المجلس العالمي للبصمة الكربونية
GLOBAL CARBON COUNCIL

Project Verification Report

V3.1 - 2020

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COVER PAGE Project Verification Report Form (PVR)	
Complete this form in accordance with the instructions.	
BASIC INFORMATION	
Name of approved GCC Project Verifier / Reference No. (also provide weblink of approved GCC Certificate)	EPIC Sustainability Services Private Limited http://globalcarboncouncil.com/wp-content/uploads/2021/10/gcc-verifier-cert-epic.pdf
Type of Accreditation	☐ Individual Track[1] ☒ CDM Accreditation ☐ ISO 14065 Accreditation Name of the entity that provided the accreditation: UNFCCC Date of validity: 31/08/2018 to 04/10/2023 Weblink of the active accreditation certificate and approval: https://cdm.unfccc.int/DOE/list/DOE.html?entityCode=E-0062
Approved GCC Scopes and GHG Sectoral scopes for Project Verification	Approved GCC scopes for project verification: Greenhouse Gas (GHG#-ACC) Environmental No-harm (E+) Social No-harm (S+) Sustainable Development Goals (SDG+) Approved GCC sectoral scopes for project verification: 1. Energy industries (renewable - / non-renewable sources) (CDM TA1.1, TA1.2) 2. Energy distribution (CDM TA2.1) 3. Energy demand (CDM TA3.1) 4. Manufacturing industries (CDM TA4.1) 5. Chemical industry (CDM TA5.1, TA 5.2) 6. Construction (CDM TA6.1) 7. Transport (CDM TA7.1)

[1] **Note:** GCC Verifier under Individual tack is not eligible to conduct verifications for the GCC project that intends to supply carbon credits (ACCs) for CORSIA requirements.

	8. Mining/mineral production (CDM TA8.1) 9. Metal production (CDM TA9.1, TA 9.2) 10. Fugitive emissions from fuels (solid, oil and gas) (CDM TA10.1) 11. Fugitive emissions from production and consumption of halocarbons and Sulphur hexafluoride (CDM TA11.1, TA 11.2) 12. Solvents use (CDM TA12.1) 13. Waste handling and disposal (CDM TA13.1, TA 13.2) 14. Afforestation and reforestation (CDM TA14.1) 15. Agriculture (CDM TA15.1) 16. Carbon Capture and Storage of CO_2 in Geological Formations (CDM TA 16.1)
Validity of GCC approval of Verifier	15/10/2020 to 15/10/2022 **Note:** However, as per clause 9.3.1 of GCC Verifier Agreement signed between GCC and EPIC dated 03/03/2022, EPIC is therefore allowed to continue GCC services one year after the end of service period
Title, completion date, and Version number of the PSF to which this report applies	Title: Aslandağı Beyyurdu Hydro Power Plant Completion date: 14/12/2022 Version number: 1.5
Title of the project activity	Title: Aslandağı Beyyurdu Hydro Power Plant
Project submission reference no. (as provided by GCC Program during GSC)	S00101 Project code: 49
Eligible GCC Project Type[2] as per the Project Standard (Tick applicable project type)	☒ **Type A:** ☐ Type A1 ☒ Type A2: Sub-Type 1 ☐ **Type B – De-registered CDM Projects:** ☐ Type B1 ☐ Type[3] B2
Date of completion of Local stakeholder consultation	17/01/2022

[2] Project Types defined in Project Standard and Program Definitions on GCC website.

[3] GCC Project Verifier shall conduct Project Verification for all project types except B_2.

<table>
<tr><td>Date of completion and period of Global stakeholder consultation. Have the GSC comments been verified. Provide web-link.</td><td>Date of completion of Global stakeholder consultation: 01/03/2022
Period of Global stakeholder consultation: 15/02/2022 to 01/03/2022
https://globalcarboncouncil.com/global-stakeholders-consultation.html</td></tr>
<tr><td>Name of Entity requesting verification service
(can be Project Owners themselves or any Entity having authorization of Project Owners)</td><td>Desilyon Danışmanlık Ticaret A.Ş. (Focal point to act on behalf of all Project Owners)
Note: Desilyon Danışmanlık Ticaret A.Ş signed an agreement with EPIC dated 01/12/2021 for conducting the scope of work-project verification</td></tr>
<tr><td>Contact details of the representative of the Entity, requesting verification service
(Focal Point assigned for all communications)</td><td>Özlem Özkapı
Desilyon Danışmanlık Ticaret A.Ş.
Mahall Ankara B-Blok No:37
Mustafa Kemal Mah. Dumlupınar Bulv. No:274 B-Blok No:37 Çankaya/Ankara
Tel: +90 312 473 4030</td></tr>
<tr><td>Country where project is located</td><td>Republic of Türkiye</td></tr>
<tr><td>GPS coordinates of the Project site(s)</td><td>
<table>
<tr><th>Project site(s)</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td rowspan="2">Aslandağı Power Plant</td><td>DD:37.3403°</td><td>DD:44.4349°</td></tr>
<tr><td>DMS:37° 20’ 25.26” N</td><td>DMS:44° 26’ 5.92” E</td></tr>
<tr><td rowspan="2">Aslandağı Dam</td><td>DD:37.3413°</td><td>DD:44.4328°</td></tr>
<tr><td>DMS:37° 20’ 28.72” N</td><td>DMS:44° 25’ 58.36” E</td></tr>
<tr><td rowspan="2">Beyyurdu Power Plant</td><td>DD:37.3196°,</td><td>DD:44.4473°</td></tr>
<tr><td>DMS:37° 19’ 10.86” N</td><td>DMS:44° 26’ 50.28” E</td></tr>
<tr><td rowspan="2">Beyyurdu Dam</td><td>DD:37.3199°</td><td>DD:44.4473°</td></tr>
<tr><td>DMS:37° 19’ 11.96” N</td><td>DMS:44° 26’ 50.42” E</td></tr>
</table>
</td></tr>
<tr><td>Applied methodologies
(approved methodologies of GCC or CDM can be used)</td><td>ACM0002: Grid-connected electricity generation from renewable sources --- Version 20.0</td></tr>
<tr><td>GHG Sectoral scopes linked to the applied methodologies</td><td>Sectoral scope 1. Energy industries (renewable / non-renewable sources)</td></tr>
</table>

Project Verification Criteria: Mandatory requirements to be assessed	☒ ISO 14064-2, ISO 14064-3 ☒ GCC Rules and Requirements ☒ Applicable Approved Methodology ☒ Applicable Legal requirements /rules of host country ☒ National Sustainable Development Criteria (if any) ☒ Eligibility of the Project Type ☒ Start date of the Project activity ☒ Meet applicability conditions in the applied methodology ☒ Credible Baseline ☒ Additionality ☒ Emission Reduction calculations ☒ Monitoring Plan ☒ No GHG Double Counting ☒ Local Stakeholder Consultation Process ☒ Global Stakeholder Consultation Process ☒ United Nations Sustainable Development Goals (Goal No 13- Climate Change) ☐ Others (please mention below)
Project Verification Criteria: Optional requirements to be assessed	☒ Environmental Safeguards Standard and do-no-harm criteria ☒ Social Safeguards Standard do-no-harm criteria ☒ United Nations Sustainable Development Goals (in additional to SDG 13) ☒ CORSIA requirements
Project Verifier's Confirmation: The *GCC Project Verifier* has verified the GCC project activity and therefore confirms the following:	The GCC Project Verifier [EPIC Sustainability Services Private Limited], certifies the following with respect to the GCC Project Activity [**Aslandağı Beyyurdu Hydro Power Plant**]. ☒ The Project Owner has correctly described the Project Activity in the **Project Submission Form (version 1.5, dated 14/12/2022)** including the applicability of the approved methodology [**ACM0002 Grid-connected electricity generation from renewable sources, ver: 20.0**] and meets the methodology applicability conditions and is expected to achieve the forecasted real and additional GHG emission reductions, complies with the monitoring methodology, has appropriately conducted local and global stakeholder consultation processes and has calculated emission reductions estimates correctly and conservatively. ☒ The Project Activity is likely to generate GHG emission reductions amounting to the estimated 58,717 tCO_2e for whole crediting period as indicated in the PSF, which are additional to the reductions that are likely to occur in the absence of the Project Activity and complies with all applicable GCC rules, including ISO 14064-2 and ISO 14064-3. ☒ The Project Activity is not likely to cause any net-harm to the environment and/or society and complies with the Environmental and Social Safeguards Standard, and is likely to achieve the following labels: ☒ Environmental No-net-harm Label (**E^+**)

	☒ Social No-net-harm Label (**S+**) ☒ The Project Activity is likely to contribute to the achievement of United Nations Sustainability Development Goals (SDGs), complies with the Project Sustainability Standard, and contributes to achieving a total of **[4] SDGs,** with the following[4] SDG certification label (**SDG+**): ☐ Bronze SDG Label ☐ Silver SDG Label ☒ Gold SDG Label ☐ Platinum SDG Label ☐ Diamond SDG Label ☒ The Project Activity complies with all the applicable requirements of the GCC Program and ICAO's requirements on CORSIA Emissions Unit Eligibility Criteria and CORSIA Eligible Emissions Units, as per Clarification No 1., v1.2 paragraph 21-23, and the ACCs expected to be issued during the crediting period is likely to be CORSIA eligible and can be used by International Airlines for offsetting their emissions during all phases of CORSIA and therefore requests GCC Steering Committee to append CORSIA Certification label (C+) to this project. ☒ The Project Activity complies with all the applicable GCC rules[5] and therefore recommends GCC Program to register the Project activity with above mentioned labels.
Project Verification Report, reference number and date of approval	ESSPL/GCC/2022/024 Date of approval: 27/01/2023
Name of the authorised personnel of GCC Project Verifier and his/her signature with date	R. B. Venkataramanaiah, Director  Date: 27/01/2023

[4] SDG Certification labels: Bronze label (1 star): by achieving 2 out of 17 SDGs; Silver label (2 star): by achieving 3 out of 17 SDGs; Gold label (3 star): by achieving 4 out of 17 SDGs; Platinum label (4 star): by achieving 5 out of 17 SDGs; and Diamond label (5 star): by achieving more than 5 out of 17 SDGs.

[5] "GCC Rules" are defined in Project Definitions and refers to the rules and requirements set out by the GCC program related to GHG emission reductions and its voluntary certification labels and are available on the GCC Program's public website: https://www.globalcarboncouncil.com/resource-centre.html

1. PROJECT VERIFICATION REPORT

Section A. Executive summary

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EPIC Sustainability Services Private Limited (EPIC) has been contracted by Desilyon Danışmanlık Ticaret A.Ş. on behalf of GCC project owner 1.Aslanlı Van Elektrik Üretim A.Ş. dated 1st February 2022 to undertake the independent project verification of the GCC project activity titled "Aslandağı Beyyurdu Hydro Power Plant" (hereafter the project). EPIC is accredited for GCC Scopes (GHG, E+, S+, SDG+) and all 16 GHG sectoral scopes including sectoral scope 1. So the EPIC is eligible for conducting third-party independent external verification. EPIC and its project verification team are independent of the proposed GCC project

The purpose of the GCC project verification is to perform an independent, third-party assessment of whether the project activity confirms to the qualification criteria set in the GCC standard and to attain real, measurable, additional, and permanent emission reduction. The statement / opinion is a written assurance that the project complies with all the applicable requirements and can generate the emission reductions stated over the projects crediting period.

The objectives of this project verification are to validate that the GCC project meets the requirements of latest versions of GCC project framework[/1/] v2.1, GCC program manual[/2/] v3.1, GCC program processes[/3/] v4.0, GCC project standard[/4/] v3.1, GCC project sustainability standard[/5/] v2.1, GCC verification standard[/6/] v3.1, GCC Environment & Social safeguards standard[/7/] v2.0, GCC Program definitions[/8/] v3.1
applicable approved GCC Methodology for **"ACM0002 Grid-connected electricity generation from renewable sources, ver: 20.0[/9/]"**, Applicable Legal requirements/rules of host country, National Sustainable Development Criteria and CORSIA requirements and other GCC requirements related to aspects such as project design, applicable conditions, project boundary, baseline scenarios, additionality, emission reduction, monitoring plan, local stakeholder consultation, global stakeholder consultation, GHG emission reductions (ACCs), environmental no-net harm label (E+), social no net harm label (S+), **gold SDG label** (SDG+), CORSIA+. By means of document review, onsite visit and interview with stakeholders, a reasonable level of assurance to the GCC project is provided by the project verification team. The project verification team has determined whether GCC Project Activity meets all applicable GCC rules and requirements. This report summarizes the final project verification opinion which is based on **Project Submission Form v1.5[/10/].**

The GCC project activity involved the construction and operation of Greenfield 19.160 MWe Hydro power project in Republic of Türkiye. The project activity will generate greenhouse gas (GHG) emission reductions by avoiding CO_2 emissions from electricity generation by fossil fuel power plants connected to Turkish National Power Grid. An estimated electricity net generation of 111.400 GWh by the efficient utilization of the available Hydro energy by project activity will replace the grid electricity, which is constituted of different fuel sources, mainly fossil fuels. The electricity produced by project activity will result in a total emission reduction of 58,717 tCO_2e/year. The emission reduction will be based on the amount of baseline electricity generation avoided due to the project and is calculated using the applied CDM approved large scale methodology, "**ACM0002: Grid-connected electricity generation from renewable sources, version: 20.0**".

Section B. Project Verification team, technical reviewer, and approver

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B.1 Project Verification team

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of GCC Project Verifier or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Project Verification findings
1.	Team Leader/Lead Auditor/ Financial Expert	IR	R	Vijayaragahavan	Central office, Bangalore, EPIC	√	x	√	√
2.	Auditor	IR	Suman	TVVM	Central office, Bangalore, EPIC	√	x	√	√

B.2 Technical reviewer and approver of the Project Verification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of GCC Project Verifier or outsourced entity)
1.	Technical reviewer	IR	A	Prabu Das	Central office, Bangalore, EPIC
2.	Approver	IR	R.B.	Venkataramanaiah	Central office, Bangalore, EPIC

Section C. Means of Project Verification

C.1 Desk/document review

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The project verification is performed primarily based on the review of the all the documents related to the PSF and the supporting documentation. This process included review of data and information related to project design, project implementation, applicable conditions of the methodology, baseline, and

additionality, estimated emission reductions, monitoring plan, environmental impacts, local stakeholder consultation, GHG emission reductions (ACCs), environmental no-net harm label (E+), social no net harm label (S+), gold SDG label (SDG+) and CORSIA(C+).

The **PSF v1.2** (hereinafter referred to as initial PSF) complying GCC was submitted by the project owner and additional background documents related to the emission reductions are reviewed as an initial step of the project verification process. The subsequent step involved the identification of corrective action requests and clarification requests (CARs, CLs) which are presented in Appendix 4 of this report. As a result, project owner has submitted **PSF v1.5** (hereinafter referred to as final PSF). A complete list of all documents and records reviewed is as attached in Appendix 3 of this report.

C.2 On-site inspection

Duration of on-site inspection: 21-01-2022 **(Remote)**				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	The verification team conducted visits to the project site to confirm the information and to resolve issues identified in the document review. Remote assessment was conducted as a part of verification activity and involved: 1. Checking General information about the project and Chronology of Events/ Implementation cycle of the project activity. 2. Minimum compliance requirements ➢ Real and Measurable GHG Reductions ➢ National Sustainable Development Criteria (as applicable) ➢ Apply credible baseline and monitoring methodologies ➢ Additionality ➢ Local Stakeholder Consultation Process ➢ Global Stakeholder Consultation Process ➢ No GHG Double Counting ➢ Contributes to United Nations Sustainable Development Goal 13 (Climate Action) ➢ Legal ownership of the project activity 3. Eligible GCC Project Type as per the Project Standard ➢ Do-no-net-harm Safeguards to address Environmental Impacts ➢ Do-no-net-harm Safeguards to address Social Impacts ➢ Contributes to United Nations Sustainable Development Goals (in addition to Goal 13)	Project site (Remote audit on 21st Feb 2022)	21/02/2022	Lead Auditor and Auditor

	4. GHG emission reductions (i.e., Approved Carbon Credits(ACCs)) 5. Environmental No-net-harm Label (E+) 6. Social No-net-harm Label (S+) 7. United Nations Sustainable Development Goals (SDG+) 1) Gold SDG Label			

C.3 Interviews

No.	Interview			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Atilla	Aytekin	Site responsible, Aslanlı Van Elektrik Üretim A.Ş.	21-02-2022	• Operation and maintenance of solar power plans • Electricity Monitoring/ measuring systems & Data verification Record keeping – daily electricity generation report, breakdown/ maintenance log	Project Verification team
2.	Sahin	Tore	Local Stakeholder	21-02-2022	Local stakeholder consultation process and grievance mechanism	Project Verification team
3.	Abdulselam	Tore	Local Stakeholder	21-02-2022		Project Verification team
4.	Murat	Sendil	Farmer - Local Stakeholder	21-02-2022		Project Verification team
5.	Faruk	Oz	Farmer - Local Stakeholder	21-02-2022		Project Verification team
6.	Furkan	Sarac	Project Specialist, Desilyon Danışmanlık Ticaret A.Ş.	21-02-2022	• General information about the project activity • GCC considerations • Additionality demonstration • Implementation of the project activity • Project Boundary • Operation and maintenance procedures • Technical specification of the project equipment • Monitoring Plan Emission reduction calculation	Project Verification team
7.	Selin	Altun	Project Specialist, Desilyon Danışmanlık Ticaret A.Ş.	21-02-2022		Project Verification team
8.	Nesrin Mehtap	Aydiner	Project specialist, Desilyon Danışmanlık Ticaret A.Ş.	21-02-2022		Project Verification team

C.4 Sampling approach

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No sampling approach is used for this project verification process.

C.5 Clarification request (CLs), corrective action request (CARs) and forward action request (FARs) raised

Areas of Project Verification findings	Applicable to Project Types	No. of CL	No. of CAR	No. of FAR
Green House Gas (GHG)				
Identification and Eligibility of project type	A_1, A_2, B_1, B_2	-	-	-
General description of project activity	A_1, A_2, B_1, B_2	2 (CL 01, CL02)	-	-
Application and selection of methodologies and standardized baselines	A_1, A_2, B_1, B_2	-	-	-
- Application of methodologies and standardized baselines	A_1, A_2, B_1, B_2	-	-	-
- Deviation from methodology and/or methodological tool	A_1, A_2, B_1, B_2	-	-	-
- Clarification on applicability of methodology, tool and/or standardized baseline	A_1, A_2, B_1, B_2	-	-	-
- Project boundary, sources and GHGs	A_1, A_2, B_1, B_2	-	-	-
- Baseline scenario	A_1, A_2, B_1, B_2	-	-	-
- Demonstration of additionality including the Legal Requirements test	A_1, A_2, B_1, B_2	-	1 (CAR 01)	-
- Estimation of emission reductions or net anthropogenic removals	A_1, A_2, B_1, B_2	-	-	-
- Monitoring plan	A_1, A_2, B_1, B_2	-	-	-
Start date, crediting period and duration	A_1, A_2, B_1, B_2	-	-	-
Environmental impacts	A_1, A_2, B_1, B_2	-	-	-
Local stakeholder consultation	A_1, A_2, B_1	-	-	-
Approval & Authorization- Host Country Clearance	A_1, A_2, B_1, B_2	-	-	-
Project Owner- Identification and communication	A_1, A_2, B_1, B_2	-	-	-
Global stakeholder consultation	A_1, A_2, B_1	-	-	-
Others (please specify)	A_1, A_2, B_1, B_2	-	-	-
VOLUNTARY CERTIFICATION LABELS				
Environmental Safeguards (E^+)	A_1, A_2, B_1	-	-	-
Social Safeguards (S^+)	A_1, A_2, B_1	-	-	-
Sustainable development Goals (SDG^+)	A_1, A_2, B_1	1 (CL 03)	-	-
Authorization on Double Counting from Host Country (only for CORSIA)	A_1, A_2, B_1	-	-	-
CORSIA Eligibility (C^+)		-	-	-
Total		**03**	**01**	-

Section D. Project Verification findings

D1. Identification and eligibility of project type

Means of Project Verification	The project verification team determined whether the project owner identified the type of project activity (A1, A2, B1, B2) and its sub types in accordance with the Project Standard using the following means of verification such as remote interview and review of the documents such as technical specifications, commissioning documents and PSF.
Findings	No CL, CAR or FAR was raised in this section.
Conclusion	The project used the latest version 1.5 of PSF and followed the requirements contained in the template. The project is also verified to meet the requirement of the GCC project standard v3.1 as well as latest versions of the associated GCC rules. The project verification team determined the description of the proposed GCC project activity in the final PSF v1.5 is accurate. By reviewing the technical specifications, the project verification team confirmed that the project is a Hydro power project. The project has started commercial operation on 18/06/2021as per the commissioning certificates. It is verified by the verification team that the project is not required by a legal mandate and does not implement a legally enforced mandate, further the project complies with the all-applicable host-country legal requirements. As per GCC clarification 1 v1.2, this GCC project qualifies under Type A2-Sub-Type 1 as this project has not been registered under any other GHG Program. Hence the project is eligible for GCC project registration. The GCC project applies all the four scopes such as GCC Scope of Greenhouse Gas (GHG) Emission Reductions, GCC Scope of Environmental No-harm, GCC Scope of Social No-harm, GCC Scope of Sustainable Development Goals and CORSIA requirements.

D.2 General Description of project activity

Means of Project Verification	The project verification team assessed whether the description of the proposed GCC project activity in accordance with applicable Project Verification requirements related to the description of the project activity in the Verification Standard and Project Standard and whether the project complied with the requirements on GHG reduction and the voluntary certification labels (E+, S+, SDG+) and CORSIA, as applicable, and this compliance were assessed in accordance with applicable Project Verification requirements in the Verification Standard[/4/] and Project Standard[/3/]. The project verification team determined whether the description of the proposed GCC project activity in the final PSF is accurate, complete, and provides an understanding of the proposed GCC project activity using the following means of verification such as the remote audit observation, interview, and review of technical specifications PSF etc. As per para 36 of the Project Standard v3.1, it was checked whether the Project Owners has used the GCC Project Submission Form (PSF) V3.2-2020 to provide the details of the GHG emission-reduction Activity, including schematics, specifications, and description of how the project reduces GHG emissions.
Findings	CL 01 and CL 02 were raised in this section.
Conclusion	The verification team observed from the commissioning certificates[/1/] that the project installation is complete, and the project is operational since 18/06/2021.The project verification team has checked the initial PSF [/39/] v1.2 and technical details of Hydro power project and it to be consistent. The purpose of this large scale bundled project activity is to generate electricity by harnessing the Hydro power. The project activity generates greenhouse gas (GHG) emission reductions by reducing CO_2 emission from electricity generation by fossil fuel power plants connected to Turkish National Power Grid. The project verification team has confirmed that total installed capacity of the Hydro power project is 19.16 MW from the Provisional acceptance documents and Turbine installation agreement. The average annual generated energy is expected to be 54,770 MWh up to 01/01/2023, and 111,400 MWh after this date. The project has started commercial operation on 18/06/2021 as per

	the provided provisional acceptance document/12/. The project verification team reviewed the single line diagram/17/, connection agreement/14/ and confirmed that electricity generated is supplied to the Turkish National Grid. The project verification team has checked the coordinates with the help of Google earth and confirms that the locations of the project activity are in line with the coordinates provided in the submitted initial PSF. The project verification team reviewed the EPC contract confirms the legal ownership of the project. The operational lifetime of the project activity is 49 years as per the technical specifications/11/ provided by the manufacturer. The Project Owners have fixed the crediting period of 10 years which is in accordance with the GCC program manual. The project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 58,717tCO_2e per year, by displacing estimated average of 54,770 MWh up to 01/01/2023, and 111,400 MWh after this date. Amount of electricity from the generation-mix of power plants connected to the Turkish National Power Grid, which is mainly dominated by thermal/fossil fuel-based power plant. The project activity is described as Type A2, sub type-1 and has applied approved CDM methodology ACM0002 Version 20.0 and associated tools and falls into the large-scale category (as per the applied CDM methodology). No sampling approach was applied, as it was not required by the applied methodology, regarding verification of project description in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities". In addition to generating emission reductions the Hydro power plant also qualifies for other voluntary certification labels

Voluntary Labels	**Applied by the project**	**Score/ Label**
Achieving the United Nations Sustainable Development Goals	Yes	(SDG+)
Environmental No-net harm	Yes	(E+)
Social No-net harm	Yes	(S+)
CORSIA	Yes	(C+)

In the baseline scenario the main source of emission was found to be CO_2 as the electricity was generated mainly through fossil-fuel based power plants whereas in project scenario the electricity is generated by the Hydro power plant thereby reducing the CO_2 emissions. Thus, the project activity was found to be acceptable as the project boundary does not include any of the GHG emissions in the project scenario as per the applied methodology.

The description in the final PSF includes sufficient details and provides clarity about the project activity. The project activity is a bundled project. The verification team also checked the GCC website and checked CDM/GS/VCS websites to determine if the project was part of any other GHG Program prior to commencement of this verification. The project has not applied for I-REC and therefore this is no double counting of the carbon credits. It is confirmed that the involved project owners have not submitted the project under any other GHG program apart from GCC. The project verification team has checked the ODA declaration document by Project owner.

In line with para 36 of the Project Standard v3.2 "Project Owners has used the GCC Project Submission Form (PSF) V3.2-2020 to provide the details of the GHG emission-reduction

	activity, including schematics, specifications, and the description of how the project reduces GHG emissions. The project description as contained in the final PSF/10/ is found accurate and complete.

D.3 Application and selection of methodologies and standardized baselines

D.3.1 Application of methodology and standardized baselines

Means of Project Verification	The verification team assessed each applicability condition listed in the selected CDM methodology i.e., ACM0002, v20.0 (and tools) for the project activity with the relevant information contained in the initial PSF/39/ against these criteria.
Findings	No CL, CAR, FAR is raised in this section
Conclusion	The project owner has applied CDM approved large scale methodology ACM0002: Grid-connected electricity generation from renewable sources version 20.0 which is valid until 30th June 2023. This is valid to use this version as the project was listed in December 2021. The project owner did not use any standardized baseline. The project falls under sectoral scope 1- Energy industries (renewable / non-renewable sources) (CDM TA1.2). EPIC is accredited for all the GHG sectoral scopes including sectoral scope 1. The assessment of compliance of applicable conditions of the applied methodology and the associated tools is mentioned below.

Requirements of applied CDM methodology ACM0002, V20.0	Opinion of verification team
This methodology is applicable to grid-connected renewable power generation project activities that: (a) install Greenfield power plant. (b) involve a capacity addition to (an) existing plant(s); (c) involve a retrofit of (an) existing plant(s)/unit(s); (d) involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) involve a replacement of (an) existing plant(s)/unit(s)	The proposed project activity is a green field, Turkish grid connected renewable power plant. Document review including the project license and the provisional acceptance certificate of the project activity provided by Energy Market Regulatory Authority was checked to confirm if the project is greenfield project. Therefore, it meets the said criteria.
The methodology is applicable under the following conditions: The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, Hydro power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit	The project activity includes generation of electricity from the renewable source of energy and is a greenfield project. Thus, it meets the first applicability condition. This is verified from the provisional acceptance certificate of the project.
In the case of capacity additions, retrofits, rehabilitations or replacements (except for Hydro, 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 or retrofit or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the	The proposed project activity is the installation of greenfield Hydro power plant. Therefore, the said criteria are not applicable

		implementation of the project activity	
		In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of reservoirs; or (b) The project activity is implemented in an existing single or multiple reservoirs, where the volume of the reservoir(s) is increased, and the power density calculated using equation (3) is greater than 4 W/m2: or (c) The project activity results in new single or multiple reservoirs and the power density calculate equation (3), is greater than 4 W/m2. (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density of any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m^2, all of the following conditions shall apply. (i) The power density calculated using the total installed capacity of the integrated project, as per equation (4) is greater than $4W/m^2$. (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity. (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m^2shall be: (a) Lower than or equal to 15 MW; and (b) Less than 10% of the total installed capacity of integrated hydro power project	The proposed project activity is the installation of a greenfield Hydro power plant. Therefore, the said criteria are applicable.
		In the case of integrated hydro power projects, project proponent shall: (a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or (b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and	The proposed project activity is the installation of a greenfield Hydro power plant. Therefore, the said criteria are applicable.

without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability indifferent seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	
The 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;	The proposed project activity is the installation of a greenfield Hydro power plants. Therefore, the said criteria are not applicable.
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	The proposed project activity is the installation of a greenfield Hydro power plant. Therefore, the said criteria are not applicable

Requirements of Methodological tool: Tool for the demonstration and assessment of additionality Tool-01 v7.0	**Opinion of the project verification team**
D. 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	The project owner did not propose new methodology. The project owner has applied this additionality tool in demonstrating additionality.

Board. They may also submit revisions to approved methodologies using the additionality tool.	

Requirements of tool-investment analysis Tool-27 v12.0	**Opinion of the project verification team**
1.) This methodological tool is applicable to project activities that apply the methodological tool “Tool for the demonstration and assessment of additionality”, the methodological tool “Combined tool to identify the baseline scenario and demonstrate additionality”, the guidelines “Non-binding best practice examples to demonstrate additionality for SSC project activities”, or baseline and monitoring methodologies that use the investment analysis for the demonstration of additionality and/or the identification of the baseline scenario.	The project owner has applied ACM0002 v20.0 for baseline and monitoring methodology. Therefore, this tool is applicable for the project owner to use.
2) In case the applied approved baseline and monitoring methodology contains requirements for the investment analysis that are different from those described in this methodological tool, the requirements contained in the methodology shall prevail.	The project owner has fully complied with the applied methodology and the investment analysis tool.

Requirements of common practice Tool-24 v3.1	**Opinion of the project verification team**
D. This methodological tool is applicable to project activities that apply the methodological tool “Tool for the demonstration and assessment of additionality”, the methodological tool “Combined tool to identify the baseline scenario and	The project owner had used “Tool for the demonstration and assessment of additionality” v7.0. Hence application of this tool for common practice is accepted by the project verification team.

demonstrate additionality", or baseline and monitoring methodologies that use the common practice test for the demonstration of additionality.	
2. In case the applied approved baseline and monitoring methodology defines approaches for the conduction of the common practice test that are different from those described in this methodological tool, the requirements contained in the methodology shall prevail.	The requirements of applied methodology specific to the project type are in line with the requirements of the common practice tool.

Requirements of Tool to calculate the emission factor of an electrical system[21] Tool-07 V7.0	**Opinion of the project verification team**
1. This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	The project activity involved the construction and operation of Hydro power project in Republic of Türkiye. The electricity thus generated is being sold to Turkish National grid. In the absence of the project activity, the same amount of electricity (grid electricity) would be generated in the Turkish National grid. Therefore, combined margin calculation applies to the Turkish National grid.
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	According to Ministry of Foreign Affairs, '' Republic of Türkiye was included in Annex I and Annex II lists at the very beginning of the process. At the same time, Republic of Türkiye did not take place in Annex B of the Protocol as she had not ratified the UNFCCC while the Annex B list of the Protocol was being established. In this regard, Republic of Türkiye has no obligation regarding quantified emission reduction neither in first nor second commitment periods of the Kyoto Protocol.'' The mentioned rule is for CDM projects and no CDM project is being developed in Republic of Türkiye anyway. So, it can be mentioned that this condition is not applicable, and the project is not a CDM project. For this reason, there is no problem in developing any GS, VCS and GCC projects in Republic of Türkiye. There are already more than a

	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.	hundred projects registered to these standards. "Tool to calculate the emission factor for an electricity system" tool has already been used in all these projects. The project Verifyation team has accepted the argument and confirmed that this condition is not applicable, and the project is not a CDM project.	
	3. 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.	"This condition of tool is Not applicable as GCC accepts project from worldwide whereas under CDM only non -Annex I country can submit projects and hence tool is referring to Annex I"	
	4. Under this tool, the value applied to the CO_2 emission factor of biofuels is zero.	CO_2 emission factor of biofuels was never considered for this project activity.	

D.3.2 Clarification on applicability of methodology, tool and/or standardized baseline

Means of Project Verification	The verification team assessed each applicability condition listed in the selected CDM methodology i.e., ACM0002, v20.0 (and tools) for the project activity with the relevant information contained in the PSF against these criteria.
Findings	No CL, CAR or FAR is raised in this section
Conclusion	The verification team confirms that; It has critically assessed each applicability condition listed in the selected methodology/tool and the relevant information contained in the PSF against these criteria.

D.3.3 Project boundary, sources and GHGs

Means of Project Verification	The project verification team has assessed the project boundary, selected sources, and gases in accordance with applicable Project Verification requirements related to the project boundary in the Verification Standard and Project Standard and the applicable methodology. The project verification team has determined whether all main GHG emission sources, the project boundary of the proposed GCC project activity, and other relevant project and baseline emission sources covered in the selected methodologies and, where applicable, the selected standardized baselines are included within the project boundary for the purpose of calculating project and baseline emissions for the proposed GCC project activity using the following means of verification such as onsite observation, interview with project owners.
Findings	No CL, CAR or FAR is raised in this section
Conclusion	As per the initial PSF submitted, the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the project power plant is connected to. Therefore, the project boundary includes the spatial extent of the power plants that are physically connected through transmission and distribution lines to supply electricity to the Indian Grid.

	In the baseline, CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity is applicable. In the project boundary, there are no emissions from Diesel Generator set as there is no DG set installed within the project boundary as confirmed from the remote audit. The baseline emissions are calculated based on quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the GCC project activity in project year y. Hence, emission from on-site electricity use (as import of electricity) in the23erify23t activity if any is accounted by considering the net electricity generation in the calculation of emission reduction. The project verification team reviewed the final PSF[/10/] v1.5 under relevant section project boundary and accepted the source and sink of the project. Scenario mentioned in the relevant sections (under project boundary section and baseline section) is consistent. The components of the project boundary mentioned in the final PSF[/10/] v1.5 were found to be in compliance with Section 5.1 Project Boundary – para 20 & 21 of the applied methodology. The geographic and system boundaries for the –relevant electricity grid can be clearly identified and information on the characteristics of the Indian grid is available. The23erifycation team confirmed that all GHG –sources required by the methodology have been included within the project boundary. It was assessed that no emission sources related to project activity will cause any deviation from the applicability of the methodology or accuracy of the emission reductions.

D.3.4 Baseline scenario

Means of Project Verification	The baseline scenario of the project was checked as per paragraph 22 of the applied methodology (ACM0002 Version 20.0)
Findings	No CL, CAR or FAR is raised in this section
Conclusion	As per applied methodology para 22 “If the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in “TOOL-07 v7.0: Tool to calculate the emission factor for an electricity system”. The project activity is setting up of Hydro power project by harnessing the power of Hydro to produce electricity and supply to the grid. In the absence of the project activity, the equivalent amount of power would have been supplied to the electricity grid by the operation of grid-connected power plants (mainly by fossil fuel fired plants) and by the addition of new generation sources, as reflected in the combined margin (CM) calculations. Hence, the baseline for the project activity is the equivalent to the amount of power from the Turkish National Power grid. The combined margin ($EF_{grid,CM,y)}$ is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM). Calculations for this combined margin must be based on data from an official source (where available) and made publicly available. According to “Turkey National Network Emission Factor Data Sheet” document from Ministry of Energy and Natural Resources, Operating, Build and Combined Margin Emission Factors have been published. The Ministry has calculated the factors as using the “Tool to calculate the emission factor for an electricity system”. Since it’s the latest available data, published by the ministry, these factors have been considered. Calculation of the Operating Margin Emission Factor: It’s been published as 0.7424 tCO_2/MWh by the Ministry of Energy and Natural Resources. Calculation of the Build Margin Emission Factor: It’s been published as 0.36803 tCO_2/MWh by the Ministry of Energy and Natural Resources.

	Calculating of the Combined Margin Emission Factor: It's been published as 0.6488 tCO_2/MWh by the Ministry of Energy and Natural Resources. The combined margin is calculated ex-post and has been fixed for the crediting period. The baseline case is in compliance with all applicable legal and regulatory requirements references. Hence accepted by verification team as the identified baseline scenario reasonably represents what would occur in the absence of the project activity.

`D.3.5 Demonstration of additionality

Means of Project Verification	Additionality of the project was checked as per paragraph 49 - 52 of GCC Project Standard v3.1 i.e., demonstrated using the following two components. a) A legal requirement test b) An Additionality Test either based on a Positive List test or a projects-specific additionality test.
Findings	CAR 01 is raised in this section.
Conclusion	The additionality of the project is demonstrated using "by a projects-specific additionality test". As "A legal requirement test" - the project is not implemented by the force of law which is in line with paragraph no 46 of the project standard V3.1. This is a voluntary activity undertaken by the project owner without enforcing by any legal requirement in the host country. Hence project complies with the legal requirement test. Additionality has been demonstrated in line with the applied methodology ACM0002 (Version 20.0). Methodology requires the project participant to determine the additionality based on "Tool for the demonstration and assessment of additionality", Version 7.0.0. The stepwise approach to establish additionality of the project activity has been followed. The information mentioned in the PSF is duly supported by evidence quoted therein. The verification team has described all steps taken, and sources of information used to cross-check the information contained in the PSF. The verification team determined that the evidence assessed is credible, where appropriate. The GCC applies the following approach for demonstrating additionality, consisting of two components: (a) A Legal Requirement Test (b) An Additionality Test either based on a Positive List test or a projects-specific additionality test. The project is not enforced by law. The project passes the legal requirement test since there are no enforced laws, statutes, regulations, court orders, environmental-mitigation agreements, permitting conditions of other legally binding mandates requiring its implementation. Since voluntary commitments/agreements within a sector or by an entity do not constitute the legal requirement, the project is additional as per paragraph 46 of Project Standard, version 3.1. The proposed project activity meets the criteria for additionality since: • The project without carbon credits does not provide benefit financially. • Due to increasing demand of electricity, the proposed project activity is not enough for meeting the demand. Thus, new power plants should be constructed which includes mainly thermal power plants. • Mandatory laws and regulations are present: o Electricity Market Law (published in Official Gazette numbered 24335, dated 03/03/2001) o Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy (published in Official Gazette numbered 25819, dated 18/05/2005) o Energy Efficiency Law (published in Official Gazette numbered 26510, dated 02/05/2007)

	o Forest Law (published in Official Gazette numbered 9402, dated 08/09/1956) o Environment Law (published in Official Gazette numbered 18132, dated 11/08/1983) According to "Tool for the demonstration and assessment of additionality, version 07.0.0 (Tool 01)", the steps listed below are followed in detail; Step 1 - Identification of alternatives to the project activity consistent with current laws and regulations Sub-step 1a - Define alternatives to the project activity: The most realistic and reliable alternatives to the project activity are: 1. Proposed project is not undertaken as a VER or ACC project activity 2. Continuation of the current situation-supply of equal amount of electricity by the newly built grid connected power plants The first alternative (Scenario 1), which is the implementation of the project without carbon revenue is not financially attractive as discussed in investment analysis section below. The second alternative (Scenario 2) is the baseline scenario and implementation of the proposed project as a VER or ACC activity would be additional to this scenario. Continuation of the current situation is not considered as a realistic alternative due to increasing electricity demand therefore new power plants should be constructed which includes mainly thermal power plants. Implementation of the project is additional to the baseline scenario which is alternative 2 above and therefore reduces the emissions. Outcome of Step 1a Continuation of the current situation is not considered as a realistic alternative due to increasing electricity demand therefore new power plants should be constructed which includes mainly thermal power plants. Implementation of the project is additional to the baseline scenario which is an alternative 2 above and therefore reduces the emissions. Sub-step 1b. Consistency with mandatory laws and regulation The following applicable mandatory laws and regulations have been identified: 1. Electricity Market Law (published in Official Gazette numbered 24335, dated 03/03/2001) 2. Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy (published in Official Gazette numbered 25819, dated 18/05/2005) 3. Energy Efficiency Law (published in Official Gazette numbered 26510, dated 02/05/2007) 4. Forest Law (published in Official Gazette numbered 9402, dated 08/09/1956) 5. Environment Law (published in Official Gazette numbered 18132, dated 11/08/1983) The resultant alternatives to the project as outlined in Step 1a are in compliance with the applicable laws and regulations. Outcome of Step 1b Mandatory legislation and regulations for each alternative are taken into account in sub-step 1b. Based on the above analysis, the proposed project activity is not the only alternative amongst the project participants that is in compliance with mandatory regulations. Therefore, the proposed ACC project activity is considered as additional. Step 2 - **Investment analysis** The investment analysis has been done in order to make an economic and financial evaluation of the project. No public funding or ODA are available in Turkey for finance of this type of projects. For investment analysis, loan conditions have been determined considering the average market rates/term sheets signed with the banks. Sub-step 2a - Determine appropriate analysis method. There are three options for the determination of analysis method which are: • Simple Cost Analysis

- Investment Comparison Analysis and
- Benchmark Analysis

Since Project generates economic benefits from sales of electricity, the simple cost analysis is not applicable. Also, since the baseline of the project is generation of electricity by the grid, no alternative investment is considered at issue. So, it has been decided to use benchmark analysis for evaluation of the project investment.

Sub-step 2b: Option III. Apply benchmark analysis.
For benchmark analysis, figure defined by World Bank for similar project types have been used which has been given as 15% (pre-tax) for equity IRR by a report generated in June 2017. For the proposed project, in order to reach this equity IRR values, average electricity tariff must be above 7.3 $c/kWh in the absence of carbon revenue and assuming that initial investment figures are realized so that the investment will become reasonable.

Sub-step 2c – Calculation and comparison of financial indicators.

Table 4 Financial parameters of the Project used for investment analysis.

Parameters	Data Value		Unit
	After 18/06/2021	After 01/01/2023	
Installed Capacity[6]	9.420	19.160	MWe
Grid Connected Output[26]	54,770	111,400	MWh
Capital investment[7]	25,486,898.74	12,689,791.20	$
Total Operation and Maintenance[8]	1,792,276.40	2,918,126.45	$
Revision after 20 years of operating[28]	2,939,296.80		$
Revision after 35 years of operating[28]	10,552,700.00		$
Revision after 40 years of operating[28]	2,939,296.80		$
Revision after 45 years of operating[28]	2,577,851.29		$
DSI Contribution Payment – every year[9]	31,162.28		$
DSI Energy Share Contribution Payment[10]	20,008,229.70		$
15 years of payment after 5 years of operation – starting from 2026[30]	1,333,881.98		$

Table 5 Cost of Servicing Debt parameters used for investment analysis

Parameters	Data Value	Unit
Principle Payments	12,733,345.83	$
Annual Interest Rate	6.676	%
Cost of Servicing Debt	15,527,878.41	$
Cost of Servicing Debt Interest for 2022	941,701.30	$
Cost of Servicing Debt Interest for 2023	791,828.30	$

[6] Aslandağı Beyyurdu HPP Generation License
[7] Aslandağı Beyyurdu HPP Feasibility Report section 9 page 3, EPC & Construction Agreement page 1
[8] Aslandağı Beyyurdu HPP Feasibility Report section 9 page 3
[9] Aslandağı Beyyurdu HPP Water Usage Agreement article 40
[10] Aslandağı Beyyurdu HPP Water Usage Agreement article 23

Cost of Servicing Debt Interest for 2024	576,328.46	$
Cost of Servicing Debt Interest for 2025	351,179.43	$
Cost of Servicing Debt Interest for 2026	133,495.09	$

Table 6 Financial parameters used for investment analysis

Parameters	Data Value	Unit
Expected Tariff for first 5 year	9.6	¢/kWh
Expected Tariff for the second 5 year	7.3	¢/kWh
Market Price after 10 years	4.71	¢/kWh
Expected ACCs price	3.5	€/tCO_2e

The World Bank has established applied benchmark for renewable energy investments in Turkey. It comprises a minimum IRR requirement for project finance, as well as a threshold benchmark for IRR. As a result, it is a "commercial lending rate," as defined by Tool 27. The benchmark IRR was derived from a World Bank loan to Turkey's renewable energy industry as part of the Clean Technology Fund (CTF). The suggested CTF benchmark was found to be compatible with the qualifying requirements for emission reduction projects (that is, significant potential in emission reductions, demonstration potential, development impact and implementation potential). For each project type, threshold IRRs have been calculated, which are the lowest IRRs required to attract investors.
Applied benchmark IRR is conservative and reliable. World Bank, European Bank for Reconstruction and Development (EBRD), which is another international finance institution providing loan to Turkish RE and EE projects have published their evaluation report. This report shows that for benchmark analysis, figure defined by World Bank for similar project types have been used which has been given as 15% (pre-tax) for equity IRR by a report generated in June 2017.
According to the investment analysis made for project activity, Equity Internal Rate of Return (IRR) of the Aslandağı Beyyurdu Hydro Power Plant has been calculated and indicated in feasibility study report (FSR) figures at time of investment decision and for the final project design. IRR at time of investment decision has been calculated 8.24% referring the parameters given above without considering the carbon revenue. For amortization calculations, electromechanical equipment and expected lifetime of construction are determined as 49 years.

As the amount of flow that can be turbines increases, the production to be obtained from the project increases. These production increases up to a certain amount of flow cover the increases in cost and increase the profitability and internal rate of the project. However, after a certain flow rate, production increases do not meet the cost increases and the profitability of the project decreases after this flow.
According to the Law on the Use of Renewable Energy Sources for Electric Energy Generation, the government gave an incentive of 9.6 ¢/kWh for the first 5 years after the facility commissioning because the turbines and generators belonging to the facility are domestic production. After 5 years, project uses government incentives for electricity generation which is 7.3 ¢/kWh for first ten years and is assumed as 4.71 ¢/kWh after ten years. Annual electricity generation has been taken as 54.770 GWh up to 01/01/2023, and 111.400 GWh after this date as indicated in the generation license.

Sub-step 2d – **Sensitivity Analysis**
Sensitivity analysis has been carried out for three main parameters identified.
- Investment cost
- Operating Cost
- Electricity Sales Revenue

Table 7 Sensitivity analysis for Aslandağı Beyyurdu HPP (except carbon revenue)

With ±5% fluctuation range up to ±15% for the above parameters, this table has been generated.	% Fluctuation						
	-15	**-10**	**-5**	**0**	**+5**	**+10**	**+15**
Investment Cost	10.77	9.82	8.98	8.24	7.59	7.00	6.47
Operating Cost	9.99	9.43	8.85	8.24	7.62	6.96	6.27
Electricity Income	3.28	5.04	6.68	8.24	9.75	11.22	12.64

The ACC income will enhance the project's financial indicators and make it more attractive to investors, according to the investment and sensitivity study. The scenario was examined, and it was discovered that the project is additional in the scenario. Given that the figures above are based on the highest guaranteed price rather than the average price, optimistic estimates for annual generation, and the fact that those figures do not reflect the risk of investment, the role of carbon income is a critical number in allowing the project to move forward and a favorable investment and funding decision to be made. Carbon revenue has a significant effect in this respect in terms of decreasing the period for return on investment and minimizing investment risk.

Investment cost is another key factor that influences equity IRR. However, because the agreements have been signed and the expenses have been realized according to the financial model, there is no way to predict a reduction in the investment cost. Operating expenses have an influence on equity IRR, but it is little and does not result in a substantial change in equity IRR, and the variation percentage required to meet the benchmark is extremely large and unlikely. Based on the above information, it is seen that project is not the most attractive option. Therefore, the project is considered as additional to the baseline scenario.

D.3.6 Estimation of emission reductions or net anthropogenic removal

Means of Project Verification	The project verification team determined whether the steps taken and the equations and parameters to calculate the emission reductions or net anthropogenic removals are in accordance with the applicable Project Verification requirements related to emission reductions in the Verification Standard and Project Standard and the applicable methodology using using the remote audit observation, interview and review of technical specifications, provisional acceptance protocol documents, power purchase agreement, FSR etc.
Findings	No CL, CAR or FAR is raised in this section.
Conclusion	The verification team confirms that the methodology is correctly applied, the selected methodology (i.e., ACM0002, version 20.0) is applicable to the project and selected version of the methodology is valid at the time of submission for registration. As per the paragraph 54 of the methodology ACM0002, Version 20.0 emission reductions are calculated as follows **Emission Reductions:** $ER_y = BE_y - PE_y$ Where, ER_y = Emission reductions in year y (t CO_2e/yr) BE_y = Baseline emissions in year y (t CO_2/yr) PE_y = Project emissions in year y (t CO_2/yr) **Baseline Emissions:**

	In line with CDM approved large scale Methodology ACM0002 version 20.0 “Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired 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. 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 CO_2/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 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” (t CO_2/MWh) As per para 1 of ACM0002, version 20.0, when the project activity is installation of Greenfield power plant, then: $EG_{PJ,y} = EG_{facility,y}$ Where, $EG_{PJ,y}$ = 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) $EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr) As per the methodology combined margin, grid emission factor has been calculated. as per the “Tool to calculate the grid emission factor for an Electricity System” version 7.0. For the emission factors, that were used to calculate estimated emission reductions, publication of Turkish Ministry of Energy and Natural Resources which is indicating Turkey’s National Electric Grid Emission Factor for the year of 2020 was used. Publication includes calculated Emission Factor values that are Operating Margin (OM), Growth Based Margin (Build Margin BM) and Combined Margin (CM) Emission Factors, for the relevant year with usage of the Clean Development Mechanism Tool 07-V07.0. For this calculation, information regarding used data set is given below in detail. • TEİAŞ Turkey's electricity generation-consumption and loss statistics, • Common prepared report under Turkey's National Greenhouse Gas Inventory Reporting Format. - Common Reporting Format (CRF) tables for electricity generation (1.A.1.a.i) emission values • Chronological order of power generation plants from TEİAŞ Load Dispatch Department with commissioning dates, plant names, fuel types, installed power values, electricity generation for the calculated year • Checking from the websites of Gold Standard (GS) and Verified Carbon Standard (VCS) for the ownership status of the carbon reduction certificate and, • From Clean Development Mechanism (CDM) Tool 09- V2.0, Power plant efficiency figures are used According to this publication.

	Operating Margin-OM: 0.7424 tCO_2/MWh Build Margin-BM: 0.36803 tCO_2/MWh Combined Margin-CM (for solar and Hydro): 0.6488 tCO_2/MWh . **Project emissions:** The proposed project activity involves the generation of electricity by development of a Hydro plant. The generation of electricity does not result in greenhouse gas emissions and therefore is taken as 0 tCO_2/year. **Leakage:** No Leakage emissions are considered. The main emission potentially giving rise to leakage in the context of electrical sector projects is emission arising due to activities arising such as power plant construction and upstream emission from fossil fuel use (e.g. extraction, processing, and transport). These emission sources are neglected. Then: $ER_y = BE_y$ **Baseline emissions:** Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity, calculated as follows: $BE_y = EG_y$ - x $EF_{grid,CM,y}$ Where: BE_y = Baseline emissions in year y (tCO_2/yr). EG_y = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y. $EF_{grid,CM,y}$ = 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 (Tool-07 version 07.0)". Then: $ER_y = BE_y = EG_y$ * $EF_{grid,CM,}$ = 102,905 MWh/year * 0.5706tCO_2/MWh = 58,717tCO_2/year

D.3.7 Monitoring plan

Means of Project Verification	The project verification team determined whether the monitoring plan is in accordance with the applicable Project Verification requirements related to the monitoring plan in the Verification Standard and Project Standard and the applicable methodology using using the onsite observation, interview and review of technical specifications, commissioning documents, power purchase agreements etc.
Findings	No CL, CAR or FAR was raised in this section.
Conclusion	The monitoring plan has been documented as per the methodology ACM0002, in a complete and transparent manner. The monitoring plan is as described in Section B.7 of PSF. The verification team based on document review and interviews with the relevant personnel confirm that the proposed monitoring plan is feasible within the project design. Further, the monitoring methodology, data management, and quality assurance and quality control procedures to be implemented in the context of the project will be implanted by the managing entity i.e., project owner. Therefore, the

	project owner will be able to implement the monitoring plan and the achieved emission reductions can be reported and verified. As per the monitoring plan in PSF, there is only one parameter to be monitored i.e., $EG_{facility,y}$ = Net Electricity generated and delivered to the grid by the power plant in year y. EPİAŞ records are taken via remote reading system. The values are cross-check with the on-site meter records. Electricity generation data is recorded by two electricity meters. According to them, the invoices of the electricity are provided to TEİAŞ. The quantity of electricity supplied by the project activity to the grid and the quantity of electricity delivered to the related area from the grid are measured. Internal consumption from electricity is subtracted from the delivered electricity to calculate the net generation. Calibration of the meters are valid for 10 years based on related regulation. The meters are sealed by TEİAŞ, and the project proponent are not allowed to access the meters. If there is a significant difference between the readings of two devices, TEİAŞ is informed about this situation. EPDK regulations should be followed for the meters to identify the accuracy class of the meters as 0.2 or 0.5. **Monitoring-program of risk management actions** For the "Protecting/enhancing species diversity" under the "Environment – Natural Resources" part, Do-No-harm Risk Assessment has been performed and evaluated as "Harmful". There is no endemic species in the project activity. For the species around the project site, with the help of fish passages release of minimum environmental flow, the negative effects of the project will be minimized. So that, the fish passages are constructed minimum environmental flow has been released according to water utilization agreement article 4 to avoid the negative effects of the project. After the application of mitigation measures, "Do-No-Harm Residual Risk Assessment" has been performed and evaluated as "Harmless". The amount of water supply is monitored by the State Hydraulic Works. With help of the mitigation measures taken, continuity of the fish species will be ensured. The climatic condition of the area is suitable for fish life. **Other elements of the monitoring plan** To calculate emission reductions, monitoring is the main procedure for the project activity. The monitoring plan is prepared for verifying these emissions. The meters are sealed by TEİAŞ and the project proponent is not allowed to access the meters. Net electricity generation is measured and recorded by TEİAŞ monthly (through remote reading). Power Plant Manager is responsible for the electricity generated, gathering all relevant data and keeping the records. Through the crediting period, the project owner submitted the electricity generation data to Desilyon Danışmanlık Ticaret A.Ş. who is responsible for calculating the emission reduction for the verification. The monitoring report could be prepared based on these data. Team Members are expected to include the following staff: Plant Manager: Responsibility for running the plant and compliance with ACC monitoring plan Accounting Manager: Responsible for keeping data about generation and consumption. Desilyon Danışmanlık Ticaret A.Ş.: Responsible for emission reduction calculations, preparing monitoring report and periodical verification process. The meters (main and spare) are installed with respect to the regulations by TEİAŞ. Furthermore, data monitoring is carried out with these meters. The reason of using two meters is to compare between measured values recorded. If there is a significant

	difference between the readings of two devices, TEİAŞ is informed about this situation. EPDK regulations should be followed for the meters to identify the accuracy class of the meters as 0.2 or 0.5. The quantity of electricity supplied by the project activity to the grid (ISVM) and the quantity of electricity delivered to the related area from the grid (UEVM) are measured and demonstrated by EPİAŞ. Internal consumption from electricity is subtracted from the delivered electricity to calculate the net generation. All data is kept for at least two years after the crediting period for QA/QC purposes. Before the commissioning of the power plant, calibration of the electricity meters is made and sealed by TEİAŞ. Then, if there is an inconsistency between the meters, they are calibrated by TEİAŞ. The PSF describes the monitoring system, monitoring procedures, data collection and reporting, responsibilities of relevant staff/departments, emergency procedures, calibrations that were implemented and QA/QC procedures. The verification team confirmed the data collection mechanism is as described in the Monitoring Plan of the PSF. It was confirmed that the QA/QC procedures implemented at the site are consistent with the PSF.

D.4 Start date, crediting period and duration

Means of Project Verification	The project verification team determined whether the start date of the Project, expected operational lifetime, crediting period and duration in accordance with the applicable Project Verification requirements in the Verification Standard/6/ v3.1 and Project Standard/4/ v 3.1 using using the onsite observation, interview and review of technical specifications/11/, commissioning documents/12/, operational log/12/, FSR (Feasibility Study report)/25/, power purchase agreement/14/ etc.
Findings	No CL, CAR or FAR is raised in this section
Conclusion	The project verification team has reviewed the operational log/12/. It is confirmed that the project has started commercial operation from 18/06/2021. So, the project falls under type A1 project. The project is licensed on 27/05/2021. As per the license issued by Energy Market Regulatory Authority (EMRA) all legal rights of the project is given to Aslanlı Van Elektrik Üretim A.Ş. until 27/05/2070. Thus, total expected operational lifetime of the project activity is 49 years. Hence 10-year crediting period is applicable. For type A1 project, the start date of the crediting period would be from the start date of the operations of the GCC Project Activity i.e from 18/06/2021–30/06/2031 (10 years).

D.5 Environmental impacts

Means of Project Verification	The project verification team determined the analysis of the environmental impacts and, if considered significant by the Project Owners or by the host Party, the environmental impact assessment are in accordance with the applicable Project Verification requirements related to the environmental impacts in the Verification Standard v3.1/6/ and Project Standard v3.1/4/ using using the onsite observation, interview and review of technical specifications/12/, Host country nationals standards, EIA approval/21/ dt 10/11/2008 etc.
Findings	No CL, CAR, FAR is raised in this section.
Conclusion	The verification team checked the relevant regulations and laws in Turkey For the project, the application was made to the Ministry of Environment and Urbanization. After the necessary examinations, the decision “EIA Exemption” was taken in 10/11/2008. Thus, the project is considered to be implemented according to the national laws and regulations as long as the environmental precautions stated in the report are applied.

D.6 Local stakeholder consultation

Means of Project Verification	The project verification team determined the local stakeholder consultation process was in accordance with the applicable Project Verification requirements related to the local stakeholder consultation in the Verification Standard[/6/] and Project Standard[/4/] using the onsite observation, interview with local stakeholders and review of LSC documents.
Findings	No CL, CAR, FAR is raised in this section.
Conclusion	LSC was conducted on 17/1/2022 the Local Stakeholder meeting organized by Desilyon Danışmanlık Ticaret A.Ş for Aslandağı Beyyurdu Hydro Power Plant. It was arranged at 09:00 on 17/01/2022 in Çubuk Village Coffee House in Şemdinli / Hakkari. The meeting was announced orally. Furthermore, announcements were sent to the headmen and coffee houses of the nearby settlements and posted on the board. Stakeholders did not make any negative comments about the project during the meeting. In addition, the joint outcome of stakeholder consultation is positive. The local people have been very satisfied with the project so far, and the project has provided job opportunities in the region. There were no negative comments in general at the meeting, however the contact information of the facility manager was shared with the stakeholders in order to be able to communicate and comment with the facility manager in the next process, and it was stated that the project owner and the local people would always be in contact. Moreover, feedback from meeting attendees will be reviewed and revised annually (if necessary) during the operational phase, while the grievance mechanism will be reviewed on an ongoing basis.

D.7 Approval and Authorization- Host Country Clearance

Means of Project Verification	The project verification team has determined whether the approval and clearance from the host-country was in accordance with the applicable Project Verification requirements related to the approval in the Verification Standard and Project Standard.
Findings	NO CL, CAR or FAR is raised in this section
Conclusion	There is no host country approval or authorisation required for the GCC project.

D.8 Project Owner- Identification and communication

Means of Project Verification	The project verification team has determined whether the Project Owners and their communication details as provided in the PSF are in accordance with the applicable Project Verification requirements related to the modalities of communication in the Verification Standard v3.1[/6/] and Project Standard v3.1[/7/] using interview with project owners, review of letter of authorisation, business licences etc.
Findings	No CL was raised in this section.
Conclusion	The verification team checked and found the information and contact details of the representation of the project owner. The project owners themselves has been appropriately incorporated in Appendix 1 of the PSF and verified from Authorization letter signed[/11/] by the project owners. Hence the verification team confirms that all the information presented is consistent between these documents.

D.9 Global stakeholder consultation

Means of Project Verification	The project verification team has determined whether the global stakeholder consultation process was in accordance with the applicable Project Verification requirements related to the global stakeholder consultation in the Verification Standard v3.1[/6/] and Project Standard[/4/] by checking the GCC website.
Findings	No CL, CAR or FAR was raised in this section.

Conclusion	The project was submitted for GSC from 15th February 2022 to 1st March 2022 (15 days). But there were no comments received from public stakeholders. https://www.globalcarboncouncil.com/global-stakeholders-consultation/

D.10 Environmental Safeguards (E+)

Means of Project Verification	The verification team checked whether the project activity is likely to cause any negative harm or positive impact to the environment and is eligible to achieve additional E+ certifications
Findings	CL 03 was raised in this section
Conclusion	The project owner has submitted the PSF and certification labels targeted (E+) is clearly reported in the PSF. The project is not likely to cause any net-harm to the environment (E+) and complies with the Environmental and Social Safeguards Standard[1]. The project owner has demonstrated in the PSF v1.6 that project Activity does not cause any net harm to environment. The project owner has identified the environmental and social impacts, Do Not Harm assessment, actions plans if any, monitoring etc in the PSF. The project owner has reported in the PSF stating that the environmental impacts anticipated resulting from their Project Activity. But there is no net harm as far as environmental aspect is concerned. The project is unlikely to cause any net harm to the environment. The project owner has identified the environmental and social impact during the construction and operation of the project and demonstrated that the project is unlikely to cause any net harm to the environment and society. There is no significant environmental impacts are discovered by the project owner or the host party. The project owner has conducted Do-No-Harm Risk Assessment to determine the severity of identified impacts and classified them into not applicable or harmless or harmful.

Particulars	**Project verification opinion**
Environmental impacts on the identified categories-indicators	1)Environment-Air- CO_2 emissions
Description of impact	The project reduces CO_2 emissions since it reduces the amount of fossil fuel used. Thus, air pollution decreases. There is no diesel power plant inside the project boundary. So, there are no project emissions from the project. Hence termed as not applicable. In the absence of the project, 58,717 tonnes of CO_2 per year would be generated from Turkish Grid, which is GHG intensive. By implementation, the project reduces equivalent amount of CO_2 emissions.
Legal requirement	There is no legal requirement on CO_2 emissions for the host country, Türkiye.
Severity of impacts (Do Not Harm Assessment) (Not applicable/ Harmless/ Harmful)	As there are no environmental impacts are anticipated, it is termed as 'not applicable'
Monitoring	PSF contains monitoring of this indicator.

Particulars	**Project verification opinion**
Environmental	2)Environment-Land- Solid waste Pollution from

impacts on the identified categories-indicators	Hazardous wastes
Description of impact	Waste formation that will occur as dangerous during the construction and operation phase of the activity is used tires, accumulators, batteries, cables, and oil trap filters, etc. can be. In the management of hazardous waste, separation at the source, transportation, disposal and similar processes.
Legal requirement	Hazardous waste will be disposed of in accordance with the relevant provisions of the Waste Management Regulation
Severity of impacts (Do Not Harm Assessment) (Not applicable/ Harmless/ Harmful)	The project verification team confirms that the project is harmless.
Monitoring	PSF contains monitoring of this indicator. Hazardous waste will be collected and stored under suitable conditions until it is sent for disposal. There is a hazardous waste storage area at the plant. Licensed waste collection vehicle is collected hazardous waste.

Particulars	**Project verification opinion**
Environmental impacts on the identified categories-indicators	3)Environment – Water - Reliability/ accessibility of water supply
Description of impact	As per the feasibility report, the water used for electricity is released back to the Bembo Creek River without any chemical change and at the same amount and quality. Since the plant is a run-type and is located on the river, there is no water direction and no change in the amount of water flowing in the river. Thus, agricultural activities are not affected from the project activity.
Legal requirement	Minimum flow rates are determined by State and Hydraulic Works
Severity of impacts (Do Not Harm Assessment) (Not applicable/ Harmless/ Harmful)	The project verification team confirms that the project is harmless.
Monitoring	The amount of water supply is monitored by the State Hydraulic Works

Particulars	**Project verification opinion**
Environmental impacts on the identified categories-indicators	4)Environment-Water - Generation of wastewater
Description of	Domestic wastewater might be generated during the

impact	operation period.
Legal requirement	Domestic wastewater discharge to municipal canalization system according to related regulation.
Severity of impacts (Do Not Harm Assessment) (Not applicable/ Harmless/ Harmful)	The project verification team confirms that the project is harmless.
Monitoring	PSF contains monitoring of this indicator.

Particulars	**Project verification opinion**
Environmental impacts on the identified categories-indicators	5)Environment – Natural Resources – Protecting / enhancing species diversity.
Description of impact	Aquatic life may be affected by the project activity. In addition, according to water utilization agreement the environmental flow that must be left from the plant is important for the aquatic life and it may affect the aquatic life if required amount of water release is controlled from the reservoir.
Legal requirement	Minimum flow rates are determined by State and Hydraulic Works.
Severity of impacts (Do Not Harm Assessment) (Not applicable/ Harmless/ Harmful)	The project verification team confirms that the project is harmless.
Monitoring	The climatic condition of the area is suitable for fish life. The environmental flow amount has been determined in the Project Identification Report and same amount of water will be released to the river for sustain river aquatic life and fish life.

As reported in the PSFv1.5 , the project owner has assessed the Project Activity is not likely to cause any harm to the environment. The project verification team based on records reviewed as above, has accepted that there is no net harm to the environment. The net score is +5, the overall anticipated impact is negligible. The project is not likely to cause any net-harm to the environment (E+) and complies with the Environmental and Social Safeguards Standard[/1/].

D.11 Social Safeguards (S+)

Means of Project Verification	The verification team checked whether the project activity is likely to cause any negative harm to the society or have a positive impact and is eligible to achieve additional S+ certifications.
Findings	No CLs or CARs raised in this section
Conclusion	The project owner has submitted the PSF v1.6, and certification labels targeted (S+) is clearly reported in the PSFv1.6 . The project is not likely to cause any net-harm to the society (S+) and complies with the Environmental and Social Safeguards Standard[/1/]. The project owner has demonstrated in the PSF that project Activity does not cause any net harm to society. The project owner has identified the social impacts, DO No Harm assessment, action plans, monitoring etc. in the PSF v1.6 .

The project owner has reported in the PSF v1.6 stating that the social impacts anticipated resulting from their Project Activity. The project is unlikely to cause any net harm to the society.

The project owner has conducted Do-No-Harm Risk Assessment to determine the severity of identified impacts and classified them into not applicable or harmless or harmful.

Particulars	**Project verification opinion**
Social impacts on the identified categories-indicators	1)Social-Jobs-Long term jobs (>1 year) created or lost
Description of impact	The project provides long term job opportunities during operation. The project verification team has reviewed the Statement of employee contracts
Legal requirement	Employment is made according to Labor Law.
Severity of impacts (Do Not Harm Assessment) (Not applicable/ Harmless/ Harmful)	The project verification team confirms that the project is harmless.
Monitoring	PSF v1.5 contains monitoring of this parameter and documents maintenance. Hence accepted by the project verification team.

Particulars	**Project verification opinion**
Social impacts on the identified categories-indicators	2) Social-Jobs- New short-term jobs (<1 year) created or lost
Description of impact	The project creates short term job opportunities during construction The project verification team has reviewed Statement of employment records.
Legal requirement	Employment is made according to Labor Law.
Severity of impacts (Do Not Harm Assessment) (Not applicable/ Harmless/ Harmful)	The project verification team confirms that the project is harmless.
Monitoring	PSF v1.5 contains monitoring of this parameter and documents maintenance. Hence accepted by the project verification team.

Particulars	**Project Verification opinion**
Social impacts on the identified categories-indicators	3)Social-Jobs-Sources of Income generation increased/decreased
Description of impact	The project increases income by creating job opportunities. The project verification team has reviewed the statement of

	employee contracts
Legal requirement	Employment is made according to Labor Law
Severity of impacts (Do Not Harm Assessment) (Not applicable/ Harmless/ Harmful)	The project verification team confirms that the project is harmless.
Monitoring	PSF contains monitoring of this parameter and documents maintenance. Hence accepted by the project verification team.

Particulars	**Project Verification opinion**
Social impacts on the identified categories-indicators	4)Social - Health & Safety – Reducing / increasing accidents
Description of impact	There may be occupational accidents at the site. The project verification checked the training records regarding operation, maintenance and OHS trainings. Training records will be stored in the project site during operation period.
Legal requirement	There is no legal requirement on CO_2 emissions for the host country, Türkiye. There is HSE law in Türkiye to reduce accidents in power plants.
Severity of impacts (Do Not Harm Assessment) (Not applicable/ Harmless/ Harmful)	The project verification team confirms that the project is harmless.
Monitoring	As per the PSF v1.5, the training records will be maintained at the project site.

Particulars	Project Verification opinion
Social impacts on the identified categories-indicators	5)Social - Education- Job related training imparted or not
Description of impact	The project owner provides job related training for the special positions. There may be occupational accidents at the site. The project verification checked the training records regarding operation, maintenance and OHS trainings. Training records/10/ will be stored in the project site during operation period.
Legal requirement	All trainings and precautions are completed according to the HSE Law.
Severity of impacts (Do Not Harm Assessment) (Not applicable/ Harmless/	The project verification team confirms that the project is harmless.

	Harmful)	
	Monitoring	As per the PSF, the training records will be maintained at the project site.
	As reported in the PSF, the project owner has assessed the Project Activity is not likely to cause any harm to the society. The project is not likely to cause any net-harm to the society (S+) score +5 and complies with the Environmental and Social Safeguards Standard[1].

D.12 Sustainable development Goals (SDG+)

Means of Project Verification	The verification team checked whether the project activity is likely to contribute to the United Nations Sustainable Development Goals and would have a positive or negative impact and is eligible to achieve additional SDG+ certifications
Findings	CL 03 is raised in this section
Conclusion	The assessment of the contribution of the project activity on United Nations Sustainable Development Goals has been carried out in section F of the PSF. Out of the 17 Goals project activity has no adverse effect on any of the goal and contribute to following 04 SDGs: **Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all. 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix" by the utilization of biomass as a renewable energy source." Indicator 7.2.1 Renewable energy share in the total final energy consumption - The project increases the renewable energy share in Türkiye's energy production mix. It provides 111,400 MWh annual clean energy to the grid. The project verification team has reviewed the fuel mix of the Turkish National Grid. The project verification team has reviewed the ER sheet and confirmed the same as correct. **Goal 8** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. The project generates employment during both construction and operation period and created long-term employment for the people working at the construction site. Personnel have been employed by the project owner according to the regulations and the social security payments of the personnel are made regularly. The project verification team checked the employment records and accepted the same. **Goal 9** Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. The project has produced clean energy by implementing a hydroelectric power plant and helps the adaptation of clean energy technologies. **Goal 13.** Take urgent action to combat climate change and its impact. 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning 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 - Project owner operates the plant 20/04/2020 (as per commissioning certificate) and complies with targeted SDGs so far. Since the project uses hydro energy, there is no GHG emissions related to the project activity. It eliminates 58,717 tCO_{2e} annually.

	Targeted SDG+ goals 7,8 9 & 13 are likely to be achieved during the entire crediting period. Certification label is **"Gold"** for the ACCs as defined in the PSF

D.13 Authorization on Double Counting from Host Country (for CORSIA)

Means of Project Verification	The project verification team has determined whether the Project Owner has chosen to apply for CORSIA (section A.6 of initial PSF/ v1.5) and has obtained and provided, a written attestation from the host country's national focal point or the focal point's designee, as required by CORSIA Emissions Unit Eligibility Criteria as required by Verification Standard and Project Standard and whether the Project Activity will not lead to double counting of ACCs as per Verification Standard and Project Standard using interview with the project owner, review of CDM, GS, Verra websites and declaration from the project owner.
Findings	No CL, CAR or FAR is raised in this section
Conclusion	As per the PSF, Aslandağı Beyyurdu, as a large-scale Hydro power plant project, serves as a perfect project to demonstrate long-term potential of Hydro energy as a means to efficiently reducing GHG emissions as well as to diversifying and increasing security of the local energy supply and contributing to a sustainable development. Hydro driven turbines rotates in generators and electricity generated here is transferred to the grid for consumer without any greenhouse gas emissions. ACCs from the project activity shall help to realize this seminal technology by providing an adequate compensation for the lacking financial incentives in the Turkish renewable energy market. On the other hand, Project owner confirms that the carbon credits (ACCs) from the Project Activity shall not be double counted. The project activity is being registered only with GCC and no other carbon standard nor Renewable Energy Certification Program.

D.14 CORSIA Eligibility (C+)

Means of Project Verification	The project verification team has determined whether the Project Owner has chosen to apply for CORSIA (section A.6 of PSF v1.5) and that the Project Activity will be eligible to generate ACCs compatible with the requirements of CORSIA Emissions Unit Eligibility Criteria as required by Verification Standard and Project Standard using interview with the project owner, review of CDM, GS, Verra websites and declaration from the project owner.
Findings	No CLs or CARs raised in this section
Conclusion	The Project Activity complies with all the applicable requirements of the GCC Program and ICAO's requirements on CORSIA Emissions Unit Eligibility Criteria and CORSIA Eligible Emissions Units, as per Clarification No 1., v1.2 paragraph 21-23, and the ACCs expected to be issued during the crediting period is likely to be CORSIA eligible and can be used by International Airlines for offsetting their emissions during all phases of CORSIA and therefore requests GCC Steering Committee to append CORSIA Certification label (C+) to this project. The project activity meets the CORSIA Eligibility since the crediting period is after 01/01/2016 and the project is applying for registration under GCC which is one of the approved programmes for eligibility.

Section E. Internal quality control

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After the completion of assessment by the project verification team all the relevant documentation is submitted to a qualified, Independent Technical reviewer as part of EPIC's internal quality control system. A Technical reviewer team is appointed to review the draft final project verification report. The comments

made by the technical reviewer team are taken into consideration and incorporated in the final project verification report. The technical reviewer team assesses whether all the reporting requirements have been fulfilled and whether all the issues raised were closed satisfactorily by the project verification team with justification. The technical review process can also raise issues in this regard which is resolved further by the project verification team to the satisfaction of the technical reviewer. The technical reviewer team either accepts or rejects the report made by the project verification team. The final project verification report (after resolutions of all findings) is then submitted to the quality manager for review and subsequently for director's approval.

Section F. Project Verification opinion

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EPIC has performed the verification of the GCC project titled "Aslandağı Beyyurdu Hydro Power Plant". This report summarizes the findings of the verification of the project, performed on the basis of GCC program for the project activity.

The purpose of this verification is to have an independent third-party assessment of the project design, applicability of the project under the methodology, baseline of the project, additionality, monitoring plan, emission reduction calculation etc., and the project's compliance with relevant GCC program for the project activity and host country criteria. The project has correctly applied approved baseline and monitoring ACM0002, version 20.0 and is assessed against latest valid PS, VS and Environment and Social Safeguards Standard and/or other applicable GCC/CDM Decisions/Tools/Guidance/Forms.

The emission reductions (annual) from the project activity are estimated to be 58,717 tCO_2e per year thereon displacing estimated average of 54,770 MWh up to 01/01/2023, and 111,400 MWh after this date year amount of electricity from the generation-mix of power plants connected to the Turkey grid. Project activity will mitigate the total GHG emission reductions of 587,717 tCO_2e over the entire crediting period.

The Project Activity is not likely to cause any net-harm to the environment and/or society and complies with the Environmental and Social Safeguards Standard, and therefore requests the GCC Program to register the Project Activity, which is likely to achieve the requirements of the Environmental No-net-harm Label (E+) and the Social No-net-harm Label (S+) and is likely to contribute to the achievement of United Nations Sustainability Development Goals (SDGs), comply with the Project Sustainability Standard, and contribute to achieving a total of 04 SDGsn, which is likely to achieve the Gold SDG certification label (SDG+), CORSIA (C+). The verification team has confirmed that the proposed GCC project would achieve the anticipated GHG emission reductions or net anthropogenic GHG removals stated in the PSF.The project verification team has verified that the information submitted by the project owner is correct and that the emission reduction achieved has been determined correctly. Based on the information seen and evaluated, the project verification team has requested for registration of the GCC by confirming the following:

Project title:	Aslandağı Beyyurdu Hydro Power Plant (S00101)
Sector and Methodology used	Sectoral Scope 1: Energy Industries (renewable/non-renewable sources) CDM Methodology for "ACM0002 Grid-connected electricity generation from renewable sources, ver: 20.0.
Estimated Emissions reductions	58,717 tCO_2e per annum
Voluntary certification labels	E+, S+, SDG+ (Gold level) and C+

Appendix 1. Abbreviations

Abbreviations	Full texts
ACC	Approved Carbon Credits
CAP	Installed Capacity
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DVR	Draft Validation Report
EIA	Environmental Impact Assessment
EPIC	EPIC Sustainability Services Private Limited
ER	External Resources
FAR	Forward Action Request
GCC	Global Carbon Council
GHG	Green House Gas
GSCP	Global Stakeholder Consultation Process
IPCC	Intergovernmental Panel on Climate Change
IR	Internal Resources
ISO	International Organization for Standardization
LSC	Local Stakeholder Consultation
PSF	Project Submission Form
PVR	Project Validation Report

Appendix 2. Competence of team members and technical reviewers

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The following validation team has been assigned to carry out the project verification of the project.

Name	**Mr. R. Vijayaragahavan**	**Mr. TVVMARUTHI SUMAN**	**Mr. A. Prabu Das**
Role	Lead Auditor	Lead Auditor	Technical Reviewer
Competence in the TA	Sector 1	Sector 1	Sector 1
Responsibility	Doc review, Interview, DVR preparation, DVR resolution, FVR preparation	Doc review, Interview, DVR preparation, DVR resolution, FVR preparation	Technical review, Doc review, Interview, DVR preparation, DVR resolution, FVR preparation

A brief summary of the personnel involved in the validation is indicated below.

Mr. R. Vijayaragahavan holds BE in Mechanical Engineering, M. Tech in Energy Conservation and Management and MBA in Technology Management. He is certified as Energy Auditor by Bureau of Energy Efficiency (BEE), Government of India. He has 15 years of working experience in energy sector including 11 years as validator. He has successfully completed around hundred CDM, VCS/GS projects. He has been qualified as Lead Auditor for Sectoral Scope 1, 3 and 13

Mr. TVV MARUTHI SUMAN holds Doctorate in Environmental Science & Engineering, M. Tech in Energy Systems and BTech in Electrical & Electronics Engineering. He has 12 years of working experience in Construction of Hydro power projects and Electrical Power Transmission & Distribution projects in India and Overseas.

Mr. A Prabu Das, holds a Master of Technology degree in Energy Conservation and Management. He has around 16 years of working experience. He is an approved GHG Lead Auditor and Technical Reviewer for EPIC as per the applicable scheme rules and stipulations.

Appendix 3. Document reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	GCC	GCC project framework v2.1, GCC program manual v3.1, GCC program processes v4.0, GCC project standard v3.1, GCC project sustainability standard v3.0, GCC verification standard v3.1, GCC Environment & Social safeguards standard v3.0 GCC Program definitions v3.1	1	Publicly available
2	CDM	CDM methodology ACM0002 v20.0	2	Publicly available
3	UNFCCC	Tool for the demonstration and assessment of additionality Tool-01 v7.0	3	UNFCCC
4	UNFCCC	Tool-Investment analysis Tool-27 v11.0	4	UNFCCC
5	UNFCCC	Tool to calculate the emission factor of an electrical system Tool-07 v7.0.	5	UNFCCC
6	UNFCCC	Common practice Analysis Tool-24 v3.1	6	UNFCCC
7	UNFCCC	Guidelines on the assessment of investment analysis Tool-v5.0	7	UNFCCC
8	World bank	World bank report	8	World bank
9	PO	Project Submission form v1.2 (listed) Project Submission form v1.5 (Request for registration)	9	PO
10	PO	ER_Calculation_Sheet_of_Aslandağı_Beyyurdu_Hydro_Power_Plant	10	
11	PO	IRR_Sensitivity_Analysis_of_Aslandağı_Beyyurdu_Hydro_Power_Plant_12042022	11	
12	EPC contractor	Technical specifications of water turbines, generators	12	PO
13	Ministry of Energy and Natural Resources	Provisional acceptance certificate	13	PO
14	EPDK (Enerji Piyasası Düzenleme Kurumu) EMRA (Energy Market Regulatory Authority)	Generation license	14	PO
15	Ministry of Energy and Natural Resources	Construction license	15	PO
16	Denizli Special	Land Use Rights	16	PO

	Provincial Administration			
17	Ministry of Forestry and Water Management	Forest Permission	17	PO
18	State Hydraulic Works	Water use rights agreement	18	PO
19	ADM Electricity Distribution Company.	Connection agreement with single line diagram	19	PO
20	ADM Electricity Distribution Company.	Distribution System Use Agreement	20	PO
21	Ministry of Environment and Urbanization	EIA Exemption Letter dt 10/11/2008	21	PO
22	Mayor's office	Construction plan approval	22	PO
23	Aslanli van elektrik üretim A.Ş..	Feasibility report	23	PO
24	PO	Actual electricity generation invoices	24	PO
25	EPC contractor	EPC contract	25	PO
26	Yapı ve Kredi Bank Inc	Loan agreement	26	PO
27	O&M contractor	O&M agreement	27	PO
28	Ministry of Energy and Natural Resources	Topology map	28	PO
29	PO	Local Stakeholder Survey reports	29	PO
30	PO	Incorporation certificates	30	PO
31	PO	Letter of Authorization	31	PO
32	PO	Employee records	32	PO

Appendix 4. Clarification request, corrective action request and forward action request

Table 1. Table 1. CLs from this Project Verification

CL ID	01	**Section no.**	D 2.0	**Date:** 07/02/2022
Description of CL				
Please send energy yield assessment report. Also Daily generation log book for the period i.e. From 21st February to 28th February 2022.				
Project Owner's response				**Date:** 12/04/2022
Energy Yield Assessment Report has been shared in the folder named as DVR#1. Daily generation log book for the period of February 2022 has been shared in the folder named as DVR#2.				
Documentation provided by Project Owner				
Energy Yield Assessment Report (DVR#1) Daily Generation Logbook – February 2022 (DVR#2)				
GCC Project Verifier assessment				**Date:** 12/04/2022

The project verification team has reviewed the documents submitted by the P.O which meets the requirement as per the description of the project activity and accepted the same. **CL 01 is closed**.

CL ID	02	**Section no.**	D 2.0	**Date:** 07/02/2022
Description of CL				
Please mention all the events from date of investment to EPC contract, LSC, to till operation date. Photos of main equipment's like Turbine, Generator, control room, switchyard, substation, and electricity meter & Video presentation of entire project and the single line diagram of the plant and also the employee and training records.				
Project Owner's response				**Date:** 12/04/2022
Milestone table has been added to Section A.1. Proof documents for the milestones have been shared in the folder named as DVR#3. Photos belonging the project site have been shared in the folder named as DVR#4. Single line diagram of the plant could be found in the 12th page of the document named as "System Connection Agreement" shared in the folder named as DVR#5. Employee and training records have been shared in the folder named as DVR#6.				
Documentation provided by Project Owner				
Proof Documents for the Milestones – 15 documents (DVR#3) Photos from Project Site – 7 documents (DVR#4) System Connection Agreement (DVR#5) Employee and Training Records in 4 folders (DVR#6)				
GCC Project Verifier assessment				**Date:** 12/04/2022
The project verification team has reviewed the documents submitted by the P.O which meets the requirement as per the description of the project activity and accepted the same. **CL 02 is closed**.				

CL ID	03	**Section no.**	D 12.0	**Date:** 07/02/2022
Description of CL				
Please mention the priorities of Turkey as far as 17 SDGs are concerned.				
Project Owner's response				**Date:** 12/04/2022
Priorities of Turkey in terms of 17 SDGs have been mentioned under Section F. Also, the supporting document has been shared in the folder named as DVR#7.				
Documentation provided by Project Owner				
SDG Assessment Report of Turkey dated 13.12.2019 (DVR#7)				
GCC Project Verifier assessment				**Date:** 12/04/2022
The project verification team has reviewed the documents submitted by the P.O which meets the requirement as per the SDG assessment report for turkey is submitted for verification and SDG priorities in turkey are explained and accepted the same. **CL 03 is closed.**				

Table 2. CARs from this Project Verification

CAR ID	01	**Section no.**	D 3.5	**Date:** 07/02/2022
Description of CAR				
The project owner is requested to ensure the project is truly additional — PP is requested to submit a more detailed investment analysis and IRR projections for the project.				
Project Owner's response				**Date:** 12/04/2022

The IRR Calculation has been revised and supporting documents have been shared in the folder named as DVR#8. The values for capital investment, annual expenses and revision expenses have been taken from Feasibility Study Report and EPC & Construction Agreement. Installed capacity and annual electricity generation values have been taken from Generation License. Principal Payment values have been taken from Payment Plan. Other two costs specific to project since the dams are constructed by DSI and bought by the current project owner have been taken from Water Usage Agreement. For the first ten years, government gave incentives for electricity tariff due to renewable energy generation, and these incentives have been taken from Law on the Use of Renewable Energy Resources for the Purpose of Electricity Generation and Final Renewable Energy Law List for 2022. After ten years, expected tariff has been calculated by using the data taken from https://rapor.epias.com.tr/rapor/xhtml/ptfSmfListeleme.xhtml;jsessionid=rYEZ2pmYRWgdnEfUPlufkXVOZ_00bgDmDQvDTHkf.prd-rapor-n41 for the date of 13/05/2020 which is the investment decision date. Sensitivity Analysis has been done on investment cost, operating cost and electricity income with ±5% fluctuation range up to ±15% for the above parameters. For the main case, IRR value has been found as 8.24%, and the minimum and maximum values for the fluctuations are 3.28% with -15% electricity income and 12.64% with +15% electricity income, respectively. The start date of the sensitivity analysis has been taken as 2020 due to investment decision date and the end date of the sensitivity analysis has been taken as 2070 since the generation license has been taken in 2021 for 49 years.
Documentation provided by Project Owner
Supporting documents for IRR Calculation (DVR#8)
GCC Project Verifier assessment **Date:** 12/04/2022
The project verification team has reviewed the documents IRR sheet and Feasibility report submitted by the P.O which meets the requirement as per the SDG goals. **CAR 01 is closed.**

Table 3. FARs from this Project Verification

FAR ID	-	**Section no.**	-	**Date:** DD/MM/YYYY
Description of FAR				
No FAR is raised				
Project Owner's response				**Date:** DD/MM/YYYY
-				
Documentation provided by Project Owner				
-				
GCC Project Verifier assessment				**Date:** DD/MM/YYYY
No FAR is raised				

DOCUMENT HISTORY

Version	Date	Comment
V 3.1	31/12/2020	▪ The name of GCC Program's emission units has been changed from "Approved Carbon Reductions" or ACRs to "Approved Carbon Credits" or ACCs.
V 3.0	23/08/2020	▪ Revised version released on approval by the Steering Committee as per the GCC Program Process; ▪ Revised version contains the following changes: ○ Change of name from Global Carbon Trust (GCT) to Global Carbon Council (GCC); ○ Considered and addressed comments raised by the Steering Committee: ➢ during physical meeting (SCM 01, dated 29 Oct 2019, Doha Qatar); and ➢ electronic consultations EC01-Round 04 (17.08.2020 – 22.08.2020). ▪ Feedback from the Technical Advisory Board (TAB) of ICAO on GCC submissions for approval under CORSIA[11];
V 2.0	25/06/2019	▪ Revised version released for approval by the GCC Steering Committee. ▪ This version contains details and information to be provided, consequent to the latest worldwide developments (e.g., CORSIA EUC).
v1.0	01/11/2016	▪ Initial version released for approval by the GCC Steering Committee under GCC Program Version 1

[11]See ICAO recommendation for conditional approval of GCC at https://www.icao.int/environmental-protection/CORSIA/Documents/TAB/Excerpt_TAB_Report_Jan_2020_final.pdf

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