



**Verified Carbon
Standard**

RENEWAL OF CREDITING PERIOD

GULLUBAG 96 MW HYDRO ELECTRIC POWER PLANT PROJECT, TURKEY



Document Prepared by

Carbon Check (India) Private Limited

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Summary:

Provide a brief summary of the following:

- **A brief description of the validation and the project**

Validation: Carbon Check (India) Private Ltd. has been contracted by, “GTE KARBON SÜRDÜRÜLEBİLİR ENERJİ EĞİTİM DANIŞMANLIK VE TİCARET A.Ş.” to undertake Validation of Renewal of Crediting Period (RCP) of “Gullubag 96 MW Hydro Electric Power Plant Project” Project VCS registered project ID 391, for the crediting period 23/03/2022 – 22/03/2032. The validation is based on the desk review of the VCS PD /01/ & the corresponding supporting emission reduction calculation spread sheet /02/ and other relevant supporting documents made available to the validation team by the project proponent accompanied by remote interviews. In line with the relevant requirements of VCS Standard Version 4.4. The other PP of project activity is GTE KARBON SÜRDÜRÜLEBİLİR ENERJİ EGT. DAN. VE TIC. A.S. whose name is changed in comparison with registered PD name i.e. Global Tan Energy Limited as verified in the previous monitoring period.

Project: The main purpose of this project activity is to generate a clean form of electricity through renewable energy sources (Hydro Electric Power Plant). SENERJİ Enerji Üretim A.S. is the project proponent of the project activity. The project activity involves the operation of 96MW hydroelectric power plant in East of Turkey, in the province of Erzurum on the river Coruh. The electricity generated from the Hydroelectric Powerplant is sold to the national grid of Turkey 154 kV transmission line, through ISPIR HEP substation.

The average annual electricity generation significantly depends on the other HEPP projects planned to be built at the upstream of Gullubag HEPP. These plants were constructed, thus average estimated electricity generation increased from 281 GWh to 313.898 GWh with commissioning of plants at the upstream. The total emission reductions from the project are estimated to be on average 144,895 tCO_{2e} per year over the second 10-year renewable crediting period. Since these plants are still in design and construction phase, average electricity generation is estimated as 281 GWh initially which is expected to be increase up to 313.898 GWh will be able to deliver about 144,895 tCO_{2e} (tons of carbon dioxide equivalent) per annum after commissioning of plants at the upstream. The projects which have been planned in the upstream of the project, Ispir HPP and Laleli HPP.

- **The purpose and scope of validation:**

Purpose: The purpose of this RCP validation is to have an independent third-party assessment of the project design. In particular, the project's baseline, regulatory surplus of project, monitoring plan, and the project's compliances with relevant VCS and host Party criteria. It is validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. RCP Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of Verified Carbon Units (VCUs).

Scope: Validation scope is defined as an independent and objective review of the Project Description (PD). The PD is reviewed against the relevant criteria and guidance documents provided by VCS which include the following: VCS Program Guide (v4.3, dated 17/01/2023), VCS Standard (v4.4, dated 17/01/2023), Program Definitions (v4.3, dated 21/12/2022), Registration & Issuance Process (v4.3, dated 17/01/2023) VCS Validation and Verification Manual (v3.2, dated 19/10/2016) /B01/ applicable at the time in order to confirm that the project meets the applicability conditions of the selected baseline and monitoring methodology ACM0002, version 20.0: “Grid-connected electricity generation from renewable sources”/B02/,

also assess the claims and assumptions made in the PD without limitation on the information provided by the project participants.

- **The method and criteria used for validation:**

(a) Desk review, involving:

(i) Review of the data and information presented to verify their completeness in VCS PD /01/.

(ii) Review of the baseline and monitoring methodology, paying particular attention to project design and its regulatory surplus.

(iii) Evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions provided in VCS PD /01/.

(b) Remote assessment involving:

(i) Assessment of the implementation and operation of the proposed VCS project activity as per the renewal of crediting period VCS PD/01/ and 1st crediting registered PDD (version 05, 30/01/2010).

(ii) Review of information flows for generating, aggregating, and reporting the monitoring parameters provided in VCS PD.

(iii) Interview with relevant personnel to confirm that the operational and data collection procedures are provided in accordance with the monitoring methodology and registered VCS PD.

(iv) A cross-check between information provided in the VCS PD and data from other sources such as inventories, purchase records, or similar data sources.

(v) A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements provided in registered VCS PD and the selected methodology.

(vi) Review of calculations and assumptions made in determining the GHG data and emission reductions.

(vii) Identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

- **The number of findings raised during validation:**

A risk-based approach has been followed to perform this validation. During the course of RCP validation, a total of 12 findings were raised, which include:

10 Corrective Action Request (CAR); 02 Clarification Requests (CLs); 0 Forward Action requests (FARs).

All the raised findings are resolved by the PP.

- **Any uncertainties associated with the validation:**

The VCS PD /01/, emissions reduction calculations /02/ along with the supporting documents provided are considered to be in line with all the VCS requirements /B01/. The validation team has detected no further uncertainties or quality restriction.

- **Summary of the validation conclusion:**

CC IPL, commissioned by GTE KARBON SÜRDÜRÜLEBİLİR ENERJİ EĞİTİM DANIŞMANLIK VE TİCARET A.Ş., has performed the RCP validation of the project activity “Gullubag 96 MW Hydro Electric Power Plant Project, with regard to the relevant requirements for VCS activities.

The objective of the validation is to have an independent evaluation of a project activity by a VVB against the requirements of the VCS Standard Version 4.4 and GHG program applied, on the basis of the VCS PD. The validation scope is to review the VCS PD against the UNFCCC criteria for CDM and VCS Version 4 Requirements.

Validation was conducted using CC IPL procedures in line with the requirements specified in the CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques. The validation consisted of desk review, off-site assessment and the resolution of outstanding issues and the issuance of the final validation report.

The validation shall ensure that VCS PD is designed complete and accurate in accordance with applicable VCS Standard Version 4.4/B01/ requirements and VCS_Program Guide Ver 4.2/B04/ in line with Registration and Issuance Process Ver 4.3 which also refer to CDM rules, in order to be certified.

- In conclusion, it is CC IPL’s opinion that the project activity “Gullubag 96 MW Hydro Electric Power Plant Project”, in “Turkey”, as described in the VCS PD version 07 of 18/05/2023 /01/, meets all relevant requirements for VCS activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20./B02/

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1 INTRODUCTION

1.1 Objective

The objective of the validation is to have an independent evaluation of a project activity by a VVB against the requirements of the VCS Standard Version 4.4 and GHG program applied, on the basis of the VCS PD. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant VCS Standard Version 4.4 requirements, GHG program requirements and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Voluntary Carbon Units (VCUs).

Through the validation activities, it is to be confirmed that:

- The project is implemented as described in the 2nd crediting period VCS Project Description (VCS PD) document.
- The monitoring system is implemented and fully functional to generate emission reductions without any double counting, and
- The provided description is accurate, complete, consistent, transparent, and free of error or omission by checking the project records and the emissions reductions calculation.

The validation followed the requirements of the current version of the VCS Standard Version 4.4 and VCS program guide (version 4.3) /B01/ to ensure the quality and consistency of the validation work and the report.

1.2 Scope and Criteria

The validation scope is to review the VCS PD against the UNFCCC criteria for CDM and VCS Version 4 Requirements.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, the procedures for registration of program of activity as a single CDM and the subsequent decisions by the CDM Executive Board.

Validation is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

The validation is carried out on basis of the following requirements, applicable for this project activity:

VCS Standard (v4.4) /B01/

VCS Program Guide (v4.3) /B01/

VCS Methodology: “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20. /B02/.

Other relevant rules, including the host country legislation

The scope of this validation, by independent checking of objective evidence, is as follows:

To verify that the project is implemented as described in the VCS PD /B04/.

To assess the project’s compliance with other relevant rules including the host country legislation and project is regulatory surplus.

To confirm that the monitoring system is implemented and fully functional to generate voluntary emission reductions without any double counting.

To establish that the provided description is accurate, complete, consistent, transparent, and free of error or omission by checking the implementation records and the estimated emissions reduction calculation.

To verify that provided GHG emission data calculations is sufficiently supported by evidence.

The validation shall ensure that the calculated assumed emission reductions and projects implementation as per VCS PD are complete and accurate in order to be certified as per RCP rules of section 3.9.8 of VCS standard Ver 4.4. The method and criteria used for validation consisted of the following phases:

Completeness check and desk review;

Remote interviews with stakeholders;

Resolution of outstanding issues of previous final validation report and applicable VCS Validation Deed of Representation.

CC IPL conducts all its work under strict rules to safeguard impartiality and ensure the independence of the validation team. The validation team does not provide any consulting or recommendations for the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project description.

1.3 Reasonableness of Assumptions

The approach used by VVB for validation of the project activity is built on a thorough understanding of the risk associated with reporting data on GHG emissions and the controls used to mitigate them. VVB conducted the validation by reviewing and substantiating all the evidence and other relevant information and explanations from sources to provide reasonable assurance that estimated GHG emissions reductions are fairly reported. Validation team checked the criteria of VCS Program guide/B01/ & VCS standards/B01/, criteria of applied methodology/B02/ and compliances with relevant laws and regulations. The validation is planned and performed by

obtaining evidence and other information and explanations that validation team considers necessary to give reasonable assurance that reported estimated GHG emission reductions are fairly stated and in compliance with the standards and guidelines of VERRA.

Reasonable level of assurance is met in-during remote audit being conducted by using credible and reliable alternate means of validation (explained in detail in section 2.4 below). All documentary evidence was checked, and a remote audit was conducted with PP representatives, site personnel and consultants to arrive at a validation conclusion by the assessment team. Validation is carried out in conformity of all above-mentioned details and it is confirmed that information provided by project developer is accurate and estimated GHG emissions reductions are calculated appropriately on the basis of the approved baseline and monitoring methodology/B02/ and VCS standard version 4.4/B01/

1.4 Summary Description of the Project

The project activity 'Gullubag 96 MW Hydro Electric Power Plant Project, Turkey' is a project activity consisting of a 96 MW hydroelectric power plant involves generation of grid-connected renewable energy. The power plant is connected to the national electricity grid, EPIAS of Turkey. The project is located in east of Ispir district, in Erzurum province, in the East of Turkey. The generated electrical energy is transferred to the electrical grid by a 154 kV transmission line, through ISPIR HEP substation. The project activity generates greenhouse gas (GHG) emission reductions by avoiding CO₂ emissions from electricity generation by fossil fuel power plants connected to Turkish National Power Grid. The average annual electricity generation significantly depends on the other HEPP projects planned to be built at the upstream of Gullubag HEPP. These plants were constructed, thus average estimated electricity generation is increased from 281 GWh to 313.898 GWh with the commissioning of plants at the upstream.

The start date for the project is 23/03/2012 as per the commissioning certificate /08/ the date on which the project activity is connected to the grid and begins generating GHG emission reductions. The total estimated emission reductions for the second 10-year renewable period 23/03/2022 to 22/03/2032 are 1,448,953 tCO₂e for 10 years and 144,895tCO₂e per annum.

The accuracy of the project description has been validated by available technological knowledge of the audit team consisting of local expert from host country, internet research and interviews with the carbon consultant, the PP, and with the stakeholders for Hydroelectric Power Plant (HPP).

In summary, the VCS PD (version 09, Dated 03/07/2023) reflects the actual and accurate information of the project activity. The validation team considers that the project description in the VCS PD is accurate and complete.

2 VALIDATION PROCESS

2.1 Method and Criteria

GTE Sustainability research and consultancy ltd. has appointed the VVB, Carbon Check (India) Private Limited., to carry out the renewal of crediting period validation of the project “Gullubag 96 MW Hydro Electric Power Plant Project”/13/, with regards to the requirements of section 3.9.8 of VCS Standard Version 4.4 /B01/.

The method and criteria used for validation:

Completeness check and desk review of the VCS PD and its monitoring plan, VCS PD, baseline methodology, registered VCS PD (1st crediting period) and corresponding validation report /B04/, applicable methodological CDM tools./B03/

Remote interviews (including follow-up interviews with project stakeholders, when deemed necessary). The remote interviews include the following:

An assignment of implementation and operation of project activity with respect to validated/registered VCS PD /B04/

Review of information flows for selecting baseline and reporting the monitoring parameters.

Interview with relevant personals to determine whether the operational and data collection procedures are implemented and in accordance with the validated VCS PD,

Cross check of information and data provided in the VCS PD with purchase records or similar data sources such as videos and photos of project activity, Energy Market Regulatory Authority (EPDK) website to confirm project capacity;

Review of assumptions made in emission reductions calculation.

Implementation of QA/QC procedure in-line with the VCS PD and methodology requirements.

Resolution of outstanding issues and the issuance of the final Validation report and as applicable the VCS Validation Deed of Representation.

CC IPL follows a risk-based validation approach, wherein a desk review of the project documentation is undertaken, which is followed by a remote audit by the members of validation team. The validation protocol is filled by the validation team that is based on standard auditing practices and VCS requirements. The validation protocol provides transparent means to record the observations by the validation team members and the non-conformities, if any. The validation protocol is an internal document, and available on request.

2.2 Document Review

During the document review, CCIPL has applied standard auditing techniques to assess the quality of information provided. The validation was performed primarily based on the review of the VCS PD /01/ and the supporting documentation /02/ to /13/. This process included:

- A review of data and information presented by the PP to verify their completeness.
- A review of the PD and baseline methodology, paying particular attention to the baseline selection as per applied methodology, emission factor calculation as per applied toll of methodology, the quality of metering equipment including calibration requirements, and the QA/QC procedures as per monitoring methodology , and
- An evaluation of data management and the QA/QC system in the context of their influence on the generation and assumed VERs as per calculated ER.

The VCS PD (version 01 of 11/10/2022) /01/ was initially reviewed and CCIPL requested the PP to present the supporting information and documents. The documents were reviewed by CCIPL. Through the process of the validation, the VCS PD /01/ and the supporting documents are evaluated to confirm the actions taken by the PP to the CARs and CLs issued by the validation team.

The list of documents referred during this validation has been provided in Appendix-1.

2.3 Interviews

The table below describes the remote interview process and further identifies personnel, including their roles, who were interviewed and/or provided information additional to that provided in the project description, VCS PD (version 07, dated 18/05/2023)/01/ and any supporting documents.

SN	Date	Name	Organisation	Topic	WVB team
/01 /	28/11/2022	Mr. Ebubekir Yıldız (Plant Manager)	SENERJI Enerji Uretim A.S	• Project Design • Project Implementation status • Project start date and Project Location • Project boundary • Baseline Scenario • Baseline Identification and Additionality • Revised grid emission factor calculation	Aparna Choudhary, Jaya Rajput & Muhammet Ali Erduran (Local Expert)

				• Compliance with relevant laws • Roles and responsibility	
/0 2/	28/11/2022	Mr. Seyfettin Türkkal (Quality Expert) and Mrs Burcu Erik (Quality Manager)	SENERJI Enerji Uretim A.S	• Qualification and Training • Monitoring and reporting documentation • Compliance with applicable laws, statutes and other regulatory frameworks • Regulatory surplus • Operation and Maintenance of the Turbines and generators • Quality Assurance – Management and operating system • Selection of Sustainable Development Goals (SDG) • Local Stakeholders meeting process • Compliance with relevant laws • Roles and responsibility	Aparna Choudhary, Jaya Rajput & Muhammet Ali Erduran (Local Expert)
/3/	28/11/2022	Mr. Mehmet Bağcı And Mr. İslam Bulut	Local Villager-Yedigöze Village and Bahçeli	Follow up stakeholder Consultation process Project impacts on Local circumstances	Aparna Choudhary, Jaya Rajput & Muhammet Ali Erduran

/4/	28/11/2022	Irmak Subasi and BESTE Dingil	GTE	• Calculated estimated Emission reduction • VCS PD	Aparna Choudhary, Jaya Rajput & Muhammet Ali Erduran
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2.4 Site Visits

Carbon Check has not conducted an on-site inspection, as it was renewal of project activity and there has been no change in additionality, project installation capacity. This has been confirmed from the last 3rd monitoring report (dated 02/11/2022) and verification report (dated 02/11/2022) of previous (1st) crediting period (23/03/2012 to 22/03/2022). Remote Interviews were carried out by Mr. Muhammet Ali ERDURAN (Local Expert of CCIPL), Aparna Choudhary & Jaya Rajput to check the compliance of the project with PD for the validation of project activity, and to confirm that the project is developed as described in the PD.

A reasonable level of assurance has been maintained through the alternative means used for the purpose of validation to compliance of the project with the relevant criteria applicable for RCP (section 3.8.9 of VCS standard Ver 4.4) as follows:

- 1) An assessment of the implementation and operation of the project activity as per the registered VCS PD /B04/
- 2) Selection of baseline as per baseline methodology and as per tool to assessment of the validity of the current baseline at the renewal of the crediting period-v3.0.1
- 3) Emission factor calculations as per methodological tool
- 4) A review of information aggregating and reporting of the monitoring parameters as per monitoring methodology
- 5) Additionality re-evaluation w.r.t. verify regulatory surplus of the project.
- 6) Ongoing mechanism on Local stakeholder consultation and follow up for their comments/grievance resolutions during operation of project.
- 7) Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the registered (section 2.3 above)
- 8) A check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the VCS PD /01/ and the applied monitoring methodology /B02/
- 9) A review of calculations and assumptions made in determining the GHG data and ERs /02/,

An identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters.

During the remote audit all monitoring data with respect to accuracy to ensure the calculation of emission reductions was checked. All the procedures and records were found authenticated and properly maintained as per the requirements of the project.

The validation team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for the VCS.

Hence, the VVB has used other standard auditing techniques for validation or verification as referred to in VCS Rules/requirements, VCS Validation and Verification Manual version 3.2.

- Validation team has performed onsite visit with PP to check implementation, project boundary, current situation, regulatory surplus, current regulatory practices, monitoring and metering equipment, monitoring procedures, calibration etc.
- Cross-check evaluation, for information received from interviews, under the scope of all information and references provided in PD /01/ and supporting documents.
- A check of the monitoring equipment including performance and observations of monitoring practices against the requirements of the registered VCS PD /B04/ and the selected methodology /B02/.

A remote audit inspection was carried out to check the project implementation and operation for the validation for the VCS registered project activity, and to confirm that the project is developed as described in the VCS-PD/01/. The project remote audit was inspected on 28/11/2022 by CCIPL's local expert; Mr Muhammet Ali Erduran, Ms Aparna Choudhary & Jaya Rajput. The general information of the Project was asked to Mr. Ebubekir Yıldız the Plant Manager of GÜLLÜBAĞ Hydro Power Plant, Mr. Seyfettin Türkkal Quality Expert of HPP, Mrs. Burcu Erik Quality Manager Of HPP. (Section 2.3 of this report).

VVB team also interviewed local stakeholders, Mr. Mehmet Bağcı and Mr. İslam Bulut are stakeholders of the project who lives nearby villages of project activity. Stakeholders expressed a positive opinion for the respective project activity. (Section 2.3 of this report)

Local Expert interviewed the project representatives for the project design, project implementation and operation and other description related to the project as mentioned in section 2.3 of this report. Local Stakeholders were also interviewed for validation of grievance mechanism. The meeting was conducted at the project proponent's office in Turkey. The project site located in east of Ispir district, in Erzurum province, in the East of Turkey was also inspected remotely on 28/11/2022.

2.5 Resolution of Findings

CC IPL has identified, discussed these issues within the Validation report in Appendix 4.

- Clarification requests (CLs): Project reporting lacks transparency and further information is needed to determine if a material discrepancy is present.
- Corrective action requests (CARs): The VVB has identified a material discrepancy or non-conformance that the project proponent must address.

The validation team identified 10 CAR and 02 CLs. All CAR and CLs raised by Carbon Check during this validation are resolved by the PP.

2.5.1 Forward Action Requests

Forward Action Request (FAR) is to be raised when the monitoring and reporting require attention and/or adjustment for the verification period. FARs does not relate to VCS requirements for issuance of ERs achieved during subject monitoring.

CC IPL has not raised any FAR during this validation.

3 VALIDATION FINDINGS

3.1 Project Details

The project activity involves generation of electricity from renewable hydropower energy sources. The purpose of the project activity is to generate power in an efficient, clean, reliable, and sustainable way with utmost respect on social and environmental reflections and to reduce emissions by partially substituting the electricity supply of fossil fuel fired power plants in Turkey. The project's spatial boundaries are clearly described for the project installation and respective emissions reduction through electricity generation by renewable energy. The geographical coordinates have been correctly addressed in section 1.12 of the VCS PD/01/.

The crediting period will cover the period from 23/03/2022 – 22/03/2032 including both days. The technical description presented in the VCS PD/01/ shows a complete description of the project's system and gives sufficient information about the project facilities. The employed technology does reflect current good practice concerning the installation and operation of hydro power plant.

The project consists of a powerhouse, tunnel, diversion weirs, penstock, regulator and transformer. The turbines generator set has a total output capacity of 96 MW. According to the VCS PD/01/, the net power supply to the grid is estimated to be 313,898MWh per year. The generated power will be supplied to the national power grid via a transmission line. /04/

GTE KARBON SÜRDÜRÜLEBİLİR ENERJİ EĞİTİM DANIŞMANLIK VE TİCARET A.Ş is the Project Proponent of this project activity, who holds the ownership of the project, which is validated as per the license issued by Energy Market Regulatory Authority (EMRA). Project start date of 23/03/2012, which is Operation start date of the project activity, the same was validated during 1st crediting period of the project activity through commissioning certificates/06//B02/.

Gullubag 96 MW Hydro Electric Power Plant Project, Turkey, is situated in the Erzurum province on the Coruh river. The aim of this project is to generate electricity from hydroelectric potential of Coruh river. License application for the Hydroelectric Power Plant was made to the Energy Market Regulatory Authority and the Generation License was awarded in accordance with the Electricity

Market Law (No: 4628) for a period of 49 years by the decision numbered EU/1054-1/770 on January 11th, 2007./04/

Proposed project involves a dam with reservoir, conveyance line, and powerhouse and switchgear station. Gullubag project will utilize the elevation difference of 105 meters between 1147 meters and 1042 meters on the Coruh River. The dam is located on 1090 meters riverbed elevation. It consists of 3.246.50 meters long and 6 meters diameter tunnel and 118.31 meters, 5 meters diameter penstock connecting the powerhouse, where three turbines in the powerhouse will transfer the flow rate into electrical energy. The project is designed for a flow rate of 113 cubic meters per second. The coordinates of the project location are mentioned below:

Latitude	Longitude
40°31"0.0 – 40°34"0.0	41° 02"0.0 – 41°04"0.0

The generated electrical energy is transferred to the electrical grid by a 154 kV transmission line, through ISPIR HEP substation. The project activity generates greenhouse gas (GHG) emission reductions by avoiding CO₂ emissions from electricity generation by fossil fuel power plants connected to Turkish National Power Grid. The average annual electricity generation significantly depends on the other HEPP projects planned to be built at the upstream of Gullubag HEPP. These plants were constructed, thus average estimated electricity generation is increased from 281 GWh to 313.898 GWh with the commissioning of plants at upstream.

This validation report is submitted against the second 10-year crediting period i.e., 23/03/2022 to 22/03/2032. 1st crediting period ended on 22/03/2022 as per registered PD/B01/ thus, there is no gap in renewal of crediting period.

Project is a large-scale hydroelectric power plant. The average annual electricity generation significantly dependent on the other HEPP projects planned to be built at the upstream of Gullubag HEPP. These plants were constructed, thus average estimated electricity generation is increased from 281 GWh to 313.898 GWh with commissioning of plants at the upstream/14/. The total emission reductions from the project are estimated to be on average 144,895 tCO_{2e} per year over the second 10-year renewable crediting period./01//02/. Details of ER reductions are given in table below:

Year	Estimated baseline emissions or removals (tCO _{2e})	Estimated project emissions or removals (tCO _{2e})	Estimated leakage emissions (tCO _{2e})	Estimated net GHG emission reductions or removals (tCO _{2e})
23/02/2022-31/12/2022 (312 days)	123,856	0	0	123,856
2023	144,895	0	0	144,895

2024	144,895	0	0	144,895
2025	144,895	0	0	144,895
2026	144,895	0	0	144,895
2027	144,895	0	0	144,895
2028	144,895	0	0	144,895
2029	144,895	0	0	144,895
2030	144,895	0	0	144,895
2031	144,895	0	0	144,895
01/01/2032- 22/02/2032 (53 days)	21,040	0	0	21,040
Total	1,448,953	0	0	1,448,953

This project is owned by SNERGJI Enerji Uretim AS, while GTE KARBON SURDURULEBILIR ENERJİ EGT. DAN. VE TIC. A.S. has role of carbon consultant, which was previously known as Global Tan Energy as per the 1st crediting period registered PD./B04/ This change in name was also stated in the last monitoring period and has been issued by VERRA.

The project helps following sustainable development goals:

Affordable and Clean Energy (SDG 7): The project promotes clean and sustainable energy production and use. The total net electricity production of the project is estimated to be 313,898MWh/year. The same is validated as per VCS PD/01/ and energy generation records/08/.

Decent Work and Economic Growth (SDG 8): The project generates employment for all. The employees require technical training and certifications.

Climate Action (SDG 13): The project contributes to SDG 13 with an amount of 144,895 tonnes of CO₂e per annum, which represent direct and quantifiable impact on climate security./02/

Though, the project description is validated in accordance with the VCS Program rules. Also, the project is validated against the (current) scope of the VCS. This validation report is issued after the end of the (previous) project crediting period (23/03/2022) and within two years after the end of the (previous) project crediting period i.e., 23/08/2022. The same is in compliance with section 3.9.8 of VCS Standard Version 4.4./B01/

As Turkey is not a federal state there are no local laws and regulations. The project activity in lines with the regulations defined by the Renewable Energy Law and Environmental Law.

Project is a renewable energy project and is a hydropower plant, which is in the scope of the Renewable Energy Law. A pre-environmental impact assessment report has been prepared according to the Environmental Law. The project received required Environmental Impact Assessment (EIA) clearances, according to the law. Such laws also include land use regulations, forest use permissions and environmental risk management regulations. The company has had the Pre-Assessment Report, Energy Production License, Provisional Acceptances and System Usage Agreement.

VVB has assessed the EIA report/10/ and compliance of project activity with rules and regulation of host country and has found that project activity does not breach of any regulations.

Project activity has not been registered or is seeking registration under any other GHG programs, and the same has been confirmed by cross-checking the project activity on other standards platforms.

Accordingly, the validation team has confirmed that the project does comply with the above requirements related to the renewal of the crediting period.

3.2 Safeguards

3.2.1 No Net Harm

The project activity is the generation of electricity from a clean renewable energy source i.e., hydro and does not involve any negative environmental and socio-economic impact. Nevertheless, in accordance with “Environmental Law” No. 2872 (Issued in 1983), Annex 2 of Environmental Impact Assessment (EIA) Regulation (issued in 1993 and revised in 2001), run-of-river type HPPs with an installed capacity of more than 50 MW are subject to a full EIA investigation or report preparation/10/. Since the installed capacity of the project is 96 MWe, the project has not undergone Environmental impact assessment in compliance with the laws and regulations of Turkey /10/ and has achieved EIA exemption certification on 17/05/2007, as confirmed by VCS PD /B01/

3.2.2 Local Stakeholder Consultation

The local stakeholder consultation meeting for the project activity was conducted on project site for 1st crediting period since then PP is maintain on going communication with the local stakeholders, to allow stakeholders to raise concerns about potential negative impacts during project operation stage. They have provided and communicated about Continuous Input / Grievance Expression Process Book kept at HPP gate, which developed as a grievance redress procedure, to address disputes with local stakeholders that may arise during project operation phase in crediting period, including with regard to benefit sharing. The procedure includes processes for receiving, hearing, responding, and attempting to resolve grievances within a reasonable time period. The same understand by validation team during remote onsite interview carried out with stakeholder i.e., during discussion with Mr. Mehmet and PP. The process for on

going communication was validated during the registration of project activity in VCS /B04/. VCS validation report was verified to confirm the same.

During the 1st crediting period there were no complaints about or demands from the project. The same was confirmed through the remote audit conducted during the RCP validation and review of readdress grievance register /06/

3.2.3 Environmental Impact

As one of the sustainable renewable energy generation technologies, this HEPP poses low environmental impacts, which can be mitigated by taking appropriate measures. The Project activity has been exempted by the Ministry of Forest and Environment from the requirement to prepare an Environmental Impact Assessment /10/ which states project has a planned capacity below 50 MWe i.e., the Project has a capacity of 96 MWe, and an EIA is not necessary. The Project is fully in line with national laws and regulations. Nevertheless, Project contributes positively towards sustainable development in Turkey in terms of social, environmental, technological and economic wellbeing as indicated in VCS PD.

3.2.4 Public Comments

As this is a registered VCS project, after that, this validation is for renewal of crediting period, this section is not applicable.

3.2.5 AFOLU-Specific Safeguards

For non-AFOLU projects, this section is not applicable.

3.3 Application of Methodology

3.3.1 Title and Reference

The UNFCCC approved baseline and monitoring methodology ACM0002 version 20, is applied for the project activity. Following tools have been used:

- Tool to calculate the emission factor for an electricity system, Version 07.0
- 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

3.3.2 Applicability

Means of validation	The PP has applied the methodology ACM0002 Version 20 /B02/. This version of the methodology is the latest version and currently valid for the submission of project activity. The proposed project activity meets the criteria defined in the baseline methodology as described below:		
	Paragraph number of the applied methodology	Applicability Criteria	VVB assessment
	3	This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units; (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s).	The project activity is a greenfield hydroelectric power plant connected to grid. Hence, meets the applicability condition.
	4	The methodology is applicable under the following conditions: 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; 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 historical reference period and the implementation of the project activity.	The project activity involves green field renewable energy power plant (hydro power plant).

	5	In case of hydro power plants, one of the following conditions shall apply¹: The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or 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 The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m²; or 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: The power density calculated using the total installed capacity of the integrated project, as per equation (8), is greater than 4 W/m²; Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be: Lower than or equal to 15 MW; and	The project activity results in new single reservoir and the power density, calculated using equation (7), is 125 W/m²
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¹ Project participants wishing to undertake a hydroelectric project activity that results in a new reservoir or an increase in the volume of an existing reservoir, in particular where reservoirs have no significant vegetative biomass in the catchments area, may request a revision to the approved consolidated methodology.

		Less than 10 per cent of the total installed capacity of integrated hydro power project.	
	6	In the case of integrated hydro power projects, project proponent shall: 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 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 of five years prior to the implementation of the CDM project activity.	Not applicable as the proposed project activity is not of integrated hydro power projects
	7	The methodology is not applicable to the following: Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; Biomass fired power plants/units	The project activity is the electricity generation through new hydro power plant and does not involve switching from fossil fuels to renewable energy sources and also does not involve biomass fired power plants. Hence this methodology is applicable.

	8	In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.	The project activity is a new hydroelectric power plant and does not involve any retrofit, rehabilitation, replacement, or capacity addition. Hence, not applicable for the project activity.
	Tool 07: Tool to calculate the emission factor for an electricity system - Version 07.0 /B03/		

	Applicability Criteria	VVB assessment
	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).	The project is a grid connected Greenfield hydroelectric power project and hence the tool is applicable for the project activity.
	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, two sub-options under the step 2 of the tool are available to the project participants, i.e. option II.a and option II.b. If option II.a is chosen, the conditions specified in "Appendix 2: 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.	
	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.	Turkey has officially signed the Kyoto Protocol as of 26/08/2009. Despite being an Annex I country, Turkey has not set any emission reduction target; hence it is not listed as an Annex B country of the Kyoto Protocol. Hence this tool is applicable.
	Under this tool, the value applied to the CO₂ emission factor of biofuels is zero.	The project is a hydro project and does not involve any biofuels.
	Tool 11: Assessment of the validity of the original - current baseline and update of the baseline at the renewal of the crediting period-v3.0.1 /B03/	

	Applicability Criteria	VVB assessment
	Step 1: Assess the validity of the current baseline for the next crediting period The Procedures for the renewal of the crediting period of a registered CDM project activity. Approved by the CDM Executive Board require assessing the impact of new relevant national and/or sectoral policies and circumstances on the baseline. The validity of the current baseline is assessed using the following Sub-steps:	Refer below remarks
	Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies If the current baseline complies with all relevant mandatory national and/or sectoral policies which have come into effect after the submission of the project activity for validation or the submission of the previous request for renewal of the crediting period and are applicable at the time of requesting renewal of the crediting period, go to Step 1.2. If the current baseline does not comply with relevant mandatory national and/or sectoral policies, then assess based on the examination of current practice in the country or region in which the policies apply, whether those policies are systematically not enforced and that non-compliance with those requirements is widespread in the country or region. If the current baseline is not in compliance with the relevant mandatory national and/or sectoral policies or if it cannot be shown that the policies are systematically not enforced and that non-compliance with those policies is widespread in the country or region, then the current baseline needs to be updated for the subsequent crediting period.	The current baseline complies with all relevant mandatory national and/or sectoral policies which have come into effect after the submission of the project activity for validation and are applicable at the time of requesting renewal of the crediting period as per section 1.14 and 3.2 of the VCS PD /01/.
	Step 1.2: Assess the impact of circumstances Assess the impact of circumstances existing at the time of requesting renewal of the crediting period on the current baseline emissions, without reassessing the baseline scenario. In the situation where the baseline scenario identified at the validation of the project activity was the continuation of the current practice	The impact of circumstances existing at the time of requesting renewal of the crediting period on the current baseline emissions, without reassessing the baseline scenario is evaluated by PP properly. The baseline

	without any investment, an assessment of the changes in market characteristics is required for the renewal of the crediting period. Evaluate whether the conditions used to determine the baseline emissions in the previous crediting period are still valid. Assess the availability of new fuels or raw materials and the impact of electricity or fuel prices in the identification of the current practice for the baseline emissions. If the new circumstances make a continued validity of the current baseline not plausible, then the current baseline needs to be updated for the subsequent crediting period.	circumstances are not valid in the second crediting period since the national grid properties / shares of each technology, etc. have been changed. Based on the current circumstances PP has updated the emission factors with respect to the baseline emission calculation for the subsequent crediting period. The predicted baseline emissions from using hydropower to provide renewable electricity to the Integrated TEIAS system, which is currently dominated by fossil fuel power stations. The emission factor of the Integrated grid used for the first crediting period was 0.559 tCO₂/MWh, which has since been changed to 0.4616tCO₂/MWh using the methodological Tool 07 /B03/ and the most recent database /14/.
	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. This sub-step should only be applied if the baseline scenario identified at the validation of the project activity was the continuation of use of the current equipment(s) without any investment and, the projects proponents or third party (or parties) would undertake an investment later due, for example, to the end of the technical lifetime of the equipment(s) before the end of the crediting period or the availability of a new technology. Assess whether the remaining technical lifetime of the equipment that would have continued to be used in the absence of the project activity, as determined in the CDM-PDD or CDM-PDD-REN,	This is new hydro HPP project and not retrofit or replacement of old baseline project hence baseline scenario identified at the validation of the project activity is not the continuation of use of the current equipment(s) without any investment. Therefore, this step is not applicable.

	exceeds the crediting period for which renewal is requested. Take into consideration the market penetration of different technologies. Evaluate the penetration rate of different technologies that are available in the market and evaluate how they could affect the baseline. If the baseline scenario of the project activity is the continuation of use of the current equipment(s) without any investment and the projects proponents or third party (ies) will undertake an investment later, but before the end of a crediting period, then the current baseline needs to be updated for that crediting period or the crediting of emission reductions should be limited to the period before the baseline equipment would cease its operation.	
	Step 1.4: Assessment of the validity of the data and parameters Assess whether data and parameters that were only determined at the start of the crediting period and not monitored during the crediting period are still valid or whether they should be updated. Updates should be undertaken in the following cases: - Where IPCC default values are used, the values should be updated if any new default values have been adopted and published by the IPCC, for example, in guidelines for national GHG inventories, IPCC assessment report or special reports by the IPCC; - Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity. If any of the data and parameters that were only determined at the start of the crediting period and not monitored during the crediting period are not valid anymore, the current baseline needs to be updated for the subsequent crediting period. If the application of Steps 1.1, 1.2, 1.3 and 1.4 confirmed that the current baseline as well as	The data and parameters that were only determined at the start of the crediting period and not monitored during the crediting period are still valid. Only emission factors are changed as determined only once for the crediting period. The operating margin and build margin values has been changed, thus new combined margin value is calculated for this crediting period (2nd) by using values sourced from Ministry of Energy and Natural Resources.

	data and parameters are still valid for the subsequent crediting period, then this baseline, data and parameters can be used for the renewed crediting period. Otherwise, proceed to Step 2.	
	Step 2.1: Update the current baseline Update the current baseline emissions for the subsequent crediting period, without reassessing the baseline scenario, based on the latest approved version of the methodology applicable to the project activity. The procedure should be applied in the context of the sectoral policies and circumstances that are applicable at the time of request for renewal of the crediting period	The latest version of the applicable methodology and current circumstances have been used for the second crediting period.
	Step 2.2: Update the data and parameters. If the application of Step 1.4 showed that the data and/or parameter(s) that were only determined at the start of the crediting period and not monitored during the crediting period are not valid anymore, project participants should update all applicable data and parameters, following the guidance in Step1.4.	Default values and ex-ante values have been revised. Combined margin is revised as follows: $EF_{grid,CM,y} = EF_{grid,OM,y} \times 0.25 + EF_{grid,BM,y} \times 0.75$ $EF_{grid,CM,y} = 0.7424 \times 0.25 + 0.3680 \times 0.75 = 0.4616 \text{ tCO}_2/\text{MWh}$ Therefore, new combined margin is calculated using values by Ministry of Energy and Natural Resources which is 0.4616 tCO₂/MWh.
	The project activity correctly applies the methodology ACM0002, version 20 /B02/ and the Tool 07 /B03/ and Tool 11 /B03/.	
Conclusion	As per requirements of Para. 412(a)- (iii) of VVS-PA /B03/ validation team confirms that the selected baseline and monitoring methodology has been previously approved by the CDM Executive Board, and is applicable to the project activity, which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed project activity for renewal of crediting period. It is also confirmed that the methodology is correctly applied by comparing it with the actual text of the applicable version of the methodology and there is no deviation from the selected methodology.	

3.3.3 Project Boundary

The project boundary clearly defined in accordance with the applied methodology, according to the approved baseline and monitoring methodology “ACM0002”, “Grid-

connected electricity generation from renewable sources”, version 20. /B04/ The project boundary includes the project power plant and all power plants connected physically to the electricity system that the project is connected to the electricity system.

Source		Gas	Included?	Justification/Explanation
Baseline	Generation mix of electricity grid in Turkey	CO ₂	Yes	Main Emission Source
		CH ₄	No	Minor Emission Source. Excluded for simplification
		N ₂ O	No	Minor Emission Source. Excluded for simplification
Project	Construction and operation of HEPP	CO ₂	No	Zero emission electricity generation from renewable resources. Emissions from diesel generator are excluded for simplification as it is a minor emission source.
		CH ₄	No	Zero emission electricity generation from renewable resources.
		N ₂ O	No	Zero emission electricity generation from renewable resources.
	Emission of CH ₄ from the reservoir	CO ₂	No	Zero-emission electricity generation
		CH ₄	No	Zero-emission electricity generation
		N ₂ O	No	Zero-emission electricity generation

However, since the Turkish grid capacity is not enough to meet sharp increases in electricity demand, companies that build a power plant should also make an additional investment to build the connection transmission line to the grid, which increases the overall investment cost.

By checking the information by the through desk review and interviews, CCIPL can confirm that all the emission sources, gases have been included in the project boundary, and the description in the VCS PD is accurate and complete, and also that the selected sources and gases are justified for the proposed project activity.

3.3.4 Baseline Scenario

As per “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20., para 22 “If the project activity is the installation of a Greenfield power plant, the baseline scenario is 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 “TOOL07: Tool to calculate the emission factor for an electricity system.”

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” Ver 07.

“ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20 para 13 (g) also indicate, “Project participants shall refer to “TOOL11: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the

crediting period” /B03/. Hence the same is applied to check that the provided baseline is still valid or not. Accordingly, it is found that the current provided baseline scenario and previously validated baseline scenario is changed as emission factor has been changed. For details of steps refer section 3.3.2 of this report. The same is found to be in line with section 3.9.8 of VCS standard version 4.4 .

The validation team confirms that the proposed project activity is a new grid connected hydropower plant. Therefore, the baseline scenario as prescribed in the “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20 para 22 is still valid as per Tool 11 and the same is applicable to the project activity.

3.3.5 Additionality

Section 3.9.8 of VCS standard v4.4 /B01-a/ requires that "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."

In assessing the continued validity of the baseline, a change in the relevant national and/or sectoral regulations between two crediting periods (1st and Current i.e., second) has been examined at the start of the new crediting period. At the start of the project activity, the project activity was not found mandated by regulations as per registered PD, but also at the start of the second /current crediting period, regulations were also not in place that enforce the practice or norms or technologies that are used by the project activity, i.e., provided in section 1.11 of registered PD /B04/ of previous crediting period (CP), was found to be valid for current CP i.e., conformance provided by PP in section 1.14 of VCS PD /01/, the new regulation (formulated after the registration of the project activity) has also been examined to determine if it applies to existing plants or not. No such new regulation applied to this existing VCS project. The baseline has been reviewed and found no regulation is binding, the baseline for the project activity taken into account for such. The same is validated during interview with project stakeholders and due diligence carried out by Validation team with the help of local expert in a team.

Accordingly, as per section 3.5 of VCS PD /01/, demonstration in relation to regulatory surplus was found to be provided correctly and confirms that this project is not mandated by any law, statute, or other regulatory framework in host country.

3.3.6 Quantification of GHG Emission Reductions and Removals

Baseline Emissions:

In line with applied methodology “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20 baseline emissions are calculated as below:

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

Where:

BE_y Baseline emissions in year y (tCO₂)

$EG_{PJ,y}$	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
$EF_{grid,CM,y}$	Combined margin CO ₂ 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" (tCO _{2e} /MWh)

Therefore, baseline emissions are calculated as:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y} = 313,898 \text{ MWh/yr} \times 0.4616 \text{ tCO}_2/\text{MWh} = 144,895 \text{ tCO}_2\text{e}$$

$EG_{PJ,y} = EG_{PJ,y}$ is the quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr).

This is to be calculated from monitoring parameters as per monitoring plan given in section 4.1 of the VCS PD /01/. For ex-ante estimation this is considered to be 313,898 MWh per year.

Grid emission factor ($EF_{grid,CM,y}$) is calculated as per 'Tool to calculate the emission factor for an electricity system' version 07 /B03/ considering latest national data and fixed to be 0.4616 tCO₂/MWh for the entire second crediting period.

Accordingly, baseline emission is estimated to be 144,895 tCO_{2e} per year.

Project emissions:

The project activity is a newly built hydropower project activity with a reservoir. The proposed project activity involves the generation of electricity by hydroelectric power plant therefore project activity does not result in greenhouse gas emissions.

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where: PE_y = Project emissions in year y (t CO_{2e}/yr)

$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (t CO₂/yr)

$PE_{GP,y}$ = Project emissions from the operation of dry, flash steam or binary geothermal power plants in year y (t CO_{2e}/yr)

$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (t CO_{2e}/yr)

Since this project uses hydroelectric power $PE_{GP,y}$ is "0" (tCO₂/yr).

The only emission source in the plant is the diesel generator which is used as auxiliary power source when there is no electricity generation in the plant or supply by the grid. In urgent cases, a diesel-powered generator will be operated for the daily consumption of personnel and the building, which is negligible. Project emissions are taken as zero due to use of fossil fuel for backup generator. The same is also stated in para 33 of "ACM0002: Grid-connected electricity generation from renewable sources" Ver 20, which refers by AMS.I.D. Ver 18. Hence it is neglected.

Therefore: $PE_{FF,y} = 0$ (t CO₂/yr)

Beside of the diesel generator, other potential project emission for this proposed project is $PE_{HP,y}$

$PE_{HP,y}$ = Project emissions from water reservoirs (tCO₂e/yr)

$$PE_{HP,y} = EF_{RES} * TE_{Gy} / 1000$$

Where:

EF_{RES} = Default emission factor for emissions from reservoirs of hydro power plants (kg CO₂e/MWh)

TE_{Gy} = Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (MWh)

However, if the power density of the project activity is greater than 10 W/m² than $PE_{HP,y}$ = 0

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

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

PD = Power density of the project activity (W/m²)

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

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

AP_J = Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m²)

AB_L = Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m²). For new reservoirs, this value is zero.

$$AP_J = 765,854.81 \text{ m}^2$$

$$AB_L = 0 \text{ m}^2$$

$$CAP_{PJ} = 96,000,000 \text{ W}$$

$$CAP_{BL} = 0 \text{ W}$$

Therefore, the Project Emission of the project activity is:

$$96,000,000 \text{ W} / 765,854.81 \text{ m}^2 = 125 \text{ W/m}^2$$

The project activity has a power density of 125 W/m², which is larger than 10W/m². As per the applied methodology "ACM0002", "Grid-connected electricity generation from renewable sources", version 20 /B02/, the project emissions are Zero.

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

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

$$PE_y = 0 + 0 + 0 = 0 \text{ (tCO}_2\text{/yr)}$$

Leakage:

The energy generating equipment is not transferred from or to another activity. Therefore, leakage is also considered as “0” i.e

$$LE_y = 0$$

As per §53 of the applied methodology, this is justified.

Emission reductions:

The emission reductions ER_y during the crediting period is:

$$ER_y = BE_y - PE_y = 144,895 \text{ tCO}_2\text{e} - 0 \text{ tCO}_2\text{e} = 144,895 \text{ tCO}_2\text{e}$$

Therefore, ex-ante emission reduction from the project activity is 144,895 tCO₂e per year.

Thus, VVB concludes that the –

All relevant assumptions and data are listed in the project description/01/, including their references and sources

All data and parameter values used in the project description are considered reasonable in the context of the project.

All estimates of the baseline emissions can be replicated using the data and parameter values provided in the project description.

3.3.7 Methodology Deviations

There are no deviations about the methodology of the project activity.

3.3.8 Monitoring Plan

The approved baseline and monitoring methodology “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20 has been applied.

The monitoring plan is in accordance with the monitoring methodology; the monitoring plan will give opportunity for real measurement of achieved emission reductions.

CC IPL has checked all the parameters presented in the monitoring plan against the requirements of the methodology; no deviations relevant to the project activity have been found in the plan.

CC IPL confirms that the monitoring arrangements described in the monitoring plan are feasible within the project design, and the means of implementation of the monitoring plan are sufficient to ensure the emission reductions achieved by/resulting from the proposed VCS project activity can be reported ex post and verified.

Means of validation	The Project uses the approved monitoring methodology ACM0002 Version 20 /B02/ for Grid connected renewable electricity generation. The methodology requires monitoring of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity. HEPP are located in at the Coruh river in Erzurum province in the Eastern part of Turkey
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	and are connected to the substations under TEIAS grid which is synchronised with host country grid. The electricity supplied to the grid would be taken from the web-based portal of EPIAS on the generation recorded by meters located at substation. EPIAS data is developed remotely by TEIAS and shows the monthly electricity generation of the company. TEIAS has started to extract generation data from the facilities remotely through the EPIAS (previously PMUM system) which forms the basis for the billing. During the verification of monitoring period EPIAS readings and meter reading records (OSF forms) will be used as the cross-check source of calculation of electricity generation and emission reductions. The name change of PMUM to EPIAS had occurred on 01/09/2015 after EPIAŞ received Market Operating License. Market operations are then transferred from PMUM to EPIAŞ. Hence as per registered PD PMUM is changed to EPIAS in this crediting period. EPIAS records and meter reading records provides the exact electricity generation of the facility including the imports from the grid. According to meter reading protocols, the internal consumption of the facility was subtracted from the gross generation. EPIAS data are used for the quantity of net electricity delivered to the grid, and it has been cross checked with the meter reading records (OSF forms) claimed by PP to TEIAS. Details of the monitoring plan are described in section 5.2 & 5.3 of the VCS PD /01/. Monitored parameter is $EG_{PJ,y} = EGP_{Jfacility,y,y}$ i.e. Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh) as per equation 11, para 39 of ACM002 Ver 20 /B02/. The baseline emission factor of $0.4616tCO_2/MWh$ is determined ex-ante based on the most recent information available at the time of requesting for the renewal of the crediting period. There are three main meter and three back up meter for this project. Sufficient procedures have been identified in the updated PD and the implementation of those procedures will enable that the emission reductions of the project can be reported and verified ex-post. The management and operation team for the monitoring activity of the project has been described in the updated PD /01/. Meter details are mentioned in the table below: <table> <tr> <th colspan="2">New Meters</th></tr> <tr> <th>Main Meter Serial Numbers (EMH)</th><th>Back-up Meter Serial Numbers (EMH)</th></tr> <tr> <td>8923726</td><td>8923727</td></tr> <tr> <td>8923728</td><td>8923739</td></tr> <tr> <td>8923730</td><td>8923731</td></tr> </table>	New Meters		Main Meter Serial Numbers (EMH)	Back-up Meter Serial Numbers (EMH)	8923726	8923727	8923728	8923739	8923730	8923731
New Meters											
Main Meter Serial Numbers (EMH)	Back-up Meter Serial Numbers (EMH)										
8923726	8923727										
8923728	8923739										
8923730	8923731										
Conclusion	The monitoring plan contained in the updated PD is in accordance with the monitoring methodology and the approved monitoring plan. The monitoring plan will give opportunity for real measurements of achieved emission reductions.										

The ex-post parameters that are mentioned in the methodology are included in the VCS PD and are provided in compliance with the methodology, and they will be monitored during the crediting period:

	Parameter	Description	Value	Assessment
1	Minimum Flow	The project releases the required flow as per the regulations.	According to the report of Turkey State Hydraulic Works ³⁷ , minimum flow should be 5 m ³ /s at least. Minimum flow will be provided in the following period	The values in the PDD is cross checked through the topographical maps /12/ and minimum flow records /13/
2	APJ (m ²)	Area of the reservoir measured in the surface of the water after the implementation of the project activity, when the reservoir is full. Measured yearly from topographical maps.	765,842.81 m ²	The values in the PDD is cross checked through the topographical maps/09/
3	EG _{PJfacility,y}	Quantity of electricity generated and supplied to grid by the project power plant /electricity consuming by project power plant from grid in year y. The determination of the parameter is monthly and based on EPIAS records and Meter reading records OSF forms.	313,898 MWh	The values in the PDD were cross checked through the comparison with the values in the ER sheet/02/ and the raw data provided therein, and cross checked with the electricity sales invoices/08/
4	Cap _{PJ}	Installed capacity of the hydro power plant after the implementation of the project activity	96,000,000 W	The value was cross checked with the SCADA records./11/

Parameters Determined Ex-ante:

The ex-ante parameters that are mentioned in the methodology are included in the VCS PD section 5.1 /01/ and are provided in compliance with the methodology. The same is checked by Validation team during document review.

Parameter	Source of Data	Description/Assessment
EF _{grid,y}	Combined margin emission factor calculated by Turkey Ministry of Energy and Natural Resources https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9FikliC4%9Fi/TUESEmisyonFktr/BeIgeler/Bform2020.pdf	CO ₂ emission factor of the grid electricity in year y

Management System and Quality Assurance

The electricity generated from the project activity will be exported to the Turkish National Grid. Data will be measured directly from the electric meter and remotely recorded on TEİAŞ (grid owner) computerized systems. PP has made an agreement with TEİAŞ. TEİAŞ and PP jointly sign monthly Joint Meter Reading document or OSF form. TEİAŞ also calibrates main and back up meter once in 10 years as per metering regulatory requirements of host country /07/. The same is confirmed during off site remote interview with Plant Manager (Mr. Ebubekir Yıldız). The calibration records are maintained by PP throughout crediting period plus 2 years as per monitoring methodology requirements. Data will be monitored continuously by redundant metering devices. The recording meter will be in compliance with the communiqué for Metering Devices to be used in the Electricity Market (<http://www.epdk.gov.tr/web/elektrik-piyasasi-dairesi/44>) /07/.

The information of the energy meters is verified from the Chief Manager of HPP. According to him, The energy meters installed on-site used for measuring the electricity exported to grid and imported from grid are provided in Power Plant substation. The technical staff of the Hydro Power Plant shared the Energy Meters Information with CCIPL. Also, PP had shared images of the meters as well. The main energy meters and the back-up energy meters are installed and working properly according to the staff of the HEPP. As well, according to the Chief manager of HEPP. It was confirmed that the meters belong to TEİAŞ. It was asserted that the calibration authority and responsibility for the meters belongs to TEİAŞ. It was too indicated that meter maintenance and other responsibilities also belongs to TEİAŞ. Therefore, it was asserted that the "first index determination protocol" regarding the meters was made between TEİAŞ and PP. On this ground information PP have shared calibration documents /07/.

In order to measure the electricity exported to the grid, the information of the installed meters was obtained from the power plant authority. During the current crediting period, due to expired stamps, both energy meters was replaced with new one on 21/11/2019. The calibration of both meters was carried out at determined frequency according to the legislation of TEİAŞ and Industry Ministry of Turkey /07/. Industry of Ministry of Turkey Calibration period is 10 years after the installation of the energy meters date /07/.

This meter will provide official data which will be remotely read and recorded by TEİAŞ systems for invoicing. TEİAŞ also conducts the calibration and maintenance of these meters and thus, ensures the accuracy and quality of the measurements. The quality standards that the meters need to comply is "The ICE/TSE 62053-22: Electricity metering equipment (a.c) – Particular requirements - Part 22: Static meters for active energy (Classes 0.2 S and 0.5 S)" /07/. The calibration of the meters is done, and the meters are measuring continuously. If there is a difference of 0.2 % in the readings of the main and the auxiliary/spare/backup meters, the calibration will repeat by TEİAŞ. According to the "Communiqué for Metering Devices to be used in the Electricity Market", Article 9, paragraph b, the periodic calibration by TEİAŞ shall be made every 10 years /07/. The testing of both energy meters will be carried out at each 2 years of frequency as per The meters are tested every 2 years by the grid operator according to the system use agreement of TEİAŞ.

These aspects will be verified during monitoring of the project.

3.4 Non-Permanence Risk Analysis

The project activity is non-AFOLU project as well as operational during the 1st crediting period. Hence there is no further requirement for the non-performance analysis rating during the 2nd Crediting period RCP validation of the project activity.

4 VALIDATION OPINION

Carbon Check (India) Private Limited (CC IPL) has performed a validation assessment of the request for renewal of the crediting period of the project “Gullubag 96 MW Hydro Electric Power Plant Project ” (VCS ID 391). The assessment was performed in accordance with the “VCS Validation and Verification Manual, Ver 3.2 /B01/ and VCS Standard, Ver 4.4 included an assessment of section 3.9.8 in particular:

- (a) The impact of new relevant national and/or sectoral policies and circumstances on the baseline i.e., regulatory surplus taking into account relevant VCS guidance with regard to renewal of the crediting period at the time of requesting renewal of crediting period.
- (b) The correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

The review of the project description and the subsequent follow-up interviews have provided CC IPL with sufficient evidence to determine the fulfilment of the stated criteria.

The project correctly applies the approved baseline and monitoring methodology “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20. /B02/

By generating renewable energy from hydropower plant, the project results in reduction of CO₂ emissions that are real, measurable and giving long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the “Gullubag 96 MW Hydro Electric Power Plant Project” are estimated to be on average 144,895 tCO_{2e} per year over the selected 10 years renewable crediting period (23/03/2022 – 22/03/2032 both days included). The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change./02/

The monitoring plan provides for the monitoring of the project’s emission reductions and of the sustainable development indicators. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is CC IPL’s opinion that the project participants are able to implement the monitoring plan.

In conclusion, it is CC IPL’s opinion that this validation assessment of the request for renewal of the crediting period of the project “Gullubag 96 MW Hydro Electric Power Plant Project ”, is as described in the VCS PD version 07 dated 18/05/2023, meets all relevant VCS standard & CDM UNFCCC requirements with all relevant host Party criteria which also correctly applies the baseline and monitoring methodology “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20./B02/ Hence CC IPL requests the renewal of the current crediting period of the project.

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
Year 1, 2022 ((23/02/2022-31/12/2022 (312 days))	123,856
Year 2, 2023	144,895
Year 3, 2025	144,895
Year 4, 2026	144,895
Year 5, 20237	144,895
Year 6, 2028	144,895
Year 7, 2029	144,895
Year 8, 2030	144,895
Year 9, 2031	144,895
Year 10, 2032 (01/01/2032-22/02/2032 (53 days))	144,895
Total estimated ERs	1,448,953
Total number of crediting years	10
Average annual ERs	144,895

APPENDIX 1: REFERENCES

SN	Document
/01/	- Draft VCS PD V01 dated 11/10/2022 - Interim VCS PD v02 dated 30/01/2023 - Interim VCS PD v03 dated 14/03/2023 - Interim VCS PD V04 dated 24/03/2023 - Interim VCS PD V05 25/04/2023 - Interim VCS PD v07 dated 18/05/2023 - Interim VCS PD v08 dated 12/06/2023 - Final VCS PD v09 dated 03/07/2023
/02/	Emission reduction calculation spread sheet corresponding to V09 of PD
/03/	Technical specifications/photographs of turbines, generators, electricity meters etc. as provided in PD
/04/	- Power purchase Agreement with TEIAS - Electricity production license/Generation license
/05/	Single line diagram for the flow of electricity from generation point to feed in grid including meter locations
/06/	Commissioning document
/07/	- Calibration Certificates and meter test report for main meter and check/backup meter - Proof of Meters information (Manufacture, Calibration date, Validation, Accuracy class) - Valid Meters "Type and System Approval" certificate from the Ministry of Trade and Industry in compliance with TS-620 EN 60044-1 and TS718 IEC60044 of both old and new replaced meters - Communique for metering devices
/08/	- Sample Electricity generation data from TEİAŞ – EPIAS web site - Sample Invoices raised by PP to TEIAS - Sample Proof of monthly reported Joint meter readings (commonly signed in between PP & TEIAS) of the main meter cross-checked against the back up meter for the month. Period i.e. OSF forms
/09/	Proof of Area of the reservoir measured i.e., Surface area determined using the lake surface area map (GullubagHEPP reservoir area)
/10/	EIA approval
/11/	SCADA Records
/12/	LS grievance registers photos

/13/	Countersigned Contract by VVB (CC IPL) and PP (GTE Sustainability Research and Consultancy Ltd)
/14/	Emission factors calculated from Turkey Ministry of Energy and Natural Resources https://enerji.gov.tr/Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9FikliC4%9Fi/TUESEmisyonFktr/Be%20lgeler/Bform2020.pdf

Background documents:

Ref	Document
/B01/ /	VCS Requirements a) VCS Standard (v4.4, dated 17/01/2023) b) VCS Program Guide (v4.3, dated 17/01/2023) c) VCS Validation and Verification Manual version (v3.2, dated 19/10/2016) d) Registration & Issuance Process (v4.3, dated 17/01/2023) e) VCS Program Definitions version (v4.3, dated 22/12/2022) f) VCS PD template version 4.1 g) CDM validation and verification standard for project activities Version 03
/B02/	Applied baseline and monitoring methodology: “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20.
/B03/	The Approved Methodology refers to the following CDM tools and CDM methodology: • “Tool to calculate the emission factor for an electricity system”. (Version 07) • "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; EB66-Annex 47) • ACM0002, Version20 “Grid-connected electricity generation from renewable sources”
/B04/	1. 1 st crediting period Verification Report - 3 rd Monitoring Report dated, 02/11/2022 2. 1 st crediting period registered PDD v05 dated 30/01/2010
/B05/	Website and links: - IPCC (http://www.ipcc-nggip.iges.or.jp) http://cdm.unfccc.int https://verra.org/project/vcs-program/rules-and-requirements/

APPENDIX 2: ABBREVIATIONS

CDM	Clean Development Mechanism
BE	Baseline Emission
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CL	Clarification Request
CO₂	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
DPR	Detailed project report
DVR	Draft Validation Report
EB	CDM Executive Board
EPDK	Enerji Piyasası Duzenleme Kurumu
EF	Emission Factor
ER	Emission Reduction
FAR	Forward Action Request
FVR	Final validation Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
IPCC	Intergovernmental Panel on Climate Change
MW	Mega Watt
HPP	Hydro Power Plant
QC/QA	Quality control/Quality assurance
RCP	Renewal of Crediting Period
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association

VCU	Verified Carbon Unit
VB	Validation Verification Body
WM	Validation and Verification Manual
VS	Validation and Verification Standard

APPENDIX 3: CERTIFICATES OF COMPETENCE



Carbon Check (India) Private Limited

Certificate of Competency

Ms. Aparna Choudhary

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☒ Validator	☒ Verifier	☒ Team Leader	☒ Technical Expert
☐ Technical Reviewer	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☒ SDG+	☒ Social no-harm(S+)	☒ Environment no-harm(E+)	☐ CCB Expert
☐ Financial Expert	☒ Local Expert for India		

in the following Technical Areas:

☒ TA 1.1	☒ TA 1.2	☐ TA 2.1	☒ TA 3.1	☐ TA 4.1
☐ TA 4. n	☐ TA 5.1	☐ TA 5.2	☐ TA 7.1	☐ TA 8.1
☐ TA 9.1	☐ TA 9.2	☐ TA 10.1	☒ TA 13.1	☒ TA 13.2
☐ TA 14.1	☐ TA 15.1			

Issue Date

03rd May 2023



Mr. Vikash Kumar Singh
Compliance Officer

Expiry Date

04th May 2024



Mr. Amit Anand
CEO

CCIPL_FM 7.9 Certificate of Competency_V2.1_012023



Carbon Check (India) Private Limited

Certificate of Competency

Muhammet Ali ERDURAN

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

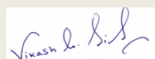
- | | | | |
|---|---|--|---|
| ☐ Validator | ☐ Verifier | ☐ Team Leader | ☐ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ SDG+ | ☐ Social no-harm(S+) | ☐ Environment no-harm(E+) | ☐ CCB Expert |
| ☐ Financial Expert | ☒ Local Expert for Turkey | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| ☐ TA 1.1 | ☐ TA 1.2 | ☐ TA 2.1 | ☐ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☐ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | | | |

Issue Date
03rd May 2023

Expiry Date
02nd May 2024



Mr. Vikash Kumar Singh
Compliance Officer



Mr. Amit Anand
CEO



Carbon Check (India) Private Limited

Certificate of Competency

Ms. Indumathi C

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|--|--|---|--|
| ☒ Validator | ☒ Verifier | ☒ Team Leader | ☒ Technical Expert |
| ☒ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☒ SDG+ | ☒ Social no-harm(S+) | ☒ Environment no-harm(E+) | ☐ CCB Expert |
| ☒ Financial Expert | ☒ Local Expert for India and Sri Lanka | | |

in the following Technical Areas:

- | | | | | |
|--|--|----------------------------------|---|---|
| ☒ TA 1.1 | ☒ TA 1.2 | ☐ TA 2.1 | ☒ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☒ TA 13.1 | ☒ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | | | |

Issue Date
1st January 2023

Expiry Date
31st December 2023



Mr. Vikash Kumar Singh
Compliance Officer



Mr. Amit Anand
CEO

APPENDIX 4: FINDINGS LOG

Finding		CL 01		
Classification		☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	In section 1.7 of the respective PD, the role of "GTE", should be mentioned			
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	GTE is mentioned.			
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	The PP has added the role of GTE in the respective section of the PD The explanation of role is found to be appropriate by the VVB. Thus this finding is closed.			
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed			

Finding		CL 02		
Classification		☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	In the section 2.3 of the respective PD, the scale of project is mentioned as small. Thus, PP is requested to review and revise it accordingly.			
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Corrected.			

VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	PP has corrected the scale of project in the section 2.3 of the PD, thus this finding is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Table 1. CARs from this RCP validation

Finding	CAR 01
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding (VVB)	Sections 2.1.2, 1.17 & 3.5 of PD should be revised considering all points of filling guidelines for the respective section.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	According to the filling guidelines for VCS PD, <i>Provide a brief description that includes the following (no more than 500 words):</i> - A summary description of project activities that result in sustainable development (SD) contributions (i.e., technologies/measures implemented, activity location). - An explanation of how project activities will result in expected SD contributions. - Describe how the project contributes to achieving any nationally stated sustainable development priorities, including any provisions for monitoring and reporting same. The section already includes the details for SDG contributions. Please specify the missing points There is no section 2.1.2 please see the PD template. This is revalidation. Hence the additionality can only be summarized in this section. A summary is added.
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-	PP has revised the mentioned sections of the PD as per the filling guidelines of the PD template. Thus, this finding is closed.

closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 02		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	CAR being raised for the following editorial corrections in the PD: - Footnotes 6, 7, 8, and 31 are not accessible. - Please provided PMUM name change to EPIAS along with website change from PMUM to EPIAS with more details (such as why, when etc.) in section 5 of PD for clarity purpose. - In Section 1.1, the 1st line is repeated. Thus, PP is requested to kindly remove the repetition. - PP is requested to revise representation of the accuracy class, throughout the PD. - PP is requested to provide the location of substation also in the relevant sections		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	- The links are corrected. - The PMUM system is very old. Now it is EPIAŞ and last verifications also it was EPIAŞ. Hence. For revalidation, PMUM system is not necessary to be discussed. - I couldn't find repeating sentence. - Corrected. - Location of the weir and powerhouse is given. Substation is in the powerhouse.		
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	- PP has revised all the footnotes links and they are accessible. - Justification provided by the PP is deemed to valid, and same has been confirmed from the previous verification reports. <i>"The generated electrical energy will be transferred to the electrical grid by a 154 kV transmission line, through ISPIR HEP substation. The generated electrical energy is transferred to the electrical grid by a 154 kV transmission line, through ISPIR HEP substation"</i> By the repetition of lines, VVB meant these lines, as they have the same meaning. Thus, PP is requested to revise this accordingly. - Representation of the accuracy class of the meters has been revised, thus this finding is closed.		

	5. PP is requested to mention that substation is located in the powerhouse, for the closure of finding.
Corrective Action or clarification #2	3. The repeated sentence has been removed. 5. It has been mentioned in the relevant sections that the substation is in the powerhouse.
VVB Assessment #2 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added	3. Repeated Sentence has been removed. 4. Location of meter is now clearly mentioned in PD. All findings are closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding		CAR 03		
Classification		☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	PP is requested to revise the coordinates for the project location in either DMS or DD format.			
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Corrected.			
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	PP has revised the coordinates format. Thus, this finding is closed.			
Conclusion Tick the appropriate checkbox		☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding		CAR 04		
Classification		☒ CAR	☐ CL	☐ FAR

Description of finding (VVB)	Section 3.9.8 (1) of VCS Standard Version 4.4 requires that "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.". Accordingly, PP is requested to provide the information on regulatory surplus of the project in section 3.5 in VCS PD.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	A summary is added to Section 3.5.
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	A summary is added to Section 3.5, justifies VCS project standard and is deemed to be appropriate by the VVB.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding		CAR 05		
Classification		☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	The project proponent shall provide information on mechanism to be used for on-going communication with local stakeholders and in respect of ongoing communications as part of each subsequent verification (3.16.4 of VCS Standard Ver 4.3, as per VCS standard section 3.9.8 and VCS PD template requirements /B01-a & f/ in section 2.2 of VCS PD. The same mechanism of ongoing communication also needs to provide in section 5 i.e., monitoring plan of the VCS PD.			
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	The stakeholder mechanism is already mentioned in this section. Please be more specific about the missing.			
VVB Assessment #1 The assessment shall encompass all open issues	The project proponent shall explain the on mechanism to be used for on-going communication with local stakeholders and in respect of			

in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	ongoing communications as part of validation (3.18.4 of VCS Standard Ver 4.4),
Corrective Action or clarification #2	Details regarding the on-going communication have been added.
VVB Assessment #2 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added	PP has provided the mechanism for on going communication with local stakeholders. Thus, this finding is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 06		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	PP is requested to provide following documents – 1. Flow rate sheet for the parameter “Minimum Flow” 2. Feasibility Report for Gullubag HEPP 3. , LS grievance register photos 4. Proof of Area of the reservoir measured i.e., Surface area determined using the lake surface area map (Gullubag HEPP reservoir area) 5. Communiqué for Metering Devices 6. Proof of installed capacity of the Project Activity i.e., showing in SCADA system 7. Valid Meters “Type and System Approval” certificate from the Ministry of Trade and Industry in compliance with TS-620 EN 60044-1 and TS718 IEC60044 of both old and new replaced meters 8. The ICE/TSE 62053-22: Electricity metering equipment (a.c) – Particular requirements - Part 22: Static meters for active energy (Classes 0.2 S and 0.5 S) i.e. EPDK requirements 9. Renewable Energy Law and Environmental Law for regulatory surplus of project 10. EIA approval 11. Turkey’s National Electricity Network Emission Factor Factsheet (CM calculations) i.e. Republic of Turkey Ministry of Energy and Natural Resources released on 06/10/2021)		

Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	1. Provided 2. There is only EIA Report which is also for feasibility of the project as per law requires. EIA Report is provided. 3. Photos are provided. 4. Proof of area is provided. 5. Provided. 6. SCADA Pic. Provided 7. This is index calibration documents which are provided 8. Provided 9. Provided 10. Provided 11. Provided.
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	PP has provided all the requested documents. Thus, this CAR is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding		CAR 07		
Classification		☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	As per VCS PD template requirement section 3.3 of PP needs to provide a diagram or map of the project boundary, showing clearly the physical locations of the various installations or management activities taking place as part of the project activity based on the description provided in Section 1.8 (Description of the Project Activity). For non-AFOLU projects, include in the diagram the equipment, systems and flows of mass and energy. Include the GHG emission sources identified in the project boundary.			
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Provided in Section 3.3, also this picture is provided in the file.			

VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	As per VCS PD section 3.3, of the respective PD PP has not described: - Equipment, systems and flows of mass and energy. - GHG emission sources identified in the project boundary.
Corrective Action or clarification #2	A flow diagram has been added.
VVB Assessment #2 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added	PP has revised the section 3.3 with the appropriate mention of project boundary, showing clearly the physical locations of the various installations or management activities taking place as part of the project activity as per the VCS PD template. Thus, Finding is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 08		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	While calculating Grid Emission factor, PP is requested to use latest available data provided by regulatory body i.e. Republic of Turkey Ministry of Energy and Natural Resources released on 06/10/2021). Change PD and ER sheet accordingly .		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Corrected.		
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	PP has revised the emission factor source to the latest version and have made consistency among the PD and ER sheets. Thus, this finding is closed.		
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding		CAR 09		
Classification		☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	CAR being raised for the following corrections related to Monitoring section 5 of the PD: 1) The parameter in section 5.2 “EGPJfacility,y_y” to be changed to “EGPJ,facility,i,y” as required by applied methodology. Also description of same parameter to be changed to “Quantity of electricity generated and supplied by the project power plant to the consumers/electricity consuming facility i in year y”. 2) As per Data / Parameter table 16 & 17 of ACM0002, Ver 20, parameters “Cap_{PJ}” needs to be monitored during second crediting period.			
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	- Corrected. - Added.			
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	- PP has revised “EGPJfacility,y_y” to be changed to “EGPJ,facility,i,y” as required by applied methodology and also revised the description of same parameter. Thus, this finding is closed. - PP has added CapPJ in the revised PD section 5.2. Thus, this finding is closed.			
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed			

Finding		CAR 10		
Classification		☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	PP is requested to revise the following and maintain the consistency throughout the PDD. 1. Value of AP_j in section 5.2 is 1,210,000 m² while in rest of the PDD its 765,84281 m²			

	2. I section 1.17 of the PDD value of ER is mentioned as 174,276 tCO₂, while in rest of the document it is 144,895.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	1. The APj value in Section 5.2 has been revised. 2. The ER values in Section 1.17 have been revised as 144,895.
VVB Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.	1. Value of APj has been revised. 2. ER value in section 1.17 is revised. Thus, findings are closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed