



Verified Carbon Standard

CEVIZLIK RUN-OF-RIVER HYDROELECTRIC POWER PLANT



Document Prepared by Earthood Services Private Limited

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Summary:

Earthood Services Private Limited (hereafter referred to as ESPL) has been contracted by Sanko Enerji Sanayi ve Ticaret A.Ş to conduct the validation of renewal of the crediting period of the project - “Cevizlik Run-of-River Hydroelectric Power Plant” (VCS ID- 753), in accordance to VCS Program Guide, version 4.1/2/ and VCS Standard, version 4.2/1/. Also, relevant requirements of the UNFCCC for CDM Project Activities, as well as criteria for consistent project operations, monitoring and reporting has been applied for the validation.

The project activity involves the construction of a Greenfield project 92.96 MW run-of-river hydroelectric power plant to generate energy, The hydroelectric power plant has been built underground without any upstream reservoir lake in the İyidere river basin, in Eastern Black Sea Region of Republic of Turkey. The electricity generated from the project activity is delivered to the Turkish National Grid and the project activity reduces GHG emissions that would have otherwise occurred in the baseline scenario. i.e., electricity generation from the fossil fuel sources in the Turkish National grid.

The objective of the project activity is to harness renewable energy in the form of Hydro potential for supplying power to the Turkish National Grid. Thus, project activity displaces the equivalent amount of electricity from the grid which is predominantly generated through fossil fuel-based power plant. The project activity results in reductions of greenhouse gas (GHG) emissions that are real, measurable, and verifiable and also plays beneficial role in the mitigation of climate change. This is the proposed 2nd crediting period of the project which results in an estimated GHG emission reduction of 162,665 tCO₂e annually and a total of 1,626,652 tCO₂e over 10 years of the crediting period claimed. The power generated by the project will be replacing the equivalent amount of electricity from the Turkish National Grid, which is dominated by fossil fuel-based grid connected power plants.

The project activity was registered on VCS registry with version 10 of the CDM approved methodology ACM0002: Grid-connected electricity generation from renewable sources. During the current renewal of the crediting period, the project activity applies the latest version 20 of the CDM approved methodology ACM0002: Grid-connected electricity generation from renewable sources. /3/.

The scope of the re-validation is to establish that:

- The proposed project activity still complies with the corresponding details provided in the registered VCS-PD/5/ and the latest version of the VCS-PD provided at the time of renewal/6/;
- The proposed project activity complies with all relevant VCS rules and requirements. The VCS renewal of crediting period was based on the updated VCS-PD/6/, estimated emission reduction

calculation spreadsheet/7/, information from current validated VCS-PD and supporting documents made available to the ESPL by the project participant.

- The project activity correctly identifies and applies the latest available valid version of the baseline and monitoring methodology
- Baseline scenario of the project activity is still applicable with respect to the current scenario at the time of renewal of crediting period of the VCS project activity
- The project activity is still additional with the scope of regulatory surplus
- The proposed monitoring plan complies with all requirements of applied methodology/3/.

Conclusion

ESPL has performed the validation of the renewal of crediting period of the project “Cevizlik Run-of-River Hydroelectric Power Plant” with VCS Project ID 753.

A risk-based approach has been followed to perform this VCS validation of the renewal of crediting period. During validation, total of 02 Clarification request (CLs), 02 Corrective Action request (CARs) and 00 Forward Action Request (FAR) were raised and successfully closed.

As outcomes of this validation, the validation team confirms that:

- the latest available VCS-PD template has been applied.
- the original baseline is still valid as it is directed by the applied methodology.
- the project additionality remains valid for the renewal of the crediting period as per section 3.8.9, paragraph 1 of the VCS Standard version 4.2.
- No regulatory constraint has been identified. The project is in accordance with all applicable regulations and legislations and regulatory surplus.
- the project description is in accordance with the characteristics identified on site and in the registered VCS PD.
- the monitoring plan is adequate to the project activity and is in accordance with the applied methodology.

The project activity is likely to achieve the estimated emission reductions of 162,665 tCO₂e per year during the 2nd crediting period.

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1 INTRODUCTION

1.1 Objective

Earthood Services Private Limited has been contracted by Sanko Enerji Sanayi ve Ticaret A.Ş to conduct the validation of the renewal of 2nd crediting period for the VCS project activity “Cevizlik Run-of-River Hydroelectric Power Plant” for the period from 29 May 2020 to 28 May 2030 (including both days).

The purpose of this validation is to have an independent third-party assessment of whether the project activity conforms to the qualification criteria set out in the VCS Standard, version 4.2 to attain real, measurable, additional and permanent emission reductions. The validation statement/opinion is a written assurance that:

- The project complies with all the applicable VCS requirements and has the ability to generate the emission reductions stated over the project’s crediting period.
- The validation followed the requirements of the current version of the VCS Standard, version 4.2 and VCS Program Guide, version 4.1 to ensure the quality and consistency of the validation work and the report.
- The project shall result in emission reductions as declared by the organisation or GHG project’s GHG assertion.
- The data reported is accurate, complete, consistent, transparent and free of material error or omission.

1.2 Scope and Criteria

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

- the project is in accordance with requirements of the VCS Standard, version 4.2/1/
- the update of the applied methodology is in accordance with CDM large scale methodology ACM0002 version- 20.0/3/ and applicable tools/4/
- the validation of the renewal of crediting period is in accordance with requirements of CDM methodological tool “Assessment of the validity of the original / current baseline and update of the baseline at the renewal of the crediting period” – version 3.0.1/4/
- The validation of the renewal of crediting period is based on the registered VCS-PD/5/, revised VCS-PD/6/ and estimated GHG emission reductions calculations/7/.

1.3 Level of Assurance

- Reasonable level of assurance.

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

In the draft validation report (prepared by assessment team), the information provided is reviewed by an independent technical review team (one or more members) to confirm if the internal

procedures established and implemented by ESPL were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable VCS and CDM (Clean Development Mechanism) requirements as appropriate. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of the technical review team are independent of the validation team. The report approved by the Technical Manager is endorsed by the Managing Director, who is overall responsible to ensure quality, before the final release. Further details of applicable procedures and responsibilities concerning the ESPL Quality Management System (QMS) are available on its website (www.earthood.in).

Additionally, reasonable level of assurance is achieved in-spite of no site visit being conducted. This has been possible with the help of alternate means applied for the validation process, as discussed in detail in section 2.4 of this report.

1.4 Summary Description of the Project

The VCS project activity consists of construction of a greenfield hydroelectric power plant. The power plant involves installation of two Francis hydroelectric turbines each with an installed capacity of 46.48 MW each to generate electricity from Iyidere River in Rize city of Republic of Turkey. The power plant is built underground without any upstream reservoir lake. The Electricity generated is delivered to the Turkish National grid and the project activity reduces GHG emissions that would have otherwise occurred in the baseline scenario. i.e., electricity generation from the fossil fuel sources dominated the Turkish National grid.

The project activity has an installed capacity of 92.96 MW and is expected to generate approximately 330 GWh/year of electricity as per the generation license issued by EMRA/8/. The project is up and running from last more than 10 years and have successfully completed the first crediting period. The Electricity generated by the power plant is supplied to the national grid utilizing a renewable resource.

During the second crediting period starting from 29 May 2020 to 28 May 2030 (including both days), it is estimated that the project activity will reduce the average annual emission reductions up to 162,665 t CO_{2e}.

The project is listed at VCS and can be accessed by the following link: <https://registry.verra.org/app/projectDetail/VCS/753>.

2 VALIDATION PROCESS

2.1 Method and Criteria

The validation of the renewal of crediting period process is conducted as per internal ESPL Quality Manual and in accordance with criteria laid down by VCS. It includes the following steps:

- contract with PP for the scope and appointment of validation team and technical review team.
- completeness check of renewed VCS-PD
- desk review of renewed VCS-PD and estimated GHG emission reduction calculation sheet
- remote inspection by validation team
- follow up interviews with PP and Project Owner
- reporting and closure of findings (CARs/CLs/FARs) and preparation of draft validation report

- independent technical review of the draft validation report and final/revised documentation (e.g., VCS-PD, corresponding estimated ER calculations sheet and evidence)
- issuance of the final validation report to the contracted PP

2.2 Document Review

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

- a. a review of the data and information presented to assess its completeness.
- b. a review of the registered VCS-PD/5/, renewed VCS-PD/6/, estimated GHG emission reduction calculation sheet/7/, the applied methodology/3/ including applicable tool(s)/4/ and relevant laws regulations for the host country.
- c. supporting documents as provided by the Project Participant and listed under Appendix 1.

A complete list of documents/evidence reviewed is included as Appendix I.

2.3 Interviews

The assessment team has carried out remote interviews in order to verify the information included in the project documentation and to gain additional information regarding the compliance of the project with the VCS requirements. The project owner and the representatives of the project activity were interviewed during the online interviews.

The remote audit was conducted for the project activity on 24 March 2022 through zoom application. Details on interviews have been provided in Section 2.4.

2.4 Site Inspections

The current validation was based on the virtual means for physical site visit. This was deemed sufficient to confirm the plant operations and other aspect of the project operations. Approach was in accordance with para 4.1.2 of the VCS Standard, version 4.2/1/, the VVB used other standard auditing techniques during the validation.

Other than the desk review, the validation team has employed remote audit interviews as means to carry out its assessment and arrive at a reasonable level of assurance. Various aspects of project activity such as project implementation, project boundary, current situation, monitoring procedures were discussed with the PP representative during the online remote interviews. Timestamped photographs and video recordings of the project site was also considered as an effective alternative means for carrying out this validation/10/.

The main topics covered during the remote interview are as follows:

- General aspects of the project and its implementation
- Equipment and operation since start of the project activity
- Staff training procedures and calibration procedures
- Monitoring & measuring System
- Mechanism for ongoing local stakeholder's consultation
- Data collection, recording and archiving procedure
- QA/QC procedures and VCS documentation

- Emission reduction calculations

The details of the remote video interview are as follows –

No.	Interviewee			Date	Subject	Validation Team member
	Last name	First name	Affiliation			
1.	Afacan	Müge	Lead Consultant, Project Manager, Gaia Climate	24 March 2022	Project Activity, Technology, Location and Implementation, lifetime, Choice and applicability of baseline methodology	Shifali Guleria, Jahnabi Kalita and Kubra Agriman,
2.	Garipler	Buse	Project Analyst, Gaia Climate	24 March 2022	Project boundary and emission sources included in the project boundary.	Shifali Guleria, Jahnabi Kalita and Kubra Agriman,
3.	Artik	Furkan	Operations Manager, Gaia Climate	24 March 2022	Ex-ante and monitored parameter, estimated ER calculations	Shifali Guleria, Jahnabi Kalita and Kubra Agriman,
4.	Karaca	Gamze	Sustainability and Climate Change Expert, Gaia Climate	24 March 2022	Baseline identification	Shifali Guleria, Jahnabi Kalita and Kubra Agriman,
5.	Dervişoğulları	Muhsin	Project Development Manager, Sanko Enerji	24 March 2022	Monitoring plan, feasibility of monitoring arrangements described in PDD	Shifali Guleria, Jahnabi Kalita and Kubra Agriman,
6.	Karakaya	Yağız	Financial Expert, Sanko Enerji	24 March 2022	Responsibility of implementation of monitoring plan	Shifali Guleria, Jahnabi Kalita

						and Kubra Agriman,
7.	Kaya	İsmet	Operations Manager, Sanko Enerji	24 March 2022	QA/QC procedures, data recording & storage procedures	Shifali Guleria, Jahnabi Kalita and Kubra Agriman,
8.	Gümüşler	Reyhan	Project worker (Female), Sanko Enerji	24 March 2022	Trainings	Shifali Guleria, Jahnabi Kalita and Kubra Agriman,
9.	K. Çolak	Emine	Project worker (Female), Sanko Enerji	24 March 2022		
10.	Veci	Albayrak	Project worker, Sanko Enerji	24 March 2022		
11.	Volkan	Gümüşler	Project worker, Sanko Enerji	24 March 2022		
12.	Kabaoğlu	Niyazi	Chairman Of The Mukhtars Association	24 March 2022		
13.	Baş	Mehmet	Gürdere Village	24 March 2022	Local Stakeholders Interview	Shifali Guleria, Jahnabi Kalita and Kubra Agriman,
14.	Reyhan	Mustafa	Ağaçseven Village	24 March 2022		
15.	Emine	Adil	Soğuksu Village	24 March 2022		

16.	Baş	Veysel	Gürdere Village	24 March 2022		
17.	Baş	Ramazan	Gürdere Village	24 March 2022		
18.	Baş	Engin	Gürdere Village	24 March 2022		

2.5 Resolution of Findings

The findings may be of the following types: CAR- Corrective Action Request, CL- Clarification Request, FAR- Forward Action Request.

A total of 02 CARs and 02 CLs was raised during the current verification. All the findings that are raised and communicated to project participants during the validation of the renewal of the crediting period are included in Appendix IV. The section also includes the responses provided by the project participants, along with an assessment by the validation team if it was closed out or otherwise.

The renewed PD was revised to account for the CARs and CLs issued by ESPL, which was rechecked with the documentary evidences and was found to be inline. After reviewing the renewed PD/6/ and estimated GHG emission reductions calculation sheet/7/; addressing the findings raised and outstanding concerns, final validation report and opinion was issued by ESPL.

2.5.1 Forward Action Requests

No FAR was raised during the validation.

3 VALIDATION FINDINGS

3.1 Project Details

The project activity is already a registered project activity by VCS ID- 753. From the start of the first crediting period, the hydroelectric power plant is operational and has been supplying renewable electricity to the national grid ever since. The current validation is for renewal of the crediting period for the project for 2nd crediting period ranging from 29 May 2020 to 28 May 2030.

The characteristics of the project activity as re-validated are described below:

- Project type, technologies and measures implemented and eligibility of the project:

The project activity is a non-AFOLU, hydroelectric powerplant that involves the installation of a greenfield 92.96 MW run-of-river hydroelectric power plant to generate electricity energy by utilizing the 230 m of the head between the tailwater level of the upstream existing İkidere HEPP and the

Kalkandere HEPP project. The capacity of the plant was cross checked with the generation license/8/ and registered VCS PD/5/. Electricity generated by the project activity is delivered to the Turkish National Grid and the project activity reduces GHG emissions that would have otherwise occurred in the baseline scenario. i.e., electricity generation from the fossil fuel sources.

The power plant involves installation of two Francis hydroelectric turbines each with an installed capacity of 46.48 MW and is built underground without any upstream reservoir lake. The following key parameters are checked as mentioned in the registered PD and revised PD submitted for renewal: the details are found consistent in validated registered PD and revised PD submitted for renewal. The technical specifications of the project activity and their means of validation has been described below:

Component	Property	Means of validation
Turbine type	Francis	The specifications of the turbine were verified from the generation license/8/. It was also cross checked with the timestamped photographs of the project site/10/. The information was found to be consistent with the registered VCS PD/5/.
Turbine firm	Alstom	
Rotation	300 r / min	
Production year	2007	
Average flow rate	25 m ³ / s	
Number of turbines	2	
Serial numbers of the turbines	2060 & 2061	
Installed capacity of each turbine	46,48 MWm / 45,70 MWe	

The estimated annual emission reductions for the project activity are 162,665 tCO₂e (proposed annualized average value) is lower than 300,000 tCO₂e per year. Hence the project activity is applicable under “Project” in line with para 3.9.1 of the VCS Standard, version 4.2/1/. Cevizlik Run-of-River Hydroelectric Power Plant also fulfils eligible project types & scope under renewable energy activity requirements.

- Project design, including eligibility criteria for grouped projects:

There is no design change involved during the renewal of the crediting period as checked from the registered VCS PD/5/. The project is not a grouped activity.

- Project Proponents and other entities involved in the project:

Sanko Enerji Sanayi ve Ticaret A.Ş is the project proponent. The name of the project proponent is crossed checked with the generation license/8/ and registered VCS PD/5/.

Gaia Finansal Danışmanlık Hizmetleri Ticaret Limited Şirketi (Gaia Climate) is acting as the consultant for the project activity. The role of Gaia climate has been confirmed from the carbon agreement/11/.

- Ownership:

Sanko Enerji Sanayi ve Ticaret A.Ş holds all licenses, permits, and rights for ownership of Cevizlik HEPP. The ownership has been confirmed from the generation licence issued by EMRA/8/. It was found to be consistent with the registered VCS PD/5/.

- Project Category:

Project ($\leq 300,000$ tCO_{2e}/y); The estimated annual emission reductions for the project activity are 162,665 tCO_{2e} per year (proposed annualized average value) is lower than 300,000 tCO_{2e}. Hence the category is applicable under "Project".

- Methodology:

The project activity has applied approved CDM methodology ACM0002: Grid-connected electricity generation from renewable sources. Version 20.0. /01/. The methodology has been correctly applied and is applicable to the project activity.

- Estimated GHG emission reductions:

The project activity is expected to avoid the emissions of 162,665 tCO_{2e} per year and 1,626,652tCO_{2e} over the entire 2nd crediting period. The emission reduction calculation approach is found appropriate in line with the applied methodology. The input data and assumption are based on the validated project details. The same has been discussed in later section of this report.

- Project Start Date:

The start date of the project activity is 29 May 2010. It is defined as that date on which the project proponent marks the start of the first GHG emission reduction. The start of the project has been checked with the validation report/9/.

- Project Crediting Period:

The first crediting period of the project activity was from 29 May 2010 to 28 May 2020 and the second crediting period starts from 29 May 2020 to 28 May 2030. The crediting period is consistent with information provided on project activity page on verra website/12/.

- Project scale and estimated GHG emission reductions or removals:

The estimated annual emission reductions for the project activity 162,665 tCO_{2e} is lower than 300,000 tCO_{2e} per year. Hence the project activity is applicable under "Project" in line with para 3.9.1 of the VCS Standard, version 4.2/1/.

The project activity is expected to avoid the emissions of 162,665tCO_{2e} per year and 1,626,652 tCO_{2e} over the entire 2nd crediting period. The emission reduction calculation approach is found appropriate in line with the applied methodology/3/. The input data and assumption are based on the validated project details. The same has been discussed in later section of this report.

- Project Location:

The project site lies between 40° 50' 37" N latitudes and 40° 28' 31" E longitudes. The power plant is located on Iyidere River in Rize city of Turkey. The location of the project activity has been re-checked with the validation report and previous verification report. The geo-coordinates of the plant location were verified using an online geographic tool, Latlong.net/23/.

also cross verified during the remote audit.

- Conditions prior to project initiation:

Electricity delivered to the grid by the projects 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 v.07/4/

- Project compliance with applicable laws, statutes and other regulatory frameworks:

Cevizilik HEPP has been in continuous operation since its start date on 27/06/2007. The project has still valid government approval and license to operate in the host country.

With the help of the local expert of the host country and the project proponent, it has been checked that project activity complies with all applicable laws and regulations in Turkey such as:

- a. Electricity Market Law/13/ (Law Number: 6446, ratified 14/03/2013, enacted 30/03/2013)
- b. Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy/14/ (Law Number: 5346, ratified 10/05/2005, enacted 11/08/1983)
- c. Environment Law /15/ (Law Number: 2872, ratified 09/08/1983, enacted 11/08/1983)

- Participation and/or rejection under other GHG programs:

The project activity has not participated in any other GHG program. This has been checked through publicly available information as well as confirmation from the project proponent/16/ and through independent research by the local expert of hydropower projects in the host country registered under various GHG offset programmes.

- Other forms of credit:

o Emissions trading programs and other binding limits:

GHG emission reductions generated by the project are not included in an emissions trading program or any other mechanism that includes GHG allowance trading. The project activity is not registered with any other GHG program. The same has been checked by means of declaration from the project proponent/16/ and verified by interview with project proponent during the remote audit.

- Other forms of environmental credit sought or received and eligible to be sought or received:

The project has not received nor participated in any other form of environmental credit. The project proponent also does not intent to participate in any other such scheme. This has been confirmed by declaration of the project during the remote audit.

- Sustainable development contribution:

The project is said to contribute to sustainable development via environmental, economic, social, and technological means.

SDG 7: Affordable and Clean Energy

The project activity contributes to the SDG target 7.2 "By 2030, increase substantially the share of renewable energy in the global energy mix". The project is expected to generate approximately 330 GWh/year of clean renewable electricity as per the generation license issued by EMRA/8/.

SDG 8: Decent Work and Economic Growth

The project activity contributes to the SDG indicator 8.5.2 "Unemployment rate, by sex, age and persons with disabilities" and following target 8.5 "By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value". The project has created employment for 28 people (25 local employment, 2 women) during the operation phase. The employment records/17/ has been checked by the VVB was found acceptable. Appropriate trainings were provided to the staff which was cross checked through training records /18/.

SDG13: Climate Action

The project activity contributes to the SDG indicator 13.3.2 “Number of countries that have communicated the strengthening of institutional, systemic and individual capacity- building to implement adaptation, mitigation, and technology transfer, and development actions” and to the target 13.3 “Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning”. The project aims to achieve emission reductions of 162,665 tCO_{2e} per year during the 2nd crediting period.

- Additional Information related to the Project:

- a. Leakage Management: Since there is no transfer of energy generating equipment from or to another activity, according to ACM0002. version 20/3/, there is no leakage and the value is considered NIL.
- b. Commercial Sensitive Information: There is no sensitive information included in the project document by the project proponent.

The overall description, implementation and project design as mentioned in the renewed VCS PD/6/ is found to be accurate, complete, and consistent with the validated registered VCS PD/5/. The revised PD submitted for renewal provides a clear understanding of the nature of the project.

3.2 Safeguards

3.2.1 No Net Harm

There is no negative impact to any socio-economic conditions of the region due to the project activity. No adverse environmental impact has been envisaged in the project activity. All the necessary clearances government department have been obtained. This project activity will not involve any negative environmental or socio-economic impacts, as the turbines are installed for generation of power using hydro power which is a clean source of energy. Hence, no mitigation measures are required. Instead, the project contributed significantly to the socioeconomic development of the project area. During the second crediting period, analyses of streambed downstream and upstream water as well as monitoring studies are performed every six months, The validation team has cross checked the report issued by The Ministry of Agriculture and Forestry/24/ and confirms that there is no negative impact on the on Iyidere Stream.

3.2.2 Local Stakeholder Consultation

The local stakeholder consultation was done during the validation of the project activity at the time of first crediting period. The details of the same have been checked in the registered PD/5/ as well as its validation report/9/ and found appropriate.

It is not mandatory to conduct a second stakeholder’s meeting during the renewal of crediting period. However, as per the para 3.17.4 of VCS standard, version 4.2/1/, the mechanism of ongoing communication with local stakeholders has been checked. As a part of the process, remote interview with relevant Local Stakeholders was conducted by the validation team with support of VVB’s local expert on 24/03/2022. It was confirmed the overall feedback of stakeholders regarding the project were very positive and affirmative. It is safe to say that the project benefited the region by increasing the employment generation and creating more efficient economic activities. The social and environmental benefits as mentioned in the revised PD have been confirmed by the interviewed local stakeholders.

The project activity has not received any negative comments. There is an active grievance mechanism in place for the project. A digital platform has been created to register complaints

from the local stakeholders. A public relations team has been developed to address the complaints and will serve as a point of contact for the local stakeholders. This has been verified during the remote interviews with Local Stakeholders conducted by the validation team with support of VVB's local expert.

Thus, it has been confirmed that project proponent has well established mechanism for ongoing communication with local stakeholders and over feedback regarding the project activity is positive.

3.2.3 Environmental Impact

As per as the legal requirements of the host country, the environmental impact and its assessment were done at the time of the construction phase of the project activity. The details for the same have been cross checked with the registered PD/5/ and its subsequent validation report/9/.

The project proponent has also submitted the EIA report/19/ for the project activity carried out during the installation phase. Under EIA, the project activity had been evaluated under Article 4 of the Environment Impact Assessment Regulation, enacted and published in official gazette no. 25318 on 16/12/2003. EIA report was prepared and evaluated the possible impacts of the project with the decision numbered 1130 on 24/07/2006 from the Ministry of Forestry. There is no negative impact of the project. Impact on aquatic life and landscape were minimized and appropriate mitigation measures were applied. The emission and noise have also been properly addressed in the EIA report /19/ while being reviewed by a third party

The issues identified at the time of EIA study have been taken care by the project proponent and relevant ongoing monitoring of the environmental parameters is being done on regular basis.

3.2.4 Public Comments

The project activity has not received any comments during the public comment period.

3.2.5 AFOLU-Specific Safeguards

Since this is a non-AFOLU projects, this section is not applicable.

3.3 Application of Methodology

3.3.1 Title and Reference

The project activity has applied CDM approved methodology ACM0002 - Grid-connected electricity generation from renewable sources, version 20.0/3/.

Tools/4/ referenced in the applied methodology:

- Tool to calculate the emission factor for an electricity system - Version 07.0
- Tool for the demonstration and assessment of additionality - Version 07.0.0
- Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, Version 03.0.1

3.3.2 Applicability

All applicability conditions of the updated version of the methodology (ACM0002 version 20.0) /3/ are met. Thus, the methodology is deemed fully applicable for the new crediting period and no request for deviation with regards to the applicability of the methodology is required. All applicability conditions are completely and correctly included in the renewed VCS PD/6/. The assessment of the applicability conditions are presented in the table below:

Applicability conditions	Justification by PD	Validation assessment
<p>This methodology is applicable to grid-connected renewable energy power generation project activities that:</p> <ul style="list-style-type: none"> (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). 	<p>The project activity is a Greenfield grid connected run-of-river hydropower project.</p>	<p>Project activity is Greenfield hydro power project, supplying electricity to national grid. This is verified through the screenshots of Piyasa Mali Uzlaştırma Merkezi (PMUM) - Market Financial Reconciliation Center/20/ and generation license/8/. Thus, the criterion is fulfilled by the proposed project activity</p>
<p>The project activity may include renewable energy power plant/unit of one of the following types:</p> <p>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;</p>	<p>The project activity includes hydro power plant without reservoir and hence, the methodology is applicable</p>	<p>The proposed project activity is a hydro power plant with an underground reservoir.</p> <p>Thus, the criterion is fulfilled by the proposed project activity</p>

<p>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.</p>	<p>The project activity does not involve any capacity additions, retrofits, rehabilitations or replacements</p>	<p>Not Applicable as the project activity was envisaged and registered as green field project activity.</p>
<p>In case of hydro power plants, one of the following conditions shall apply:</p> <p>(a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or</p> <p>(b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (7) of the methodology ACM0002, is greater than 4 W/m²; or</p> <p>(c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (8) of the methodology ACM0002, is greater than 4 W/m²; or</p> <p>(d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (8) of the methodology ACM0002, is lower than or equal to 4</p>	<p>This condition is not applicable to the project activity as it does not result in a new reservoir.</p> <p>However, the project activity involves the construction of a regulation pond with a surface area of 14 091 m².</p> <p>The power density (PD) for this regulation pond is calculated as follows:</p> $PD = 92\,960\,000 \text{ W} / 14\,091 \text{ m}^2$ $PD = 6\,597 \text{ W/m}^2$ $PD > 4 \text{ W/m}^2$ $PD > 10 \text{ W/m}^2,$ <p>therefore, according to the methodology, there will be no emissions from the regulation pond.</p>	<p>This is not applicable to the project activity as there is no new reservoir built. Although a regulation pond is constructed with a surface area of 14 091 m² and a power density greater than 10 W/m², hence resulting in no emissions.</p>

<p>W/m², all of the following conditions shall apply:</p> <p>(i) The power density calculated using the total installed capacity of the integrated project, as per equation (8) of the methodology ACM0002, is greater than 4 W/m² ;</p> <p>(ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity;</p> <p>(iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be: a.) Lower than or equal to 15 MW; and b.) Less than 10 percent of the total installed capacity of integrated hydro power project.</p>		
<p>In the case of integrated hydro power projects, the project proponent shall:</p> <p>(a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute the generation capacity of the integrated hydro power project; or</p> <p>(b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of a 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</p>	<p>Not applicable as the proposed project activity does not involves integrated hydro power projects</p>	<p>Not applicable as the proposed project activity is not an integrated hydropower plant</p>

flows from river, tributaries (if any), and rainfall for a minimum five years prior to implementation of CDM project activity.		
The methodology is not applicable to: (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case, the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units.	This condition is not applicable to the project activity as it does not involve switching from fossil fuel to renewable energy at the site of the project activity, nor biomass fired power plants/units.	Not applicable as the proposed project activity is not a Biomass based plant.
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.	The project activity does not involve capacity additions, retrofits, rehabilitations or replacements	Not applicable as the project activity does not retrofits, rehabilitations, replacements, or capacity additions.

Thus, applied baseline and monitoring methodology ACM0002, version 20/3/ is applicable to the project activity. Apart from the methodology, following tools/4/ are referred in the PD, which are found applicable to the project activity in accordance with the applied methodology/3/. The assessment opinion of the applicability of the methodological tools are presented in the table below:

Tool	Applicability conditions	Validation Assessment
Tool for the demonstration and assessment of additionality, Version 07	The use of the “Tool for the demonstration and assessment of additionality” is not mandatory for project participants when proposing new methodologies. Project participants may propose alternative methods to demonstrate additionality for consideration by the Executive Board. They may also submit revisions to approved methodologies using the additionality tool, 10.	Not Applicable as no new methodology has been applied during the renewal of the crediting period.
	Once the additionally tool is included in an approved methodology, its application by	The application of the tool is mandatory as it is included

	<p>project participants using this methodology is mandatory</p>	<p>under the applied methodology, ACM0002 version 20/3/.</p>
<p>Tool to calculate the emission factor for an electricity system, Version 07</p>	<p>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).</p>	<p>The project activity reduces GHG emissions by supplying electricity to the Turkish National grid that would have otherwise occurred in the baseline scenario. i.e., electricity generation from the fossil fuel sources dominated the Turkish National grid. Therefore, the tool is used for the calculation of OM, BM and CM</p>
	<p>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 IIa and option IIb. If option IIa is chosen, the conditions specified in “Appendix 1: Procedures related to off-grid power generation” should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.</p>	<p>The project activity is a grid connected hydro power plant and hence the baseline grid emission factor is determined in line with the tool, sourced from the nationally published data for Turkish Government Ministry of Energy and Natural Resources/22/. The validation team confirms that the most recent information available at the time of renewal of the crediting period is used to calculate combined margin (CM).</p>
	<p>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.</p>	<p>The project activity is not a CDM project.</p>

	Under this tool, the value applied to the CO2 emission factor of biofuels is zero	Not applicable
Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period," Version 03.0.1	This tool provides a stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period, as required by paragraph 49 (a) of the modalities and procedures of the clean development mechanism.	The project baseline being the use of electricity from the national grid from the first crediting period is valid during the renewal of the crediting period. The assessment on the baseline scenario during the renewal has been explained in detail in section 3.4 of this report.

3.3.3 Project Boundary

The project boundary is the physical geographical site of the Cevizilik HEPP and since the project is connected to the Turkish National Grid, all power plants connected physically to the Turkish national electricity grid and feeding electricity into it will be included in the project boundary.

There is no change in the project boundary since the registration of the project activity and project boundary has been correctly identified in the renewed VCS PD/6/.

3.3.4 Baseline Scenario

The baseline scenario selected for the project activity was electricity generation from the grid connected power plants and it is still valid for 2nd crediting period. Further selected baseline scenario is in accordance with the applied methodology: "ACM0002: Grid-connected electricity generation from renewable sources. Version 20.0"/3/.

Thus, as per VCS Standard, version 4.2/1/, paragraph 2b. "the GHG emissions associated with the original baseline scenario shall be reassessed using the latest version of the CDM "Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period".

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

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

Validation assessment: - The selected current baseline scenario complies with all relevant mandatory national/sectoral legislation since no other laws that impact the project activity have come into force. The installation of a renewable energy based green field power plant is still legally approved and not a mandated option in Turkey. This has been checked with various laws referred in the additionality section of this report/13,14,15/ and with the local expert of assessment team.

The baseline scenario identified by the PP was found to be in accordance with applied methodology/3/ and the registered PD/5/. Therefore, PP's decision to not make changes in the current baseline was found to be acceptable by the validation team.

Step 1.2: Assess the impact of circumstances:

Validation assessment: - The baseline scenario identified at the validation of the project activity was the continuation generation of electricity from grid-based power plants. According to official TEIAS statistics/21/, the Turkish national grid is still fossil fuel dominated intensive grid with an expected share of 62% in 2024. To meet up this demand new fossil fuel based power plant would have been built in absence of the project activity at crediting period renewal stage also. The project activity will contribute in generation of clean renewable energy, thus decreasing the dependency on fossil fuels for electricity.

Since the project is undergoing its second crediting period, all the conditions used to identify the baseline emissions in the first crediting period still deemed valid.

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:

Validation assessment: - No new investment has been made during the renewal of the crediting period. There is no change in project technology as cross checked from the registered PD/5/. Therefore, this step is not applicable

Step 1.4: Assessment of the validity of the data and parameters:

Validation assessment: - The baseline scenario as identified in line with the applied methodology ACM0002 version 20.0/3/ is "the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources". Emission reduction calculations are based on two main parameters: energy generation and grid emission factor. The "Grid emission factor" needs to be updated during the 2nd crediting period in line with the tool and is correctly revised by the project proponent.

The application of Steps 1.1, 1.2, 1.3 and 1.4 above confirmed that the current baseline remains valid for the subsequent crediting period and the value of the fixed parameters have been changed or included due to the circumstances presented above.

As there are parameters that were updated for the 2nd crediting period, Step 2 is assessed below:

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

Step 2.1: Update the current baseline:

The project baseline being the use of electricity from the national grid from the first crediting period is valid during the renewal of the crediting period. This was found in line with the latest version of the applied methodology ACM0002, version 20.0/3/ and registered PD/5/.

Step 2.2: Update the data and parameters:

The Grid emission factor has been updated since it is the second crediting period. The EF_{grid,CM,y} has been updated to 0.492925 tCO₂/MWh by applying the specifications of Tool 7 "Tool to calculate the emission factor for an electricity system" version 7.0/4/ and inline with national EF by the Turkish Republic Ministry of Energy/22/.

3.3.5 Additionality

According to paragraph 3.8.9(1) of the VCS Standard, version 4.2/1/, “A full reassessment of additionality is not required when renewing the project crediting period. However, regulatory surplus shall be demonstrated in accordance with the requirements set out in the VCS Program rules and the project description shall be updated accordingly.”

The project proponent has kept the demonstrated additionality through investment analysis in line with registered PD intact in the revised PD submitted for CP renewal. The same has not been re-validated and kept as it is to maintain the consistency with the registered PD.

The hydroelectric energy generated by the project activity can be referred to as regulatory surplus because the renewable electricity being generated is surplus to regulatory requirements of the host country, Turkey which are listed below:

- a. Electricity Market Law/13/ (Law Number: 6446, ratified 14/03/2013, enacted 30/03/2013)
- b. Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy/14/ (Law Number: 5346, ratified 10/05/2005, enacted 11/08/1983)
- c. Environment Law /15/ (Law Number: 2872, ratified 09/08/1983, enacted 11/08/1983)

The Project activity aims at harnessing renewable energy in the form of Hydro potential for supplying power to the Turkish National Grid. Thus, project activity displaces the equivalent amount of electricity from the grid which is predominantly generated through fossil fuel-based power plant. The project activity resulting in reductions of greenhouse gas (GHG) emissions is not a mandate to meet the regulatory compliances /13,14,15/ of the host country, Turkey

3.3.6 Quantification of GHG Emission Reductions and Removals

The applied methodology ACM0002, Version 20.0 /3/ defines the methodological steps to determine the baseline emissions, project emissions and leakage emissions by the proposed project activity.

According to applied methodology ACM0002, Version 20.0 /3/ para 39, baseline emissions include only CO₂ emissions from electricity generation in power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants.

Baseline emissions:

The baseline emissions are to be calculated as follows:

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

Where:

BE_y = Baseline emissions in year y (t CO₂e/yr)

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

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

The combined margin value as provided by the Turkey’s Ministry of Energy and Natural Resources, document "TURKEY NATIONAL ELECTRICITY NETWORK EMISSION FACTOR INFORMATION FORM"/22/ is calculated in compliance with Tool 7, version 07 and thus, accepted.

Project emissions:

Project emissions are calculated as follows:

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

Where:

PE_y = Project emissions in year y (t CO₂e/yr)

$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (t CO₂e/yr)

$PE_{GP,y}$ = Project emissions from the operation of dry, flash steam or binary geothermal power plants in year y (t CO₂e/yr)

$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (t CO₂e/yr)

PE_y = Project emissions from water reservoirs of hydropower plants in year y (t CO₂e/yr)

Fossil fuel consumption ($PE_{FF,y}$)

The project's internal consumption is approximately 500 kVA, which can be considered negligible as per as para 33 of the applied methodology, ACM0002/3/. Therefore:

$$PE_{FF,y} = 0$$

Emissions of non-condensable gases from the operation of geothermal power plants ($PE_{GP,y}$)

The project activity does not involve the operation of a geothermal power plant, Therefore,

$$PE_{GP,y} = 0$$

Emissions from water reservoirs of hydropower plants ($PE_{HP,y}$)

The project activity is a Greenfield run-of-river hydropower project. The water is diverted using a diversion wall structure to the power canal and then to the powerhouse. The water will be fed back to the river through the tailrace canal. The diversion structure results in a regulation pond with a surface area of 14 091 m², which does not affect in any way the volumes of existing reservoirs downstream of the project.

The power density (PD) for this regulation pond is calculated as follows:

$$PD = 92\,960\,000 \text{ W} / 14\,091 \text{ m}^2$$

$$PD = 6\,597 \text{ W/m}^2$$

$$PD > 10 \text{ W/m}^2$$

Therefore, $PE_{HP,y}=0$ as the power density of the regulation pond is greater than 10 W/m² as per as para 39 (c) of the applied methodology, ACM0002/3/.

Hence, $PE_y = 0$

The project emissions have been therefore considered zero in the proposed project activity. The choice of value for calculating project emissions was found acceptable and in line with the applied methodology/3/.

Leakage emissions:

The project employs ACM0002, version 20.0 /3/ which is the latest version available at UNFCCC methodology webpage. No leakage emissions are applicable in this kind of project.

$LE_y=0$

Emission reductions:

According to ACM0002, emission reductions are calculated as,

$$ER_y = BE_y - PE_y$$

where

ER_y = Emission reductions in year y (t CO₂e/yr)

BE_y = Baseline emissions in year y (t CO₂e/yr)

PE_y = Project emissions in year y (t CO₂e/yr)

Since $BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$ and $PE_y=0$

The Emission reduction formula is

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

Thus, it can be concluded that:

- all relevant assumptions and data are listed in the project description, 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;
- the quantification of GHG emission reductions were determined in accordance with applied methodology.

3.3.7 Methodology Deviations

There is no deviation in the methodology used in the renewed VCS-PD/6/.

3.3.8 Monitoring Plan

The monitoring plan in the revised PD for CP renewal is in compliance with the applied monitoring methodology ACM0002, Version 20.0/3/. The monitoring plan will give opportunity for real measurement of emission reductions achieved. Since the project is a renewable energy (hydro) generation activity having power density more than 10 W/m², no indicators have been defined

regarding project emissions in accordance with the applied methodology. Leakage accounting has not been considered for the project since the renewable energy technology equipment used is new equipment and not transferred from another activity. The monitor-able action plan for the same has been included in section 5.3 of the PD. The Validation team confirms that the project participant is able to implement the project as per the monitoring plan.

It can be concluded that there are no substantial changes from the already validated registered monitoring plan, which may require re-validation.

- Data and parameters available at validation

Combined margin CO₂ emission factor for grid-connected power generation in year y, EF_{grid,CM,y}, tCO₂/MWh

Means of validation	The baseline grid emission factor of 0.492925 tCO ₂ /MWh is determined ex-ante based on the most recent information available at the time of renewal of the crediting period is calculated as combined margin (CM). The value is calculated using Build margin and Operating Margin values which are directly sourced from the nationally published data in "Turkey National Electricity Network Emission Factor Information Form"/22/. The Turkish Government Ministry of Energy and Natural Resources has calculated the Operating Margin and Build Margin in compliance with Tool 7: "Tool to calculate the emission factor for an electricity system" and thus, found to be acceptable. The values and calculations applied by the project developer for determination of EF _{grid,CM,y} are validated by the assessment team and found to be acceptable and in accordance with applied tool "Tool 7: "Tool to calculate the emission factor for an electricity system".
Findings	None
Conclusion	The parameter has been determined in line with the applied methodology ACM0002, version 20/3/.

- Data and parameters monitored

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, EG_{PI,y}, MWh/year

Means of validation	The project applies monitoring methodology ACM0002, version 20. As per the methodology, monitoring shall consist of metering the quantity of net electricity generation supplied by the project plant/unit to the grid by the renewable technology installed by the project proponent. Electricity generation data are recorded by four meters of model Itron SL761X071: Two main meters have serial numbers 84260531 and 84260533, and two control check meters are with serial numbers 84260532 and 84260534. The details of the electricity meters have been confirmed from the timestamped photographs of the meters/10/. These meters are sealed by the government agency/grid company - TEİAŞ. The plant's internal consumption will be subtracted from the gross generation. The
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	<p>calculated net generation will be used in calculation of the emission reductions. Since, two sets of meters are installed in the powerhouse, the data results can be crosschecked and in case of faulty meter the readings from another meter can be considered.</p> <p>The parameter will be monitored continuously and recorded monthly.</p> <p>The calibration frequency of the electricity meters is once in 10 years as per TEİAŞ regulation stated in Regulation on Measuring and Measuring Instruments Inspection which is published in the Official Gazette numbered 22000 and dated 24.07.1994/25/. It has been confirmed through the interviews of the PP which is considered as appropriate. However, it is also checked that the calibration frequency of all electricity meters in Turkey as per general regulation is once 10 years.</p> <p>The other aspects of the monitoring plan like roles and responsibilities / QA-QC procedures data recording have been checked and is found consistent with the validated registered PDD.</p> <p>Overall, it is assessment team's conclusion that the monitoring plan is in compliance with the applied methodology and project proponent is able to implement it.</p>
Findings	CAR#02 was raised and resolved
Conclusion	The monitoring of the parameter align with the methodology of ACM0002, version 20/3/.

3.4 Non-Permanence Risk Analysis

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
NA	NA	NA	NA	NA

4 VALIDATION CONCLUSION

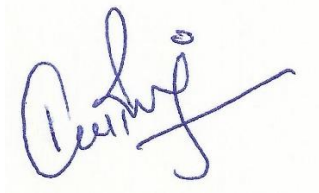
ESPL, contracted by Sanko Enerji Sanayi ve Ticaret A.Ş has performed the independent validation of the renewal of crediting period of the project "Cevizlik Run-of-River Hydroelectric Power Plant", with VCS Project ID 753.

ESPL commenced that the validation based on the baseline and monitoring methodology ACM0002: Grid-connected electricity generation from renewable sources. Version 20.0, the registered VCS-PD – version 04 (from previous crediting period)/5/ and VCS-PD (for the new crediting period)/6/.

ESPL's validation approach is based on the understanding of the risks associated with reporting the project activity, estimates of GHG emission data and the controls to be implemented to mitigate these. ESPL planned and performed the validation by obtaining evidence, other information and explanations that ESPL considered necessary to give reasonable assurance that the estimated GHG emission reductions are fairly to be achieved.

The validation team confirms, based on final revised VCS-PD, that:

- the original baseline is still valid as it is given by the applied methodology.
- the project additionality remains valid for the renewal of the crediting period as per section 3.8.5, paragraph 1 of the VCS Standard version 4.2. No regulatory surplus has been identified. The project is in accordance with all applicable regulations and legislations.
- the project description is in accordance with the characteristics identified on site.
- the monitoring plan is adequate to the project activity and is in accordance with the applied methodology.
- at this 2nd crediting period, the project activity is likely to achieve the estimate of 1,626,652 tCO₂e for the entire period.



Approved by

Kaviraj Singh

Managing Director

Earthood Services Private Limited

Date: 19/10/2022

Place: Gurgaon, Haryana

APPENDIX I: COMPETENCE STATEMENTS

Competence Statement			
Name	Shifali Guleria		
Education	M.Sc. (Environmental Studies and Resource Management), TERI University		
Experience	3+ year		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	YES (AMS-I.A., AMS-II.G.,AMS-II.E., AMS-III.A.V., AMS-I.D, ACM0002)		
Local expert	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (1.2, 3.1)		
Reviewed by	Deepika Mahala	Date	16/02/2022
Approved by	Ashok Gautam	Date	18/02/2022

Competence Statement	
Name	Jahnabi Kalita
Education	M.Sc. Environment Management
Experience	1 year
Field	Environment, Climate change
Approved Roles	
Team Leader	Yes (VM)
Validator	Yes (VM)

Verifier	Yes (VM)		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	Yes		
Reviewed by	Shifali Guleria, Quality Manager	Date	24/09/2022
Approved by	Deepika Mahala, Technical Manager	Date	24/09/2022

Competence Statement	
Name	Kubra Agriman
Education	BS Environmental Engineering
Experience	2 years
Field	Environmental Engineering
Approved Roles	
Team Leader	NO
Validator	NO
Verifier	NO
Methodology Expert	NO
Local expert	Yes (Turkey)
Financial Expert	NO
Technical Reviewer	NO
TA Expert (X.X)	NO

Reviewed by	Deepika Mahala	Date	28/06/2021
Approved by	Ashok Gautam	Date	01/07/2021

Competence Statement			
Name	Deepika Mahala		
Country	India		
Education	M. Sc. (Environment Management), GGSIP University B.Sc. Hons. (Chemistry), Sri Venkateshwar College, DU		
Experience	6 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	ACM0002, AMS.I.D., AMS.I.A, AMS.III.AV, AMS.II.G, AMS-II.C		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2 & TA 3.1)		
Reviewed by	Ashok Gautam	Date	20/02/2022
Approved by	Kaviraj Singh	Date	28/02/2022

APPENDIX II: ABBREVIATIONS

Abbreviations	Full texts
AFOLU	Agriculture, Forestry and Other Land Use
BE	Baseline Emission
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CO ₂	Carbon dioxide
CO _{2e}	Carbon dioxide equivalent
CL	Clarification Request
DOE	Designated Operational Entity
ER	Emission Reduction
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Greenhouse gas(es)
HEPP	Hydroelectric Power Plant
MP	Monitoring Plan
MR	Monitoring Report
MW	Megawatt
MWh	Megawatt hour
PA	Project Activity
PE	Project Emission
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCS-PD	VCS – Project Description
VCU	Verified Carbon Unit
VVB	Validation/verification Body
XLS	Emission Reduction Calculation Spread Sheet

APPENDIX III: REFERENCES

No.	Title	References
1.	VCS Standard	Version 4.2 Dated 20/01/2022
2.	VCS Program Guide	Version 4.1 Dated 20/01/2022
3.	ACM0002: Grid-connected electricity generation from renewable sources.	Version 20.0
4.	Tools: - TOOL01: Tool for the demonstration and assessment of additionality - TOOL07: Tool to calculate the emission factor for an electricity system	version 07.0 version 07.0 version 03.0.1

	- TOOL11: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period	
5.	Registered VCS-PD	Version 6.0 Dated 17/06/2010
6.	Renewed VCS-PD	Version 4.0 Dated 12/09/2022
7.	Estimated ER Calculation Sheet	Version 2.0 Dated 11/04/2022
8.	Generation license by EMRA	27/06/2007
9.	Validation Report	21/06/2010
10.	Timestamp photograph of project site	-
11.	Gaia Climate and Sanko Sanko Enerji Carbon Agreement	07/01/2022
12.	Project activity on verra website: https://registry.verra.org/app/projectDetail/VCS/753	Last accessed on 28/04/2022
13.	Electricity Market Law: https://www.resmigazete.gov.tr/eskiler/2013/03/20130330-14.htm https://www.resmigazete.gov.tr/eskiler/2013/03/20130330-14.htm	-
14.	Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy: https://www.mevzuat.gov.tr/mevzuatmetin/1.5.5346.pdf	-
15.	Environmental Law: https://www.jeofizik.org.tr/resimler/ekler/cbbc409ec990f19_ek.pdf	-
16.	Issuance Deed of Representation	-
17.	Employment records	-
18.	Training records	-
19.	EIA Report	February 2009
20.	Piyasa Mali Uzlaştırma Merkezi (PMUM) - Market Financial Reconciliation Center screenshots of monthly electricity supply to Turkish Grid	-
21.	https://webapi.teias.gov.tr/file/abeac87d-3abc-4532-9cf4-d6f3a9d34c17?download	-
22.	Ministry of Energy and Natural Resources, document "TURKEY NATIONAL ELECTRICITY NETWORK EMISSION FACTOR INFORMATION FORM" : https://enerji.gov.tr/evced-cevre-ve-iklim-turkiye-ulusal-elektrik-sebekesi-emisyon-faktoru	-

23.	Latitude and Longitude Finder on Map Get Coordinates: https://www.latlong.net/	-
24.	The Ministry of Agriculture and Forestry reports on streambed downstream and upstream water analyses: Cevizlik İzleme ve Kontrol Raporu, Rapor No 57127 and Rapor no 57128	03/09/2020
25.	Regulation on Measuring and Measuring Instruments Inspection	24/07/1994

APPENDIX IV: FINDINGS

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

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

There is no finding from previous validation report.

Table 2. CL from this verification

CL ID	Section no.	Date : DD/MM/YYYY
01	1.4	04/04/2022
Description of CL		
<p>As per as VCS PD Template Guidelines, version 4.1, under section 1.11</p> <ol style="list-style-type: none"> 1. "Include in the description information about the age and average lifetime of the equipment based on manufacturer's specifications and industry standards, and existing and forecast installed capacities, load factors and efficiencies. 2. Include the types and levels of services (normally in terms of mass or energy flows) provided by the systems and equipment that are being modified and/or installed and their relation, if any, to other manufacturing/production equipment and systems outside the project boundary. Clearly explain how the same types and levels of services provided by the project would have been provided in the baseline scenario. 3. Where appropriate, provide a list of facilities, systems and equipment in operation under the existing scenario prior to the implementation of the project." <p>PP is requested to update section 1.11 in the renewed VCS PD accordingly in-line with the template guidelines.</p>		
Project participant response		Date : DD/MM/YYYY
		11/04/2022

<ol style="list-style-type: none"> 1. Revised as requested. 2. Revised as requested. 3. Revised as requested.
Documentation provided by project participant
<i>Revised PD</i>
DOE assessment Date: 20/04/2022
Section 1.11 has been updated in the revised PDD version 2 in-line with the VCS PD Template Guidelines, version 4.1. A detailed description of the specifications of the turbine used in the project activity is provided, including the operational lifetime of the power plant under section 1.11 of the revised PDD. Hence the CL stands closed.

CL ID	02	Section no.	3.3.6	Date : 04/04/2022
Description of CL				
PP is requested to clarify the basis of estimation of Net electricity delivered to grid, EGPJ,y (330 GWh / yr) while the registered PD stated that “Cevizlik Hydroelectric Project will generate approximately 335.03 GWh of electricity annually”. PP is also requested to provide supporting document for this value.				
Project participant response				Date : 11/04/2022
<i>As per the project generation license, the estimated annual production is 330 GWh. Since the revised annual generation amount is less than of the previous figure, it is a more conservative approach.</i>				
Documentation provided by project participant				
Please see the generation license.				
DOE assessment				Date: 20/04/2022
The PDD has applied conservative value of 330 GWh for annual generation of electricity by the power plant. The value was cross checked from the generation license and was found to be consistent.				
Closed.				

Table 3. CAR from this verification

CAR ID	01	Section no.	1.8	Date : 04/04/2022
Description of CAR				
<ol style="list-style-type: none"> 1. As per as the registered VCS PD of the first crediting period, the start date of the project is 29 May 2010. However under section 1.8 of the renewed PD, the start date is mentioned as 28/05/2010. Please clarify the inconsistency and substantiate for the same. 2. The first Crediting period according to the registered PD is from 29 May 2010 to 28 May 2020. However, the First crediting period mentioned in the renewed PD is 28/05/2010-23/05/2020. Please clarify the inconsistency. 				
Project participant response				Date : 11/04/2022
<i>Revised as requested. Typo has been corrected. Baseline excel sheet has been revised accordingly.</i>				
Documentation provided by project participant				
<i>Revised baseline excel sheet has been provided.</i>				
DOE assessment				Date: 20/04/2022
<ol style="list-style-type: none"> 1. The start date of the project has been updated in the revised PDD and is now consistent with the registered VCS PD of the first crediting period. Hence the CAR stands closed. 2. The dates of the first crediting period is updated in the revised PDD and is consistent with the registered VCS PD of the first crediting period. Hence the CAR is closed. 				

CAR ID	02	Section no.	5	Date : 04/04/2022
Description of CAR				

1. The amount of estimated baseline emissions reported in the renewed PD (1,882.980 tCO ₂) is inconsistent with the baseline emission calculation sheet (1,694,682.00 tCO ₂). Please justify.	
2. The following monitoring parameters- Cap _{PPJ} , A _{PPJ} , NCV _{i,y} , EF _{CO₂,i,y} , Electricity capacity additions, η _{m,y} mentioned in the registered VCS PD were not reported under section 5.2 of the renewed PD. Please provide the reason for the missing parameters.	
Project participant response	Date : 11/04/2022
1. Baseline calculation excel sheet has been revised. 2. Cap _{PPJ} , in the registered PDD is consistent with the generation licence. Since here is no design change in the power plant, the generation license reflects the actual situation; therefore it is not required to be monitored yearly. As for A _{PPJ} , again, since there is no design change in the power plant, there is no negative impact on the area of the regulation pond; therefore it is also not required to be monitored. NCV _{i,y} , EF _{CO₂,i,y} , Electricity capacity additions, η _{m,y} had been used for the preparation of the first registered PD for the calculation of the national emission factor of the grid. Turkey's recent national emission factor has been calculated and declared by the Ministry therefore there was no need for re-calculation. These parameters have therefore not been included to the PD.	
Documentation provided by project participant	
<i>Revised baseline excel sheet and revised PD</i>	
DOE assessment	Date: 20/04/2022
1. a) The baseline emissions under section 1.10 of the renewed PD (2020- 111.947,0 tCO ₂ and 2030-76.350,97 tCO ₂) are still inconsistent with the baseline emission calculation sheet (2020- 1,09,883.5 tCO ₂ and 2030- 78,414.5 tCO ₂). Please clarify. OPEN. b) The start date (cell no. C16) and end date (cell no. C26) of the crediting period in the baseline emission calculation sheet are inconsistent with section 1.9 of the revised PD (29 May 2010-28 May 2020). Please clarify. OPEN.	
2. The justification by the PP deemed valid since the project activity has not undergone any design change and yearly monitoring of the parameters- Cap _{PPJ} , A _{PPJ} , NCV _{i,y} , EF _{CO₂,i,y} , Electricity capacity additions, η _{m,y} does not appear to be necessary in the renewed PD. Closed.	
Project participant response	Date : 22/04/2022
1.a) <i>The PDD is revised as requested as of consistent with baseline emission calculation sheet.</i> b) <i>The BE is revised as requested as of consistent with PDD.</i>	
Documentation provided by project participant	
<i>Please see the revised baseline excel sheet and revised PDD.</i>	
DOE assessment	Date: 25/04/20221
1. a) The estimated baseline emissions in the revised PD are consistent with the baseline emission calculation sheet and thus was found acceptable. Closed. b) The start and end date of the crediting period was found to be updated in the revised baseline emission calculation sheet. Closed.	

Table 4. FAR from this verification

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

DOE assessment	Date: DD/MM/YYYY
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there is no FAR from this verification.