating emission reductions and removals).

The on-site visit/16/ for the project activity was conducted by the validation team on 24/01/2024 where the key responsibility of the team was to assess the project status which is to be in accordance with the VCS Requirements/06/07/08/. Key stakeholders were identified independently and interviewed in an unbiased manner (free from the influence of the PP).

Table 1: Validation of RCP Schedule

Key Milestones	Date
Kick-off meeting	27/12/2023

Desk Review	15/01/2024 - 20/02/2025
Site Visit	24/01/2024
Draft Validation Report	06/02/2025

2.2 Document Review

A desk review was conducted by the validation team that included:

- A review of the data and information presented to assess its completeness.
- A review of the VCS PD/02/ and registered VCS PD /02/, estimated GHG emission reduction calculation sheet/03/, the applied methodology/04/ including applicable tool(s) and relevant laws regulations for the host country.
- Supporting documents as provided by the Project proponent.

In addition, the validation team consulted third-party documents such as technical reports pertaining to the project design or design or basic condition, and technical data. A complete list of documents/evidence reviewed is included as Appendix 2.

2.3 Interviews

In accordance with para 4.1.11 of the VCS standard v4.7/06/, “A site visit that includes a visit to facilities and/or project areas shall be conducted at validation and project crediting period renewal validation”. The VVB has conducted an onsite visit on 24/01/2024 /16/ to check the implementation status of the project activity. The visit was conducted as a part of validating the project to check the technology employed in the hydropower plant, its location (Physical address), Monitoring plan (feasibility of monitoring arrangements described in PD, QA/QC procedures, responsibility of implementation of monitoring plan, data recording & storage procedures. During the Site visit, the representatives of the project proponent were Interviewed on various aspects related to the implementation of the project activity. The questionnaires asked during the on-site audit has been discussed below:

- Introduction, scope and objective of work, roles and responsibilities, resources required, and timetable of the on-site audit including venue for closing meeting and any concerns from PP.
- Approval of project activity from Host Party and approval of participation of Project Proponent(s).
- Project boundary and emission sources included in the project boundary.
- All the details about the project activity which are mentioned in the VCS PD were cross-checked by discussion with the PP.

The table below describes the physical interview process and further identifies personnel, including their roles, who were interviewed and/or provided information additional to that provided in the project description and any supporting document.

S.No.	Name	Organization	Date	Topic	Team
1.	Baharsu Akdag Gokagacli	Carbon Portfolio Manager, Bilgin Enerji	24/01/2024	Project implementations, start date as per the VCS requirements Available documentation	Jinesh Amlani and Kubra Agriman
2.	Moharren Yagmiur	Electrical Engineer, Tatar HEPP		Emission Reduction Ex-ante estimation Reliability,	
3.	Yavut Zinek	Operation Manager, Tatar HEPP		accuracy and assurance of monitoring plan and practices in operation Calibration procedure Monitoring and measuring system Data collection process Local stakeholder consultation technical specifications QA/QC procedures, maintenance Practices. Sustainable Development Goals	
7.	Hüseyin Aslan	Local Stakeholder	24/01/2024	Feedback regarding the project, Grievance mechanism, Sustainable development Goals.	Jinesh Amlani and Kubra Agriman
8.	Orhan Sönmez	Local Stakeholder			
9.	Eşref Sönmez	Local Stakeholder			

2.4 Site Visits

An on-site visit of the Hydro power plant facility was undertaken by the validation team on 24/01/2024/16/. The site visit was conducted to assess the implementation and operation of the project activity and to review evidence, and interview key personnel to confirm evidence associated with the project design, implementation, plant operations, environmental impacts, stakeholders etc.

The details of the interviews conducted, and on-site activities undertaken have been described under section 2.3 above.

2.5 Resolution of Findings

This section represents the conclusions from the validation of the project activity. The results of the document review, site visit/ remote evaluations, and interviews are presented in this section. CARs, CLs and FARs are used to correct material inconsistencies discovered during validation of renewal of crediting period.

Corrective action requests (CARs) are issued where:

- i. Mistakes have been made with a direct influence on project results requiring adjustments of the VCS monitoring report.
- ii. Applicable methodological specific requirements have not been met.
- iii. There is a risk that emission reductions cannot be monitored or calculated.

A clarification requests (CL) maybe used where additional information is needed to fully clarify an issue or where the information is not transparent enough to establish whether a requirement is met.

- i. The actual project monitoring and reporting practices requires attention and/ or adjustment for the next consecutive verification period, or
- ii. An adjustment of the monitoring plan/02/ is recommended.

In the context of FARs, risks have been identified, which may endanger the delivery of high-quality emissions reductions in the future, i.e., by deviations from standard procedures as defined by the monitoring plan. Consequently, such aspects should receive a special focus during the next consecutive verification. A FAR may originate from lack of data sustaining claimed emission reductions. FARs does not relate to VCS requirements for registration.

CARs and CLs are to be resolved or closed out if the PP modifies the project description, rectifies the PD or provides adequate additional explanations or evidence that satisfies the concerns. If this is not completed, the project activity cannot be recommended for registration under VCS registry. A total of 6 findings were raised, where 05 CARs, 01 CLs and 00 FARs were raised during the validation. All the findings that are raised and communicated to Project Proponents during the validation are included in Appendix 3.

2.5.1 Forward Action Requests

No Forward Action Requests (FARs) were raised during the validation.

3 VALIDATION FINDINGS

3.1 Project Details

The VCS project activity “Tatar Hydroelectricity Power Plant” involves generation of clean electricity from a hydroelectric power plant. The project activity is located on the Peri Stream, within the jurisdiction of Tunceli and Elazığ Provinces of Türkiye and is expected to generate 421,270 MWh annually/03/. The Hydropower plant consists of two Francis type turbines with a capacity of 64.11 MWe each, totaling to 128.22 MWe which has been checked through the generation license/26/, feasibility study report/18/. The validation team confirms with reasonable level of assurance that the project description as described in section 1.1 of VCS PD/02/ is accurate, complete and therefore provides a complete overview of the project activity. VCS 1205 project meets all applicable rules and requirements which are set out under the VCS Program including VCS Standard Version 4.7/06/ & VCS Program Guide Version 4.4/07/.

Item	Evidence gathering activities, evidence checked, and assessment conclusion				
Audit history	Audit type	Period	Program	Validation/verification body name	Number of years
	Validation/Registration	(14-November-2013 – 13-November-2023)	VCS	RINA	Ten years
	Verification	(14-November-2013 – 31-July-2021)	VCS	4K Earth Science Private Limited	Seven years
	Verification	(01-August-2021 – 31-July-2022)	VCS	EPIC Sustainability Services Pvt. Ltd. Contact	One year
	Renewal of crediting period / Revalidation	(14-November-2023 – 13-November-2033)	VCS	Earthood	Ten years
Sectoral scope	Sectoral scope applicable to the Project is: “Scope 1: Energy Industries (renewable-/non -renewable sources)”				
AFOLU project category, if applicable	Not applicable				

Project activity type	Proposed project activity is categorized in the sectoral scope 1 “Energy Industry – Renewable /Non-renewable Sources” according to the UNFCCC definition
General eligibility of the project to participate in the VCS Program	The project activity is a 128.22 MWe hydro power plant located in Türkiye, which has been verified through the site visit/16/, Feasibility Study report/18/ and commissioning certificate/12/. The project is located in a non-LDC /19/ (Least Developed Country, as designated by the United Nations) and is excluded under Table 2.1 of the VCS Standard version 4.7 /06/. The scope of the project activity is Renewal of Crediting Period (RCP). As per para 3.9.8 (4) of the VCS Standard v 4.7/06/, “the project shall be validated against the (current) scope of the VCS Program. Such validation report shall be issued after the end of the (previous) project crediting period and within two years after the end of the (previous) project crediting period”. Consequently, the validation was completed within two years from the end of the previous crediting period, meeting the VCS validation completion requirements as stated in the VCS Standard v4.7/06/. PP has applied large-scale CDM approved methodology, ACM0002 v22.0 /04/, which is found to be eligible under the VCS program as verified from the Verra website /37/. The capacity limit has been verified as per para 119 (a) of CDM PS for PA/38/, where the project is categorized as small-scale with the capacity limit of 15 MW, the project activity installed capacity is greater than 15 MW hence making it large scale and found to be appropriate. The 128.22 MW hydro power plant is not a fragmented or a debundled component part of a larger project as it was cross verified during the on-site visit/16/. The scope of validation is the renewal of the crediting period, and the eligibility of the project activity has already been demonstrated during the registration of the project under VCS Standard.
AFOLU project eligibility, if applicable	Not applicable as the project activity involves generation of clean energy from operation of 128.22 MWe hydroelectric dam.
Transfer project eligibility, if applicable	Not applicable as the project activity is not a transfer project or a CPA seeking registration.
Project design	The Project activity is not a group project activity as it is located at a single location. The location of the 128.22 MW hydro power plant was verified during the on-site visit/16/ by the validation team and cross-verified with KML files/14/ provided by PP.

Project ownership	The project activity is developed, commissioned, operated and owned by Darenhes Elektrik Üretim A.Ş. which has been verified from the generation license issued by the EMRA (Energy Market Regulatory Authority)/26/. Darenhes Elektrik Üretim A.Ş. is the owner of the carbon credits generated. PP shall be responsible for arranging for verification and issuance of the VCU's generated during the stipulated crediting period. The validation team has verified the details, and it is found to be acceptable.
Project start date	The start date of the Project activity is 14/11/2013, which is date of commissioning of the first unit of the power plant. The date has been verified using the commissioning certificate /12/. The start date of the Project activity complies with the section 3.8 of the VCS Standard Version 4.7/06/.
Project crediting period	The length of the second (current) crediting period chosen by the PP is ten years, renewal twice in accordance with the para 3.9.8 of the VCS Standard version 4.7/06/. The second crediting period of the project activity is from 14/11/2023 to 13/11/2033, which complies with the section 3.9.8 of the VCS Standard. The first crediting period was from 14/11/2013 to 13/11/2023. The scope of validation is the renewal of the crediting period, and the project has been registered under VCS Standard, where the project crediting period can be a maximum of ten years which may be renewed at most twice. Hence, the chosen crediting period is found to be appropriate.
Project scale	The scale of the project activity is 'Projects' in VCS, which is found to be in line with para 3.10.1 of the VCS Standard/06/, as the annual emission reduction is less than 300,000 tCO _{2e} per year.
Likelihood of achieving estimated GHG emission reduction or removals	The project activity is estimated to generate 192,425 tCO _{2e} emission reduction per year and 1,924,250 tCO _{2e} over ten years of crediting period. The estimated ERs has been verified through the ER sheet/03/ and is found to be appropriately calculated in line with the applied methodology. The estimation of the electricity generation has been taken from the generation license/26/, which is an official document from the EMRA and hence, found to be appropriate.
Technologies and measures implemented by the project activity or activities	The project activity "Tatar Hydroelectric Power Plant" is operation of 128.22 MWe hydroelectric project located on the Peri Stream, within the jurisdiction of Tunceli and Elazığ Provinces of Türkiye, which has been checked through the on-site visit/16/, commissioning certificate/12/, and feasibility study report/18/. The project is owned by Darenhes Elektrik Üretim A.Ş. and will act as the Project Proponent. The Project employs 2 vertical axis Francis-type turbines with 64.11 MWe capacity each, totaling 128.22 MWe. The project activity is expected to supply a net electricity of 421,270 MWh per annum,

	which has been verified through the feasibility report/19/, generation license/26/, Single line diagram of project/20/ and commissioning certificate/12/. The specifications above were cross checked from technical specification of turbines which have been presented in Feasibility Study Report/18/ submitted by the PP and through the on-site visit/16/.															
Implementation schedule of the project activity or activities	The construction of the project activity started on 11/11/2011 and the first unit was commissioned on 14/11/2013, which has been reviewed through the commissioning certificate /12/ shared by the PP. The project is currently generating renewable electricity which was verified during the site visit.															
Project location	The location of the Project activity is in the East Anatolian geographical region of Türkiye. The project activity is hydroelectric power project, which is located on the Peri Stream, within the jurisdiction of Tunceli and Elazığ Provinces of Türkiye, as mentioned in the commissioning certificate/12/, and feasibility study report/18/. This has also been verified during on-site visit/16/ and cross-verified with KML files/14/ provided by PP. Geographic coordinates provided and are found to be accurate and acceptable. <table><tr><td>Coordinate System</td><td>Dam</td><td>Powerhouse</td></tr><tr><td>Degrees, Minutes, Seconds (Latitude)- Point -1</td><td>38°51'57.78"N</td><td>38°52'0.28"N</td></tr><tr><td>Degrees, Minutes, Seconds (Longitude)- Point -1</td><td>39°49'14.58"E</td><td>39°49'1.37"E</td></tr><tr><td>Degrees, Minutes, Seconds (Latitude)- Point -2</td><td>38°51'55.77"N</td><td>39°49'4.80"E</td></tr><tr><td>Degrees, Minutes, Seconds (Longitude) Point -2</td><td>38°51'58.11"N</td><td>39°48'58.24"E</td></tr></table>	Coordinate System	Dam	Powerhouse	Degrees, Minutes, Seconds (Latitude)- Point -1	38°51'57.78"N	38°52'0.28"N	Degrees, Minutes, Seconds (Longitude)- Point -1	39°49'14.58"E	39°49'1.37"E	Degrees, Minutes, Seconds (Latitude)- Point -2	38°51'55.77"N	39°49'4.80"E	Degrees, Minutes, Seconds (Longitude) Point -2	38°51'58.11"N	39°48'58.24"E
Coordinate System	Dam	Powerhouse														
Degrees, Minutes, Seconds (Latitude)- Point -1	38°51'57.78"N	38°52'0.28"N														
Degrees, Minutes, Seconds (Longitude)- Point -1	39°49'14.58"E	39°49'1.37"E														
Degrees, Minutes, Seconds (Latitude)- Point -2	38°51'55.77"N	39°49'4.80"E														
Degrees, Minutes, Seconds (Longitude) Point -2	38°51'58.11"N	39°48'58.24"E														
Conditions prior to project initiation	The project activity is a hydroelectric power plant supplying generated green electricity to the national grid of Türkiye. In the absence of the project activity the same amount of electricity would have been generated by a mix power plants connected to the Turkish grid which is dominated by fossil fuel-based power plants. It was found to be accordance with the applied methodology/04/.															
Project compliance	The validation team has verified that there are no laws or regulations in Türkiye that restrict the use of Renewable Energy to generate electricity. The															

with applicable laws, statutes and other regulatory frameworks	project is a voluntary effort by the project proponent. The VVB can confirm that the project activity complies with all the mandatory national and sectoral policies/ Law. Some of the Laws that Project comply with are: - Electricity Market Law (Nr. 6446/30.03.2013) - Law on utilization of Renewable energy Resources for the purpose of generating electricity energy (Nr. 5346/18.05.2005) - Environment Law (2872, 11-08-1983) - Occupational Health and Safety Law (6331, 30-06-2012)
Double counting and participation under other GHG programs	The Project is not registered with any other GHG scheme. Validation team has reviewed the websites of other GHG programs such as CDM, GCC, GS to verify the same. Declaration has also been submitted by the project proponent/15/ to verify the same.
No double claiming with emissions trading programs or binding emission limits	The Project is not claiming from any emission trading programs or has binding emission limits. Additionally, Türkiye does not have any such programme/scheme/ policy. Declaration has also been submitted by Project Proponent/15/ to verify the same.
No double claiming with other forms of environmental credit	The Project is not claiming any other form of environmental credits. Additionally, Türkiye does not have any such programme/scheme/ policy of any other form of environmental credits. Declaration has also been submitted by Project Proponent/15/ to verify the same.
Supply chain (Scope 3) emissions double claiming	The project activity is the implementation and operation of the hydro power plant. The project doesn't affect the footprint of any products that are part of a supply chain as specified in the VCS PD/02/ section 1.17.3.
Sustainable development contributions	The validation team has reviewed the sustainable development criteria set out in the VCS PD/02/. The project activity will contribute to SDG 7, SDG 8, and SDG 13 as specified in the VCS PD/02/. The project activity estimates to generate 421,270 MWh/year through the implementation of the plant contributing to SDG 7, SDG indicator 7.2.1, which has been verified through the generation license/26/ and contribute

	to an average of 192,425 tCO₂e per year emission reduction claiming SDG 13, which has been verified through the ex-ante ER calculation sheet/03/. The project activity aims to provide employment due to the operation, contributing to SDG 8, SDG target 8.5, SDG Indicator 8.5.2 which has been verified through the employment records (SGK records) provided by the PP/22/. The project activity produces clean renewable energy by diminishing CO₂ emissions. The project activity estimates to reduce emissions by 192,425 tCO₂e. Therefore, it contributes SDG 13 and following indicator “Tonnes of greenhouse gas emissions avoided or removed, which has been verified through the ex-ante ER calculation sheet/03/.
Additional information relevant to the project	As per the applied methodology, no leakage emissions have been considered for the project activity. Further, there is no additional information applicable for the project activity that may have a bearing on the eligibility of the project, the reductions or removals, or the quantification of the project’s reductions or removals.

3.2 Safeguards and Stakeholder Engagement

3.2.1 Stakeholder Engagement and Consultation

3.2.1.1 Stakeholder Identification

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Stakeholder identification	The local stakeholders identified mostly include villagers living in the vicinity of the project activity. The validation team reviewed the EIA report/25/ provided by the PP, which states the nearby local people as stakeholders of the project activity. Local stakeholders are those who are directly affected by the project activities, impacting the local environment, social life, and economy. These stakeholders can be located within the boundaries of the village, district, state, or nation. Public participation was done as part of the EIA process to gather feedback from all relevant stakeholders, providing detailed information about the project and its potential impacts. The stakeholders identified by the PP were verified from the

	EIA report /24/ and interviews of local stakeholders during the on-site visit /16/.
Legal or customary tenure/access rights	It has been verified through generation license/26/ that Darenhes Elektrik Üretim A.Ş. is the legal owner of the project activity who is responsible entity for development, commissioning and operation of the hydropower plant. The validation team has interviewed the local stakeholders/16/ in an unbiased fashion and confirms that there is minimal private land, no involuntary relocation or no conflicts with any stakeholders.
Stakeholder diversity and changes over time	The project activity is the implementation and operation of the hydro power plant. The stakeholders identified are mostly nearby villagers. Due to the project type, no change in social, cultural or economic diversity of stakeholders is envisaged over time.
Expected changes in well-being	The project activity is the implementation and operation of the hydro power plant, which provides renewable energy to the grid of Türkiye, hence, reducing the GHG emission to the atmosphere, enhancing energy security and reduced reliance on fossil fuels. This has been reviewed through the on-site visit/16/. PP has provided the employment records/22/, which verified the employment generated during the construction and operation of the plant. Furthermore, the PP assures that the project would not have any negative impacts on stakeholders' well-being.
Location of stakeholders	The local stakeholders identified mostly include villagers living in the vicinity of the project activity. Stakeholders are primarily located in the villages of Tunceli and Elazığ provinces, near the Peri Stream. These areas include Tatarköy, Obuzbaşı, and Alayağmur villages, which are directly impacted by the project's activities.
Location of resources	The project activity is the implementation and operation of a hydro power plant. It has been confirmed through on-site visit/16/ and feasibility report/18/. The hydroelectric power project has affected some of the settlements which are- • Tatarköy village: 13 houses and 1 school • Obuzbaşı village 3 8 houses • Alayağmur village 37 houses

- Uçankuş district 9 houses
- Kilizkumu district (Zil region); 8 houses

3.2.1.2 Stakeholder Consultation and Ongoing Communication

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Stakeholder engagement process	The public participation meeting consisting of nearby villagers was done as part of the EIA process on 15-February-2006 at 10.00 AM 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. which was verified from the EIA report /24/. An announcement containing the place and time of the meeting was published and advertised in a national and local newspaper as well as on the local boards of the Municipalities and District governors house, at the Muhtar's (village head's) announcement boards and were announced from the general announcement loud speakers of relevant settlements for the announcement of the Public Participation Meeting to the public (EIA REPORT /24/).
Consultation outcome	The public participation meeting for the Tatar project was held at the project site, involving local stakeholders like villagers. The meeting aimed to explain the VCS project activity, gather feedback, and address any concerns. The public had concerns regarding the transit shed place for the deposition of the excavated earth and rock determined by the project owner was a place where they were grazing their animals, and they would be forced to move their animals to a distant meadow and this was not convenient for the Nişankaya village people. The project owner proposed that the site determined for this purpose would be re-considered at the final design stage. The Public also asked information about the expropriation process. They asked about when their land is expropriated and when which parts of the land and settlements would be staying under water. The project owner replied saying that the construction would start around December 2006, and the expropriation process cannot start before the EIA Affirmative certificate is granted to the Project Owner. It is also

	explained that the expropriation process would be realized according to the regulations by EMRA, but the project owner would pay the amount determined. The project owner said that a committee of experts would do the entire process and would determine the fair land or property values. The attendees of the public participation meeting expressed that they were satisfied with the implementation of the project and have their concerns were successfully addressed by the Owner of the plant, which were verified from the EIA report /24/.
Ongoing communication	Stakeholders present at the meeting were informed that any grievances or feedback regarding the project, either during construction or operation, could be directed to the person in charge (local headman). The local headman will record the grievances received from the stakeholders related to the operation of the project and will inform the plant by visiting or calling. PP assures that the concerns raised will be resolved with a reasonable time frame. No adverse feedback or concerns necessitating changes to the project design or monitoring plan were raised during the public participation meeting. The VVB can confirm that no negative feedback has been received during the previous crediting period (14/11/2013 – 13/11/2023). Also, During the on-site visit/16/, local stakeholders were interviewed and confirmed that they know about the grievance process and there are no negative feedback regarding the project.
Stakeholder input	No positive or negative input was received during the public participation meeting.

3.2.1.3 Free, Prior, and Informed Consent.

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Obtaining consent	The project activity “Tatar Hydroelectric Power Plant” is operation of 128.22 MW hydroelectric project. PP organized a public participation meeting as part of the EIA process to obtain consent from the concerned local stakeholders. Information regarding the operation of the project activity and its potential impacts were addressed to the local stakeholders, verified from the EIA report /24/. PP did not identify any IPs, LCs or customary rights holders as stakeholders during the meetings held in Tunceli and Elazığ provinces. Local communities, including affected villages such as Tatarköy and

	Obuzbaşı, were consulted. In addition to this, no ongoing or unresolved conflicts between the PP and the stakeholders were found. During the on-site visit/16/, local stakeholders were interviewed and there are no complaints from the locals regarding the operation of the hydro power plant.
Outcome of FPIC discussion	PP did not identify any IPs, LCs or customary rights holders as stakeholders during the meeting. In addition to this, no ongoing or unresolved conflicts between the PP and the stakeholders were found. PP assures that the project activity has not encroached on land, relocated people without consent, and forced physical or economic displacement. During the on-site visit/16/, local stakeholders were interviewed and there are no complaints from the locals regarding the operation of the hydro power plant. No positive or negative feedback were received from the stakeholders regarding the project. The attendees of the public participation meeting expressed that they were satisfied with the implementation of the project and have therefore no concerns either to the Hydro power plant or to the Owner of the plant, which were verified from the EIA report /24/.

3.2.1.4 Grievance Redress Procedure

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Development process	PP has discussed the grievance procedure during the public participation meeting conducted and the local stakeholders are aware of the grievance procedure, interviews with the PP's representatives/16/ and interviews with the local stakeholders during the on-site visit. Eşref Sönmez, the local headman of Nişankaya Village, is the nearest settlement to the power plant, will record the grievances received from the stakeholders related to the operation of the project activity and will inform the plant by visiting or calling.
Grievance redress procedure	The grievances can be conveyed directly to the project manager or via the local headman. This has been confirmed through interviews with the local stakeholders during the on-site visit/16/ and is found to be appropriate. PP ensures that the concerns raised will be resolved within a reasonable time frame. The procedure followed to address the concerns and grievance has been reviewed and is found to be appropriate.

3.2.1.5 Public Comments

In accordance with the requirement in clause 3.18.9 of the VCS standard, Version 4.7/06/ “All VCS projects are subject to a 30-day public comment period. The date on which the project is listed on the project pipeline marks the beginning of the project’s 30-day public comment period”.

The scope of the project activity is renewal of crediting period (RCP). Therefore, no public comment period was conducted.

Comments received	Actions taken by the project proponent	Evidence gathering activities, evidence checked, and assessment conclusion
-	-	-

3.2.2 Risks to Local Stakeholders and the Environment

3.2.2.1 Management Experience

The management team of Darenhes Elektrik Üretim A.Ş. has experience in executing similar renewable energy projects, including hydropower plants in Turkey. The team has successfully executed projects such as the Pembelik and Seyrantepe hydropower plants, demonstrating expertise in project design, stakeholder engagement, and environmental compliance. The project activity meets all the regulator requirements.

3.2.2.2 Risk Assessment

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Natural and human-induced risks to stakeholders’ wellbeing	The project activity does not pose any risk to the stakeholders’ wellbeing. During the on-site visit/16/, local stakeholders were interviewed and there are no complaints from the locals regarding the operation of the hydro power plant.
Risks to stakeholder participation	The project employs transparent communication channels and inclusive methods to encourage stakeholder engagement. During the on-site visit/16/, the local stakeholders were interviewed and the VVB can confirm that there are no risks regarding the Stakeholder participation.

Working conditions	The project adheres to local regulations and best international practices to provide safe and fair working conditions. During the on-site visit/16/, the VVB interviewed the personnel were interviewed and can confirm that no risks were identified.
Safety of women and girls	The VVB confirms that the safety of women and girls have been ensured during project implementation which is cross checked during the on-site visit/16/. The project follows all the women rights laws mandatory in Türkiye.
Safety of minority and marginalized groups, including children	The VVB confirms that the project implementation does not have any effect on the safety of minority and marginalized groups, including children. The project conducts regular community engagement, and no risks were identified.
Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials, and chemical pesticides and fertilizers)	The VVB confirms that there is no risk identified and that all the waste generated in the project implementation is being disposed as per Turkish. This was confirmed during the on-site visit/16/ and the EIA positive certificate/25/

3.2.3 Respect for Human Rights and Equity

3.2.3.1 Labor and Work

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Discrimination	Since the onset of the project activity, no employees have reported any form of discrimination or sexual harassment. From the interviews with site personnel during the onsite audit/16/, Validation team confirms that there are no complaints on discrimination or any form of harassment from the stakeholders. Furthermore, Türkiye has ratified ILO convention 111 (Discrimination (Employment and Occupation) Convention, 1958), and PP ensures that the workers are socially secured by the PP and protected by employment agreements and no such activity is going to be happen in the future.
Sexual harassment	Since the onset of the project activity, no employees have reported any form of discrimination or sexual harassment. From the interviews with site personnel during the onsite audit/16/, Validation team confirms that there are no complaints on discrimination or any form of sexual harassment from the stakeholders. The PP follows national legislation and internal policies prohibiting sexual harassment and maintains a clear reporting channels.

	The project activity, developed and operated by Darenhes Elektrik Üretim A.Ş., has a proven track record in managing similar projects in the host country such as Tuna HEPP. Their team is experienced in working on similar projects and is highly skilled in their field.
Equal pay for equal work	The employment records/22/ has been reviewed and confirms that project activity has created employment for the local people. From the interviews with site personnel during the onsite audit/16/, the Validation team confirms that there are no complaints regarding employment. The PP follows national labor regulations of Türkiye and provides equal pay for equal roles and responsibilities. This was confirmed upon reviewing the employment records/22/.
Gender equity in labor and work	From the interviews with site personnel during the onsite audit/16/, the Validation team confirms that there are no complaints regarding gender imbalance or unfair treatment. The discrimination based on gender is illegal in Türkiye and the project aligns with national policies related to gender equality.
Forced labor	The project activity does not involve any human trafficking, forced labor or child labor. No such activities were found from the interviews with the PP and local stakeholders during onsite visits/16/ or through the direct observation by the validation team. The employment records/22/ has been reviewed and confirms that project activity has created employment for the local people in accordance with national labor regulations of Türkiye.
Child labor	The project activity does not involve any human trafficking, forced labor or child labor. No such activities were found from the interviews with the PP and local stakeholders during onsite visits/16/ or through the direct observation by the validation team. The employment records/22/ has been reviewed and confirms that project activity has created employment for the local people in accordance with national labor regulations of Türkiye.
Human trafficking	The project activity does not involve any human trafficking, forced labor or child labor. No such activities were found from the interviews with the PP and local stakeholders during onsite visits/16/ or through the direct observation by the validation team. The employment records/22/ has been reviewed and confirms that project activity has created employment for the local people in accordance with national labor regulations of Türkiye.

3.2.3.2 Human Rights

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
No Risks Identified	The project activity is the implementation and operation of a grid connected hydro power plant and is in compliance with the international human rights, the United Nations declaration on the rights of indigenous people and ILO conventions such as 100, 111, 122 and 142. Further, the PP recognizes, respects, and promotes the protection of the rights of employees and stakeholders and ensures quick action if any complaints are received.

3.2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
No Risks Identified	The project activity is the implementation and operation of a grid connected hydro power plant. There is no dispute with the stakeholders regarding the land, which has been confirmed through the on-site interviews conducted by the validation team. In addition to these, the project is in a remote location and there are no cultural heritage sites in the vicinity.

3.2.3.4 Property Rights

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
No Risks Identified	The project activity is the implementation and operation of a grid connected hydro power plant. The project has been implemented on the land owned by No Risks Identified and there are no dispute with the stakeholders regarding the land, which has been confirmed through the on-site interviews/16/ conducted by the validation team.

3.2.3.5 Benefit Sharing

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Process used to design the benefit sharing plan	The project activity is the implementation and operation of a grid connected hydro power plant. The project has been implemented on the land owned by Darenhes Elektrik Üretim A.Ş. Hence, there is no benefit sharing in the project activity. The section is not applicable.
Summary of the benefit sharing plan	Not applicable
Approval and dissemination of benefit sharing plan	Not applicable

3.2.4 Ecosystem Health

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Impacts on biodiversity and ecosystems	No negative impact identified on the local biodiversity and ecosystem. The validation team has observed from the on-site visit/16/ and have also confirmed the same through the interviews with the site personnels. Further, the project received an EIA Positive Certificate on 15/11/2006 from the Ministry of Environment and Forestry General Directorate of Environmental Impact Assessment and Planning, Türkiye /25/.
Soil degradation and soil erosion	No risk has been identified. The validation team confirmed from the on-site visit/16/ that the project follows standard best practices for soil management, including erosion control measures. Further, the project received an EIA Positive Certificate on 15/11/2006 from the Ministry of Environment and Forestry General Directorate of Environmental Impact Assessment and Planning, Türkiye /25/.
Water consumption and stress	It has been confirmed through on-site visit/16/ and EIA Report/24/ that minimum discharge has been maintained in the river stream. The plant uses minimal water and adheres to local regulations., it has no impact on water

availability and does not create water stress. Hence, no risk has been identified.

3.2.4.1 Rare, Threatened, and Endangered species

Risk identified	Evidence gathering activities, evidence checked, and assessment conclusion
Species and habitat	No negative impact identified on biodiversity and ecosystem. The project activity involves the generation of electricity from operation of hydro power plant. The validation team confirmed from the on-site visit/16/ that the possibility of threat to the rare and endangered species is of minimal probability. Further, the project received an EIA Positive Certificate on 15/11/2006 from the Ministry of Environment and Forestry General Directorate of Environmental Impact Assessment and Planning, Türkiye /25/.
Areas needed for habitat connectivity	NA

3.2.4.2 Introduction of Species

The project activity involves the implantation and operation of grid connected hydro power plant and does not involve introduction of any species. Hence, the section is not applicable.

Species introduced	Evidence gathering activities, evidence checked, and assessment conclusion
N/A	N/A

Existing invasive species	Evidence gathering activities, evidence checked, and assessment conclusion
N/A	N/A

Evidence gathering activities, evidence checked, and assessment conclusion

Invasive species

N/A

3.2.4.3 Ecosystem conversion

The project activity involves the implantation and operation of grid connected hydro power plant and involves no ecosystem conversion. Hence, the section is not applicable.

Risks Identified

Evidence gathering activities and evidence checked

Ecosystem conversion

N/A

3.3 Application of Methodology

3.3.1 Title and Reference

As described in the VCS PD section 3.1, ACM0002 V22.0: Grid-connected electricity generation from renewable sources version 22.0/04/, has been applied to the Project Activity. The project uses an approved baseline and monitoring methodology, and the relevant tools prescribed therein. The validity of the versions of the applied methodology and tools were checked from CDM website.

The project has also referred to following CDM Tools:

- TOOL01 “Tool for the demonstration and assessment of additionality”/09/
- TOOL07 “Tool to calculate the emission factor for an electricity system” (Version 07.0)/10/
- TOOL11 “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” (Version 3.0.1) /11/

3.3.2 Applicability

All requirements for applicability of the applied methodology i.e., ACM0002 V22.0/04/ are satisfied. Hence, the methodology is considered completely applicable for the new crediting period, and no request for a deviation in terms of the methodology's applicability is necessary. In the VCS PD/02/, all applicable conditions are fully and accurately included. The table below presents the assessments of the applicability conditions:

Methodology ID	Applicability condition	Assessment and conclusion
ACM0002	This methodology is applicable to grid-connected renewable energy power generation project activities that: a) Install a Greenfield power plant;	The Tatar HEPP project is a 128.22 MWe renewable energy plant. The plant was installed at a site where no renewable power plant was operated prior to the implementation of the

	b) Involve a capacity addition to (an) existing plant(s) c) Involve a retrofit of (an) existing operating plants/units d) Involve a rehabilitation of (an) existing plant(s)/unit(s) e) Involve a replacement of (an) existing plant(s)/unit(s) or f) Install a Greenfield power plant together with a grid-connected Greenfield pumped storage power plant. The greenfield power plant may be directly connected to the PSP or connected to the PSP through the grid.	project activity. This has been verified through the water usage agreement/31/, Generation license/26/ and commissioning certificate/12/. Therefore, the project activity is a greenfield project. Hence, the criterion is met appropriately.
	The methodology is applicable under the following conditions: a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit. b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum	a) The project activity consists of a 128.22 MWe hydro power plant. This has been verified through the water usage agreement/31/, Generation license/26/ and commissioning certificate/12/. Hence, the criterion is met appropriately. b) The project activity is not capacity addition, retrofits, rehabilitations or replacements. Hence this criterion is not applicable to the project activity. This was also cross-checked through Generation license/26/ and commissioning certificate/12/. Hence, the criterion is not applicable.

	historical reference period and the implementation of the project activity.	
	In case of hydro power plants, one of the following conditions shall apply: a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs, or b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (7), is greater than 4 W/m², or c) The project activity results in single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m² or d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m², all of the following conditions shall apply: i. The power density calculated using the total installed capacity of the integrated project, as per equation (8), is greater than 4 W/m² ii. Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity iii. Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be:	a) The project activity was installed at a site where no renewable power plant was operated prior to the implementation of the project activity which resulted in the creation of a new reservoir. This was also cross-checked through Generation license/26/ and commissioning certificate/12/. Hence, this option is not applicable. b) The project activity was installed at a site where no renewable power plant was operated prior to the implementation of the project activity which resulted in the creation of a new reservoir. This was also cross-checked through Generation license/26/ and commissioning certificate/12/. Hence, this option is not applicable. c) The project activity resulted in the creation of a new reservoir and the power density was calculated to be 11.84 W/m² which is greater than 4 W/m² as shown below. This was verified from the registered PD/29/. $ \begin{aligned} PD &= \frac{\text{Installed Capacity}}{\text{Reservoir Area}} \\ &= \frac{128,200,000 \text{ W}}{10,830,000 \text{ m}^2} \\ &= 11.84 \text{ W/m}^2 \end{aligned} $ Hence, option (c) is applicable

	• Lower than or equal to 15 MW, and • Less than 10 per cent of the total installed capacity of integrated hydro power project	d) The project activity resulted in the creation of a new reservoir which is not integrated with other reservoirs. This was also cross-checked through Generation license/26/ and commissioning certificate/12/. Hence, this option is not applicable.
	In the case of integrated hydro power projects, project proponent shall: a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project, or b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	The project activity resulted in the creation of a new reservoir which is not integrated with other reservoirs. This was also cross-checked through Generation license/26/ and commissioning certificate/12/. Hence, this option is not applicable.
	The methodology is not applicable to: a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project	The project activity is a grid connected greenfield hydro power plant. The project activity is not biomass fired power plant, nor does it involve the switching of fossil fuels to renewable

	activity, since in this case the baseline may be the continued use of fossil fuels at the site; b) Biomass fired power plants/units	energy sources at the site. This has been checked against the Generation license/26/ and commissioning certificate/12/. Hence, this option is not applicable.
	In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, i.e. to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.	The project activity is a grid connected greenfield hydro power plant and the equipment that was installed was brand new and doesn’t involve retrofit, rehabilitation or replacement of any kind. Hence, this option is not applicable.
	In addition, the applicability conditions included in the tools referred to above apply.	

Tool ID	Applicability condition	Assessment and conclusion
TOOL 07 - Tool to calculate the emission factor for an electricity system (Version 07.0.0)	a) This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects) b) Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case,	a) The project activity results in the generation of electricity which displaces emissions which might have generated from the production of equivalent amount of power from fossil fuel thermal power plants which exists in the baseline scenario. This has been verified through the EPIAS records/30/, Generation license/26/ and commissioning certificate/12/. Therefore, the applicability criteria are found to be met by evaluating the amount of baseline emission by

	two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in “Appendix 1: Procedures related to off-grid power generation” should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity. c) In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country. d) Under this tool, the value applied to the CO2 emission factor of biofuels is zero	considering OM, BM and CM emission factors. b) The project activity has chosen the option to calculate the emission factor for grid power plants only. The point has been assessed in detail under section 3.3.6 of the report. c) This project involves generating electricity from hydro power plant located in Türkiye which is an Annex I country as verified from UNFCCC website/13/. However, the scope is the renewal of crediting period and project is already registered under VCS. Additionally, the applicability condition is with respect to the CDM project activity, and the project is under VCS program. Thus, the applicability criteria is found to be not applicable d) This project involves generating electricity from hydro power plant and does not involve emissions from biofuels. The generated electricity from the project activity is delivered to the national grid of Türkiye. Thus, the applicability criteria are found to be met.
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Tool ID	Applicability condition	Assessment and conclusion
TOOL 01 - Tool for the demonstration and assessment	a) The use of the “Tool for the demonstration and assessment of additionality” is not mandatory for project participants when proposing new methodologies. Project	a) The additionality of the project activity was evaluated during the first crediting period as confirmed from the registered PD/29/. However, the scope is the renewal

of additionality (Version 7.0.0)	participants may propose alternative methods to demonstrate additionality for consideration by the Executive Board. They may also submit revisions to approved methodologies using the additionality tool. b) Once the additionality tool is included in an approved methodology, its application by project participants using this methodology is mandatory	of crediting period, assessment of additionality was not conducted as per para 3.9.8 of the VCS standard/06/. b) The additionality of the project activity was evaluated during the first crediting period as confirmed from the registered PD/29/. However, the scope is the renewal of crediting period, assessment of additionality was not conducted as per para 3.9.8 of the VCS standard/06/.
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Tool ID	Applicability condition	Assessment and conclusion
TOOL 11 - Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period (Version 03.0.1)	This tool provides a stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period, as required by paragraph 49 (a) of the modalities and procedures of the clean development mechanism. The tool consists of two steps. The first step provides an approach to evaluate whether the current baseline is still valid for the next crediting period. The second step provides an approach to update the baseline in case that the current baseline is not valid anymore for the next crediting period.	The scope of the project activity is renewal of crediting period. Therefore, the tool is applicable and has been applied by the PP to assess whether the current baseline is valid or invalid.

3.3.3 Project Boundary

The project boundary and identified GHG sources, sinks and reservoirs for the project and baseline scenarios are appropriately defined in the VCS PD /02/. The selection and justification for inclusion or exclusion is appropriate and duly supported in the VCS PD/02/.

The PP has considered only CO₂ as the major GHG in the baseline scenario and project scenario. The approach was found to be in line with the applied methodology/04/. The exclusion of CH₄ & N₂O in the baseline scenario is appropriate. The project activity involves the generation of electricity using hydro

power. Hence, there are no project emissions associated with this project activity. Therefore, the exclusion of CO₂, CH₄ & N₂O in the project scenario are appropriate. There are no other sources of project emissions. Hence, the project participant has considered the project emissions as zero for project activity; this is in line with the methodology/04/.

The validation team is able to conclude that the project boundary and selected sources are applied as per the methodology /04/ and the applicable VCS criteria/06/.

Source		Gas	Included?	Assessment and conclusion
Baseline	Electricity generation in baseline (Turkey's Grid)	CO ₂	Yes	The major emission source. The GHG emission reductions are achieved by displacing the electricity generated by fossil fuel dominated power plants
		CH ₄	No	Excluded for simplification. This is conservative.
		N ₂ O	No	Excluded for simplification. This emission source is assumed to be very small.
		Other	N.A.	N.A.
Project	Emission from the reservoir of the proposed project	CO ₂	No	Excluded for simplification. This is conservative.
		CH ₄	No	The power density of the project activity is found to be greater than 4 W/m ² , hence, considered to be zero. Detailed assessment is provided in section 3.3.6 of this report.
		N ₂ O	No	Minor emission source
		Other	N.A.	N.A.
	Back-up or Emergency Diesel Generator	CO ₂	Yes	The project has diesel based 1 DG set available at the site for emergency purposes. However, as per the methodology/04/, the use of fossil fuels for the back up or emergency purposes (e.g. diesel generators) can be neglected. Hence, it is neglected
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source

Source	Gas	Included?	Assessment and conclusion
	Other	N.A.	N.A.

3.3.4 Baseline Scenario

The project activity involves a grid-connected renewable power plant and supplying the generated electricity to Turkish national grid, hence, according to the applied ACM0002, version 22.0/04/, the baseline scenario is determined properly as:

“Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system/10/.”

As per VCS Standard v4.7/06/ section 3.9.8, paragraph 2b. “the GHG emissions associated with the original baseline scenario shall be reassessed using the latest version of the CDM “Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period”.

According to the CDM tool Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period (Version 03.0.1)/11/. According to this tool, the following steps are applied.

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

The validity of the current baseline is assessed using the following Sub-steps:

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

The project current baseline is grid connected electricity generation plants and the project complies with the current legal framework of Türkiye. There are no new laws that have come into force that have an impact on the project activity and the project activity is still in line with the available law and regulations.

The baseline scenario identified by the PP was found to be in accordance with applied methodology and the registered PD. Therefore, PP’s decision to not make changes in the current baseline was found to be acceptable by the validation team

Sub Step 1.2 Assess the impact of circumstances.

The new national circumstances have an impact on the EF of the grid and thus on the project’s current baseline emissions. Accordingly, the EF is updated for the second crediting period in conformity with the latest version of the publication of the Türkiye’s National Electric Grid Emission Factor for the year 2022/33/. There has been no major deviation or change in the market characteristic during the first crediting period.

The EF of the grid has been updated by the PP in conformity with the latest version of the publication of the Türkiye's National Electric Grid Emission Factor for the year 2022/33/. This has been stated in section 4.1 of the VCS PD/02/. This was found to be acceptable with the validation team.

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

The technical lifetime of the project activity (including wind turbines) is defined as 25 years. The operational lifetime of the equipment exceeds the crediting period for which renewal is requested. The baseline scenario identified at the validation of the project activity was the continuation of grid-connected electricity generation. Under this scenario, no investment from the project's proponent or third party (or parties) has been envisioned later specifically for the project.

Sub Step 1.4 Assessment of validity of the data and parameters.

As per the requirement of the methodology/07/, only the grid emission factor needs to be updated during the crediting period renewal. The PP has updated the emission factor in conformity with the latest version of the publication of the Türkiye's National Electric Grid Emission Factor for the year 2022 and has been shown in section 4.1 of the VCS PD/02/. This was found to be acceptable with the validation team.

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

Sub Step 2.1: Update the current baseline

As confirmed in Step 1, under the current context of the sectoral policies and circumstances, the project baseline for the next crediting period is the use of electricity from the national grid. This conforms to the provisions of the latest version of the approved applicable methodology. Therefore, there has been no deviation in the baseline scenario.

Sub Step 2.2: Update the data and parameters

The grid emission factor is updated according to the publication of Turkish Ministry of Energy and Natural Resources that is indicating Türkiye's National Electric Grid Emission Factor for the year of 2022.

Only parameter will be monitored for second crediting period is " $EG_{PJ, facility, y}$ " which is related to electricity production.

The PP has provided the calculation for the same in the ER calculation sheet/03/ and it was validated by the validation and verification team. The baseline emission factor for the electricity system has been calculated on ex-ante basis and will remain fixed for the entire project crediting period.

The discussion on baseline is comprehensive in the VCS PD /02/ and it is in line with the applied baseline and monitoring methodology ACM0002, version 22.0/04/. Also, the identified baseline for the project activity is the most likely scenario of what would have occurred in the absence of the project activity. The project participant has included all sources and references used for baseline determination for the project activity in the VCS PD Report /02/ and the identified baseline is justified appropriately by the project participant. The Baseline scenario and baseline emission calculations are found as per ACM0002,

version 22.0/04/. The combined margin approach is the ex-ante approach as per tool to calculate the emission factor for an electricity system.

The validation team confirms that:

- (a) All the assumptions and data used by the PP are listed in the VCS PD /02/, including their references and sources.
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the VCS PD /02/.
- (c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable.
- (d) Relevant national and/or sectoral policies and circumstances are considered and listed in the VCS PD /02/.
- (e) The approved baseline methodology/06/ has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed project activity.

3.3.5 Additionality

According to paragraph 3.9.8(1) of the VCS Standard/04/, “A full reassessment of additionality is not required when renewing the project crediting period. However, regulatory surplus shall be demonstrated in accordance with the requirements set out in the VCS Program rules and the project description shall be updated accordingly.”

The energy sector in Türkiye is privatized and installation of power plants like hydro power plants are done by private companies. The legislation, laws or regulatory framework in Türkiye do not mandate the installation of hydro power plants. Thus, the project activity is not mandated by any state or national laws. The project proponent is not bound by any legislative mandate to implement the project activity. It can be concluded that there is no regulatory constraint in the operation of the project activity. Thus, it can be concluded that project activity is still regulatory surplus activity.

In the end there is no change in the additionality since it is a renewal of the crediting period.

3.3.6 Quantification of GHG Emission Reductions and Carbon Dioxide Removals

As it has been identified in section 3.4.1 of this report, emission reductions and removals resulting from Tatar HEPP are identified according to the approved CDM methodology ACM0002 v22 /04/ and the referred methodological tool “Tool to calculate the emission factor for an electricity system” v07 /10/ as,

$$ER_y = BE_y - PE_y, \quad (\text{Equation 17})$$

Where:

ER_y : Emission reductions in year y (tCO₂/yr).

BE_y : Baseline emissions in year y (tCO₂/yr).

PE_y : Project emissions in year y (tCO₂/yr); validated value = 0.

The baseline emissions have been calculated as follows as per Equation 11/04/:

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

Where:

BE_y - Baseline emissions in year y (t CO₂/yr)

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

$EF_{grid,CM,y}$ - Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO₂/MWh)

Calculation of $EG_{PJ,y}$:

$$EG_{PJ,y} = EG_{facility,y} \quad \text{(Equation 12)}$$

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

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

Calculation of $EF_{grid,CM,y}$:

This parameter is calculated using the tool, “Tool to calculate the emission factor for an electricity-system” (Version 07.0)/10/. Emission factor once calculated, shall remain fixed during the entire duration of the monitoring period. The tool provides procedure to determine the following parameters:

$EF_{grid,CM,y}$ - Combined margin CO₂ emission factor for the project electricity system in year y

$EF_{grid,BM,y}$ - Build margin CO₂ emission factor for the project electricity system in year y

$EF_{grid,OM,y}$ - Operating margin CO₂ emission factor for the project electricity system in year y

Calculation of emission factor:

The calculation of operating margin and build margin for the Turkish national grid is readily available and is published by the Turkish Ministry of Energy and Natural Resources from which the Türkiye's National Electric Grid Emission Factor/33/ for the year of 2022 is used. The publication contains the calculated Emission Factor values for Operating Margin (OM), Growth Based Margin (Build Margin-BM) and Combined Margin (CM) for the relevant year using CDM's Clean Development Methodology Tool 07-V07.0/10/.

The information sheet for Türkiye's National Electric Grid Emission Factor/33/ states that the operating margin, $EF_{grid,OM,simple,y} = 0.7108 \text{ tCO}_2/\text{MWh}$ and to calculate the build margin, the Chronological order of power generation plants from TEİAŞ Load Dispatch Department with commissioning dates, plant names, fuel types, installed power values, electricity generation for the calculated year were used as input data.

The Build Margin is taken as, $EF_{grid,BM,y} = 0.3721 \text{ tCO}_2/\text{MWh}$.

To calculate the Combined Margin, the "Tool to calculate the emission factor for an electricity system" (Version 07)/10/, Article 86 clause (b), calculation of the combined margin for renewable energy projects (except wind and solar) second crediting period, the following values need to be used for wOM and wBM. "All other projects [...] wOM = 0.25 and wBM = 0.75 for the second and third crediting period, unless otherwise specified in the approved methodology which refers to this tool."

The combined margin is calculated as,

$$EF_{grid,CM,y} = EF_{grid,OM,y} \times wOM + EF_{grid,BM,y} \times wBM \quad (\text{Equation 16})$$

Where:

$EF_{grid,BM,y}$ = Build margin CO₂ emission factor in year y (t CO₂/MWh)

$EF_{grid,OM,y}$ = Operating margin CO₂ emission factor in year y (t CO₂/MWh)

w_{OM} = Weighting of operating margin emissions factor (per cent)

w_{BM} = Weighting of build margin emissions factor (per cent)

The combined margin for the second crediting period is calculated as,

$$EF_{grid,CM,y} = 0.25 \times 0.7108 + 0.75 \times 0.3721 = 0.4568 \text{ tCO}_2/\text{MWh}$$

The PP has provided the calculation for the same in the ER calculation sheet/03/ and it was validated by the assessment team. It was confirmed that PP has followed the step wise approach as given in applied tool/08/ to calculate emission factor. The baseline emission factor for the electricity system has been calculated on ex-ante basis and will remain fixed for the entire second crediting period.

The Baseline emissions in year y (t CO₂/yr) is calculated as,

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

$$BE_y = 421,270 \text{ MWh/year} \times 0.4568 \text{ tCO}_2/\text{MWh}$$

$$BE_y = 192,425 \text{ tCO}_2/\text{year}$$

Vintage period	Estimated baseline emissions (tCO ₂ e)	Estimated project emissions (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated reduction VCU (tCO ₂ e)	Estimated removal VCU (tCO ₂ e)	Estimated total VCUs (tCO ₂ e)
Year 2023 (14-November-2023 to 31-December-2023)	25,305	0	0	0	0	25,305
Year 2024	194,425	0	0	0	0	194,425
Year 2025	194,425	0	0	0	0	194,425
Year 2026	194,425	0	0	0	0	194,425
Year 2027	194,425	0	0	0	0	194,425
Year 2028	194,425	0	0	0	0	194,425
Year 2029	194,425	0	0	0	0	194,425
Year 2030	194,425	0	0	0	0	194,425
Year 2031	194,425	0	0	0	0	194,425
Year 2032	194,425	0	0	0	0	194,425
Year 2033 (01-January-2033 to 13-November-2033)	137,120	0	0	0	0	167,120
Total	1,924,250	0	0	0	0	1,924,250

The total emission reductions are 1,924,250 tCO₂e over 10 years (second) crediting period.

Through the assessment process validation team confirmed that:

- All the assumptions and data used by the project participants are listed including their references and sources;
- All documentation used by the project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the VCS PD Report/02/;
- All values used in the VCS PD /02/ are considered reasonable in the context of the VCS project activity;
- The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;

All estimates of the baseline emissions can be replicated using the data and parameter values provided in the VCS PD Report/02/.

3.3.7 Methodology Deviations

No deviation from methodology and tools was requested during the validation process.

3.3.8 Monitoring Plan

The project activity applies the monitoring plan according to the methodology “ACM0002: Grid-connected electricity generation from renewable sources --- Version 22.0.0”/04/, The project activity meets all the requirements as stated in the methodology and provided all the parameters in the revised version of the VCS PD/02/ in terms of ex- ante and ex-post in the respective section of the PD.

Parameters Determined ex-ante

The following parameters are determined ex-ante and mentioned in section 5.2 of the PD:

Parameter	Unit	Value applied	Means of assessment
$EF_{grid,BM,y}$	tCO ₂ /MWh	0.3721	The value of Build Margin is calculated on the basis of “Tool to calculate the emission factor for an electricity system” (Version 07)/10/. The value is sourced from publication of Turkish Ministry of Energy and Natural Resources for the year 2022 which is indicating Türkiye’s National Electric Grid Emission Factor. Thus, the value is found acceptable.
$EF_{grid,OM,y}$	tCO ₂ /MWh	0.7180	The value of Operating Margin is calculated on the basis of “Tool to calculate the emission factor for an electricity system” (Version 07)/10/. The value is sourced from publication of Turkish Ministry of Energy and Natural Resources for the year 2022 which is indicating Türkiye’s National Electric Grid Emission Factor. Thus, the value is found acceptable.
$EF_{grid,CM,y}$	tCO ₂ /MWh	0.4568	This has been calculated based on Operating Margin (OM) and Build Margin (BM) calculated using the “tool to calculate the emission factor for an electricity system” (Version 07)/10/. As the

			proposed project activity is hydro, the combined margin is calculated as $(EF_{grid,OM,y} \times 25\%) + (EF_{grid,BM,y} \times 75\%)$. The formula used and value provided are found to be appropriate. Therefore, it is accepted.
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The parameters for ex-ante are found to be aligned with the applied methodology/04/ and are found to correct, justified and consistent through all documents.

Data and paramter monitoried:

In order to monitor the emission reduction of the project activity, the net electricity exported by the project activity to the grid is multiplied with the grid emission factor, to calculate the emission reduction achieved. The determination of the grid EF is as described in the above section 4.4 and the ex-ante method has been selected by the PP for the value of grid emission factor. Therefore, the monitoring plan includes monitoring of following parameters:

Parameter	Unit	Monitoring Frequency	Means of assessment
$EG_{PJ,y}$ - Net electricity generation	MWh/y	Monthly	The value for this parameter will be continuously monitored and recorded monthly by the electricity meters (main and spare meters) installed at the site. The parameter will be monitored continuously as described in in the revised PD/02/. The same was also verified during the on-site audit conducted by the assessment team/16/.
Cap_{PJ} - Installed capacity of the hydropower plants after the implementation of the Project Activity.	W	Once each monitoring period	The value of the parameter will be monitored each monitoring period. The verification team confirms the installed capacity to be 100,000,000W from the nameplate observed on site /16/.
A_{PJ} - Area of the reservoir measured in the surface of the water, after the implementation of the project	m ²	Once each monitoring period	The area of the reservoir would be measured by recording the highest water level achieved in the reservoir. The water level data relates to certain areas of the reservoir based on the elevation chart. The highest one of reservoir level records of a calendar year will be used to determine the water surface area of the reservoir of that year by the project owner. The parameter A_{PJ} corresponds to the maximum

activity, when the reservoir is full.			operational level has been determined as a certain value according to the topographical maps.
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Electricity meter details-

There are four meters at the substation (two main and two back-up). These meters are sealed by TEIAS and intervention by project proponent is not possible. There was previously four meters (2 main and 2 back-up). The specifications of the previous meters are given below.

Name	Function	Serial Number	Calibration Date	Validity
Old Main Meter 1	Group -1	471008	2012	2022
Old Back-up meter 1	Group -1	471009	2012	2022
Old Main Meter 2	Group -2	471010	2012	2022
Old Back-up meter 2	Group -1	471011	2012	2022

The above meters were replaced on 12/04/2020, which was verified by the meter change protocol/32/. According to Article 9 of the 'Regulation of Metering and Testing of Metering Systems'¹, “b) Periodic tests of meters of electricity, water, coal gas, natural gas and current and voltage transformers are done every 10 years.” Therefore, periodic calibration of the meters will be done every 10 years. The assessment team has also verified during the on-site audit/16/ that the installed meters are sealed by TEIAS and the National authority TEIAS decides when to carry out the next calibration and the PP will have no role in meter calibration. The new meter specifications are provided below.

Name	Serial Number	Brand - Model	Accuracy Class	Calibration Date	Validity
Main Meter 1	9420077	EMH	0.2 S	12/04/2020, 23/05/2024	2030
Back-up meter 1	9420078	EMH	0.2 S	12/04/2020, 23/05/2024	2030
Main Meter 2	9420079	EMH	0.2 S	12/04/2020, 23/05/2024	2030
Back-up meter 2	9420080	EMH	0.2 S	12/04/2020, 23/05/2024	2030

¹ Please see, <http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod=7.5.6381&MevzuatIliski=0&sourceXmlSearch=>

During the on-site audit/16/, the details regarding QA/QC procedures were discussed and it was found to be in line with the information mentioned in the PD/02/.

Conclusion:

Therefore, all the parameters mentioned in the revised VCS PD/02/ are found to be appropriate and in line with the applied methodology/04/. Hence, accepted by the validation team.

The validation team confirms that:

- All the values used from official sources and the authenticity of sources has been verified by the validation team and confirms that all relevant parameters to calculate the GHG emissions reductions of the project have been sufficiently considered and the value of the ex-ante fixed parameter used for emission reduction calculation i.e. grid emission factor has been determined conservatively and the estimation of ex-post parameters are reasonable.
- The validation team considers that the monitoring plan has complied with the requirements in the approved methodology/04/. The monitoring plan has been found to be in compliance with the requirements of the applied methodology. The monitoring plan will give opportunity for real measurements of achieved emission reductions.

The validation team considers that monitoring arrangements described in the monitoring plan is feasible within the project design and the PP will be capable to implement the monitoring plan.

3.4 Non-Permanence Risk Analysis

This is not applicable for the VCS project as it is Non AFOLU project.

4 VALIDATION OPINION

4.1 Validation Summary

Earthood Services Limited (Earthood) performed the validation of the emission reductions for the VCS project activity “Tatar Hydroelectricity Power Plant” (VCS ID-1205) for the second crediting period 14/11/2023 to 13/11/2033. Darenhes Elektrik Üretim A.Ş. is 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 as VVB to express an independent validation statement on the reported GHG emission reductions from the project activity.

Earthood commenced the validation based on the baseline and monitoring methodologies ACM0002 version 22.0 /04/, the monitoring plan contained in the PD and VCS Program Guidelines version 4.4 as per the process described under Section 2 of this report. This validation was carried out using a risk-based approach. 05 Corrective Action Requests (CAR), 01 Clarification Requests (CL) and no Forward Action Requests (FAR) were raised and successfully closed during the validation.

The VVB has carried out this validation with a reasonable level of assurance as stated in section 1.3 above. Further, the verification of the GHG statement was conducted in accordance with ISO 14064-3.

4.2 Validation Conclusion

Earthood has performed the validation by obtaining evidence, conducting a comprehensive site visit, and requesting additional information. The Project Proponent (PP) has undertaken a detailed calculation of estimated emission reductions in accordance with the applied methodology ACM0002 version 22.0. The provided explanations by the PP are deemed necessary by Earthood to give a strong level of assurance that the projected GHG emissions reductions are not only attainable but will, in fact, be achieved. This is exemplified by the commitments to high standards of accuracy and integrity shown throughout the validation process.

As a result of the validation, the validation team confirms that:

- The project fulfils criteria of VCS standard Version 4.7/06/.
- The project is in line with all relevant VCS requirement.
- The project additionality is sufficiently justified in the VCS PD/02/.
- The monitoring plan is transparent, adequate and in line with applied baseline and monitoring methodology of ACM0002 version 22.0/04/.
- The calculation of the emission reductions from the project activity is carried out in a transparent and conservative manner, so that the calculated emission reductions of 1,924,250 tCO₂e is most likely to be achieved within the 10 years of crediting period.

No restrictions or uncertainties were identified related to the validation

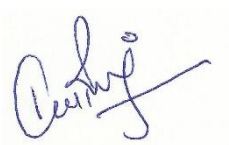
Crediting period: From 14-November-2023 to 13-November-2033

Validated estimated GHG emission reductions and carbon dioxide removals for the project crediting period:

Vintage period	Estimated baseline emissions (tCO ₂ e)	Estimated project emissions (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated reduction VCU's (tCO ₂ e)	Estimated removal VCU's (tCO ₂ e)	Estimated total VCUs (tCO ₂ e)
Year 2023 (<u>14-November-2023 to 31-December-2023</u>)	25,305	0	0	0	0	25,305
Year 2024	194,425	0	0	0	0	194,425
Year 2025	194,425	0	0	0	0	194,425

Year 2026	194,425	0	0	0	0	194,425
Year 2027	194,425	0	0	0	0	194,425
Year 2028	194,425	0	0	0	0	194,425
Year 2029	194,425	0	0	0	0	194,425
Year 2030	194,425	0	0	0	0	194,425
Year 2031	194,425	0	0	0	0	194,425
Year 2032	194,425	0	0	0	0	194,425
Year 2033 (<u>01-January-2033 to 13-November-2033</u>)	137,120	0	0	0	0	167,120
Total	1,924,250	0	0	0	0	1,924,250

Approved By:



Kaviraj Singh

CEO

Date: 31/03/2025

Earthood Services Limited

Place: Gurgaon, Haryana

APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

Use the table below to describe the commercially sensitive information included in the project description to be excluded in the public version.

Section	Information	Justification	Assessment method and conclusion
<u>N/A</u>	N/A	N/A	N/A

APPENDIX 2: DOCUMENT REFERRED

S.No.	Title of Document	Version	Date
1.	Initial VCS PD	v1.0	Dated-12/01/2024
2.	Final VCS PD	V5.0	Dated-28/03/2025
3.	Estimated ER sheet	Pertaining to latest PD	-
4.	ACM0002: Grid-connected electricity generation from renewable sources	V22.0	31/05/2024
5.	VCS Project ID- https://registry.terra.org/app/projectDetail/VCS/1205	-	-
6.	VCS Standard	4.7	16/04/2024
7.	VCS Program Guide	4.4	29/08/2023
8.	VCS Validation and verification manual	3.2	19/10/2016
9.	Tool 01: Tool for the demonstration and assessment of additionality	Version 7.0.0	-
10.	Tool 07: Tool to calculate the emission factor for an electricity system	Version 07.0	-
11.	Tool 11: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period	V 3.0.1	02/03/2012
12.	Commissioning Certificates	-	14/11/2013, 12/12/2013
13.	https://unfccc.int/node/61221	-	-
14.	Geographic location: google earth KML File	-	-
15.	No Double counting Declaration	-	16/07/2024
16.	On- Site Visit	-	24/01/2024
17.	VCS Program Definitions	4.5	16/04/2024
18.	Feasibility Study Report	-	-
19.	https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/ldc_list.pdf	-	-
20.	Single Line Diagram of Tatar	-	03/03/2022
21.	Health & Safety Training Records	-	-
22.	Employment Records (SGK Records)	-	-
23.	Registration and Issuance Process	Version 4.5	16/04/2024
24.	Environmental Impact Assessment (EIA) Report	-	October 2006
25.	EIA Positive Certificate	-	15/11/2006

26.	Generation License	-	02/06/2005
27.	Meter Replacement Certificate	-	14/10/2020
28.	Waste Records	-	
29.	Registered VCS PD (Crediting Period: 14/11/2013 to 13/11/2022)	v2.1	30/10/2013
30.	EPIAS Records	-	-
31.	Water Usage agreement	-	04/05/2005
32.	Meter Change protocol	-	12/04/2020
33.	Turkey's National Electric Grid Emission Factor for 2022- Link- https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Sebeke_EF_Bilgi_Formu_2022.pdf	-	26/11/2024
34.	Regulation of Metering and Testing of Metering Systems	-	-
35.	Meter Calibration certificate		
36.	TEIAS Protocols	-	-
37.	Verra website- https://registry.verra.org/app/projectDetail/VCS/1205	-	-
38.	CDM PS for PA	v3.0	

APPENDIX 3: ABBREVIATIONS

Abbreviations	Full texts
BEF	Baseline Emission Factor
CO ₂	Carbon dioxide
CPA	Component Project Activity
EMRA	Energy Market Regulatory Authority (Republic of Türkiye)
GCC	Global Carbon Council
CL	Clarification Request
CMP	Conference of Parties Serving as Meeting of Parties
CAR	Corrective Action Request
EB	Executive Board
GS	Gold Standard
FAR	Forward Action Request
GHG	Green House Gas
MP	Monitoring Period
MR	Monitoring Report
O&M	Operation and Maintenance
PAI	Project Activity Instances
PD	Project Description
PP	Project Proponent
QA/QC	Quality Assurance and Quality Control
RCP	Renewal of Crediting Period
UNFCCC	United Nations Framework Convention on Climate Change
VCS PD	VCS Project Description
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCUs	Verified Carbon Units
VVB	Validation and Verification Body
TEIAS	Turkish Electricity Transmission Corporation
EPIAS	Energy Markets Management Inc. (Republic of Türkiye)
QMS	Quality Management Systems

APPENDIX 4: FINDINGS OVERVIEW

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

FAR ID	01	Section no.		Date : DD/MM/YYYY
Description of FAR				
NA				
Project participant response				Date : DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				

Table 2.CL from this validation

CL ID	01	Section no.	ER sheet	Date : 07/10/2024
Description of CL				
In section 1.12 of the PD, under general characteristics of Tatar HPP, PP is requested to review the output power and number of units of the Generator and the Transformers as the values were found to be inconsistent with what is written in the PD and what was observed during the on-site visit.				
Project participant response				Date : 24/12/2024
All information general characteristics of Tatar HPP has been updated and corrected throughout the PD.				
Documentation provided by project participant				
<i>Final_PD_VCS1205_Tatar HPP_v02_24-12-2024_tc</i>				
DOE assessment				Date: 16/01/2025
The PD has updated table 2 in section 1.12 of the PDD and now the specifications of the transformers and generators are now consistent with the evidence provided.				
Hence, CL01 is closed.				

Table 3.CAR from this validation

CAR ID	01	Section no.	PDD Template	Date : 07/10/2024
Description of CAR				
PD is kindly requested to update the template of the PDD to the latest available template as per VERRA				
Project participant response				Date : 24/12/2024
PD has been updated.				
Documentation provided by project participant				
<i>Final_PD_VCS1205_Tatar HPP_v02_24-12-2024_tc</i>				
DOE assessment				Date: 16/01/2025
The PD has updated the PDD version to 4.4 which is the latest valid version of the template which was found acceptable by the VVB.				
Hence, CAR 01 id closed				

CAR ID	02	Section no.	1.3, 4.1	Date : 07/10/2024
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Description of CAR	
In section 4.1 of the PD, PP is requested to apply the most recent value to calculate the emission factor for Turkey as given by the Ministry of Energy and Natural Resources. PP is requested to update the value of emission factor and estimated ERs throughout the document.	
Project participant response	Date : 24/12/2024
ER and PD have been updated according to the final emission factor for Turkey as given by the Ministry of Energy and Natural Resources.	
Documentation provided by project participant	Date: 24/12/2024
Final_PD_VCS1205_Tatar HPP_v02_24-12-2024_tc Final_ER_VCS1205_Tatar HPP_v02_24-12-2024	
DOE assessment	Date: 16/01/2025
The PD has updated the Emission Factor as per the latest avail data for Turkey and has updated the ER sheet accordingly. This was found to be acceptable by the VVB. Hence, CAR02 is Closed.	

CAR ID	03	Section no.	5.4	Date : 07/10/2024
Description of CAR				
In section 1.12 of the PD, under general characteristics of Tatar HPP, 1) For the characteristics of the Turbines, it is mentioned that the rated power output of the turbine is 2 * 64,220 kW. However, from the on-site visit and the pictures of the name plate of the turbine, it is mentioned that the rated power output of the turbine is 65,585 kW. PP is requested to address the inconsistency.				
Project participant response				Date : 24/12/2024
PD has been updated.				
Documentation provided by project participant				
Final_PD_VCS1205_Tatar HPP_v02_24-12-2024_tc				
DOE assessment				Date: 16/01/2025
The PD has updated table 2 in section 1.12 of the PDD and now the specifications of the Turbines are now consistent with the evidence provided. Hence, CAR 03 is closed				

CAR ID	04	Section no.	3.2	Date : 20/01/2025
Description of CAR				
PP is requested to update the version of the methodology ACM0002 to the latest applicable version i.e. V22 and also to update the applicability of the methodology in section 3.2 of the PDD				
Project participant response				Date : 05/02/2025
Related section has been updated.				
Documentation provided by project participant				
Final_PD_VCS1205_Tatar HPP_v03_05-02-2025_tc				
DOE assessment				Date: 14/02/2025
The PP has revised section 3.2 of the PD and the version of the methodology ACM0002 has been updated to the latest applicable version i.e. V22. This has been found to be acceptable. Hence, CAR 04 is closed				

CAR ID	05	Section no.	4.1	Date : 14/02/2025
Description of CAR				

In section 4.1 of the PD, PP is requested to address the requirements stated in Tool 11: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, Version 3.0.1.

Project participant response	Date : 18/02/2025
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Relevant assessment has been added.

Documentation provided by project participant
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Final_PD_VCS1205_Tatar HPP_R3_v04_18-02-2025_tc

DOE assessment	Date: 20/02/2025
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The PP have added the requirements stated in Tool 11: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, Version 3.0.1 in section 4.1 of the VCS PD. This has been found to be acceptable.

Hence, CAR 05 is closed

Table 4.FAR from this validation

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

APPENDIX 5: COMPETENCY STATEMENTS

Competence Statement			
Name	Jinesh Amlani		
Education	M.Sc. Energy Systems B.Sc. Physics		
Experience	8+ years		
Field	Climate Change & Environment		
Approved Roles			
Team Leader	YES (VM)		
Validator	YES (VM)		
Verifier	YES (VM)		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert (X.X)	YES (TA.1.2, TA 3.1)		
Reviewed by	Shifali Guleria (Quality Manager)	Date	16/05/2024
Approved by	Deepika Mahala (Technical Manager)	Date	16/05/2024

Competence Statement			
Name	Kubra Agriman		
Education	BS Environmental Engineering		
Experience	2+ years		
Field	Environmental Engineering		
Approved Roles			
Team Leader	NO		
Validator	Yes (VM)		
Verifier	Yes (VM)		
Methodology Expert	NO		
Local expert	Yes (Turkey)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Reviewed by	Shifali Guleria, Quality Manager	Date	27/12/2022
Approved by	Deepika Mahala, Technical Manager	Date	27/12/2022

Competence Statement			
Name	Kerwyn Donald Dsouza		
Education	B. E- Environmental Engineering M. Tech- Renewable Energy Engineering and Management		
Experience	7 Years		
Field	Renewable Energy, Climate Change, Environment		
Approved Roles			
Team Leader	NO		
Validator	YES		
Verifier	YES		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	YES (TA 1.2)		
Reviewed by	Shifali Guleria (Quality Manager)	Date	18/01/2024
Approved by	Deepika Mahala (Technical Manager)	Date	18/01/2024

Competence Statement (ISO 14065)			
Name	Divij Varshney		
Education	M. Tech. Renewable energy systems B.Tech. Electrical Engineering		
Experience	3.5 years		
Field	Climate Change & Environment / Industry		
Approved Roles			
Team Leader	Yes (VM)		
Validator	Yes (VM)		
Verifier	Yes (VM)		
Local expert	Yes (India)		
Financial Expert	NO		
Technical Reviewer	Yes		
TA Expert (X.X)	Yes (1.2 & 3.1)		
Reviewed by	Shifali Guleria, Quality Manager	Date	04/04/2024
Approved by	Deepika Mahala, Technical Manager	Date	04/04/2024