



VRIFICATION REPORT FOR “DARICA-1 99 MW HYDRO POWER PLANT “



Document Prepared By

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Summary:

A brief description of the verification of the project.

Verification: Bilgin Güç Santralleri Enerji Üretim A.Ş. has appointed Carbon Check (India) Private Ltd., to carry out the fifth (5th) periodic verification of the registered VCS project “DARICA-1 99 MW Hydro Power Plant” (VCS ID: 506), with regards to the relevant requirements of VCS Standard Version 4.2 (dated 20/01/2022).

Project: The project “DARICA-1 99 MW Hydro Power Plant”, is a large-scale project activity which employs approved CDM methodology ACM0002 version 07, “Grid connected energy generation from renewable sources.”/B02/ The purpose of the project activity is to generate electricity from the renewable energy which is distributed to the national grid. The installed capacity of the project was 99MW which was increased to 112.42 MW (2 x 56.21 MW turbines) and the generator capacity was increased to 110.32 MWe (2 x 55.16 MW). Accordingly, the expected annual electricity generation was also increased to 410,000 MWh.

The total electricity generation during this monitoring period i.e., from (01/01/2018 to 09/10/2019) is 498,373.10 MWh and the actual emission reduction is 318,925 tCO₂ for this monitoring period.

The project is located on the Melet River in the Mesudiye District of Ordu Province (12 km Northeast of Topçam) in the Northern Black Sea region of Turkey. The turbine house of the project activity has latitude 40° 43’ 51 N and longitude 37° 51’ 30 E and the map for the location of the project activity is presented in section 1.7 of the MR./01-d/

Purpose: The purpose of the verification is to review the monitoring results and verify that monitoring methodology was implemented according to monitoring plan and monitoring data, used to confirm the reductions in anthropogenic emissions by sources is sufficient, definitive, and presented in a concise and transparent manner. In particular, monitoring plan, monitoring report and the project’s compliance with relevant VCS, UNFCCC and host Party criteria are verified in order to confirm that the project has been implemented in accordance with previously registered design and conservative assumptions, as documented.

Scope: The verification scope is defined as an independent and objective review of the monitoring report (MR) against the relevant criteria and guidance documents provided by VCS which include the following: VCS Program Guide (v4.1, dated 20/01/2022), VCS Standard (v4.2, dated 22/04/2021), Program Definitions (v4.1), Registration & Issuance Process (v4.1, dated 20/01/2022) VCS Validation and Verification Manual (v3.2, dated 19/10/2016) applicable at the time in order to confirm the emission reductions produced during the monitoring period are in accordance with the project activity as provided in the registered VCS PD/B03/. The CDM approved methodology ACM0002, Version 07 /B02/ has been applied for the project activity

The method and criteria used for verification

The verification consists of the following four phases:

I. A desk review of the project description documents

- A review of data and information.

Cross checks between information provided in monitoring report and information from sources with all necessary means without limitations to the information provided by the project proponent.

II. Remote Audit/Interviews

- Interviews with relevant stakeholders in host country with personnel having knowledge with the project development via telephone, email or direct on-site visits.
- Cross checking between information provided by interviewed personnel with all necessary means

without limitations to the information provided by the project proponent.

III. Reference to available information relating to projects or technologies similar to project under verification and review based on the approved methodology being applied for the appropriateness of formulae and accuracy of calculations.

IV. The resolution of outstanding issues and the issuance of the final verification report and opinion.

The number of findings raised during verification

During the course of verification, a total of 07) findings were raised, which include:

- Corrective Action Requests (CARs): 05*
- Clarification Requests (CLs): 02*
- Forward Action requests (FARs): 00*

All the raised findings have been successfully closed

Any uncertainties associated with the verification

There are no uncertainties associated with the verification of the project activity. The verification has been done with a reasonable level of assurance.

Summary of the verification conclusion

Carbon Check (India) Private Ltd. concludes the verification with a positive opinion that the VCS large scale project activity "DARICA-1 99 MW Hydro Power Plant" as described in the monitoring report (version 06, dated 21/11/2022)/01-e/ and registered VCS PD (version 04, dated 18/04/2009) /B03/, meets all applicable VCS requirements, including those specified in the VCS Standard (v4.2, dated 22/04/2021), relevant methodology, tools and guidelines.

The project activity and its emission reduction calculation were correctly implemented and meets all requirement for the VCS standard and guidelines and correctly applies the baseline and monitoring methodology ACM0002 version 07, "Grid connected energy generation from renewable sources. The monitoring system is in place and the emission reductions are calculated without material misstatement Carbon Check (India) Private Ltd. therefore requests the issuance of the project as a VCS project activity, with a reasonable level of assurance.

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1 INTRODUCTION

1.1 Objective

Bilgin Güç Santralleri Enerji Üretim A.Ş. has appointed Carbon Check (India) Private Ltd., to carry out the fifth (5th) periodic verification of the registered VCS project “DARICA-1 99 MW Hydro Power Plant” located in Mesudiye district, Ordu province, Turkey.

Verification is the periodic independent review and ex post determination of both quantitative and qualitative information by a Validation and Verification Body (VVB) of the monitored reductions in GHG emissions that have occurred as a result of the VCS project activity during a defined monitoring period. The purpose of verification is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data and used to confirm the reductions in emissions is sufficient, definitive and presented in a concise and transparent manner. Carbon Check’s objective is to perform a thorough, independent assessment of the registered projects activities. In particular the, monitoring plan, monitoring report and the project’s compliance are verified against the relevant criteria and guidance documents provided by VCS. This allows for the confirmation that the project has been implemented in accordance with the VCS registered VCS PD/B03/ and conservative assumptions, as documented. And, also to confirm if the monitoring plan is in compliance with the VCS PD/B03/ and approved monitoring methodology/B02/, The baseline is established using the approved methodology ACM0002 (version 07), “Grid connected energy generation from renewable sources.” /B02/This methodology refers to the latest. The objective of this verification was to verify and certify emission reductions reported for the “DARICA-1 99 MW Hydro Power Plant” for the period 01/01/2018 to 09/10/2019

1.2 Scope and Criteria

The verification of this project is based on the registered VCS Project Description/B03/, the Monitoring Report of this monitoring period /01-d/, emission reduction calculation spread sheet /02-b/, supporting documents made available to the verifier and information collected through performing interviews and during the remote interviews assessment. Furthermore, publicly available information was considered as far as available and required.

Carbon Check has employed a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

The verification is carried out on the basis of the following requirements (latest available on VCS website at the time of verification), applicable for this project activity:

- VCS Program Guide (v4.1, dated 20/01/2022)
- VCS Standard (v4.2, dated 20/01/2022)/B01 a/
- Program Definitions (v4.1) /B01 e/
- Registration & Issuance Process (v4.1, dated 20/01/2022) /B01 d/
- VCS Validation and Verification Manual (v 3.2, dated 19/10/2016)/B01 c/
- CDM Methodology: ACM0002: Grid-connected electricity generation from renewable sources

(Version 07) /B02/

- Other relevant rules, including the host country legislation

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

- To verify that the project is implemented as described in the project description
- To assess the project's compliance with other relevant rules including the host country legislation.
- To assess the implementation of the monitoring plan content as mentioned in the VCS-PD/B03/
- To confirm that the monitoring system is implemented and fully functional to generate voluntary emission reductions (VERs/VCUs) without any double counting and
- To establish that the data reported are accurate, complete, consistent, transparent, and free of material error or omission by checking the monitoring records and the emissions reduction calculation /02/.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.
- The verification shall ensure that the reported emission reduction are complete and accurate to be certified.

The method and criteria used for verification consisted of the following phases:

- 1) Completeness check and desk review:
- 2) Remote Audit/ Interviews
- 3) Resolution of outstanding issues and issuance of final verification report and applicable VCS Validation and verification Deeds of Representation.

Carbon Check (India) Private Ltd. conducts all its work under strict rules to safeguard impartiality and ensure the independence of the verification team. The verification 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 monitoring activities.

1.3 Level of Assurance

☒ Reasonable level of assurance

☐ Limited level of assurance

1.4 Summary Description of the Project

Provide a summary description of the project (no more than one page).

The purpose of the Project is to export the generated electricity to the national grid, thereby contributing to the Turkey's electricity demand and rapidly growing economy. Since the Project generates electricity from renewable energy resources, it makes contribution to climate protection. According to the validated PD/B03/, the Project (at 99 MW capacity) was expected to generate 327,690 MWh of electricity annually, and to reduce 209,722 tonnes of CO₂ emissions per year, by supplying renewable energy that would have been supplied by the existing power grid that generates electricity predominantly from fossil fuel powered thermal power plants. During the operation phase the capacity of the project was increased to 112.42 MW (2 x 56.21 MW turbines) and the generator capacity was increased to 110.32 MWe (2 x 55.16 MW). Accordingly, the expected annual electricity generation was also increased to 410,000 MWh. This is accomplished with the manufacturer's assistance, by adjusting the turbines to their maximum limits.

Project construction commenced in April 2007, and the first turbine began operating on 10-October-2009. On 23-December-2009, the second turbine began operating, and the Project has been operational since.

The fifth monitoring period covers the duration from 01/01/2018 - 09/10/2019 (both days included) and the total electricity generation for the monitoring period is) is 498,373.10 MWh and the actual emission reduction is 318,925 tCO₂.

The vintage wise emission reduction estimated, and emission reduction achieved is as provided below.

Vintage		Actual (tCO ₂ e)	ERy	Estimated (tCO ₂ e)	ERy
01-January-2018	31-December-2018	152,705		209,722	
01-January-2019	09-October-2019	166,220		162,032	
Total		318,925		371,754	

2 VERIFICATION PROCESS

2.1 Method and Criteria

The method and criteria used for verification:

The verification consists of the following three phases:

- 1) Completeness check and desk review of the validation report, monitoring plan, monitoring report, monitoring methodology, VCS PD, /B03/ applicable tools in particular attention to the frequency of measurements, quality of metering equipment's including calibration requirements, QA/QC procedures and other relevant documents.
- 2) Remote audit (including follow-up interviews with project stakeholders, when deemed necessary). The remote audit assignment includes the following: /16/
 - An assignment of implementation and operation of project activity with respect to validated VCS PD;/B03/ and MR /01/
 - Review of information flows for generating, aggregating, and reporting the monitoring parameters.

- *Interview with relevant personals to determine whether the operational and data collection procedures are implemented and in accordance with monitoring plan of the validated VCS PD /B03/.*
 - *Cross check of information and data provided in the monitoring report with plant logbooks, inventories, purchase records or similar data sources.*
 - *Check of monitoring equipment's, calibration frequency and monitoring practice in-line with methodology and validated VCS PD/B03/.*
 - *Review of assumptions made in calculating the emission reduction.*
 - *Implementation of QA/QC procedure in-line with the validated VCS PD and methodology requirement.*
- 3) *Resolution of outstanding issues and the issuance of the final Verification report and if applicable, the VCS Validation and Verification Deeds of Representation*

2.2 Document Review

The registered VCS PD, /B03/, VCS MR /01-d/ emission reduction calculation spread sheet/02-b/ and supporting documents related to the project implementation, project design, monitoring and baseline were reviewed as per VCS standard (version 4.2) standard requirements. The desk review included.

A review of the data and information presented to verify completeness and consistency in accordance with VCS standard (version 4.2) requirements/B01/

A review of the approved monitoring plan and monitoring methodology, paying particular attention to the frequency of the measurements, quality of the monitoring methodology,

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 /B03/ and any supporting documents

	Date	Name	Organisation	Topic
/a/	14/01/2022	Ms Funda Yenici	Bilgin Güç Santralleri Enerji Üretim A.Ş	• Project Design • Project Implementation status • Project start date and Project Location • Roles and responsibility, Project Implementation and Operation status, Qualification and Training, Roles and responsibility. • Involved in Emissions Trading Programs and Other Binding Limits or Other Forms of Environmental Credit. • Impact of the capacity change on the applicability of the methodology, additionality, or the appropriateness of the baseline scenario.

/b/	14/01/2022	Mr Nihat Yildiz	Bilgin Güç Santralleri Enerji Üretim A.Ş	• Project design • Turbine details • Monitoring plan • Monitoring procedures and monitoring equipment • Maintenance and operation plan • Data and information flow, Data input device, Roles and responsibility, Project implementation and operation, monitoring procedure.
/c/	14/01/2022	Ms. Irem Bilir	Life İklim ve Enerji Ltd. Şti	• VCU calculation and completeness of monitoring report, • Project implementation and operation, Project design, monitoring procedure, data and information flow, compliance of monitoring plan with monitoring methodology and VCS-PD. • Project Implementation status

2.4 Site Inspections

Carbon Check has not conducted an on-site inspection due to the recent pandemic COVID19 and due to its related policy measures created restrictions all over the world impacting travel activities on an international level and even for in-country travel. Moreover, the site visit cannot be postponed due to verification timeline agreed between the Project Participant and the DOE as per the verification contract./21/

A reasonable level of assurance has been maintained through the alternative means used for the purpose of validation as follows:

- An assessment of the implementation and operation of the proposed project through remote interviews with the representatives of project proponent.
- Assessment of the project design, turbines details, monitoring plan, monitoring procedures and monitoring equipment.
- Assessment of the design change impacts on the applicability of the methodology, additionality, or the appropriateness of the baseline scenario

- Confirmation of the applicability of the methodology, monitoring, controlling instruments and operational arrangements.

2.5 Resolution of Findings

This section summarizes the findings from the verification of the project activity. In this section the findings from the document review, assessments and remote interviews are provided.

Material discrepancies identified in the course of the verification are addressed either as CARs, CLs or FARs.

Corrective action requests (CAR) are issued, where:

- i. Mistakes have been made with a direct influence on project results requiring adjustments of the VERs/VCU monitoring report.
- ii. Applicable methodological specific requirements have not been met.

A Clarification request (CL) may be used where additional information is needed to fully clarify an issue or where the information is not transparent enough to establish whether a requirement is met.

A total (05) CAR, and (02) CLs had been raised by the verification team. Please refer to Appendix 4 below for the details of the CARs/CLs and their closure.

2.5.1 Forward Action Requests

No FAR has been raised during this monitoring period.

2.6 Eligibility for Validation Activities

Validation/Verification body (VVB), Carbon Check (India) Private Ltd. holds accreditation for verification for the relevant sectoral scope 1 and is eligible for validation/verification for the project activity.

Please refer: <https://verra.org/project/carbon-check-india-private-ltd/>

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

DARICA-1 99 MW Hydro Power Plant has not participated in any other GHG programme other than VCS.

3.2 Methodology Deviations

There is no methodology deviation in the project, DARICA-1 99 MW Hydro Power Plant

3.3 Project Description Deviations

The generation capacity of the project was initially designed as 99 MW, however during the operation phase the capacity of the project was increased to 112.42 MW (2 x 56.21 MW turbines) and the generator capacity was increased to 110.32 MWe (2 x 55.16 MW) which is verified by the assessment team on the basis of the review of the revised commissioning certificate/ Provisional Acceptance Protocol signed on 26/07/2011 of project activity. The project description deviation was approved during the 1st periodic verification.

For the parameter EGy (Net Electricity generated and delivered to the grid by the power plant in year y), the monitoring plan in the validated PDD implies the use of “Metering devices measuring the electricity generated at the exit of the plant and cross checked with invoices prepared for billing the transmission company”. However due to a regulatory change the invoices no longer contain data regarding the quantity of electricity produced. Therefore in lieu of the invoices, the data output of the official Market Financial Reconciliation Center (MFRC/PMUM) is utilised. The MFRC/PMUM is a unit within TEİAŞ that is responsible for the financial settlement system (on this and other grid-connected privately held power facilities in Turkey) by calculating amounts payable/receivable for market participants via a complex mechanism. The electricity generated is metered by TEİAŞ by two meters placed on the switchgear station, where the plant is connected to national grid. Those meters provide official data which is read and recorded monthly by TEİAŞ officers for invoicing (as of January 2012, this data recording is done automatically and processed by MFRC/PMUM (Market Finance Reconciliation Centre). Till December 2011, an authorized person from TEİAŞ was coming to the project site to read the main meters and back up meters at the end of each month; and accordingly create a protocol which clearly stated the net electricity generation and plant’s energy consumption values. Starting from January 2012, the meter data is recorded electronically. This new system is called OSOS (Automatic Meter Reading System). In this system, TEİAŞ is not coming to the site to read the meters but has a remote connection to the main meter which is still sealed at the project site. However, every month (till July 2012) project owner’s representative went to TEİAŞ at the end of the month to take the originally signed hard copy of the meter protocol.

However, starting from August 2012, TEİAŞ no longer provide any originally signed hard copy but provides access to OSOS database from where the monthly generation details can be located. Thus, duly signed hard copies of the monthly meter protocols till the end of July 2012 and the screenshots of OSOS (Automatic Meter Reading System) which shows the monthly meter records from August 2012 are used to substantiate the electricity generation by the project activity.

The assessment team confirms that the data collected from the OSOS database is credible as it is used as the source of electricity generation values for similar project activities in the host country and also as it has been approved on the 4th periodic verification.

Verification team observed that there is a deviation regarding the start date of the project and the start date of crediting period for the project as in the project description the start date of the project was 28th February 2007, and the project crediting period was 10 years fixed starting from 1 July 2009 but due to delay in commissioning of the project the crediting period start date has been revised as 10-October-2009 since the commissioning date of the project activity is 10-October-2009 . Considering 10 years fixed crediting period which is specified in the PD, project crediting period has been determined as 10-October-2009 to 9-October 2019. As the deviation is on the start date of the project and start date of the crediting period of the and there is no impact on the applicability of the methodology, additionality or the appropriateness of the baseline scenario thus the deviation is deemed appropriate in line with the paragraph 3.19.2 of the VCS standard.

Therefore, there is no impact of the project deviation in the applicability of the methodology, additionality, or the appropriateness of the baseline scenario for this monitoring period

3.4 Grouped Project

DARICA-1 99 MW Hydro Power Plant is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity, “DARICA-1 99 MW Hydro Power Plant” a run of river hydro power plant was registered as a VCS project having VCS ID 506 applying the methodology ACM0002 version 7, "Grid-connected energy generation from renewable sources /B02/. The Project Proponent for the project activity is Bilgin Güç Santralleri Enerji Üretim A.Ş., and the same was verified from Evidence of commissioning of the project /12/ and Power purchase agreement between TEIAS and Bilgin Güç Santralleri Enerji Üretim A.Ş., for the project activity. /14The project activity involves the generation of electricity through hydro power plant with total generating capacity of 112.42 MW /01-b/. The capacity of plant was 99 MW initially and then increase to 112.42 MW. The DARICA-1 99 MW Hydro Power Plant is located in Ordu Province Mesudiye District, on Melet River, in the northern Black Sea region of Turkey. The electricity generated is distributed to the national grid. Verification team confirmed from the registered, VCS PD/B03/ and remote interviews that the location of the project activity including the coordinates is same as mentioned in the registered VCS PD./B03/

The power generation is achieved by installing and operating a run-of-river HPP comprising 2 Vertical Francis turbines. The power plant capacity was increased to 112.42 (2 x 56.21 MW turbines) and the generator capacity was increased to 110.32 MW (2 x 56.16 MW). The power generated is transmitted to the switchgear area (approximately 1.3 km upstream) by transformers and then is fed to the national grid. The technical specifications have been verified with the photographs of sites and name plates as well as with the technical specifications of hydro turbine.

The electricity meters are used to monitor the data. At the power plant, four meters were installed (two main and two backup) at the substation. These meters are sealed by TEIAS. The class of the electricity meters installed was 0.2s which is replaced by the new meters of the same class. The meters are in compliance with the Electricity Market Regulatory Agency.

The start date of the project activity is 10/10/2009. This is the date of commissioning of unit I. While the date of commissioning of the Unit II is 23/12/2009. Assessment team has checked the commissioning certificate/Provisional Acceptance Protocol of all units and confirms that the commissioning dates are correct.

There are no changes in the project design and monitoring plan during this monitoring period the same has been confirmed during the remote audit by interviewing the plant manager. It was found that the monitoring plan was implemented as per the VCS PD and applied methodology ACM0002version 7. The organisational roles and responsibilities as mentioned in the VCS PD is followed on site and the same was confirmed by interview with plant manager during remote audit.

The electricity generated from the project activity is fed into the national electricity grid displacing the energy that would otherwise be generated by fossil fuels. A total of 318,925 tCO₂ emission reduction was achieved during this monitoring period and also the project activity promotes employment opportunities, thereby contributing to the SDG target 13.3, 7.2, and 8.8. The sustainable development contribution of the project activity to the host country, Turkey have been provided in section 1.11 of the MR/01-d/. Moreover, Darica HPP has undergone a full environmental impact assessment (EIA) according to Turkish law and the summary of the EIA report is given in section 5 of the registered PD /B03/ and the contributions were confirmed with the PP during the remote. The project helps Turkey to do a sustainable expansion path of the Turkish energy system, as it serves the steadily growing electricity demand in an environmentally suitable way.

It was observed during the verification process is that project is not registered in any other mechanism nor rejected by any other GHG program around the world. The project is not involved in any other form of GHG emission program and VCUs generated from this verification will not be used for other trading program to avoid any kind of double counting. The same is confirmed by the PP during the remote audit. Assessment team also conducted independent review regarding the same and found that the statement of the PP is accurate, and project is not involved in any other kind of GHG trading for the present verifications/monitoring period. The assessment team observed that the project is implemented is in line with the registered VCS PD and applied methodology. There is no deviation applied during this monitoring period.

Assessment team confirms that this is the 5th monitoring under VCS and covers the activity from 01/01/2018 to 09/10/2019(inclusive of both dates). Thus, VCS crediting period should be maximum of 10 years till end date of crediting period. 10/10/2009 is the start date and 09/10/2019 will be the end date of the crediting period. The GHG credits from 01/01/2018 to 09/10/2019 will be claimed under VCS only. At any point of time during the crediting period, the project proponent will abide by the "Double Counting".

Yapısan Elektrik Üretim A.Ş. has been changed as Bilgin Güç Santralleri Enerji Üretim A.Ş. Yapısan Elektrik Üretim A.Ş. has transferred its rights to Bilgin Güç Santralleri Enerji Üretim A.Ş. Thus, the project proponent is Bilgin Güç Santralleri Enerji Üretim A.Ş. Verification team checked the same from the from the Electricity generation licence/18/.

The quantified emission reduction calculation for the monitoring period is correct and conservative. Assessment team also compared actual VCUs with the estimated VCU and found that the actual VCU is 318,925 tCO₂. Which is 14.20% lower than the estimated emission reduction which is 371,754 for this monitoring period (01/01/2018 – 09/10/2019). The actual amount of GHG emission reduction is less than the estimated amount of electricity generation as the generation depends on the external physical condition i.e., flow rate. Thus, the same is deemed acceptable by the verification team.

Overall, it is concluded that the project has been implemented in compliance with the registered project description.

Revision and maintenance works were carried out during this Monitoring Period. In this context, there is no generation in Group 1 between 24/11/2018-10/01/2019. And there is no generation in Group 2 between 29/08/2018-16/11/2018. On the basis of the assessment of the revised MR and the supporting documents, the assessment team confirms that the amount of electricity that was monitored on the days that maintenance works was conducted were part of the monitored electricity generated for the GHG ER. However, since there were no electricity generation for the period from 24/11/2018 to 10/01/2019 for the plants in group 1 and for the period from 29/08/2018 to 16/11/2018 for plants in group 2, the value is considered as “0” for the calculation of GHG ER. The electricity generation was not completely zero for any period because one of the units continued to operate while the other was undergoing maintenance. The same has been verified based on the review of the meter index excel sheet provided by the PP.

4.2 Safeguards

4.2.1 No Net Harm

Not Applicable.

4.2.2 Local Stakeholder Consultation

Local stake holder consultation was done on the 19/10/2006. According to the notes in the PD, no significant issue has been raised since there is no house or economic activity affected by the Project Activity. The verification team also interview the stakeholders during remote audit for this monitoring period and confirmed that there were no negative feedbacks received from the stakeholders during this monitoring period.

4.3 AFOLU-Specific Safeguards

Not Applicable

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The **baseline emissions** are to be calculated as follows:

$BE_y = (EG_y - EG_{baseline}) \cdot EF_{grid,CM,y} BE_y$	
BE_y	Baseline emissions in year y (t CO ₂ /yr)

EG_y	Electricity supplied by the project activity to the grid (MWh)
$EG_{baseline}$	Baseline electricity supplied to the grid in the case of modified or retrofit facilities (MWh). For new power plants this value is taken as zero.
$EF_{grid,CM,y}$	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”.

The project activity is the installation of a new grid-connected renewable power plant, thus

$$EG_{baseline} = 0$$

Therefore,

$$BE_y = EG_y * EF_{grid,CM,y}$$

$$EF_{grid,OMsimple,y} = 0.655 \text{ tCO}_2/\text{MWh}^1$$

$$EF_{grid,BM,y} = 0.624 \text{ tCO}_2/\text{MWh}^2$$

$$EF_{grid,CM,y} = w_{OM} * EF_{grid,OMsimple,y} + w_{BM} * EF_{grid,BM,y}$$

According to the registered PD, the default values of w_{OM} and w_{BM} as recommended by the selected methodology are both equal to 0.5, and these default values have been used.

Based on the formula above, baseline emission factor is calculated as.

$$EF_{grid,CM,y} = 0.5 * 0.655 + 0.5 * 0.624 = 0.640$$

$$EG_y = 498,373.10 \text{ MWh for this Monitoring Period}$$

$$BE_y = 318,958 \text{ tCO}_2\text{e}$$

Project emissions are calculated based on the following formula:

¹ Registered PD (Dated: 18 April 2009)

² Registered PD (Dated: 18 April 2009)

$$PE_{FC,j,y} = \sum_i FC_{i,j,y} \times COEF_{i,y}$$

Where:

$PE_{FC,j}$	CO ₂ emissions from fossil fuel combustion in process j during year y [tCO ₂ /yr]
$FC_{i,j,y}$	Quantity of fuel type i combusted in process j during year y [mass or volume unit/yr]
$COEF_{i,y}$	CO ₂ emission coefficient of fuel type i in year y [tCO ₂ /mass or volume unit]
i	Fuel types combusted in process j during year y

The CO₂ emission coefficient $COEF_{i,y}$ is calculated based on Option B of the “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion, Version 03. Since there is no available data related to Option A (chemical composition of fossil fuel type i), Option B is applied. Option B: The CO₂ emission coefficient $COEF_{i,y}$ is calculated based on net calorific value and CO₂ emission factor of the fuel type i, as mentioned in the table 4 of MR and is equal to 3.239 tCO₂/tonne. The detailed calculation of the project emission is given in the Project Emission Sheet /22/

Therefore,

$$COEF_{i,y} = 3.239 \text{ tCO}_2/\text{tonne}.$$

$$FC_{i,j,y} = 10.57 \text{ tonne}$$

$$PE = 33 \text{ tCO}_2$$

The power density (PD) for the Darica HPP is calculated according to the directions given in the methodology:

$$P(W/m^2) = \text{Installed Capacity} / \text{Reservoir Surface Area}$$

Reservoir area at operating level= 104,000 m² (this is checked by the verification team on the basis of review of the general site plan submitted by PP. /15/

$$PD (W/m^2) = 110,320,000 W / 104,000 m^2 = 1061 W/m^2$$

Since installed capacity of the project was increased from 99 MWe to 110.32 MWe , project's power density is calculated different than given in the PD.

Eqn. (4)

$$PE_y = 1,061W/m^2$$

Where:

PE_y = Project emissions in year y (tCO₂/yr)

$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (tCO₂e/yr)

Leakage:

There is no leakage related to the project activity.

Net GHG Emission Reduction and Removals

Emission reductions related to project activities must be estimated using ACM0002 version 07 as:

$ER_y = BE_y - PE_y - LE_y$	Eqn. (11) of the methodology
-----------------------------	------------------------------

Where:

ER_y = Emission Reduction in year y (tCO₂/yr)

BE_y = Baseline emissions in year y (tCO₂/yr)

PE_y = Project emissions in year y (tCO₂/yr)

LE_y = Leakage emissions in year y (tCO₂/yr)

As the Leakage Emissions (LE_y) are Zero (0). So, equation 11 of the methodology becomes:

Eqn. (6)

$$ER_y = BE_y - PE_y$$

Thus, on the basis of the actual electricity generation during this monitoring period i.e., 498,373.10 MWh the emission reduction comes out as in table below:

Year	Baseline emissions removals (tCO ₂ e) or	Project emissions removals (tCO ₂ e) or	Leakage emissions (tCO ₂ e)	Net emission reductions or removals (tCO ₂ e) or GHG
2018	152,724	19	0	152,705
2019 (01/01-09/10)	166,234	14	0	166,220
Total	318,958	33	0	318,925

The verification team has determined whether the registered monitoring plan in the PD /B03/ has been properly implemented and followed by the PP and whether all parameters fixed ex-ante for emission reduction calculation are as per the registered PD /B03/. The verification team's assessment of each data and parameter fixed ex-ante is provided in Appendix 5 of this report

The values are consistent with the registered VCS PD/B03/ and fixed ex-ante during 1st renewable crediting period of the project activity. The fixed ex-ante data and parameter have been listed in the monitoring report/01-b/ and confirmed by the verification team as correct and consistent with that stated in the registered VCS PD /B03/. The verification team confirms that the MR/01-d/ and the ER calculation spreadsheet/02-b/ have considered the parameters fixed ex-ante correctly.

The details of the data and parameters monitored during this monitoring period is described in the section 4.2 of the Monitoring report /01 -b/.

Since installed capacity of the project was increased from 99 MWe to 110.32 MWe, project's power density is calculated different than given in the PD and the parameter was cross verified by the MR and the ER calculation sheet, which is in compliance with the section 5.4.1 of the methodology used.

Despite this change, the power density is much higher than 10 (and 4) W/m² , and the project is eligible and not expected to emit significant amounts of CH₄.

During this monitoring period the total actual generation is 498.373.10 MWh and the total ER achieved is 318,925 tCO₂

Verification team confirms that all the values of data other than power density for the monitored parameter is in compliance with the registered monitoring plan as provided in the registered VCS PD/B03/.

It was observed by the verification team that actual emission reduction is less than the estimated emission reduction, as the Darica HPP is a run-of-river HPP, the electricity amount supplied to the grid depends on external physical conditions, i.e., the flow rate and thus, actual electricity generation is lower than the estimated electricity generation which results in lower actual emission reduction.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

CC IPL was able to confirm that the calculations are based on authentic data. The spreadsheets /02-b/used to calculate the VCU calculations and all figures were tracked, checked, and found to be consistent.

The quality of supporting evidence submitted to the VVB for verification is adequate and found to be verifiable.

When verifying the reported emission reductions, CC IPL ensured that there was a clear audit trail that contained the evidence and records that verify the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data were checked by the verification team.

When assessing the audit trails, CC IPL also examined:

1. Whether sufficient evidence was available, both in terms of frequency and in covering the full monitoring period
2. The source and nature of the evidence.
3. If comparable information was available from sources other than that used in the monitoring report, CC IPL cross-checked the monitoring report against the other sources to confirm that the stated figures were correct.

CC IPL also assessed that the data collection system met the requirements of the monitoring plan as per the applied methodology /B02/.

Proper data management inclusive of data acquisition and aggregation, data management system is being followed for the project activity.

The monitoring personnel at site are well trained and follow reproducible routines. Thus, they are competent to carry out the relevant tasks with sufficient accuracy.

Assessment of Ex-post Monitored Parameters:

Monitoring Parameter Requirement	Assessment/ Observation by the DOE					
Data / Parameter: (as in monitoring plan of PDD):	EG _{facility,y}					
Description of parameter	Net Electricity generated and delivered to the grid by the power plant in year y					
Data unit	MWh					
Reported value	498,373.10MWh					
Measuring frequency	Continuous					
Recording frequency	Monthly reading					
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes					
Type of monitoring equipment	Name	Serial Number	Brand & Model	Accuracy Class	Calibration dates	
	Old Main Meter 1	361509	ELSTER – A1500	0.2S	13/12/2017	
	New Main Meter 1	7019969	EMH – LZQJ-XC	0.2S	08/06/2018 24/11/2020	
	Old Back-up Meter 1	361510	ELSTER – A1500	0.2S	13/12/2017	
	New Back-up Meter 1	7019970	EMH – LZQJ-XC	0.2S	08/06/2018 24/11/2020	
	Old Main Meter 2	364713	ELSTER – A1500	0.2S	13/12/2017	
	New Main Meter 2	7019971	EMH – LZQJ-XC	0.2S	08/06/2018 24/11/2020	
	Old Back-up Meter 2	287913	ELSTER – A1500	0.2S	13/12/2017	
	New Back-up Meter 2	7019972	EMH – LZQJ-XC	0.2S	08/06/2018 24/11/2020	
	During this Monitoring Period, the meters were replaced on 08/06/2018 because they completed 10 years expiration date.					
Is accuracy of the monitoring equipments as stated in the PDD?	Yes, the accuracy of the monitoring equipment is as stated in the VCS PD/B03 /.					
Calibration frequency /interval	There will be two ammeters that will backup each other. Maintenance and calibration of the metering devices will be made by TEIAS every two years. If the difference between the readings of two devices exceeds 0.2%, maintenance will be done before waiting for two years					
Company performing the calibration	Ministry of Trade and Industry is responsible for control and calibration of the meters.					
Did calibration confirm proper functioning of monitoring equipment? (Yes / No)	Yes					

Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been crosschecked with other available data?	Yes, the reported data has been cross-checked with the electricity sales invoices/08/ and the monthly records from EPIAS used for monitoring. /13/.
How were the values in the monitoring report verified	The values in the monitoring report were verified through the comparison with the values in the ER sheet/02-b/ and the raw data provided therein, and cross checked with the electricity sales invoices/08/ The meter test protocol /04/ has been cross checked to verify the calibration dates mentioned above.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place.

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Data / Parameter: (as in monitoring plan of PDD):	Fossil Fuel Use
Description of parameter	Diesel used in standby generator
Data unit	tonnes
Reported value	10.57 tonnes Diesel Fuel
Measuring frequency	continuous
Recording frequency	When generator is used
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment	Onsite logs and measurements
Is accuracy of the monitoring equipment as stated in the PDD?	N/A
Calibration frequency /interval	N/A
Company performing the calibration	N/A

<i>Did calibration confirm proper functioning of monitoring equipment? (Yes / No)</i>	N/A
<i>Is(are) calibration(s) valid for the whole reporting period?</i>	N/A
<i>If applicable, has the reported data been crosschecked with other available data?</i>	N/A
<i>How were the values in the monitoring report verified</i>	<i>Verification team has checked the data of the diesel consumption provided by the PP/20/ and cross verified the same during the remote audit with the plant manager.</i>
<i>Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?</i>	N/A

4.6 Non-Permanence Risk Analysis

Not Applicable.

5 VERIFICATION CONCLUSION

Carbon Check (India) Private Ltd., (the VVB) has performed the fifth (5th) emission reduction verification of the registered VCS project activity “Darica HPP Run-Of-River Hydro Project, Turkey” having (VCS ID.: 506). The Project Activity involves installation and operation of a new grid connected 112.42 MW (110.32 MWe) hydropower plant consisting of two turbines located at Ordu provinces of Turkey. The project generates electricity from renewable source of energy (water) and generated electricity is supplied to the Turkish National grid. This will reduce and replace the equivalent amount electricity generated from the carbon intensive power plants in the Turkish national grid thus helps in reducing the GHG emissions.

The project owner is responsible for collection of data in accordance with the monitoring plan and the reporting of GHG emission reductions. It is VVB’s responsibility to express an independent emission reduction verification opinion and certification statement on the reported GHG emission reductions from the project activity. The VVB does not express any opinion on the selected baseline scenario or on the validated and registered PD /B03/. The emission reduction verification is carried out in-line with the requirements of VCS Standard (v4.2) /B01-a/ and VCS Validation and Verification Manual (v3.2) /B01- c/.

The project verification was performed to identify the compliance with implementation and monitoring requirements, and to verify the actual amount of achieved emission reductions, through obtaining evidence and information during remote audit that included:

- (i) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and*
- (ii) the collection of evidence supporting the reported data.*

The emission reduction verification is based on:

- Registered PD (version 04; dated 18/04/2009) and corresponding validation report/B03/*
- ACM0002 “Grid-connected electricity generation from renewable sources” (version 7) /B02/*
- Previous verification (4th verification) MR version 03.0 dated 08/11/2021 and corresponding FVR*
- Monitoring Report (version 06; dated 21/11/2022) /01-e.*

The conclusions can be summarized as follows:

- The project is implemented and installed as planned and described in the registered VCS PD*

/B03/ and project activity confirm with the verification criteria for project and their GHG emission reductions or removals set out in the VCS rules.

- The monitoring plan is in accordance with the applied approved methodology, i.e., ACM0002, version 7/B02/ and monitoring plan as sought out in the registered VCS-PD/B03/.*
- The monitoring system is in place and functional. The project has generated verifiable GHG emission reductions.*

As the result of the verification of the project activity, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. Carbon Check (India) Private Ltd. herewith confirms that the project has achieved emission reductions in the below mentioned reporting period as follows. The project complies with the verification criteria for projects and their GHG emissions reductions or removals set out in VCS rules.

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

Year	Baseline emissions removals (tCO2e)	or	Project emissions or removals (tCO2e)	Leakage emissions (tCO2e)	Net GHG emission reductions or removals (tCO2e)
2018	152,724		19	0	152,705
2019	166,234		14	0	166,220
Total	318,958		33	0	318,925

APPENDIX 1: ABBREVIATIONS

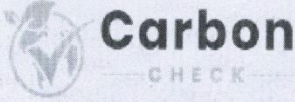
BAU	Business As Usual
CA	Corrective Action / Clarification Action
CER	Certified Emission Reduction
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO ₂	Carbon Dioxide
CO _{2e}	Carbon Dioxide Equivalent
DOE	Designated Operational Entities
DVR	Draft Validation Report
EB	CDM Executive Board
EF	Emission Factor
FA	Final Approval
FAR	Forward Action Request
FVR	Final Validation Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
IPCC	Intergovernmental Panel on Climate Change
MW	Megawatts
MWh	Mega Watt Hour
OSV	On Site Visit
QC/QA	Quality control/ Quality assurance
TA	Technical Area
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VVB	Validation / Verification Body

APPENDIX 2: REFERENCE DOCUMENTS

Ref. No.	Document
/01/	a) Monitoring report version 01, dated 23/12/2021 b) Monitoring report version 02 dated 08/02/2022 c) Monitoring report version 03, dated 10/03/2022 d) Monitoring report version 04, dated 15/03/2022 e) Monitoring report version 06, dated 21/11/2022
/02/	• ER estimated spread sheet correspond to /01-a/ • ER estimated spread sheet correspond to/01-b/
/03/	Technical specifications of the following including their nameplates: a) Turbines b) Energy Meters c) Generators
/04/	Calibration certificates of all electricity meters installed (covering the monitoring period), including initial calibration certificates)
/05/	Map of project location showing exact position of HPP with grid connectivity.
/06/	Records of replacement of broken/faulty electricity meter(s), if applicable
/07/	Daily electricity generation log and Monthly electricity generation records of electricity prepared by power plant technicians.
/08/	Electricity sales invoices issued to the TEIAS Ltd. by PP
/09/	Single line diagram showing the electricity generation, transmission, evacuation and metering system
/10/	Training records of workers and site employees.
/11/	Production license of capacity increased Power Plant
/12/	Evidence of commissioning/ start date of the project.
/13/	The monthly settlement notification of TEIAS used for monitoring.
/14/	Power purchase agreement between TEIAS and and Bilgin Güç Santralleri Enerji Üretim A.Ş.
/15/	Topographical surveys/maps, satellite pictures used for measurement of Apj. Or Darica General Site Plan.
/16/	Remote audit Records.
/17/	https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5
/18/	Electricity generation license dated 22/06/2006

/19/	Investment analysis sheet after deviation in project capacity.
/20/	Diesel consumption data for this monitoring period
/21/	Verification contract between DOE and PP
/22/	Project Emissions Sheet
/B01/	VCS Requirements a. VCS Standard (v4.2, dated 20/01/2022) b. VCS Program Guide (v4.1, dated 20/01/2022) c. VCS Validation and Verification Manual version (v3.2, dated 19/10/2016) d. Registration & Issuance Process (v4.1, dated 20/01/2022) e. VCS Programme Definitions version (v4.1, dated 20/01/2022) f. VCS PD template version 4.0
/B02/	Consolidated baseline methodology for grid connected electricity generation from renewable sources" (ACM0002 version 7)
/B03/	Registered VCS PD (version 04 dated 18/04/2009) and the corresponding Validation Report
/B04/	1. VCS MR Template (Version 04.1)

APPENDIX 3: COMPETENCY CERTIFICATE



Carbon Check (India) Private Ltd.

Ms. Aparna Chaudhary

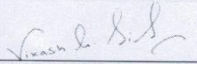
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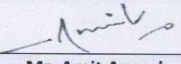
Validator	☒	Team Leader	☒	Technical reviewer	☐
Verifier	☒	Technical Expert	☒	Local Assessor ¹	☒

In the following Technical Areas:

TA 1.1	☐	TA 3.1	☒	TA 9.1	☐	TA 13.1	☐
TA 1.2	☒	TA 4.1	☐	TA 9.2	☐	TA 13.2	☐
TA 2.1	☐	TA 5.1	☐	TA 10.1	☐	TA 14.1	☐



Mr. Vikash Kumar Singh
Compliance Officer



Mr. Amit Anand
CEO

Date of Approval
29/11/2021

Valid Till
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Revision History of the Document

01/03/2020² 01/09/2020 24/12/2020 29/11/2021	Interim Revision for office address change Interim Revision for CCIPL logo change Annual Revision Revision in response to qualification as Team Leader and Technical Expert
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¹ India

² Please refer to previous version of competency certificates for the revision history.

CARBON CHECK (INDIA) PRIVATE LIMITED
CIN: U74930DL2012PTC232495

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Carbon Check (India) Private Ltd.

Ms. Indumathi. C

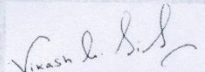
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

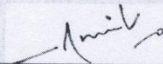
Validator	☐	Team Leader	☒	Technical reviewer	☒
Verifier	☐	Technical Expert	☒	Local Assessor ¹	☒

In the following Technical Areas:

TA 1.1	☒	TA 4.1	☐	TA 9.1	☐	TA 13.1	☒
TA 1.2	☒	TA 5.1	☐	TA 9.2	☐	TA 13.2	☒
TA 3.1	☒	TA 5.2	☐	TA 10.1	☐	TA 14.1	☐



Mr. Vikash Kumar Singh
Compliance Officer



Mr. Amit Anand
CEO

Date of Approval
24/12/2021

Valid Till
23/12/2022

Revision History of the Document

01/03/2020 ²	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision
24/12/2021	Annual Revision

¹ India.

² Please refer to previous version of competency certificates for the revision history.

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APPENDIX 4: CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUEST

Finding	CAR 01		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (DOE)	As per the VCS template for the Monitoring report version 4.1 “Describe and report on any project description deviations applied in previous monitoring reports” PP is requested to complete section 2.2.2 of the MR as per the filling guideline of the MR template.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Relevant sections have been revised as per guideline of the MR template. Description Deviations applied in previous monitoring reports are added into Section 2.1.2.		
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	PP has provided the description of deviation applied in previous monitoring report under section 2.1.2 of the revised MR. The same has been verified by the verification team on the basis of review of the previous monitoring reports. Hence this finding is closed		

Finding	CAR 02		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (DOE)	Verification team has observed that the serial number of the New main meter 1 mentioned in the MR is inconsistent with the serial number provided in the calibration certificate.		

Finding	CAR 02
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	According to Meter Exchange Protocol, which is provided to DOE, old main meter 1 with serial number 361509 was removed, and new main meter 1 with serial number 7019969 was installed on 08.06.2018. In MR, serial number of it mentioned as 70199969 which is typo mistake. It has been revised as 7019969.
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	PP has revised the serial number of new main meter mentioned in the MR from 70199969 to 7019969. Verification team has crosschecked the serial number of the new main meter from the meter exchange protocol submitted by the PP. Hence this finding is closed.

Finding	CAR 03
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding (DOE)	It has been observed by the verification team that the value for the parameter EF_{CO_2} y provided in the MR is not consistent with the value provided in the ER sheet. PP is requested to check and make the required correction.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	EF_{CO_2} parameter in MR has been revised to be consistent with the value provided in the ER sheet.
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	PP has revised the value of the EF_{CO_2} mentioned in the MR and verification team confirms that the value mentioned in the revised MR is consistent with the ER spreadsheet. Hence this finding is closed now.

Finding	CAR 04
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding (DOE)	Verification team observed that the value of Project Emission mentioned in the table under section 5.4 of the MR is inconsistent with the value of the PE calculated in the ER sheet. PP is requested to check the same and make the required correction.

Finding	CAR 04
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Project emissions were calculated based on the monthly diesel generation. In ER excel - Project Emissions sheet, it can be seen the actual value for October. However, end date of the verification is 09/10/2019. So, the first 9 days of the value should be considered. So, the ratio for first 9 days has been considered in ER of Darica HPP sheet. Now, it has been revised to avoid misunderstanding, and value of PE in MR and Project Emission sheet is now consistent.
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	PP has revised the Project emission for the month of October in the Emission reduction spreadsheet. Initially it was calculated for the whole month of October but as the end date of the verification 09/10/2019 so the value for the first nine days has been considered and now the value of the project emission considered for the project is consistent with the value provided in the MR. Thus the finding is closed now.

Finding	CAR 05
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding (DOE)	PP is requested to provide the detail about the grievance mechanism followed during this monitoring period..
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	It has been provided under section 2.2 of the MR.
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	The verification team on the basis of the review of the monitoring report V.4 dated 15/03/2022 observed that the grievance mechanism followed in this monitoring period is provided by the PP in the section 2.2 of the MR Thus, this finding is closed.

Finding	CL 01
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding (DOE)	PP is requested to clarify the calculation of the reservoir area at maximum operating level provided in the MR based on the Darica General site plan.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Reservoir area at maximum operating level was calculated by determining the surface of the maximum water level on the map. Reservoir area map in kmz format has been provided to DOE.

Finding	CL 01
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	PP has provided the map of Darica reservoir area in the format of Kms and the same has been reviewed by the verification team to confirm that the reservoir area at maximum operating level is 104,000 m ² . Thus, the finding is closed.

Finding	CL02		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (DOE)	PP is requested to clarify the serial no of "old back up meter 2" as the verification team has found a discrepancy between the monitoring report V.3.0 and the electricity meter photos		
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 Meter Change Protocol, meter with serial number 364714 was changed with the meter having serial number of 287913 on 12/05/2016. The reason for the change is stated in the Meter Change Protocol as "the remote reading portal is malfunctioning, and the Protocol has already been provided. However, it was not included in the Monitoring Report because the change does not occur in this monitoring period.		
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	The verification team on the basis of the review of meter change protocol, It has been confirmed that the meter with serial no 287913 is replaced with meter no 364714, thus the finding is closed.		

APPENDIX 5: ASSESSMENT OF MONITORING PARAMETERS FIXED EX-ANTE

Parameter	Description	Value	Unit	Source	Assessment
$FC_{i,y}$	Amount of fossil fuel type i consumed by the Project electricity system	10.57	m ³ or tonnes	TEİAŞ web page (www.teias.gov.tr)	The parameter is used for the ex-ante calculation of the baseline emission for the project activity. They are not required at the time of verification. The value is consistent with the registered VCS PD/B03/ and fixed ex-ante for the project activity.
$NCV_{i,y}$	Net calorific value (energy content) of fossil fuel type i in year y	43.3	TJ/kt	Calculated for Turkish grid using TEİAŞ data (www.teias.gov.tr)	The value is consistent with the registered VCS PD/B03/ and fixed ex-ante for the project activity. The value is used during the calculation of the simple OM and calculation of baseline emission and is considered in compliance with the registered VCS PD
$EFCO_{2,i,y}$	CO ₂ emission factor of fossil fuel type i in year y	Between 0.0543 and 0.0946 depending on type of fuel – defined in PDD	tCO ₂ /GJ	2006 IPCC Guidelines for National Greenhouse Inventories	The value considered in the MR is in line with the registered VCS PD and is used for the calculation of baseline emission.

EFCO _{2y}	CO ₂ emission factor of fossil fuel type i in year y	3.239 tonnes CO ₂ per tonne fuel	tCO ₂ /t	2006 IPCC Guidelines for National Greenhouse Inventories	<i>The parameter is used for the ex-ante calculation of the emission factor for the project activity. They are not required at the time of verification. The value is consistent with the registered VCS PD/B03/ and fixed ex-ante for the project activity.</i>
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