GLOBAL CARBON COUNCIL

Driving Climate Actions

Project Verification Report

V3.1 - 2020

CONTENTS

COVER PAGE Project Verification Report Form (PVR)	
BASIC INFORMATION	
Name of approved GCC Project Verifier / Reference No. (also provide weblink of approved GCC Certificate)	4K Earth Science Private Limited https://www.globalcarboncouncil.com/wp-content/uploads/2021/12/GCCV005-00_4KES_GCC-Verifier-Certificate_13122021.pdf
Type of Accreditation	☐ Individual Track[1] ☒ CDM Accreditation (Active accreditation from United Nations Framework Convention on Climate Change valid till 14.06.2024 Ref. Number CDM-E-0069 https://cdm.unfccc.int/DOE/list/DOE.html?entityCode=E-0069) ☐ ISO 14065 Accreditation
Approved GCC Scopes and GHG Sectoral scopes for Project Verification	GHG Sectoral Scope: Scope 1 - Energy Industries (renewable/non-renewable sources) Scope 13 – Waste Handling and disposal GCC Scopes: Environmental No-harm (E+) Social No-harm (S+) Sustainable Development Goals (SDG+)
Validity of GCC approval of Verifier	13/12/2021 to 12/12/2023.
Title, completion date, and Version number of the PSF to which this report applies	Yenikent Landfill Gas to Electricity Project Version: 2.0 dated 26/09/2023.
Title of the project activity	Yenikent Landfill Gas to Electricity Project
Project submission reference no. (as provided by GCC Program during GSC)	S00496
Eligible GCC Project Type[2] as per the Project Standard	☒ **Type A:** ☐ Type A1 ☒ Type A2 (Sub-Type 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.

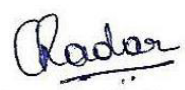
[2] Project Types defined in Project Standard and Program Definitions on GCC website.

<table>
<tr><td>(Tick applicable project type)</td><td>☐ Type B – De-registered CDM Projects:
☐ Type B1
☐ Type[3] B2</td></tr>
<tr><td>Date of completion of Local stakeholder consultation</td><td>27/01/2022.</td></tr>
<tr><td>Date of completion and period of Global stakeholder consultation. Have the GSC comments been verified. Provide web-link.</td><td>24/10/2022 GSC was conducted between 10/10/2022 to 24/10/2022.
https://www.globalcarboncouncil.com/global-stakeholders-consultation/ No comments were received during the GSC period.</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>ITC-KA Enerji Üretim Sanayi ve Ticaret Anonim Şirketi
EKI Energy Services Limited</td></tr>
<tr><td>Contact details of the representative of the Entity, requesting verification service
(Focal Point assigned for all communications)</td><td>Mr. Manish Dabkara,
EKI Energy Services Limited,
EnKing Embassy, Plot 48, Scheme 78 Part-2, Behind Vrindavan Hotel, Vijay Nagar, Indore-452010, India
Telephone: +91-9907534900
Email: manish@enkingint.org</td></tr>
<tr><td>Country where project is located</td><td>Türkiye</td></tr>
<tr><td>GPS coordinates of the Project site(s)</td><td>
<table>
<tr><th>Project Name</th><th>Coordinate Type</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td rowspan="6">Yenikent Landfill Gas to Electricity Project</td><td rowspan="5">Landfill Area</td><td>39.9466° N
39°56'47.76" N</td><td>32.4708° E
32°28'14.88" E</td></tr>
<tr><td>39.9555°
39°57'19.80" N</td><td>32.4502° E
32°27'0.72" E</td></tr>
<tr><td>39.9558° N
39°57'20.88" N</td><td>32.4513° E
3227' 4.68" E</td></tr>
<tr><td>39.9544° N
39°57'15.84" N</td><td>32.4541° E
32°27'14.76" E</td></tr>
<tr><td>Power Generation Area</td><td>39.9536° N
39°57'12.96" N</td><td>32.4525° E
32°27'9.00" E</td></tr>
</table>
</td></tr>
</table>

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

Applied methodologies (approved methodologies of GCC or CDM can be used)	ACM0001: Flaring or use of landfill gas - Version 19.0[4]
GHG Sectoral scopes linked to the applied methodologies	GHG-SS: Scope 1 Energy (renewable/non-renewable sources) GHG-SS: Scope 13 Waste handling and disposal
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 4K Earth Science Private Limited certifies the following with respect to the GCC Project Activity "Yenikent Landfill Gas to Electricity Project". ☒ The Project Owner has correctly described the Project Activity in the Project Submission Form (*version 2.0 dated 26/09/2023*) including the applicability of the approved methodologies *ACM0001: Flaring or use of landfill gas - Version 19.0* and meets the methodology applicability conditions and is expected to achieve the forecasted real, measurable and additional GHG emission reductions, complies with the monitoring methodology, has appropriately conducted local

[4] https://cdm.unfccc.int/methodologies/DB/JPYB4DYQUXQPZLBDVPHA87479EMY9M

	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 750,984 tCO_{2e}, over the fixed crediting period of ten years as indicated in the PSF, which are additional to the reductions that are likely to occur in 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 Sustainable Development Goals (SDGs), complies with the Project Sustainability Standard, and contributes to achieving a total of *03* SDGs, with the following[5] 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 requirement of the GCC Program and ICAO's requirements on CORSIA Emissions Unit Eligibility Criteria and CORSIA Eligible Emissions Units, as per Clarification No 1., v1.3 paragraph 23-25, 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[6] and therefore recommends GCC Program to register the Project activity with above mentioned labels.
Project Verification Report, reference number and date of approval	1.0 dated 09/10/2023 Ref No: 22016-GCC-PV
Name of the authorised personnel of GCC Project Verifier and his/her signature with date	Chandrakala R  Managing Director

[5] 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.

[6] "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 REORT

Section A. Executive summary

Summary of the Project activity:
The Yenikent Landfill Gas to Electricity Project, developed by ITC-KA Enerji Üretim Sanayi ve Ticaret A.Ş. (hereafter referred to as the "project owner"), is situated at the Yenikent landfill site in the Ankara Province of Turkey. This project proposal encompasses the capture and extraction of landfill gas (LFG) from the site for its subsequent utilization in power generation. The landfill site serves as the disposal location for waste generated by approximately 1.5 million residents residing in 16 municipalities within the Ankara Metropolitan Municipality.

Notably, around 54% of the waste deposited at this landfill primarily comprises organic materials such as pulp, paper, cardboard, food waste, garden waste, and other organic waste types. Throughout the crediting period, it is estimated that an average daily quantity of approximately 2,262 tons of waste will be landfilled.

The project activity is currently in operation with a total of 11 gas engines with a total installed capacity of 5.66 MW. This activity yields an estimated annual energy output of approximately 39,620 MWh, which is subsequently fed into the national grid. It's important to note that the national grid is primarily reliant on thermal and fossil fuel-based power generation.

Site	Gas Engine Capacity	Total Installed Capacity	Estimated Gross Generation	COD	Usage
Yenikent Solid Waste Landfill in Ayaş / Ankara	11	15.565 MW	108,955	29/05/2020	Sale to grid

The Project activity is expected to result in 75,098 tCO_2e average emission reductions annually and cumulative emission reduction of 750,984 tCO_2e over the crediting period.
Host Country: Republic of Türkiye
Physical Location: Gökler District Gökler Kümeevleri No:237 Ayaş/Ankara

Details regarding location of project is as provided below:

Project Name	**Coordinate Type**	**Latitude**	**Longitude**
Yenikent Landfill Gas to Electricity Project	Landfill Area	39.9466° N 39°56'47.76" N	32.4708° E 32°28'14.88" E
		39.9555° 39°57'19.80" N	32.4502° E 32°27'0.72" E
		39.9558° N 39°57'20.88" N	32.4513° E 3227' 4.68" E
		39.9544° N 39°57'15.84" N	32.4541° E 32°27'14.76" E
	Power Generation Area	39.9536° N 39°57'12.96" N	32.4525° E 32°27'9.00" E

Scope of Verification:

The scope of the services provided by M/s. 4K Earth Science Private Limited (hereafter referred as 4KES) for the project is to perform Project Verification of concerned GCC Project Activity. The scope of verification is to assess the claims and assumptions made in the Project Submission Form (PSF) against the GCC criteria, including but not limited to, GCC PS, GCC VS, applied CDM methodology, Tools and other relevant rules and requirements established under Program process. The verification scope is given as a thorough independent and objective assessment of the project design including especially the correct application of the methodology, the project's baseline study, additionality justification, local stakeholder commenting process, environmental impacts and monitoring plan, which are included in the PSF and other relevant supporting documents, to ensure that the GCC project activity meets all relevant and applicable GCC criteria.

Verification Process and Methodology

The verification of the project consisted of the following steps:

- Publication of the project PSF (Project submission Form).
- Desk review of the PSF and supporting documents submitted by the project owner
- Remote audit assessment, background investigation and follow-up interviews with personnel of the project owner and its representatives.
- Draft verification reporting based on the audit findings and desk review of the PSF.
- Resolution of corrective actions (if any)
- Final Verification reporting based on the closure of corrective actions
- Technical review of the final verification opinion along with other documents by the independent competent technical review team
- Final approval of the final verification opinion

Conclusion:

The review of the PSF, supporting documentation and the subsequent follow-up interviews have provided 4KES with sufficient evidence to determine the project's fulfillment of all the stated criteria. In our opinion, the project activity "Yenikent Landfill Gas to Electricity Project" meets all applicable GCC requirements for the PSF and correctly applied methodology the ACM0001: Flaring or use of landfill gas - Version 19.0.

The Project Activity complies with all the applicable requirement of the GCC Program and ICAO's requirements on CORSIA Emissions Unit Eligibility Criteria and CORSIA Eligible Emissions Units, as per Clarification No 1., v1.3 paragraph 23-25, 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 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 GCC Steering Committee to append to this project Environmental No-net-harm Label (E+), Social No-net-harm Label (S+) to this project.

The Project Activity is likely to contribute to the achievement of United Nations Sustainable Development Goals (SDGs), complies with the Project Sustainability Standard and therefore requests GCC Steering Committee to append UN SDG Certification Labels (SDG+) to this project

☒ The Project activity is being recommended to GCC Steering Committee for request for registration.

☐ The Project activity is not recommended for request for registration.

Section B. Project Verification team, technical reviewer and approver

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/Technical Expert	IR	Puratchikkanal	Ma Paa	Central Office	X	X	X	X
2	Team Member	IR	Babu S	Praveen	Central Office	X	-	X	X
3	Local Expert	ER	ERDURAN	Muhammet Ali	Central Office	X	X	X	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	Swaroop Sharma	Chetan	Central Office
2	Approver	IR	R	Chandrakala	Central Office

Section C. Means of Project Verification

C.1. Desk/document review

The report is based on the assessment of the PSF/27/ undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to desk review, follow up actions (e.g., Remote audit, electronic (telephone or e-mail) interviews) and also the review of the applicable approved methodological and relevant tools, guidance and GCC decisions. Additionally, the cross checks were performed for information provided in the PSF using information from sources other than the validation sources, the verification team's sectoral or local expertise and, if necessary, independent background investigations

All the documents used for arriving project verification conclusion are listed in Appendix 03 and referenced accordingly in project verification report

C.2. On-site inspection

Duration of on-site inspection: 16/08/2023				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	Opening Meeting	Site office	16/08/2023	Ma Paa

				Puratchikkanal Muhammet Ali ERDURAN
2	Verification of Installation and monitoring procedure of the project activity. The local villagers and stakeholders were also interviewed to know on the process of implementation of the project. The name of the interviewed persons are provided in section C.3.	Project Location	16/08/2023	Ma Paa Puratchikkanal Muhammet Ali ERDURAN
3	Document Review & Closing Meeting	Office	16/08/2023	Ma Paa Puratchikkanal Muhammet Ali ERDURAN

C.3. Interviews

No.	Interview			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Cosgun	Ece	EKI-Consultant	16/08/2023	• Project Implementation status • Project Boundary • Methodology Eligibility criteria • Host country Requirements • Monitoring Plan • Project activity start date and Crediting period • Roles and responsibilities of the project owner • Local Stake holder consultation • Baseline assumptions • Additionality • Training to the Monitoring personnel • Emission reduction calculations • Legal Ownership of the project activity • Doble counting of the carbon credits of the project activity • E+, S+, SDG+ and CORSIA aspects as per the PSF and GCC requirements	Ma Paa Puratchikkanal Muhammet Ali ERDURAN
2.	Majumdar	Suvra	ITC-Engineer			
3.	Balabanoglu	Talat	Head of Mustefer District			
4.	Nasuhaci	Gokae Muret	Plant manager			
5.	Funha	Isler	ITC-Energy production plant chief			
6.	Bozgat	Husegn	Carbon Certification Engineer			
7.	Baybun	Emrah	Environment Engineer			
8.	KOG	Bumla	Local Stakeholder			
9.	Hustela	Elan	Local Stakeholder			

C.4. Sampling approach

Not applicable as no sampling has been used during the project verification.

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	1	1	-
General description of project activity	A_1, A_2, B_1, B_2	1	4	-
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	1	1	-

- 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		1	-
- Demonstration of additionality including the Legal Requirements test	A_1, A_2, B_1, B_2	-	-	-
- 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	-	1	-
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	-	1	-
Approval & Authorization- Host Country Clearance	A_1, A_2, B_1, B_2	-	-	1
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	-	1	-
VOLUNTARY CERTIFICATION LABELS				
Environmental Safeguards (E^+)	A_1, A_2, B_1	-	1	-
Social Safeguards (S^+)	A_1, A_2, B_1	-	1	-
Sustainable development Goals (SDG^+)	A_1, A_2, B_1	1	-	-
Authorization on Double Counting from Host Country (only for CORSIA)	A_1, A_2, B_1	-	-	-
CORSIA Eligibility (C^+)		-	-	-
Total	-	04	12	1

Section D. Project Verification findings

D.1. Identification and eligibility of project type

Means of Project Verification	The project is eligible under Type A2 (Sub-Type1) category as per GCC Project standard/2/ and GCC Clarification No 01/23/ which is acceptable since the project has not been registered under any GHG program/Non GHG program and the project operations started since 29/05/2020 which is the commissioning date of the project activity. The commissioning documents/13/ of the project activity has been verified in this regard and found in order. Further following project meets the Type A2 (Sub-Type 1) project category as: • It is not required by a legal mandate and it does not implement a legally enforced mandate as confirmed by the assessment team verification of the relevant policies pertaining to generation of energy in the host country i.e., Electricity Market Law/32/, Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy/32/, Environment Law/33/ Regulation on Solid Waste Control/34/, Regulation on Managed Waste Land Filling/35/. • It complies with all the applicable host country legal requirements and it ensures compliance with legal requirements. The project is a renewable energy project activity and meets the host country requirements of sustainable development criteria. The project Owner has got Approval from Başkent Elektrik Dağıtım A.Ş. for grid connection agreement /37/ and executed Generation License with T.C. Enerji Piyasası Düzenleme Kurumu (EPDK) /16/ prior to start date of the commissioning date of the plants which is in line with the paragraph 16 (b) of Project Standard Version 3.1/2/, the project owner has demonstrated that required approvals and authorizations are available or being processed prior to the start of commercial operations of the project activity which is acceptable to the verification team.

	• The project also delivers real, measurable and additional emission reduction of 75,098 tCO_2e annually/8/ (average value over the crediting period) as compared to the baseline scenario • Project applies an approved CDM monitoring and baseline methodologies ACM0001: "Flaring or use of landfill gas" Version 19.0/9/.
Findings	CL 01, CAR 03 are raised and closed successfully
Conclusion	The project is eligible as per the requirements under section 4 and Section 5 of the GCC project standard Version 3.1 and Section 6 of the clarification no 1 of GCC Version 1.3 which was verified from the documents/13/ submitted by the project owner. Further verification team cross checked the other GHG Programme like Clean Development Mechanism (CDM) Registry /39/, VERRA Registry /40/, Gold Standard (GS) Registry/41/ and voluntary non-GHG Programs like Universal Carbon Registry (UCR)/57/, I-REC/33/ for the information regarding the consistency of the title of the project activity , GPS coordinates, Legal Ownership of the Project activity and confirmed that the project was not submitted or registered under any other GHG programmes and voluntary /non-voluntary non-GHG Programs.

D.2. General description of project activity

Means of Project Verification	The project activity is operational with one number of gas engine with a total installed capacity of 15.565 MW. The gas engine is expected to generate approximately 108,955 MWh/year of electricity to be delivered to the Turkish national grid which is mainly dominated by fossil fuel-based power plant through grid connection agreement with Başkent Elektrik Dağıtım A.Ş. /37/. The Project mainly consists of the following components: Landfill cover, LFG collection system, electricity generation unit and other controlling / measurement equipment. Thus, The Project activity is expected to result in annual average emission reductions of 75,098 tCO2e and cumulative emission reduction of 750,984 tCO2e over the crediting period. In the baseline scenario the equivalent amount of 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 into the grid. The main emission source in the baseline scenario is the power plants connected to the grid and main greenhouse gas involved is CO_2.The Location details of project location is mentioned in section A of this report. The location details has been verified during the onsite visit and geo coordinates verified through google earth/Maps and found to be correct. The project activity includes installation of a comprehensive system for LFG recovery and utilization at the landfill site. The technical details/15/ has been verified during onsite visit and found in order. The project owner declared in the PSF/27 It is stated in the generation license of the project that the power plant will be in operation for 31 years, 9 months, 20 days starting from the date of generation license provided by the project owner and found acceptable. However, the Project owner have fixed crediting period 10 years which is accordance GCC project manual version 03.1 paragraph 51. The project activity described as Type A2 (Sub-Type 1) and applied ACM0001: Flaring or use of landfill gas - Version 19.0 falls into the Small-Scale category as per CDM methodology. In addition to generating emission reductions the project activity also qualifies for other voluntary certification labels, Achieving the United Nations Sustainable Development Goals (SDG+) – Silver Environmental No-net harm - (E+) Social No-net harm - (S+)

	CORSIA – C+. In the baseline scenario the main source of emission was found to be CO_2 as electricity was generated mainly through fossil-fuel based power plants whereas in project scenario the electricity is generated by the LFG Power plant thereby reducing the CO_2 emissions. Thus, non-application of GWP in this 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 PSF/27/includes sufficient details and provides clarity on the project activity Further verification team cross checked the other GHG programmes like Clean Development Mechanism (CDM) Registry /39/, VERRA Registry /40/, Gold Standard (GS) Registry /41/,and voluntary/non voluntary non-GHG Programs for the information regarding the consistency of the title of the project activity , GPS coordinates, Legal Ownership of the Project activity to determine if the project was part of any other GHG Program prior to commencement of this verification. It was confirmed that the involved project owners have not submitted the project under any other GHG/non GHG program apart from GCC.
Findings	CL 02, CAR 01 and CAR 10 are raised in this context and closed successfully.
Conclusion	The project description was verified based on the review of documents/13//15/. Based on the review of documents and by means of onsite verification the details provided in the PSF/27/ is found acceptable 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

Applicability criterion as per ACM0001 Version 19.0	Verifier Assessment.
1. The methodology is applicable under the following conditions: a. Install a new LFG capture system in an existing or new (Greenfield) SWDS where no LFG capture system was or would have been installed prior to the implementation of the project activity; or b. Make an investment into an existing LFG capture system to increase the recovery rate or change the use of the captured LFG, provided that: i. The captured LFG was vented or flared and not used prior to the implementation of the project activity; and ii. In the case of an existing active LFG capture system for which the amount of LFG cannot be collected separately from the project system after the implementation of the project activity and its efficiency is not impacted on by the project system: historical data on the	a. The project includes the installation of a new Landfill Gas (LFG) capture system in an existing Solid Waste Disposal Site (SWDS) where no LFG capture system was previously installed. Therefore, the methodology condition 3.a is applicable to the project activity. b. The methodology involves the installation of a new LFG capture system. Consequently, paragraph 3.b is not applicable to the project activity. c. LFG captured by the project is used for the purpose of generating electricity. Therefore, methodology condition 3.c.i is applicable to the project activity. However, during periods when the gas engine is not functioning, LFG will be flared to avoid atmospheric release. d. There are no recycling facilities available to which the municipal waste would have been directed in the absence of the project. As a result, the project does not result in the reduction

		amount of LFG capture and flared is available; c. Flare the LFG and/or use the captured LFG in any (combination) of the following ways: i. Generating electricity; ii. Generating heat in a boiler, air heater or kiln (brick firing only) or glass melting furnace; and/or iii. Supplying the LFG to consumers through a natural gas distribution network; iv. Supplying compressed/ liquefied LFG to consumers using trucks; v. Supplying the LFG to consumers through a dedicated pipeline; Do not reduce the amount of organic waste that would be recycled in the absence of the project activity.	of organic waste that would be recycled in the absence of the project activity. Therefore, methodology condition 3.d is applicable to the project activity.	
		The methodology is only applicable if the application of the procedure to identify the baseline scenario confirms that the most plausible baseline scenario is: a. Atmospheric release of the LFG or capture of LFG and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons; and b. In the case that the LFG is used in the project activity for generating electricity and/or generating heat in a boiler, air heater, glass melting furnace or kiln: i. For electricity generation: that electricity would be generated in the grid or in captive fossil fuel fired power plants; and/or ii. For heat generation: that heat would be generated using fossil fuels in equipment located within the project boundary; c. In the case of LFG supplied to the end-user(s) through natural gas distribution network, trucks or the dedicated pipeline, the baseline scenario is	a. In the baseline scenario, municipal waste was deposited and left for decay at the uncovered landfill site, leading to the generation and release of large amounts of landfill gas. This implies that the baseline scenario for the project activity is the atmospheric release of Landfill Gas (LFG). This complies with the applicability condition of the methodology. b. The project activity involves the utilization of LFG for generating electricity, which is fed into the national grid. The baseline scenario for renewable-based power generation (using LFG) and supplying it to the grid is the operation of existing and upcoming grid-connected power plants. Without the electricity generated from the project, an equivalent amount of electricity would be generated by the operation of grid-connected power plants, mostly fossil fuel-based. This scenario complies with the applicability condition of the methodology. c. The project activity does not involve the supply of LFG to end-users through a natural gas distribution network, trucks, or a dedicated pipeline. Therefore, it does not comply	

assumed to be displacement of natural gas. In the case of LFG from a Greenfield SWDS, the identified baseline scenario is atmospheric release of the LFG or capture of LFG in a managed SWDS and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons.	with the applicability condition of the methodology. d. The project activity includes the installation of a new LFG capture system in an existing Solid Waste Disposal Site (SWDS) where no LFG capture system was installed before the project. This suggests that the baseline scenario did not include LFG capture, and the baseline scenario for the project activity is different from the methodology's applicability conditions. Therefore, the project activity does not comply with the applicability condition of the methodology.
This methodology is not applicable: a. In combination with other approved methodologies. For instance, ACM0001 cannot be used to claim emission reductions for the displacement of fossil fuels in a kiln or glass melting furnace, where the purpose of the CDM project activity is to implement energy efficiency measures at a kiln or glass melting furnace; If the management of the SWDS in the project activity is deliberately changed during the crediting in order to increase methane generation compared to the situation prior to the implementation of the project activity.	a. The project does not include emission reductions from the displacement of fossil fuels in a kiln or glass melting furnace. Therefore, the project activity complies with the applicability condition of the methodology. b. The project activity has not resulted in a change of management of the Solid Waste Disposal Site (SWDS) during the crediting period to increase methane generation compared to the situation prior to the implementation of the project activity. Therefore, the project activity complies with the applicability condition of the methodology.

Tool 2- Combined tool to identify the baseline scenario and demonstrate additionality- Version 07.0

Applicability criterion	Assessment
The tool is applicable to all types of proposed project activities. However, in some cases, methodologies referring to this tool may require adjustments or additional explanations as per the guidance in the respective methodologies. This could include, inter alia, a listing of relevant alternative scenarios that should be considered in Step 1, any relevant types of barriers other than those presented in this tool and guidance on how common practice should be established.	In accordance with applied methodology ACM0001, version 19.0 Combined tool to identify the baseline scenario and demonstrate additionality, version 07.0 is applied for demonstration of additionality.

Tool 04 Emissions from solid waste disposal sites Version 08.1

Applicability criterion	Assessment

The tool can be used to determine emissions for the following types of applications: (a) Application A: The CDM project activity mitigates methane emissions from a specific existing SWDS. Methane emissions are mitigated by capturing and flaring or combusting the methane (e.g., "ACM0001: Flaring or use of landfill gas"). The methane is generated from waste disposed in the past, including prior to the start of the CDM project activity. In these cases, the tool is only applied for an ex-ante estimation of emissions in the project design document (CDM-PDD). The emissions will then be monitored during the crediting period using the applicable approaches in the relevant methodologies (e.g., measuring the amount of methane captured from the SWDS); (b) Application B: The CDM project activity avoids or involves the disposal of waste at a SWDS. An example of this application of the tool is ACM0022, in which municipal solid waste (MSW) is treated with an alternative option, such as composting or anaerobic digestion, and is then prevented from being disposed of in a SWDS. The methane is generated from waste disposed or avoided from disposal during the crediting period. In these cases, the tool can be applied for both ex-ante and ex-post estimation of emissions. These project activities may apply the simplified approach detailed in 0 when calculating baseline emissions.	The project activity encompasses two main components: (a) Capture and utilization of landfill gas for power generation. (b) Treatment of organic waste in an anaerobic digester and utilization of the recovered biogas for power generation. Consequently, the respective tools are applied for the estimation of emissions for both types of applications: (a) Application A: The project activity mitigates methane emissions from a specific existing Solid Waste Disposal Site (SWDS). Methane emissions are mitigated through the capture and flaring or combustion of methane, as outlined in, for instance, 'ACM0001: Flaring or Use of Landfill Gas.' The methane generated is primarily from waste disposed of in the past, including periods preceding the initiation of the project activity. (b) Application B: The project activity prevents waste from being disposed of in a SWDS by implementing an alternative treatment method, specifically anaerobic digestion.
In the case that: (a) different types of residual waste are disposed or prevented from disposal; or that (b) both MSW and residual waste(s) are prevented from disposal, then the tool should be applied separately to each residual waste and to the MSW.	The project activity does not encompass waste prevention, including both Municipal Solid Waste (MSW) and residual waste(s), and as a result, separate estimation is not necessary.

Tool 07: Tool to calculate the emission factor for an electricity system

Applicability criterion	Assessment

1. Para 3 of the applied Tool: 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).	This project includes generation and supply of electricity is delivered to the grid. The baseline emissions are calculated from electricity supplied to the grid by the project activity multiplied with emission factor of the National grid/37/. The emission factor calculated using OM, BM and CM using this tool and same was explained in section D.3.4 of this report. Thus, the applicability criterion is met.
2. Para 4 of the applied Tool 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, the conditions specified in "Appendix 1: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity	The project activity has chosen the emission factor based on calculation performed by Ministry of Energy and Natural Sources. The same has been confirmed from Turkey National Network Emission Factor Data Sheet /26/ further confirms that the only grid connected power plant has been considered for OM, BM and CM calculations The point has been assessed in detail under section D.3.4 of the report. The criteria were found to be met.

Tool 05 Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation Version 03.0

Applicability criterion	Assessment
If emissions are calculated for electricity consumption, the tool is only applicable if one out of the following three scenarios applies to the sources of electricity consumption: (a) Scenario A: Electricity consumption from the grid. The electricity is purchased from the grid only, and either no captive power plant(s) is/are installed at the site of electricity consumption or, if any captive power plant exists on site, it is either not operating or it is not physically able to provide electricity to the electricity consumer;	The proposed project activity involves sourcing electricity to support the operational activities of the plants, aligning with Scenario A of the applicability conditions.

(b) Scenario B: Electricity consumption from (an) off-grid fossil fuel fired captive power plant(s). One or more fossil fuel fired captive power plants are installed at the site of the electricity consumer and supply the consumer with electricity. The captive power plant(s) is/are not connected to the electricity grid; or (c) Scenario C: Electricity consumption from the grid and (a) fossil fuel fired captive power plant(s). One or more fossil fuel fired captive power plants operate at the site of the electricity consumer. The captive power plant(s) can provide electricity to the electricity consumer. The captive power plant(s) is/are also connected to the electricity grid. Hence, the electricity consumer can be provided with electricity from the captive power plant(s) and the grid.	
This tool can be referred to in methodologies to provide procedures to monitor amount of electricity generated in the project scenario, only if one out of the following three project scenarios applies to the recipient of the electricity generated: (a) Scenario I: Electricity is supplied to the grid; (b) Scenario II: Electricity is supplied to consumers/electricity consuming facilities; or (c) Scenario III: Electricity is supplied to the grid and consumers/electricity consuming facilities	The project entails compliance with Scenario as the project activity includes Scenario I: Electricity is supplied to the grid.
This tool is not applicable in cases where captive renewable power generation technologies are installed to provide electricity in project activity, in the baseline scenario or to sources of leakage. The tool only accounts for CO_2 emissions.	No captive renewable power generation technologies are installed to supply electricity in the project activity, the baseline scenario, or to address potential sources of leakage.

Tool 06- Project emissions from flaring- Version 04.0

Applicability criterion	Assessment
This tool provides procedures to calculate project emissions from flaring of a residual gas.	The project activity is designed to capture and utilize both Landfill Gas (LFG) and biogas for power generation. However, during any non-operational

The tool is applicable to enclosed or open flares and project participants should document in the CDM-PDD the type of flare used in the project activity.	period of the gas engine, the recovered LFG and biogas are planned to be flared within an enclosed system. The tools will be applied to estimate project emissions resulting from flaring.
This tool is applicable to the flaring of flammable greenhouse gases where: (a) Methane is the component with the highest concentration in the flammable residual gas; and (b) The source of the residual gas is coal mine methane or a gas from a biogenic source (e.g., biogas, landfill gas or wastewater treatment gas)	The tools are applicable for estimating project emissions resulting from the flaring of LFG/biogas with the highest concentration of methane. The source of the residual gas is of biogenic origin, specifically, biogas and landfill gas.
The tool is not applicable to the use of auxiliary fuels and therefore the residual gas must have sufficient flammable gas present to sustain combustion. In the case of an enclosed flare, there shall be operating specifications provided by the manufacturer of the flare and these shall be followed by the project participant.	The residual gas contains sufficient flammable gas present to sustain combustion and won't require use of auxiliary fuels to sustain combustions.

Tool 08 Tool to determine the mass flow of a greenhouse gas in a gaseous stream Version 03.0

Applicability criterion	Assessment
Typical applications of this tool are methodologies where the flow and composition of residual or flared gases or exhaust gases are measured for the determination of baseline or project emissions.	The project activity includes monitoring the flow and composition of residual gases as per the methodological requirement, making the application of the tools necessary.
Methodologies where CO_2 is the particular and only gas of interest should continue to adopt material balances as the means of flow determination and may not adopt this tool as material balances are the cost-effective way of monitoring flow of CO_2.	The project activity involves the capture of LFG and biogas (methane), with CO2 not being the specific gas of interest; hence, the project activity applies the tool.
The underlying methodology should specify: (a) The gaseous stream the tool should be applied to; (b) For which greenhouse gases the mass flow should be determined; (c) In which time intervals the flow of the gaseous stream should be measured; and	(a) The gaseous streams to which the tool will be applied include: i. Landfill Gas (LFG) ii. Biogas (b) The tool will be used to determine the mass flow of methane (a greenhouse gas). (c) Continuous monitoring of gas flow is incorporated into the project design.

(d) Situations where the simplification offered for calculating the molecular mass of the gaseous stream (equations (3) or (17)) is not valid (such as the gaseous stream is predominantly composed of a gas other than N2).	(d) Monitoring will also encompass the volumetric fraction of greenhouse gases.

Tool 27 Investment analysis Version 12.0

The applicability section of the "Investment analysis" methodological tool explicitly states: "This methodological tool is relevant to project activities employing the following: 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 utilizing the investment analysis for demonstrating additionality and/or identifying the baseline scenario."

The project activity effectively employs the "Combined tool to identify the baseline scenario and demonstrate additionality." Consequently, the utilization of this tool is fully justified within the context of the project.

Tool 33 Common Practice Version 03.1

The applicability section of the "Common practice" methodological tool states:

"This methodological tool is relevant to project activities that employ the methodological tool 'Tool for the demonstration and assessment of additionality,' the methodological tool 'Combined tool to identify the baseline scenario and demonstrate additionality,' or baseline and monitoring methodologies that utilize the common practice test for demonstrating additionality."

The project activity's justification for using this tool is sound since one of its applicability conditions aligns with the utilization of the "Combined tool to identify the baseline scenario and demonstrate additionality," which is indeed employed by the project activity.

Applicability of the GCC Project Standard Version 3.1

Applicability criterion	Assessment
Section 5.1	
To confirm eligibility for registration under the GCC Program, for both project Types A and B, prior to submitting project documents to the GCC for conducting a Global Stakeholder Consultation (GSC), the Project Owner shall demonstrate that the GHG emission-reduction project: a. Complies with the eligibility requirements of one of the project types allowed under the GCC, as stipulated in section 44 above;	The project activity is not registered under any GHG Program, including the CDM therefore the project is eligible as Type A project activity of GCC. With the start date (date of commissioning of the gas engine) of the project activity on 29/05/2020 the project activity complies to the eligibility requirement of Type A2 project activity.

	b. Has started operations, and begun generating emission reductions, after 1 January 2016; c. Complies with the GCC Rules related to: i. GHG emission reductions (mandatory requirement); ii. Contributions to the UN SDGs (SDG+ label) (voluntary requirement for selection, but mandatory if selected); iii. Do-no-net-harm Environmental requirements (E+ label) (voluntary requirement for selection, but mandatory if selected); iv. Do-no-net-harm requirements for Society (S+ label) (voluntary requirement for selection, but mandatory of selected); and Submission of Host Country Attestation on Double Counting as and when required by CORSIA (mandatory requirement for projects that intend to use ACCs for CORSIA).	The commissioning of the project activity is on 29/05/2020 which is after 1 January 2016 and therefore complies to the eligibility requirement as specified under 14.b of the Project Standard Version V3.1. The project activity results into i. GHG emission reductions from avoidance of methane emission (Landfill gas was released to the atmosphere in the baseline scenario) to the atmosphere and feeding in electricity generated from the project activity using landfill gas to the grid. ii. Contributes to the UN SDG 7 (enhance renewable energy share), SDG 8 (job creation) and SDG 13 (GHG avoidance). iii. The project activity complies to Do-no-net-harm Environmental requirements (E+ label). iv. The project activity complies to Do-no-net-harm requirements for Society (S+ label). v. The host country Attestation on Double Counting will be submitted along with the submission for a request for the first or subsequent issuance of ACCs. The above justification establishes the compliance of the project activity to the eligibility requirement of the project standard.
	Project Owners planning to use ACCs for the pilot phase of CORSIA18 are eligible to apply under project types A1, A2 and B1, and can be registered under the GCC Program provided that they meet all of the GCC Rules and criteria for CORSIA.	Since the project activity complies with all of the GCC Rules and criteria for CORSIA, the project is eligible to be registered under GCC programme.
	Section 5.2	
	For Type A projects (both A1 and A2), as stipulated in section 44 above, the Project Owner shall demonstrate that the Project	a. Section B.4 and Section B.5 of PSF clearly elaborates that the implementation of project

		Activity: (a) Is not required by a legal mandate and does not implement a legally enforced mandate (government regulation or law); (b) Complies with all applicable host-country legal requirements with compliance focused at project level scope. The Project Owners shall ensure compliance with legal requirements by demonstrating that the project has either acquired the necessary licenses for their implementation and operation or provide an undertaking that these approvals and the licenses are under process and shall be available prior to start of commercial operations of the project; (c) Delivers real, measurable and additional emission reductions compared to its baseline; and (d) Applies an approved CDM or GCC Baseline and Monitoring Methodology.	activity towards capture and utilization of landfill gas is voluntary activity and is not required by a legal mandate and does not implement a legally enforced mandate (government regulation or law). Therefore, the project activity complies with the eligibility requirement of the GCC project standard. b. The project has obtained generation license from "T.C. Enerji Piyasası Düzenleme Kurumu" for implementation and operation of gas-based power generation unit and has obtained No-EIA required clearance for implementation of the project activity thereby establishing the compliance with all applicable host-country legal requirements. Therefore, the project activity complies with the eligibility requirement of the GCC project standard. c. The emission reduction from the project activity is real (since the project activity is implemented and under operation), measurable (monitoring system are in place). Detailed approach and modalities for estimation of emission reduction is elaborated under section B.6 and B.7 of the PSF. The additionality of the project activity is established under section B.5 of the PSF. Therefore, the project activity complies with the eligibility requirement of the GCC project standard. The Project activity adopts CDM approved methodology (ACM0001) for estimation of emission reduction and hence complies to the eligibility	

	requirement of the GCC project standard.

Demonstration of GCC Clarification No.1

Requirement	Justification
Specific design requirements for a single Project having multiple bundles/sub-bundles	Project is not a bundle project.
Consolidates and includes all CORSIA requirements at registration and issuance stage	Please refer to Section A.6.
GCC Project Types and clarifying various sub-types of A2 projects	The Project Activity is not registered as a GHG Project Activity in any other GHG/non-GHG program or any other voluntary program and has not issued or will not issue credits under any other program. Project has been operational since 29/05/2020, which is after 01/01/2016 and made initial submission for registration prior to 05/07/2022. Therefore, project is Type A2 Sub-Type 1.
Avoidance of Double Accounting in regional Emission Trading Schemes	Regional Emission Trading Schemes are not applicable in the host country.
De-bundling	Project is not a bundle project.

Findings	CL 03 and CAR 04 are raised and closed successfully.
Conclusion	The project verification team confirms that approved methodologies: ACM0001 Flaring or use of landfill gas Version 19.0 is applicable to the PSF/27/. All applicability conditions of the applied methodology and applicable Tools are being met and the PSF/27/ are in line with all the requirements indicated in the methodology. Related eligibility criteria with respect to the applicability of the methodologies have been established and met by the PSF of the GCC Project activity.

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

Means of Project Verification	Since the applicability of methodology was found to be fulfilled, further clarification to the methodology were not required.
Findings	No finding was raised.
Conclusion	Since the applicability of methodology was found to be fulfilled, further clarification to the methodology were not required.

D.3.3 Project boundary, sources and GHGs

Means of Project Verification	The spatial extent of the project boundary encompasses the physical/geographical site of the landfill (SWDS) where the waste was deposited in the baseline scenario and currently in project scenario, landfill gas capturing unit that captures landfill gas and transport it gas engine, and the power plants where the captured landfill gas is used for the purpose of power generation. The spatial extent of this project boundary also includes all power plants connected physically to the electricity system (national grid) that the

	project power plant is connected to. The project boundary is delineated in Figure 3 below. This is consistent with; ACM0001 “Flaring or use of landfill gas”, which defines the project boundary as the site of the project activity where the LFG is flared or used. Regarding the energy meter (E) depicted in the figure, it comprises one main meter and one spare meter. The main meter is the primary equipment used to monitor the energy supplied to the grid, while the spare meter serves as a cross-check for the data collected from the main meter. Başkent EDAŞ[7] has ownership of the main and spare meter and Başkent EDAŞ is responsible for the maintenance of the electricity meters.
Findings	No findings were raised.
Conclusion	• The project verification team was able to assess that complete information regarding the project boundary has been provided in PSF/27/ and could be assured from the line diagram. • The project verification team confirms that the identified boundary, selected emissions sources are justified for the project activity.

D.3.4 Baseline scenario

Means of Project Verification	The alternative baseline scenarios for the GCC project activity "Capture and Utilization of Landfill Gas" and related aspects is provided below: <u>For the project activity "Capture and Utilization of Landfill Gas" for power generation:</u> The assessment identifies several alternative scenarios for the destruction of landfill gas (LFG), and the selection of the most plausible baseline scenario is based on various justifications. <u>LFG 1:</u> The project activity implemented without being registered as a CDM project activity (i.e., capture and flaring or use of LFG). The assessment acknowledges that implementing the project activity without carbon finance is infeasible due to financial unattractiveness, and therefore, this is not chosen as the baseline alternative. <u>LFG 2:</u> Atmospheric release of LFG or capture of LFG in a managed SWDS and destruction through flaring to comply with regulations or contractual requirements, to address safety and odor concerns, or for other reasons. The baseline scenario is identified as the atmospheric release of LFG from an unmanaged SWDS because there are no regulations or contractual requirements for the capture of LFG and destruction through flaring. Therefore, baseline alternative LFG 2 is considered the most plausible. <u>LFG 3:</u> Atmospheric release of LFG or capture of LFG in an unmanaged SWDS and destruction through flaring to comply with regulations or contractual requirements, to address safety and odor concerns, or for other reasons. This baseline scenario is chosen as the most plausible because it reflects the historical practice before the implementation of the project activity, with no regulatory or contractual requirements for capturing and utilizing LFG.

[7] Electricity distribution company authorized by TEDAŞ (Turkish Electricity Distribution Corporation)

	For electricity generation, similar alternatives are assessed: E 1: Electricity generation from LFG, undertaken without being registered as a CDM project activity. This is not chosen as the baseline because it faces substantial financial barriers without carbon finance. E 2: Electricity generation in existing or new renewable or fossil fuel-based captive power plants. This option is considered unfeasible in Türkiye to meet power demand as using grid power is more feasible. E 3: Electricity generation in existing and/or new grid-connected power plants. This is considered the most feasible option for electricity generation. The identified baseline scenario for the LFG-based power generation is: LFG 3 (for LFG): Disposal of waste at an unmanaged landfill without the capture and/or flaring of landfill gas, resulting in atmospheric release of LFG. E 3 (for electricity): The electricity generated in existing/new grid-connected power plants. For the project activity "Alternative Waste Treatment Process," the assessment identifies the following baseline alternatives for anaerobic treatment of the organic fraction of solid waste: M1: The project activity without being registered as a CDM project activity (i.e., any combination of the waste treatment processes listed in Table 2). This is not chosen as the baseline because it faces substantial financial barriers without carbon finance. M2: Disposal of fresh waste in a SWDS with partial capture of the LFG and flaring of the captured LFG. This is not chosen as the baseline because disposal of fresh waste is not part of the project activity. M3: Disposal of fresh waste in a SWDS without an LFG capture system. This is considered the most plausible baseline scenario as it represents the pre-project scenario and is not enforced by any laws or regulations. Several other alternatives (M4 to M9) are evaluated but are not chosen as the baseline because they involve technologies or practices that were not in place in the pre-project scenario, and their implementation would require additional investments. For electricity generation in the context of alternative waste treatment processes, similar alternatives are assessed, and the most feasible option is identified as: P6: Electricity generation in existing and/or new grid-connected electricity

	plants. Based on the above assessments, the following baseline scenarios have been identified for further evaluation: Scenario 1: LFG: LFG 1 Waste Management: M1 Electricity: E1, P1 Scenario 2: LFG: LFG 3 Waste Management: M3 Electricity: E3, P6 The assessment has provided justifications for the selection of these scenarios, taking into account financial barriers and regulatory considerations. The final verification report should include further analysis and verification of these baseline scenarios and their associated emission factors. **Relevance of Mentioned Laws and Regulations:** Electricity Market Law: This law pertains to the development of a financially sound and transparent electricity market operating in a competitive environment. Since one of the significant aspects of the proposed project activity is electricity generation, the Electricity Market Law is relevant to the project. Law on Utilization of Renewable Energy Resources for Generating Electricity Energy: This law focuses on expanding the utilization of renewable energy resources for generating electrical energy, promoting secure, economic, and environmentally friendly energy production, reducing greenhouse gas emissions, and protecting the environment. Given the project's aim to generate electricity, this law is pertinent to the project, particularly regarding renewable energy utilization. Environmental Law: This law encompasses Türkiye's environmental policy, aiming to protect the environment and natural resources for future generations. It includes the polluter pays principle and covers various aspects of environmental protection, including waste management. Sub-regulations under the Environmental Law, such as the "Regulation on Solid Waste Control" and the "Regulation on Managed Waste Landfilling," are directly related to the project activity. Summary of Regulatory Landscape: The assessment indicates that although Türkiye has regulations related to solid waste management and landfilling, there are limited regulatory measures to enforce compliance or enforce the specific project activity. Key points from the assessment include:

	The "Regulation on Solid Waste Control" does not prescribe specific technology options for solid waste management, nor does it mention sanctions or penalties for non-compliance. It is more instructive than normative in nature. The "Regulation on Managed Waste Landfilling" aims to minimize the environmental impact of landfilling, regulate waste acceptance, and provide procedures for landfill operation. However, it does not specifically mandate the capture and destruction of landfill gas (methane). Many landfill areas in Türkiye function as "waste dumps" where no formal waste management practices, including gas capture or organic waste treatment, are implemented. **Identified Baseline Scenario:** Based on the regulatory landscape and the absence of specific requirements or enforcement measures related to the project activities, the identified baseline scenario is as follows: Scenario 3: LFG (Landfill Gas): LFG 3 Waste Management: M3 Electricity Generation: P6 Description of the Baseline Scenario: Disposal of waste at a landfill without the capture and/or flaring of landfill gas. Disposal of the entire organic fraction of solid waste to the landfill without capture for anaerobic treatment. Electricity generation by existing grid-connected power plants. This baseline scenario aligns with the current regulatory environment in Türkiye, where landfill gas capture and treatment of organic waste are not mandated or enforced by specific regulations. It reflects the prevailing practice of landfill disposal without additional environmental controls. **Baseline Emission Factor** Developing the baseline emission factor and calculation of the emission reductions for electricity generated under the proposed project activity is calculated according to “Tool to calculate the emission factor of an electricity system” version 07.0/10/. Emission factor has been calculated in a conservative manner as proposed by the methodology. Basic assumptions made are: 1. Emission factor will remain same over the crediting period, 2. Emission factor of fuels sources is “0” or the lowest value in the references when there is no information. According the “Tool to calculate the emission factor for an electricity system Version 07.0”/10/, Option 1 has been selected.

	Option 1 A delineation of the project electricity system and connected electricity systems published by the DNA or the group of the DNAs of the host country(ies). In case a delineation is provided by a group of DNAs, the same delineation should be used by all the project owner applying the tool in these countries. The Ministry of Energy and Natural Sources has published the Operating, Build and Combined Margin Emission Factors for Turkish National Grid. The reference link of Turkey National Network Emission Factor Data Sheet is not available outside of Turkey; therefore, data sheet/26/ is provided to DOE for assessment. The Ministry has calculated the emission factor by using the "Tool to calculate the emission factor for an electricity system" methodology. Since it was updated in 20/09/2022 by the Ministry, these factors have been used for emission reduction calculation. This is the latest available data at the time of PSF submission, hence same is considered for emission factor calculations. Factor Type / Year / Value (tCO_2/MWh) Operating Margin Emission Factor / 2020 / 0.7424 Build Margin Emission Factor / 2020 / 0.3680 Combined Margin Emission Factor / 2020 / 0.5552 The calculation of $EF_{grid,y}$ is current and publicly available and published by the Turkish Republic Ministry of Energy on its web-site/26/. The verification team is convinced of the result of the emission factor calculation. It is deemed to be adequate and transparent. The baseline scenario in the PSF/27/ is reported as the supply of electricity to Turkish National Grid by the project activity would have otherwise been generated by the operation of grid-connected power plants. The baseline scenario applied in the PSF was compared with the requirements of the baseline described in the applied methodology and found consistent.
Findings	CAR 05 is raised in this context and closed successfully.
Conclusion	The project verification team confirms the following; • All assumptions and data used by the project owner are listed in the PSF/27/, including their references and sources; • All documentation used by project owner as the basis for assumptions and source of data for establishing the baseline scenario is correctly quoted and interpreted in the PSF/27/; • The project verification team also concluded that 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	The demonstration of additionality under GCC the project activity is required to undergo the following two tests Legal Requirement test: The relevant national acts and regulations pertaining to generation of energy in the host country i.e., Electricity Market Law/32/, Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy/32/, Environment Law/33/ Regulation on Solid Waste Control/34/, Regulation on Managed Waste Land Filling/35/ verified by the assessment team. It was confirmed that there are no enforced laws, statutes, regulations, court orders, environmental-mitigation agreements, permitting

conditions or other legally binding mandates requiring its implementation, or requiring the implementation of a similar technology/measure that would achieve equivalent levels of GHG emission reductions. The assessment team assessed the relevant regulations of the host county to confirm the requirements and also confirmed based on the local expertise by the verification team the project is not implemented to meet any legal requirement.

Additionality Test

Specify the methodology or activity requirement or product requirement that establish deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	This project applies an approved large-scale methodology ACM0001: Flaring or use of landfill gas Version 19.0.
Describe how the proposed project meets the criteria for deemed additionality.	1. Project without carbon revenue is not financially attractive and is outlined in investment analysis section below (benchmark and sensitivity analysis). 2. Continuation of the current scenario of venting of LFG to the atmosphere and dumping of organic fraction of solid waste to the landfill is permitted by regulatory authority of the host country government. Implementation of the project is additional to the baseline scenario which is an alternative to above and therefore reduces the emissions. 3. Continuation of the baseline scenario as well as the project activity is in compliance to the local laws and regulations. Both the alternatives (baseline scenario and the project activity) are in compliance with host country laws and regulations required. There is not any mandatory requirement to implement the project activity. 4. In accordance with common practice analysis there is no plants similar to the proposed project and built without carbon revenue, the proposed type of project should not be considered as a common practice.

Additionality assessment for large scale project activity instances

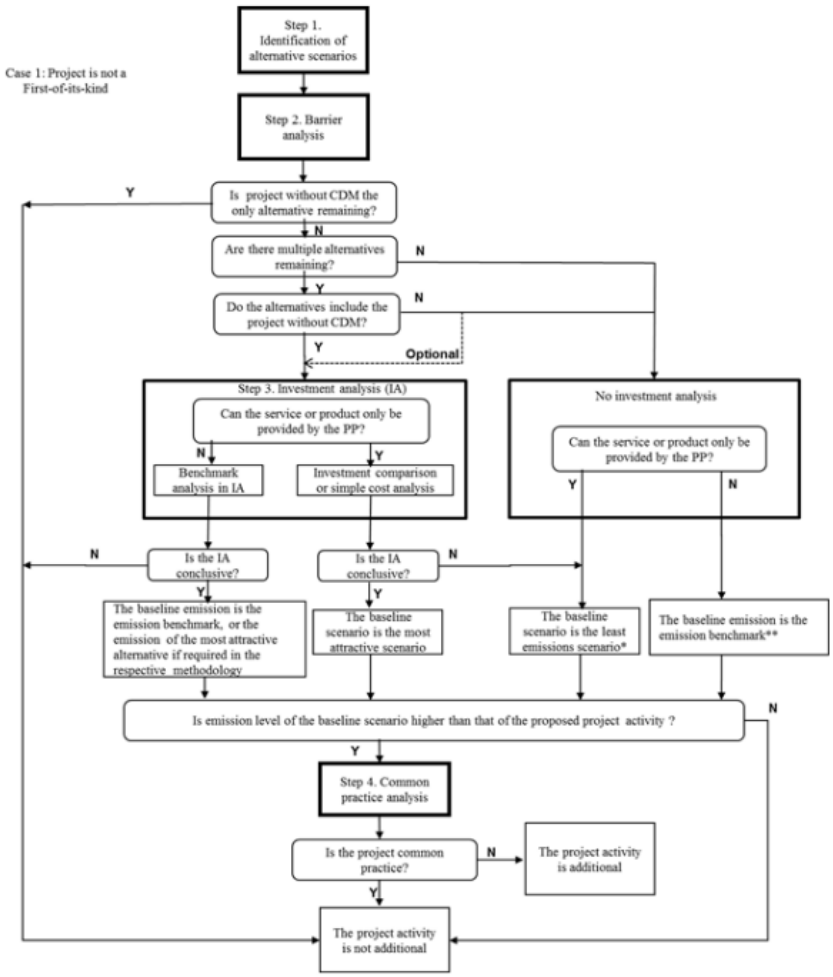
The table below is only applicable if the proposed project activity is a type of project activity which is deemed automatically additional, as defined by the applied approved methodology or standardized baseline.

	Specify the methodology or activity requirement or product requirement that establish deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	NA
	Describe how the proposed project activity meets the criteria for automatic additionality in the relevant methodology or standardized baselines.	NA

The project activity includes capture and utilization of LFG for generation of electricity, for power generation. Although the project technology complies to positive technology list, the generation capacity is higher than proposed capacity that can be opted under the positive lists.

The methodology requires the project owner to determine the additionality based on "Tool 2: Combined tool to identify the baseline scenario and demonstrate additionality", Version 7.0. The tool provides a stepwise approach to demonstrate and assess the additionality of a project (figure below). These steps are:

(a) Step 0 Demonstration whether the proposed project activity is the first-of-its-kind;
(b) Step 1 Identification of alternatives to the project activity;
(c) Step 2 Barriers analysis
(d) Step 3 Investment analysis and
(e) Step 4 Common practice analysis



The stepwise approach to establish additionality of the project activity has been followed, details of which are provided in the following paragraphs:

<u>Step 0: Demonstration whether the proposed project activity is the first-of-its-kind</u>

The project activity includes capture and utilization of LFG for power generation, treatment of organic fraction of solid waste in anerobic digester resulting in generation of biogas followed by capture of biogas for power generation. This is not the first such project to be installed in the country or in the region and therefore project activity does not meet this criterion.

<u>Step 1: Identification of alternatives to the project activity consistent with current laws and regulations</u>

<u>Sub-step 1a</u>: Define alternatives to the project activity- Identify realistic and credible alternative(s) available to the project owners or similar project developers that provide outputs or services comparable with the proposed CDM project activity.

The alternatives to the project activity are established in section (B.4) above.

	Outcome of Sub-step 1.a: Identified realistic and credible alternative scenario(s) to the project activity Sub-step 1b: The alternative(s) shall be in compliance with all mandatory applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g., to mitigate local air pollution. The alternatives to the project activity as identified above (Section B.4) is in compliance with all mandatory applicable legal and regulatory requirements. Step 2: Barrier analysis Step 2 of "Combined tool to identify the baseline scenario and demonstrate additionality" Version 07.0, proposes for identification of barrier that would prevent the implementation of alternative scenarios. As outlined under section B.4 of the PSF the alternative scenario of atmospheric release of LFG is the most plausible baseline option as implementation of the project activity without carbon finance is financially unattractive (elaborated under step 3). Step 3: Investment analysis Investment analysis is carried out to determine on whether the proposed project activity is economically or financially less attractive than at least one other alternative, identified in step 1, without the revenue from the sale of emission reductions credits. This is demonstrated in in line with the Tools for sections as per "Investment Analysis" Version 12.0. Determine appropriate analysis method The project activity envisages capture and utilisation of LFG for power generation and treatment of organic fraction of solid waste for power generation. The power generated from the project activity is to be exported to the national grid of Türkiyeand the revenues from the sale would be generated in accordance with the terms and tariffs established in the Agreement with the grid authority. Thus, simple cost analysis cannot be used as the analysis method as the sale of the units of generated electricity shall result in a revenue stream during the operations of the Project activity. In the absence of the project activity continued deposition of waste in the landfill and atmospheric release of LFG and use of grid electricity would have been the best plausible options as it does not require an investment. Hence investment comparison analysis is also not appropriate for the project activity. After eliminating the option of simple cost analysis and investment comparison analysis, the use of Benchmark analysis is the method of analysis that has been selected as the most suitable method. This method determines the attractiveness of the project activity for the investors, as well as provides a measure of the viability of the investment to generate revenues during its operation, as compared with other avenues and investment options. Hence, the Benchmark analysis method is to be employed for analysis of the said project.

Apply benchmark analysis

Project owner have considered Post-Tax Equity IRR for investment analysis at the time of decision-making as the project owner was not opting for debt for the purpose of the project activity and is only interested in the returns project is generating on the portion of investment costs, which is financed by them in the form of equity. As per Para 15 of TOOL 27: Investment analysis, Version 12.0 states that Required/expected returns on equity are appropriate benchmarks for an equity IRR.

Since the project activity does not include debt component, equity IRR for the project activity is equivalent to project IRR. Therefore, the Expected return on equity is considered appropriate benchmark. Accordingly, the post-tax Equity IRR has been considered as the relevant financial indicator for Investment Analysis.

Estimation of Benchmark

Since default value of cost of equity is not available for Türkiye under Appendix A. of TOOL 27: Investment analysis Version 12.0, therefore cost of equity is estimated using CAPM model.

Milestones for the Project Activity	
Board Resolution on Investment Decision	11/10/2016
Title Deed of Landfill	19/06/2019
System Connection Agreement	20/12/2019
EIA Positive Decision	23/12/2019
Contractor Agreement	23/01/2020
Gas Engine Purchase Order	12/04/2020
Supervision of Construction Works Service Agreement	20/04/2020
Commissioning Certificate GMG-1 and GMG-2	29/05/2020

As per the tool, the application of CAPM to calculate the cost of equity is carried out based on the equation below:

$$r_e = r_f + \beta \times (r_m - r_f)$$

r_e Cost of equity (expected return on equity)
r_f Risk-free rate
β Beta is adjustment factor
r_m Expected market return

Risk Free Return

The risk-free rate has been chosen over a period of 10 years bond yield in Türkiye before the date of investment decision[8].

Value of Risk-free rate = 9.45% [9]

[8] Risk free rate has been chosen over a period of 10 years bond yield in Türkiye.
[9] http://www.worldgovernmentbonds.com/bond-historical-data/turkey/10-years/

($r_m - r_f$) corresponds to "equity risk premium"

Market risk premium value obtained secondary source for Türkiye is used for the purpose of estimation of cost of equity[10].

($r_m - r_f$) = 9.71%

Beta Value

Beta value obtained secondary source for Emerging market is used for the purpose of estimation of cost of equity:

B = 1.06

Cost of Equity

Risk Free Rate (r_f)	9.45%
The Beta Coefficient (β_i)	1.060
Market risk premium ($r_m - r_f$)	9.71%
Cost of Equity	19.74%

Input values used in the investment analysis

Parameter	Data Value	Mean of Verification
Estimated annual energy production 2017	28,779	The input value of Estimated annual energy production 2017 is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
Estimated annual energy production 2018	42,657	The input value of Estimated annual energy production 2018 is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
Estimated annual energy production 2019	73,969	The input value of Estimated annual energy production

[10] https://pages.stern.nyu.edu/~adamodar/New_Home_Page/dataarchived.html

			2019 is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
	Estimated annual energy production 2020	71,075	The input value of Estimated annual energy production 2020 is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
	Estimated annual energy production 2021	57,548	The input value of Estimated annual energy production 2020 is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
	Estimated annual energy production after 2021	60,000	The input value is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
	Base price first 10 years	0.133	The input value is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
	Base price after 10 years	0.045	The input value is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
	Estimated annual	2,786,534	The input value is

	OPEX fixed part		based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
	Estimated annual OPEX after variable part	10% of sales	The input value is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
	Corporate Tax	20%	The input value of corporate tax is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
	Financing		
	Debt Amount ($) D1	12,000,000	The input value of corporate tax is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
	Debt Amount ($) D2	3,000,000	The input value of corporate tax is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
	Interest Rate D1	6.45%	The input value of interest rate is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
	Interest Rate D2	7.32%	The input value of interest rate is based on the Feasibility

		Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
Grace Period D1	2 years	The input value is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
Grace Period D2	6 months	The input value is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
Tenure including Grace Period D1	6 years	The input value is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/
Tenure including Grace Period D2	5.5 years	The input value is based on the Feasibility Report/16/ which was available at the time of investment decision. It was crosschecked through the IRR/47/

Investment (based on feasibility report)

	2016	2017	2018	2019	2020	2021	2022	2023	
Investment Details ($)	1st year of investment	2nd year of investment	3rd year of investment	4th year of investment	5th year of investment	6th year of investment	7th year of investment	8th year of investment	Total with

Buildings	8,000,000	0	0	0	0	3,734	0	0	8,003,734
Electromechanical Equipment	7,000,000	0	0	0	276,792	663,873	19,41,313	3,200,000	13,081,978
Underground and overland plants	4,800,000	0	0	0	72,019	10,021	1,325	800,000	5,683,365
Others	200,000	0	0	0	9,408	0	7,204	1,000,000	1,216,612
Total Investment Amount	**20,000,000**	**0**	**0**	**0**	**358,219**	**677,628**	**1,949,842**	**5,000,000**	**27,985,688**

Outcome of Investment Analysis:

Considering the input values, the post-tax Equity IRR is calculated as 5.22% against the benchmark of 18.95%. Hence, the project activity cannot be considered as financially attractive as the equity IRR for the project activity is less than the Benchmark.

Equity IRR without CDM	Benchmark (Equity IRR)
12.81%	19.74%

Based on the above result, the project was deemed financially unviable at the time of investment decision making. Thus, it can be easily concluded that the project activity is additional & is not business as usual scenario.

Sensitivity Analysis

In line with Guidance 27 & 28 of TOOL 27: Methodological tool: Investment analysis, Version 12.0, following factors has been subjected to sensitivity analysis, following factors has been subjected to sensitivity analysis:

1. Electricity Generation[11]
2. O&M Cost
3. Project Cost
4. Tariff

The rationale of sensitivity is, "The ultimate objective of the sensitivity analysis is to determine the likelihood of the occurrence of a scenario other than the scenario presented, in order to provide a cross-check on the suitability of the assumptions used in the development of the investment analysis."

The results of sensitivity analysis show that even with a variation of +10% & -10% in project cost, O&M cost, Electricity Generation and Tariff Rate Equity IRR is significantly lower than the benchmark. And it is evident from the results given above; the project remains additional even under the most favorable

[11] Source of the electricity generation is “Generation License”

conditions.

Result of Sensitivity Analysis

Sensitivity Analysis	Equity IRR			Variation required to reach benchmark
Variation %	-10%	Normal	10%	
Electricity Generation	10.33%	12.81%	14.83 %	42%
O&M	13.40%	12.81%	12.19 %	-155%
Project Cost	14.33%	12.81%	11.41 %	-38%
Tariff Rate	10.33%	12.81%	14.83 %	42%

The results of sensitivity analysis show that the project IRR does not crosses the benchmark within 10% variation of electricity generation, project cost, O&M and tariff rate, the justification on the probability occurrence variation in the parameters to the breach the benchmark is provided below.

Parameter	Probability to breach the benchmark
Electricity Generation	The electricity generation value considered for investment analysis is as per the Pre-feasibility report. A variation of electricity generation of +42% to breach the benchmark and achieve this generation on a sustained basis for the entire lifetime of the project is improbable as it is beyond the technical capacity of the generating unit to generate electricity of such value. This should be noted that the electricity generation considered for project IRR calculation is the annual average forecasted estimated value for the entire project lifetime which was estimated by the third party (generation license issuing authority). Since the project is already commissioned, the actual electricity generation has been crosschecked to verify the appropriateness of the electricity generation value considered for the equity IRR calculation and has been found within the range of the sensitivity analysis. Therefore, it can be safely said that achieving 42% of electricity generation on continuous basis for the project to breach the benchmark is improbable.
O&M	A reduction of 155% in the O&M cost to breach the benchmark is improbable.
Project Cost	The project has already been commissioned, and the actual project cost has been found to be marginally less (below 10%) than the than what has been assumed for the investment analysis. Hence, any reduction in project cost is at which the IRR is breached is improbable.

Tariff Rate	As the actual tariff applicable for the project activity is same of what has been assumed for financial analysis, any increase in tariff rates is impossible.

Outcome of sensitivity analysis:
This substantiates that the investment is not financially attractive (Project IRR for the project activity is less than the Benchmark Equity IRR) even under scenario of +/- 10% variation. Thus, it can be easily concluded that project activity is additional & is not business as usual scenario.

Common Practice Analysis
As per para 57 of Tool for demonstration and assessment of additionality" (Version 07.0.0), Step 2 analysis shall be complemented with an analysis of extent to which the proposed project type (e.g., technology or practice) has already diffused in the relevant sector and region. This test is a credibility check to complement the investment analysis.

Common Practice Analysis – 15.565 MW LFG based power generation project
Step (1): Calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity.

Range	Capacity	Unit
+ 50%	23.35	MW
Capacity of the proposed project activity	15.565	MW
-50%	7.78	MW

Step (2): Identify similar projects (both CDM and non-CDM) which fulfil all of the following conditions:

- The projects are located in the applicable geographical area;
- The projects apply the same measure as the proposed project activity;
- The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity;
- The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant;
- The capacity or output of the projects is within the applicable capacity or output range calculated in;
- The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

Analysis of Step 2
Identification of the similar projects (CDM and non-CDM) is carried out as per sub-steps of Step (2) as follows:

- As the project is located Türkiye, therefore, projects in the geographical area of Türkiye have been chosen for analysis. As the project is located in Türkiye, the policy applicable for the LFG based power generation project is applicable.
- The project activity is a green-field power project and uses measure (b) “Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies”. Therefore, projects applying same measure (b) are candidates for similar projects.
- The energy source used by the project is LFG. Hence, only energy generation projects using same fuel have been considered for analysis.
- The project produces electricity; therefore, all power plants that produce electricity are candidates for similar projects.
- The capacity range of the projects is within the applicable capacity range from 5.6 MW to 16.8 MW.
- As per the methodological tool the projects that have started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, are to be selected for consideration. The start date however resembles to start date definition of CDM project activity which is “the date on which the project owners commit to making expenditures for the construction or modification of the main equipment or facility (e.g., a wind turbine), or for the provision or modification of a service (e.g., distribution of energy-efficient light bulbs, change of transport management system), for the CDM project activity or CPA. Where a contract is signed for such expenditures, it is the date on which the contract is signed. In other cases, it is the date on which such expenditures are incurred” In line with the start date definition of the CDM the cut off-date for investment analysis is considered as investment decision date which is 11/10/2019.

Findings of analysis of Step 2

Company Name	COD	Project Name	Installed Capacity (MWe)	GS/VCS/GCCID
Bientaş Madencilik Inşaat Enerji Petrol Anonim Şirketi	20/09/2018	Bientaş Kaşınhanı Elektrik Üretim Tesisi	9.36	-
ITC Bursa Enerji Üretim Sanayi Ve Ticaret Anonim Şirketi	01/12/2011	ITC Bursa Hamitler Tesisi	9.80	GS1068
ITC Adana Enerji Üretim San. Ve Tic.A.Ş	04/02/2010	ITC Adana Enerji Üretim Tesisi	15.57	GS715
Landfill Enerji Sanayi Ticaret Anonim Şirketi	17/10/2019	Balıkesir Çöp Gaz Elektrik Üretim Tesisi	11.31	VCS2645

Mavibayrak Enerji Üretim A.Ş.	01/06/2016	Mavibayrak-1 Biyokütle Enerji Santrali	12	VCS1933
Akare Biyokütle Enerji Üretim Anonim Şirketi	05/04/2018	Düzce Biyokütle Enerji Üretim Tesisi	12	-
Satem Sinop Biyokütle Enerji Limited Şirketi	16/04/2020	Sinop BES	12	-
ITC-KA Enerji Üretim San.ve Tic.A.Ş.	04/08/2006	Mamak Katı Atık Alanı Enerji Üretim Tesisi	16.96	GS440
Ortadoğu Enerji Sanayi ve Ticaret Anonim Şirketi	25/10/2007	Kömürcüoda Çöp Gazı Santralı	19.81	GS1336

Step (3): Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing project verification. Note their number, N_{all}.

Project activities, which have got registered or are under project verification with CDM/VCS/GS/GCC have been excluded in this step. After excluding the registered and under project validation projects the total number of projects.

N_{all} =3

Step (4): Within similar projects identified in Step 3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number N_{diff}.

As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis two criteria:

Different technologies - are technologies that deliver the same output and differ by at least one of the following (as appropriate in the context of the measure applied in the proposed clean development mechanism (CDM) project activity and applicable geographical area):
(a) Energy source/fuel (example: energy generation by different energy sources such as wind and hydro and different types of fuels such as biomass and natural gas);
(b) Feed stock (example: production of fuel ethanol from different feed stocks such as sugar cane and starch, production of cement with varying percentage of alternative fuels or less carbon-intensive fuels);
(c) Size of installation (power capacity)/energy savings:
(i) Micro (as defined in paragraph 24 of decision 2/CMP.5 and paragraph 39 of decision 3/CMP.6);
(ii) Small (as defined in paragraph 28 of decision 1/CMP.2);
(iii) Large.
(d) Investment climate on the date of the investment decision, inter alia:

	(i) Access to technology; (ii) Subsidies or other financial flows; (iii) Promotional policies; (iv) Legal regulations. (e) Other features, inter alia: (i) Nature of the investment (example: unit cost of capacity or output is considered different if the costs differ by at least 20%). $N_{diff} = 0$ Step (5): Calculate factor $F= 1-N_{diff}/N_{all}$ representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity. $F= 1 – N_{diff} /N_{all}$ F= 1 So, F is greater than 0.2 $N_{all} – N_{diff} = 3$ So, $N_{all} – N_{diff}$ is not greater than 3 As per the Tool for common practice analysis, version 03.1, the proposed project activity is a common practice within a sector in the applicable geographical area if both the following conditions are fulfilled: (a) the factor F is greater than 0.2, and (b) $N_{all}-N_{diff}$ is less than 3. Since the value of factor $N_{all} – N_{diff}$ for the proposed project activity is 3 which is not greater than 3, the project activity is not a “common practice” within sector in the applicable geographical area.
Findings	No findings were raised.
Conclusion	Based on the information provided in the PSF and guidance by GCC Project Standard version 03.1/2/ and clarification 02/24/ from GCC project verification team confirmed the project activity is deemed additional without any further analysis of the other barriers.

D.3.6 Estimation of emission reductions or net anthropogenic removal

Means of Project Verification	The verification team checked whether the equations and parameters used to calculate GHG emission reductions or net anthropogenic GHG removals for PSF is in accordance with applied methodology. Verification team checked section B.6 of the PSF to confirm whether all formulae to calculate baseline emissions, project emission and leakage have been applied in line with the underlying methodology. **Baseline Emissions:**

The emission reductions are calculated as the following equation:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y	Emission reductions in year y (tCO_2e/year)
BE_y	Baseline emissions in year y (tCO_2e/year)
PE_y	Project emissions in year y (tCO_2e/year)
LE_y	The leakage in year y (tCO_2e/year)

LFG Capture and its utilization for Power Generation in accordance to the methodological guidelines of ACM001, Version 19.0

Baseline Emissions

The baseline emissions are:

1. Emissions from decomposition of waste at the landfill site
2. Emissions resulting from electricity consumption

Baseline emissions are determined according to equation (1) and comprise the following sources:

$$BE_y = BE_{CH4,y} + BE_{EC,y} + BE_{HG,y} + BE_{NG,y}$$

BE_y	Baseline emissions in year y (tCO_2e/yr.)
$BE_{CH4,y}$	Baseline emissions of methane from the SWDS in year y (tCO_2e/yr.)
$BE_{EC,y}$	Baseline emissions associated with electricity generation in year y (tCO_2/yr.)
$BE_{HG,y}$	Baseline emissions associated with heat generation in year y (tCO_2/yr.)
$BE_{NG,y}$	Baseline emissions associated with natural gas use in year y (tCO_2/yr.)

However, the project activity does not include generation of heat/thermal energy and use of natural gas. Therefore:

$$BE_y = BE_{CH4,y} + BE_{EC,y}$$

Estimation of Baseline Emission of methane from the SWDS in year ($BE_{CH4,y}$)

$$BE_{CH4} = ((1 - OX_{top\_layer}) \times F_{CH4,PJ,y} - F_{CH4,BL,y}) \times GWP_{CH4}$$

$BE_{CH4,y}$	Baseline emissions of methane from the SWDS in year y (tCO_2e/yr.)
OX_{top_layer}	Fraction of methane in the LFG that would be oxidized in the top layer of the SWDS in the baseline (dimensionless)
$F_{CH4,PJ,y}$	Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH_4/yr.)
$F_{CH4,BL,y}$	Amount of methane in the LFG that would be flared in the baseline in year y (tCH_4/yr.)
GWP_{CH4}	Global warming potential of CH_4 (tCO_2e/tCH_4)

Ex ante estimation of $F_{CH4,PJ,y}$

$$F_{CH4,PJ,y} = \eta_{PJ} \times BE_{CH4,SWDS,y} / GWP_{CH4}$$

$F_{CH4,PJ,y}$	Amount of methane in the LFG which is flared and/or used in the project activity in year y (t CH_4/yr.)
$BE_{CH4,SWDS,y}$	Amount of methane in the LFG that is generated from the SWDS in the baseline scenario in year y (tCO_2e/yr.). Where $BE_{CH4,SWDS,y}$ is determined using the methodological tool "Emissions from solid waste disposal sites"
η_{PJ}	Efficiency of the LFG capture system that will be installed in the project activity
GWP_{CH4}	Global warming potential of CH_4 (tCO_2e/tCH_4)

The amount of methane produced in year y ($BE_{CH4,SWDS,y}$) is calculated as follows:

$$BE_{CH4,SWDS,y} = \varphi \cdot (1-f) \cdot GWP_{CH4} \cdot (1-OX) \cdot \frac{16}{12} \cdot F \cdot DOC_f \cdot MCF \cdot \sum_{x=1}^{y} \sum_{j} W_{j,x} \cdot DOC_j \cdot e^{-k_j(y-x)} \cdot (1-e^{-k_j})$$

Where:

$BE_{CH4, SWDS,y}$	Methane emissions avoided during the year y from preventing waste disposal at the solid waste disposal site (SWDS) during the period from the start of the project activity to the end of the year y (tCO_2e)
φ	Model correction factor to account for model uncertainties
f	Fraction of methane captured at the SWDS and flared, combusted or used in another manner
GWP_{CH4}	Global Warming Potential of methane valid for the commitment period (tCO_2e/tCH_4)
OX	Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)
F	Fraction of methane in the SWDS gas (volume fraction)
DOC_f	Fraction of degradable organic carbon (DOC) that can decompose
MCF	Methane correction factor
$W_{j,x}$	Amount of organic waste type j prevented from disposal in the SWDS in the year x (tons)
DOC_j	Fraction of degradable organic carbon (by weight) in the waste type j
k_i	Decay rate for the waste type j
j	Waste type category (index)
x	Year during the crediting period: x runs from the first year of the first crediting period (x=1) to the year y for which avoided emissions are calculated (x=y)
y	Year for which methane emissions are calculated

Ex-post determination of $F_{CH4,PJ,y}$

During the crediting period, $F_{CH4,PJ,y}$ determined using the methodology

ACM0001 Version 19.0. as the sum of the quantities of methane flared and used in power plant(s), boiler(s), air heater(s), glass melting furnace(s), kiln(s) and natural gas distribution, as follows:

$$F_{CH4,PJ,y} = F_{CH4,flared,y} + F_{CH4,EL,y} + F_{CH4,HG,y} + F_{CH4,NG,y}$$

$F_{CH4,PJ,y}$ Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH_4/yr.)

$F_{CH4,flared,y}$ Amount of methane in the LFG which is destroyed by flaring in year y (tCH_4/yr.)

$F_{CH4,EL,y}$ Amount of methane in the LFG which is used for electricity generation in year y (tCH_4/yr.)

$F_{CH4,HG,y}$ Amount of methane in the LFG which is used for heat generation in year y (tCH_4/yr.)

$F_{CH4,NG,y}$ Amount of methane in the LFG which is sent to the natural gas distribution network and/or dedicated pipeline and/or to the trucks in year y (tCH_4/yr.)

The project activity does not include use of land fill gas for generation of thermal energy and use of natural gas. Although flaring is not practiced in the baseline (In Türkiye there is no law that requires the collection and destruction of landfill gas) nor envisaged in the project scenario, the estimation approach considers destruction of methane by flaring. Therefore

$$F_{CH4,PJ,y} = F_{CH4,flared,y} + F_{CH4,EL,y}$$

Methane captured and destroyed/gainfully used by the project activity in the year y is estimated using methodological approach of ACM0001 Version 19.0.

$F_{CH4,PJ,y}$ Methane captured and destroyed/gainfully used by the project activity in the year *y* (tCH_4)

$$\mathbf{F_{CH4,PJ,y} = D_{CH4,y} \times w_{CH4,y} \times \sum_i LFG_{i,y}}$$

$D_{CH4,y}$ Density of methane at the temperature and pressure of the landfill gas in year *y* (tons/m^3). If $LFG_{i,y}$ is reported at normal conditions of temperature and pressure, the density of methane is also determined at normal conditions

$w_{CH4,y}$ Methane content in landfill gas in year *y* (volume fraction, m^3CH4/m^3LFG). Landfill gas composition shall be measured either on a dry basis or at the same humidity as used to determine $LFG_{i,y}$

$LFG_{i,y}$ Landfill gas destroyed via method *i* (flaring, fueling, combustion, injection to a grid, etc.) in year *y* (m^3LFG). The flow or volume measurement shall be made either on a dry basis or at the same humidity as $w_{CH4,y}$

Baseline emissions from generation of electricity that is displaced by the project

	activity The baseline emissions for the proposed project activity involve emissions resulting from electricity generated by fossil fuel fired power plants connected to the Turkish National grid. The Baseline emissions from generation of electricity is estimated as product of electricity generation from the project activity and grid emission factor. The amount of electricity generated from the utilization of LFG extracted from the landfill area will be monitored during the project activity. The emission factor of the Turkish grid (EF) is calculated by of Ministry of Energy and Natural Resources in accordance with The Clean Development Mechanism method of the Intergovernmental Panel on Climate Change (IPCC) and published in Türkiye National Network Grid Emission Factor Data Sheet[12]: The CO_2 emission factor for the displacement of electricity generated by power plants in the project activity and fed to the grid is estimated using Tool to calculate the emission factor for an electricity system version 7.0. The estimation is carried out through following steps a. Step 1: Identify the relevant electricity systems; b. Step 2: Choose whether to include off-grid power plants in the project electricity system (optional); c. Step 3: Select a method to determine the operating margin (OM); d. Step 4: Calculate the operating margin emission factor according to the selected method; e. Step 5: Calculate the build margin (BM) emission factor; f. Step 6: Calculate the combined margin (CM) emission factor. Calculation of the Operating Margin Emission Factor For OM factor calculation, Chronological order of power generation plants from TEİAŞ Load Dispatch Department with, fuel types, electricity generation for the calculated year were used as input data. By using all the data which were mentioned above, Turkish Ministry of Energy and Natural Resources calculated $EF_{grid,OM,y}$[13] **$EF_{grid,OM,y}$ = 0.7424 tCO_2/MWh** Calculation of the Build Margin Emission Factor As per Methodological tool: “Tool to calculate the emission factor for an electricity system” (Version 07.0, EB 100, Annex 4) para 72: In terms of vintage of data, project participants can choose between one of the following two options: (a) Option 1 - for the first crediting period, calculate the build margin emission factor ex ante based on the most recent information available on units already built for sample group at the time of PDD submission to the DOE for project verification.

[12] Turkey National Network Emission Factor Data Sheet is directly downloaded from the website of the Energy Ministry of Türkiye and provided to GCC Verifier.

[13] Turkey National Network Emission Factor Data Sheet is directly downloaded from the website of the Energy Ministry of Türkiye and provided to DOE.

(b) Option 2 - For the first crediting period, the build margin emission factor shall be updated annually, ex post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available.

Option 1 as described above; the build margin emission factor is updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE:

For BM factor calculation, Chronological order of power generation plants from TEİAŞ Load Dispatch Department with commissioning dates, plant names, fuel types, installed power values, electricity generation for the calculated year were used as input data. Consequently, Turkish Ministry of Energy and Natural Resources calculated $EF_{grid,BM,y}$[14].

$EF_{grid,BM,y}$ = 0.3680 tCO_2/MWh

Calculating of the Combined Margin Emission Factor

As per Methodological tool: "Tool to calculate the emission factor for an electricity system" (Version 07.0, EB 100, Annex 4) para 81:

The calculation of the combined margin (CM) emission factor ($EF_{grid,CM,y}$) is based on one of the following methods:

(a) Weighted average CM; or

(b) Simplified CM.

Project owner has chosen option (a) i.e., weighted average CM to calculate the combined margin emission factor for the project activity.

The combined margin emission factor is calculated by using weighted average CM as per TOOL07 Version 07.0 formula below:

$EF_{grid,CM,y} = EF_{grid,OM,y} * w_{OM} + EF_{grid,BM,y} * w_{BM}$ Equation 16 in TOOL07 V7

Where:

$EF_{grid,BM,y}$	Build margin CO_2 emission factor in year y (tCO_2/MWh)
$EF_{grid,OM,y}$	Operating margin CO_2 emission factor in year y (tCO_2/MWh)
w_{OM}	Weighting of operating margin emissions factor (%)
w_{BM}	Weighting of build margin emissions factor (%)

According to the Tool for power generation project activities other than wind and solar;

w_{OM} = 0.50 and w_{BM} = 0.50

Then:

[14] Turkey National Network Emission Factor Data Sheet is directly downloaded from the website of the Energy Ministry of Türkiye and provided to DOE.

	$EF_{grid,CM,y}$ = 0.7424 tCO_2/MWh * 0.50 + 0.3680 tCO_2/MWh * 0.50 = 0.5552 tCO_2/MWh **$EF_{grid,CM,y}$= 0.5552 tCO_2/MWh** Project emission is calculated as follows; $$PEy = PE_{EC,y} + PE_{FC,y} + PE_{DT,y} + PE_{SP,y}$$ PE_y Project emissions in year y (tCO_2/yr.) $PE_{EC,y}$ Emissions from consumption of electricity due to the project activity in year y (tCO_2/yr.) $PE_{FC,y}$ Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (tCO_2/yr.) $PE_{DT,y}$ Emissions from the distribution of compressed/liquefied LFG using trucks, in year y (tCO_2/yr.) $PE_{SP,y}$ Emissions from the supply of LFG to consumers through a dedicated pipeline, in year y (tCO_2/yr.) Since the project activity does not include consumption of fossil fuel, distribution of compressed/liquefied LFG using trucks and supply of LFG to consumers through a dedicated pipeline. $$PEy = PE_{EC,y}$$ <u>Application of "Tool to determine project emissions from flaring"</u> In accordance with Paragraph 12 of Methodological Tool 06: "Project emission from flaring" Version 04.0.0", the project emissions from flaring of the residual gas stream $PE_{flare,y}$ are determined considering the following steps: STEP 1: Determination of the mass flow rate of the residual gas STEP 2: Determination of flare efficiency STEP 3: Calculation of project emissions from flaring The calculation procedure in this tool determines the project emissions from flaring the residual gas ($PE_{flare,y}$) based on the flare efficiency ($\eta_{flare,m}$) and the mass flow of methane to the flare ($F_{CH4,RG,m}$). The project activity applies an open flare. The temperature in the exhaust gas of the flare is measured to determine whether the flare is operating or not. <u>STEP 1. Determination of the methane mass flow rate of the residual gas</u> This step calculates the residual gas mass flow rate in minute, based on the volumetric flow rate and the density of the residual gas. The density of the residual gas is determined based on the volumetric fraction of all components in the gas. The following requirements apply:

- The gaseous stream tool (Tool 08) is applied to the residual gas;
- The flow of the gaseous stream is measured continuously;
- CH_4 is the greenhouse gas i for which the mass flow should be determined;
- The simplification offered for calculating the molecular mass of the gaseous stream is valid (equation 3 and 17 in the tool); and
- The time interval t for which mass flow should be calculated is every minute m

The calculation follows the procedure as described by the Tool 08- "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", Version 03.

Tool 08 provides 6 different ways to make these measurements and the corresponding calculation option for $F_{i,t}$.

Option	Flow of Gaseous Stream	Volumetric Fraction
A	Volume flow-dry basis	Dry or wet basis
B	Volume flow-wet basis	Dry basis
C	Volume flow-wet basis	Wet basis
D	Mass flow-dry basis	Dry or wet basis
E	Mass flow-wet basis	Dry basis
F	Mass flow-wet basis	Wet basis

The project activity will include measurement of volume flow therefore Option D, Option E and Option F are not applied. Since Option B is not applied therefore absolute humidity is not determined.

Option A is applied:
According to Tool 08-Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 03.0, flow measurement on a dry measurement is not doable for a wet gaseous stream. Therefore, it will be demonstrated that the temperature of the gaseous stream (T_t) is less than 60^0C (333.15 K) at the flow measurement point.

In order to determine the mass flow of CH_4, the equations mentioned above in the present document shall be used.

The mass flow of greenhouse gas i ($F_{CH4,t}$) is determined as follows:

$$F_{CH4,t} = V_{t,db} \times \upsilon_{CH4,wb,t} \times \rho_{CH4,n}$$ Equation 5 (Tool 8, Version 3)

With,

$$\rho_{CH4,n} = \frac{P_n \times MM_{CH4}}{R_u \times T_n}$$ Equation 6 (Tool 8, Version 3)

Where:

$F_{CH4,t}$ Mass flow of greenhouse gas (CH_4) in the gaseous stream in

	time interval t (kg gas/h)
$V_{t,db}$	Volumetric flow of the gaseous stream in time interval t on a dry basis (m³ dry gas/h)
$\upsilon_{CH4,wb,t}$	Volumetric fraction of greenhouse gas CH_4 in the gaseous stream in a time interval t on a dry basis (m³ CH_4/m³ dry gas)[15]
$\rho_{CH4,n}$	Density of greenhouse gas CH_4 in the gaseous stream at normal conditions t (kg CH_4/m³ CH_4)
P_n	Absolute pressure of the gaseous stream in time interval (Pa)
MM_{CH4}	Molecular mass of methane (kg/kmol)
R_u	Universal ideal gases constant (Pa.m³/kmol.K)
T_n	Temperature of the gaseous stream in normal conditions (K)

In accordance with the Data/Parameter 14 and 15 of Tool 08 "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", Version 03 if the volumetric parameters are converted to normal conditions during the monitoring process the pressure and temperature need not need to be monitored. Therefore, density of LFG won't be estimated separately and estimated value of 0.71566 kg CH_4/m³ CH_4 will be used.

$$\rho_{CH4,n} = \frac{P_n \times MM_{CH4}}{R_u \times T_n}$$ Equation 6 (Tool 8, Version 3)

$$\rho = \frac{101325 \text{ Pa} \times 16.04 \text{ kg/kmol}}{8{,}314 \text{ Pa.m}^3\text{/kmol.K} \times 273.15\text{K}}$$

$$= 0.71566 \text{ kg } CH_4\text{/m}^3 \text{ } CH_4$$

STEP 2. Determination of flare efficiency

The determination of the hourly flare efficiency depends on the operation of flare (e.g., temperature), the type of flare used (open or enclosed) and, in case of enclosed flares, the approach selected by project owner to determine the flare efficiency (default value or continuous monitoring).

In the case of this Project, an open flare is used, the flare efficiency in the minute m ($\eta_{flare,m}$) is 50% when the flame is detected in the minute m ($Flame_m$), otherwise $\eta_{flare,m}$ is 0%.

STEP 3. Calculation of project emissions from flaring

In accordance with Paragraph 39 of Methodological Tool 06: "Project emission from flaring" Version 04.0.0, project emission from flaring is calculated as the sum of emission from each minute m, based on the methane mass flow in the residual gas ($F_{CH4,RG,m}$) and the flare efficiency ($\eta_{flare,m}$), as follows:

$$PE_{flare,y} = GWP_{CH4} \times \sum_{m=1}^{525600} F_{CH4,RG,m} \times \left(1 - \eta_{flare,m}\right) \times 10^{-3}$$ Equation 15

[15] In accordance to footnote 3 of Tool 8 , Version 03, since the flow measurement on a dry basis is not feasible at reasonable costs for a wet gaseous stream, so there will be no difference in the readings for volumetric fraction in wet basis analyzers and dry basis analyzers and both types can be used indistinctly for calculation Options A.

(Tool 6, Version 4)

$PE_{flare,y}$ Project emissions from flaring of the residual gas in year y (tCO_2e)
$F_{CH4,RG,m}$ Mass flow of methane in the residual gas in the minute m (kg)
$\eta_{flare,m}$ Flare efficiency in minute m

Leakage Emissions

According to ACM0001 "Flaring or use of landfill gas" version 19.0, no leakage effects are accounted for under this methodology.

Emission Reductions

Emission reductions are calculated as follows:

$ER_y = BE_y + PE_y$ Equation 16 (ACM0001, Version 19.0)

ER_y Emission reductions in year y (tCO_2e/yr.)
BE_y Baseline emissions in year y (tCO_2e/yr.)
PE_y Project emissions in year y (tCO_2/yr.)

Project and Leakage Emissions

Project and leakage are estimated using "Tool 14: Project and leakage emissions from anaerobic digesters.

$$PE_{AD,y} = PE_{EC,y} + PE_{FC,y} + PE_{CH4,y} + PE_{flare,y}$$

Where:
$PE_{AD,y}$ Project emissions associated with the anaerobic digester in year y (tCO_2e)
$PE_{EC,y}$ Project emissions from electricity consumption associated with the anaerobic digester in year y (tCO_2e)
$PE_{FC,y}$ Project emissions from fossil fuel consumption associated with the anaerobic digester in year y (tCO_2e)
$PE_{CH4,y}$ Project emissions of methane from the anaerobic digester in year y (tCO_2e)
$PE_{flare,y}$ Project emissions from flaring of biogas in year y (tCO_2e)

Since there is no fossil fuel consumption for operation of anaerobic digestor and biogas will be used for purpose of power generation and not flared.

$$PE_{AD,y} = PE_{EC,y} + PE_{CH4,y}$$

Project Emissions:
The project emissions are the direct emissions from the waste treatment process and the emissions from the electricity consumption due to the project activity.

	Summary of the Project Emissions: The project emissions are the direct emissions from the waste treatment process and the emissions from the electricity consumption due to the project activity. Following AMS.III-G the project emissions are described as follows: $$PE_y = PE_{power,y} + PE_{flare,y} + PE_{process,y}$$ As described in TOOL05 Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation Version 03.0; $$PE_{power,y} = PE_{EC,y} = EC_{PJ,y} + EF_{grid,y} \times (1 + TDL_{j,y})$$ **Leakage Emissions:** This project doesn't involve transfer of any equipment from another activity therefore the leakage has been considered zero. This project doesn't pertain to the use of Landfill Gas to Energy residues. Therefore, no leakage effects need to be accounted for under the methodology ACM0001 Version 19.0. **Emission Reduction** The emission reduction ER_y by the project activity during a given year y is the difference between the baseline emissions (BE_y) and the sum of project emissions (PE_y) and leakage (LE_y), as follows: $$ER_{y,estimated} = BE_y - PE_y - LE_y \quad \text{Equation 3}$$ Based on the above estimation $ER_y = BE_y$, Hence the annual emission reductions based on the ex-ante parameters is 75,098 tCO_2e (Annual Average over the crediting period).
Findings	CAR 11 is raised and closed successfully.
Conclusion	Project validation team confirm that the algorithms and formulae proposed to calculate project emissions, baseline emissions, leakage and emission reductions in the PSF is in line with the requirements of the selected methodologies ACM0001-Version 19.0, For ex-ante calculation, the assessment team confirms that • All assumptions and data used by the project owner are listed in the PSF including their references and sources. • All documentation used by project owner as the basis for assumptions and source of data is correctly quoted and interpreted in the PSF • All values used in the PSF/27/ are considered reasonable in the context of the proposed project activity. • The baseline methodology and the applicable tool(s) have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions; • All estimates of the emissions can be replicated using the data and parameter values provided in the PSF. • All calculations are complete and without any omissions.

D.3.7 Monitoring plan

<table>
<tr>
<td>Means of Project Verification</td>
<td>The monitoring plan described in the PSF is in compliance with the applied methodology ACM0001 Version 19.0. The monitoring plan has been found to be in compliance with the requirements of the applied methodology for calculation of GHG emission reductions, GCC Environment and-Social-Safeguards-Standard-v3.0 and Project-Sustainability-Standard-v3.1. The assessment team has reviewed all the parameters in the monitoring plan against the requirements of the applied methodology and confirmed that monitoring parameters are applied in line with the requirement of the methodology and relevant in the context of the program. The procedures have been reviewed by the assessment team through document review and interviews with the respective monitoring personnel. The information provided has allowed the assessment team to confirm that the proposed monitoring plan is feasible within the project design. The relevant points of monitoring plan have been discussed with the project owner. Specifically, these points include the monitoring methodology, data management, and the quality assurance and quality control procedures to be implemented in the context of the project. Therefore, the project owner will be able to implement the monitoring plan and the achieved emission reductions can be reported ex-post and verified

The parameters that are fixed ex-ante are:

<table>
<tr><th>Parameter</th><th>Value</th><th>Source</th></tr>
<tr><td>Build Margin Emission factor ($EF_{grid, BM, y}$)</td><td>0.3680 tCO_2/MWh</td><td rowspan="3">Türkiye National Network Grid Emission Factor Data Sheet of Ministry of Energy and Natural Resources</td></tr>
<tr><td>Operating Margin emission factor ($EF_{grid, OM, y}$)</td><td>0.7424 tCO_2/MWh</td></tr>
<tr><td>Combined Margin CO_2 emission factor ($EF_{grid,CM,y}$)</td><td>0.5552 tCO_2/MWh</td></tr>
<tr><td>Global warming potential of CH4 (GWP_{CH4})</td><td>28 tCO_2e/tCH_4</td><td>IPCC 5th Assessment Report (AR5)[16]</td></tr>
<tr><td>Oxidation factor (OX)</td><td>0.1</td><td>Tool 4: Emissions from solid waste disposal sites, version 08.1 (Based on an extensive review of published literature on this subject, including the IPCC 2006 Guidelines for National Greenhouse Gas Inventories. IPCC 2006 Guidelines for National</td></tr>
</table>
</td>
</tr>
</table>

[16] https://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf

			Greenhouse Gas Inventories[17] (Volume 5 / page 3.15))
	Efficiency of the LFG capture system that will be installed in the project activity ($\eta_{PJ,y}$)	50%	AMS-III.G (Version 10.0)
	Model correction factor to account for model uncertainties ($\Phi_{default}$)	0.75	"Methodological TOOL 4: Emissions from solid waste disposal sites" (Version 08.1)
	Fraction of methane in the SWDS gas (F)	0.5	"Methodological Tool 04: Emissions from solid waste disposal sites" (Version 08.0) referring to IPCC 2006 Guidelines for National Greenhouse Gas Inventories
	Fraction of degradable organic carbon (DOC) in MSW that decomposes in the SWDS	0.5	"Methodological Tool 04: Emissions from solid waste disposal sites" (Version 08.1) referring to IPCC 2006 Guidelines for National Greenhouse Gas Inventories
	Methane correction factor (MFC)	0.4	Methodological Tool 04: Emissions from solid waste disposal sites" (Version 08.0) referring to 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Chapter-3, Table 3.1

[17] http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/5_Volume5/V5_3_Ch3_SWDS.pdf

<table>
<tr>
<td></td>
<td>Fraction of degradable organic carbon (by weight) in waste type j (DOC_j)</td>
<td colspan="3">
<table>
<tr><th>Waste type j</th><th>DOC_j (% wet waste)</th></tr>
<tr><td>Wood and wood products</td><td>43</td></tr>
<tr><td>Pulp, paper and cardboard</td><td>40</td></tr>
<tr><td>Food, food waste, beverages and tobacco</td><td>15</td></tr>
<tr><td>Textiles</td><td>24</td></tr>
<tr><td>Garden, yard and park waste</td><td>20</td></tr>
<tr><td>Glass, plastic, metal, other inert waste</td><td>0</td></tr>
</table>
</td>
<td>Methodological Tool 04: Emissions from solid waste disposal sites” (Version 08.0) referring to 2006 IPCC Guidelines for National Greenhouse Gas Inventories, adapted from Volume 5, Tables 2.4 and Table 2.5</td>
</tr>
<tr>
<td></td>
<td>Decay rate for the waste type j (k_j)</td>
<td colspan="3">
<table>
<tr><td colspan="2">Waste type j</td><td>Boreal and Temperate (MAT < 20^0C)</td></tr>
<tr><td colspan="2"></td><td>Dry (MAP/ PET <1)</td></tr>
<tr><td rowspan="2">Slowly degrading</td><td>Pulp, paper, cardboard</td><td>0.04</td></tr>
<tr><td>Wood, wood products and straw</td><td>0.02</td></tr>
<tr><td>Moderately degrading</td><td>Other (non-food) organic putrescible garden and park waste</td><td>0.05</td></tr>
<tr><td>Rapidly degrading</td><td>Food, food waste, sewage sludge, beverages and tobacco</td><td>0.06</td></tr>
<tr><td colspan="3">Temperature condition to establish the rationale:
Average Temperature: 12.6°C
Rainfall: 413.6 mm[18]
PET: 614 mm[19]

MAP/PET = 413.6 /614 = 0.6736

Since the value of MAP/PET is less than 1 therefore the region is dry region.</td></tr>
</table>
</td>
<td>Methodological Tool 04: Emissions from solid waste disposal sites” (Version 08.1) referring to IPCC 2006 Guidelines for National Greenhouse Gas Inventories (Volume 5, Table 3.3)</td>
</tr>
</table>

[18] https://www.mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?k=H
[19] http://tucaum.ankara.edu.tr/wp-content/uploads/sites/280/2015/08/tucaum4_4.pdf

	Based on the above weather parameter the value of MAP/PET is estimated to be above 1 therefore the default value of decay rate for Boreal and Temperate region with specific to Wet region is selected.			
Universal ideal gases constant (**(**R_u)	8,314 Pa.m^3/kmol.K			Methodological Tool 08: Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)
Molecular mass of greenhouse gas I (MM)	Compound	Structure	Molecular mass (kg / kmol)	Methodological Tool 08: Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)
	Methane	CH_4	16.04	
Total pressure at normal conditions (P_n)	101,325 Pa			Methodological Tool 08: Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)
Temperature at normal conditions (T_n)	273.15 K			Methodological Tool 08: Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)
Density of greenhouse gas I ($\rho_{i,t}$)	0.71566 kg CH_4/m^3 CH_4			Calculated in accordance with equation 6 of Tool 08: Tool to determine the mass flow of a greenhouse gas in a gaseous stream Version 03.0
Flare efficiency ($\eta_{flare,m}$)	The flare efficiency in the minute m ($\eta_{flare,m}$) is 50% when the flame is detected in the minute m ($Flame_m$), otherwise $\eta_{flare,m}$ is 0%.			Methodological Tool 06: Project Emission from Flaring" (Version 04.0)

<table>
<tr><td></td><td colspan="3">The parameters that are to be monitored ex-post as per applied methodology & parameters identified as harmless and harmful under Environmental and Social Safeguard section in the PSF and the applicable SDG parameters are given below,</td></tr>
<tr><td></td><td>1</td><td>$EG_{PJ,facility,y}$ (SDG-7)</td><td>Quantity of net electricity displaced in year y in MWh/y
The monitoring parameter will be continuously monitored by means of bi-directional tri-vector energy meters (Main and Check Meters) of 0.5s accuracy class which is located interconnection/substation of the project units at the power plant premises. The meter details are provided below which was verified during the onsite visit of the project activity.
<table><tr><td>Details</td><td>Main Meter</td><td>Spare Meter</td></tr><tr><td colspan="3">Electronic Energy Meter</td></tr><tr><td>Sr. No</td><td>80252547</td><td>80252458</td></tr></table>
The Annual electricity generation is 108,955 MWh as indicated in generation license/38/. EPIAS records are taken via remote reading system. The values are cross-check with the on-site meter records which are the monthly metered data. The Electricity generation data is recorded by two electricity meters. According to them, the invoices of the electricity are provided to TEIAS. 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. The Calibration/40/ of the meters are valid for 10 years based on related regulation. The meters are sealed by TEIAS and the project proponent are not allowed to access the meters. If there is a significant difference between the readings of two devices, TEIAS is informed about this situation. EPDK regulations should be followed for the meters to identify the accuracy class of the meters as 0.5s.</td></tr>
<tr><td></td><td>2</td><td>$EC_{PJ,j,y}$</td><td>Quantity of electricity consumed by the project activity j in year y
The monitoring parameter will be continuously monitored by means of bi-directional tri-vector energy meters (Main and Check Meters) of 0.5s accuracy class which is located interconnection/substation of the project units at the power plant premises. The meter details are provided below which was verified during the onsite visit of the project activity.
<table><tr><td>Details</td><td>Main Meter</td><td>Spare Meter</td></tr><tr><td colspan="3">Electronic Energy Meter</td></tr><tr><td>Sr. No</td><td>80252546</td><td>80296100</td></tr><tr><td>Sr. No</td><td>80252547</td><td>80252458</td></tr></table>The annual electricity consumed by the project activity is 0 MW. The values are cross-check with the on-site</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>meter records which are the monthly metered data. The meters are sealed by TEIAS and the project proponent are not allowed to access the meters. If there is a significant difference between the readings of two devices, TEIAS is informed about this situation. EPDK regulations should be followed for the meters to identify the accuracy class of the meters as 0.5s.</td></tr>
<tr><td></td><td>3</td><td>$TDL_{j,y}$</td><td>The parameter calculates the transmission and distribution losses for providing electricity to source. The transmission and distribution losses value is 1.89% this is based on the EMRA sectoral report 2021 page 107/30/. In the absence of data from the relevant year, most recent figures should be used, but not older than 5 years. This was confirmed by interviewing the monitoring personnel of the project activity during remote audit and the monitoring practices followed by the project owner is appropriate in relation to the project activity and its acceptable to the assessment team</td></tr>
<tr><td></td><td>4</td><td>$V_{t,db}$</td><td>The monitoring parameter will be continuously monitored by means of flow meters ±0.5s accuracy class which is located onsite of the project units at the power plant premises. The meter details are provided below which was verified during the onsite visit of the project activity.
<table>
<tr><td>Details</td><td>Main Meter</td></tr>
<tr><td>Type of meter(s)</td><td>Flow meter</td></tr>
<tr><td>Accuracy of meter(s)</td><td>± 0.5%</td></tr>
<tr><td>Serial number of meter(s)</td><td>134038</td></tr>
<tr><td>Date of Calibration/ validity</td><td>15/02/2022 – 14/02/2032</td></tr>
</table>
The flow meters are subject to regular maintenance and testing. As per national regulation the flowmeter is required to be calibrated once in 10 years.</td></tr>
<tr><td></td><td>5</td><td>T_t</td><td>The monitoring parameter will be continuously monitored by means of temperature meters 0.37°C accuracy class which is located onsite of the project units at the power plant premises. The meter details are provided below which was verified during the onsite visit of the project activity.
<table>
<tr><td>Details</td><td>Main Meter</td></tr>
<tr><td>Type of meter(s)</td><td>Instruments with recordable electronic signal</td></tr>
<tr><td>Accuracy of meter(s)</td><td>± 0.5%</td></tr>
<tr><td>Serial number of meter(s)</td><td>1612-21281</td></tr>
<tr><td>Date of Calibration/ validity</td><td>14/04/2022</td></tr>
</table>
The calibration will be carried out in accordance with manufacturer’s specification.</td></tr>
<tr><td></td><td>6</td><td>$v_{i,t,db}$</td><td>The monitoring parameter will be continuously monitored by means of meter ±5% accuracy class which is located onsite of the project units at the power plant premises. The meter details are provided below</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>which was verified during the onsite visit of the project activity.
<table>
<tr><td>Details</td><td>Main Meter</td></tr>
<tr><td>Type of meter(s)</td><td>Gas Analyzer/ SIEMENS ULTRAMAT 23 7MB2337-2CR10-3DR1</td></tr>
<tr><td>Accuracy of meter(s)</td><td>± 1.62%</td></tr>
<tr><td>Serial number of meter(s)</td><td>N1-W9-722</td></tr>
<tr><td>Date of Calibration/ validity</td><td>18/04/2022</td></tr>
</table>
The gas analyzer is subject to a regular maintenance and testing regime to ensure accuracy. Records of calibration and maintenance will be archived.</td></tr>
<tr><td></td><td>7</td><td>$Op_{j,h}$</td><td>The parameter calculates the operation of the equipment (gas engine) that consumes the LFG. The data will be continuously monitored hourly basis by the SCADA records. The data will be archived in electronic form for two years after the end of crediting period or of the last issuance of credits for this project activity, whichever occurs later. This was confirmed by interviewing the monitoring personnel of the project activity during remote audit and the monitoring practices followed by the project owner is appropriate in relation to the project activity and its acceptable to the assessment team</td></tr>
<tr><td></td><td>8</td><td>$V_{RG,m}$</td><td>The monitoring parameter will be continuously monitored by means of flow meters ±5% accuracy class which is located onsite of the project units at the power plant premises. The meter details are provided below which was verified during the onsite visit of the project activity.
<table>
<tr><td>Details</td><td>Main Meter</td></tr>
<tr><td>Type of meter(s)</td><td>Flow meter</td></tr>
<tr><td>Accuracy of meter(s)</td><td>± 0.20%</td></tr>
<tr><td>Serial number of meter(s)</td><td>3K646616029193</td></tr>
<tr><td>Date of Calibration/ validity</td><td>29/11/2022</td></tr>
</table></td></tr>
<tr><td></td><td>9</td><td>$Q_{biogas,y}$</td><td>The monitoring parameter will be continuously monitored by means of meter ±0.10 % accuracy class which is located onsite of the project units at the power plant premises. The meter details are provided below which was verified during the onsite visit of the project activity.
<table>
<tr><td>Details</td><td>Main Meter</td></tr>
<tr><td>Type of meter(s)</td><td>Flow meter / SAGE 401-05-12-DC24-BIOGAS</td></tr>
<tr><td>Accuracy of meter(s)</td><td>± 0.10%</td></tr>
</table></td></tr>
</table>

			<table><tr><td>Serial number of meter(s)</td><td>225579-134828</td></tr><tr><td>Date of Calibration/ validity</td><td>24/03/2022</td></tr></table> The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data is stored automatically. The monitored data pertaining to quantum of biogas produced will be recorded on a monthly basis.
	10	W_x	The monitoring parameter will be continuously monitored by means of meter ±50.0 kg accuracy class which is located onsite of the project units at the power plant premises. The meter details are provided below which was verified during the onsite visit of the project activity. <table><tr><td>Details</td><td>Main Meter</td></tr><tr><td>Type of meter(s)</td><td>Weighbridge / TUNAYLAR</td></tr><tr><td>Accuracy of meter(s)</td><td>± 50.0 kg</td></tr><tr><td>Serial number of meter(s)</td><td>16898</td></tr><tr><td>Date of Calibration/ validity</td><td>06/11/2020</td></tr></table> The specified archiving period of two years after the end of the crediting period or the last issuance of credits is reasonable and aligns with industry norms. The verifier should ensure that the project follows through with the archiving of records as specified in their documentation and that these records are accessible for future verifications and audits. This assessment should be documented in the final verification report.
	11	$p_{n,j,y}$	The provided data appears to be relevant and follows the specified methodology (ACM0022). It represents the weight fraction of various waste types in samples collected during the year. The data source is mentioned as sample measurements by project participants, indicating that it is collected directly from the project site, which is appropriate. The data collection frequency, recording frequency, and quality control procedures are all specified and seem reasonable for the type of data being collected. The data is reported as weight fractions for different waste types, and it does not require any further calculation. The purpose of the data is not explicitly stated, but it can be inferred that it is likely used for monitoring and quantifying waste types within the project, which is relevant for waste management projects. The additional comment regarding data archiving aligns with standard practices for data retention and should be followed to ensure the availability of data for future reference and verification.
	12	CO_2 Emissions Reduction (SDG 13)	The parameter is calculated based on the net electricity generation from the project activity and grid emission factor. Reduction of CO_2 emissions due to implementation of project activity that would otherwise been emitted by thermal power plants. The monitoring

			parameter will be continuously monitored by means of energy meters as mentioned above monitoring parameter $EG_{PJ,facility,y.}$
	13	Noise Pollution	The project activity is creating noise due to operation of gas turbine. The level of noise is within permissible according to the Regulation on Evaluation and Management of Environmental Noise /51/. Since the monitored noise is within the permissible limit no negative environmental impact is anticipated. Moreover, the operators and plant personnel are provided with ear plugs to reduce the impact of noise if any. However, the parameter will be monitored annually years through third party agency
	14	Methane emission	The project activity is reducing methane emission through capture and utilization of LFG which was previously released to the atmosphere. Hence, positive environment impact is anticipated. There is no legal regulation for emission of methane. The data parameter will be monitored based on the two monitored parameters of quantum of LFG utilized and methane content in the LFG.
	15	Long-term jobs (> 1 year) created/ lost	This parameter is monitored based on the number of jobs created by the project owner in the long-term basis and ensures that at least ten employments will be provided from the project activity. The project activity has resulted in long term employment generation for operation of the project activity. In compared to the baseline scenario the project activity has resulted in additional 15 number of employments in the project power plant. these 15 numbers of employment are for the project activity and is additional to the employment in the landfilling site. This will be verified using the SSI Records, which can be crosschecked with HR record of the employees who worked on the project activity. This was confirmed by interviewing the monitoring personnel of the project activity during remote audit and the monitoring practices followed by the project owner is appropriate in relation to the project activity and its acceptable to the assessment team
	16	Disease prevention	This is the part of the project activity to train the staffs/ employees with the objective of disease prevention. The number of people trained on disease prevention will be checked from training records. The activity is expected to increase awareness of disease prevention among plant workers hence activity can be considered as harmless. There is no regulation or legal requirement for imparting training towards disease prevention. Moreover, there is no negative social impact anticipated and the activity is not likely to cause any harm. The data will be archived in paper & electronically for a period of 2 years beyond the end of crediting period
	17	Occupational health hazards	This is the part of the project activity to train the staffs/ employees in the area of occupational health hazards with the objective of reducing occupational health hazards and hence result in positive social impact. The number of people trained on disease prevention will be

			checked from training records. There is no regulation or legal requirement for imparting of training towards reducing occupational health hazards. Moreover, there is no negative social impact anticipated and the activity is not likely to cause any harm. The data will be archived in paper & electronically for a period of 2 years beyond the end of crediting period
	18	Reducing / increasing accidents	This parameter is monitored on yearly basis based on the number of trainings provided by the project owners to the employees and staffs of the project activity to reduce the accidents at site. The project ensures that the at least two trainings will be provided on yearly basis and also PO ensures that by checking the use of PPE kit regularly by the employees in the site on quarterly basis. This will be verified using the training records /20/ maintained in the project site. This was confirmed by interviewing the monitoring personnel of the project activity during remote audit and the monitoring practices followed by the project owner is appropriate in relation to the project activity and its acceptable to the assessment team.
	19	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (SDG 8)	This parameter is continuously monitored based on the total number of persons working in the project activity along with details of female-male break up, age and role and persons with disabilities, if any. The project owner ensures that at least ten employments will be provided from the project activity. This will be verified using the employment records and payroll records of the employees who worked on the project activity. This was confirmed by interviewing the monitoring personnel of the project activity during remote audit and the monitoring practices followed by the project owner is appropriate in relation to the project activity and its acceptable to the assessment team
	20	Replacing fossil fuels with renewable sources of energy	The parameter is to replace fossil fuels with renewable sources of energy. This is monitored monthly. Calibration of the meters are valid for 10 years based on related regulation. The meters are sealed, and the project proponent are not allowed to access the meters. If there is a significant difference between the readings of two devices. EPDK regulations should be followed for the meters to identify the accuracy class of the meters as 0.2 or 0.5. Electricity generation data is recorded by two electricity meters. According to meter reading, the invoices of the electricity are provided. The quantity of electricity supplied by the project activity to the grid are measured. Internal consumption from electricity is subtracted from the delivered electricity to calculate net generation.Net generation will be cross-checked with PMUM records.
	21	Management of SWDS	The parameter is monitored that the solid waste disposal managed by the project owner. The data will be monitored based on the declaration provided by the project owner. The data will be archived in electronic form for two years after the end of crediting period or of

			the last issuance of credits for this project activity, whichever occurs later.
Findings	No findings were raised.		
Conclusion	The project verification team confirms that, • The project verification team confirms that the monitoring plan based on the approved monitoring methodology is correctly applied to the PSF. • The monitoring plan will give opportunity for real measurements of achieved emission reductions. The verification team considers that monitoring arrangements described in the monitoring plan is feasible within the project design. • The means of implementation of the monitoring plan are sufficient to ensure that the emission reduction and other voluntary labels achieved from the project activity is verifiable and thereby satisfying the requirement of Verification Standard. • The monitoring plan will give opportunity for real measurements of achieved emission reductions. There are no host country requirements pertaining to monitoring of any sustainable development indicators. Therefore, there are no such parameters identified in the PSF.		

D.4. Start date, crediting period and duration

Means of Project Verification	The Start date of the project activity is 29/05/2020 which is the commercial operation date of the unit involved in the project activity. The Commissioning certificates/13/ of the installation of the project activity has been verified and confirmed start date as per PSF is found correct and acceptable to verification team. A crediting period of a maximum length of 10 years has been selected by project owner. The start and end date of the crediting period is stated as 29/05/2020 to 28/05/2030, which is appropriate as per paragraph 40(b) of the Project Standard version 03.1. The expected lifetime of the project activity is 31 years, 9 months, 20 days which is verified by the generation license/15/ and confirmed based on the sectoral expertise.
Findings	No finding raised in this context.
Conclusion	The start dates and the crediting period type & length have been verified and found to be in accordance with GCC project standard version 03.1.

D.5. Environmental impacts

Means of Project Verification	An examination and evaluation were made and the measures to be taken against environmental impacts in the project introduction file were deemed sufficient. An environmental impact assessment report to assess the environmental effects of the project activity was approved with the decision of "Environmental Impact

	Assessment Positive[20]" pursuant to Article 14 of the Environmental Impact Assessment Regulation, published in the Official Gazette dated 25/11/2014 and numbered 29186[21]. Outcome of the EIA study and management action plans outlined in the EIA study for mitigation of environmental and social impacts are summarized below. 1. Disposal of wastewater to be generated within the scope of the project Domestic wastewater, fermentation water, wastewater generated in the wheel washing unit, leachate water, and leachate filtered from solid wastes will be collected in the lagoon and drawn with a vacuum truck and sent to the treatment plant of the Municipality. Surface water drainage channels will ensure the transmission of rainwater that will pass to the surface flow outside the facility. 2. Disposal of solid wastes to be generated within the scope of the project The biodegradable wastes in the mixed municipal wastes will be separated and those that can be recovered will be sent to the Biomethanization Facility. Residual waste will be disposed of in the existing sanitary landfill. Waste mineral oils, waste electrical and electronic equipment, hazardous wastes, treatment sludge generated during the maintenance of machinery-equipment, and oil change will be delivered to companies holding the relevant environmental license. 3. Disposal methods of gas emissions To reduce exhaust gas emissions, the maintenance of the vehicles will be done regularly. 4. Noise and precautions to be taken Noise levels do not exceed the limit values and protective tools and equipment will be provided to plant workers to ensure that they are not affected by noise. 5. Measures to be taken against odor, dust, pest, and fly breeding To minimize the odor released during the discharge and laying of solid waste, the waste is covered with daily cover soil to prevent contact with air. 6. Measures to be taken for other effects No waste or wastewater will be discharged to streams and lakes due to the activity, so there is no negative impact on water bodies. Since the conservation areas are far from the project area, the species will not be affected. No adverse effects are expected on settlements. 7. Measures to be taken in terms of human health and environment, health and safety measures Within the scope of the project, local regulations regarding Occupational Health and Safety will be complied with to prevent harm to the environment and human health. 8. Emergency action plan

[20] This report is given by Turkish Environment and Urbanization Ministry and dated 18/01/2019 numbered 5330.
[21] https://www.resmigazete.gov.tr/eskiler/2014/11/20141125-1.htm

	The relevant regulation was taken into account while establishing emergency response and evacuation methods. 9. Public Participation Meeting A meeting was held to inform the public about the project and to reflect their views on the EIA study. During the preparation of the EIA Report, the opinions and suggestions obtained from the meeting were taken into account. There was not any grievance stated regarding to the project activity.
Findings	No findings raised in this context.
Conclusion	In the opinion of the assessment team, in the project activity environmental impacts is not significant as per host country legislation. Further analysis not required in this context.

D.6. Local stakeholder consultation

Means of Project Verification	A LSC was conducted for the project activity on 27/01/2022 in the site office of the project activity. The consultation was performed to meet the requirement of the GCC since there are no Host country requirement to conduct consultation for such projects. The verification team confirms that the local stakeholder consultation process was performed by the project owner before the submission of the project activity for global stakeholder consultation. The objective of the local stakeholder consultation carried out to comply with GCC requirements and identify the comments/concerns that might be required to be addressed by project owner. Further Villagers and community leaders of the vicinity, local labor, local government agencies involved in the project were invited through invitation letters. In addition, the public has been informed about the LSC Meeting through pamphlets posted in public places, including the public places in and around the project activity locations villages. As detailed in the stakeholder consultation report, the representative of GCC project owner explained technical aspects and GCC mechanism & its requirement of project to stakeholders, also explained about Social, Environmental benefits and UN sustainable development goal impacts of the project. Furthermore, the project owner was asked to provide feedback on the project activity, including whether the project will have a positive, negative, or no impacts The stakeholder consultation responses/19/ were received by the assessment team. The verification team confirmed by review of the stakeholder responses that the summary of stakeholders' comments reported in PSF was accurate. There was no negative feedback received. The list of the relevant stakeholders who were requested for feedback is also provided in the PSF.
Findings	CAR 07 is raised and closed successfully
Conclusion	The project verification team confirms that the summary of stakeholders' comments reported in PSF is complete. In the opinion of the team, the local stakeholder consultation process was adequately conducted by the project participant considering the ongoing pandemic to receive unbiased comments from the all the stakeholders. The project verification team confirms that the local stakeholder consultation process performed for the project activity fulfils the requirements and all the LSC documents /19/ are verified and found acceptable.

D.7. Approval and Authorization- Host Country Clearance

Means of Project Verification	As per the GCC program guidelines the submission of HCA on double counting is required by CORSIA labelled project after 31/12/2020 as verified under section D.13 of this report. For carbon credits issued during 01/01/2016 to 31/12/2020

	the host country approval is not required. Thus, for this project activity Host country clearance is not required at the time of project verification.
Findings	FAR 01 raised.
Conclusion	The project verification team confirms that no Host Country approval is required by the CORSIA labelled project activity and the HCA will be required during the first or subsequent verification, when the issuance of carbon credit is considered beyond 1st Jan 2021.

D.8. Project Owner- Identification and communication

Means of Project Verification	The information and contact details of the project owner and project owners themselves has been appropriately incorporated in Appendix 1 of the PSF which was checked. The Authorization letters signed by the project owners has been verified and also the company registration documents/31/ and project owner valid passports/31/ have been checked. The legal owner of the project is ITC-KA Enerji Üretim Sanayi ve Ticaret A.Ş. and same to be demonstrated by the project owner through the commissioning certificates/13/ grid connection agreement with Başkent Elektrik Dağıtım A.Ş. Also, it was evident that there is no clear statement regarding the ownership of the carbon credits generated from the project activity Hence as per GCC requirement the project owner has filled and submitted the "Declaration by Authorized Project Owner and Focal Point at Initial Submission and Request for Registration of GCC Project activity" for further process which is acceptable to the verification team. All information were consistent in these documents and acceptable to the project verification team All information were consistent between in these documents and acceptable to the verification team.
Findings	No findings were raised
Conclusion	The project verification team confirms that the information of the project owners has been appended as per the template and the information regarding the project owners stated in the PSF/27/ and authorization letter/14/ were found to be consistent

D.9. Global stakeholder consultation

Means of Project Verification	The PSF was made available through the dedicated interface on the GCC website. The duration of the period for submission of comments for the global stakeholder consultation was from 10/10/2022 to 24/10/2022. There were no comments received during this period
Findings	No findings raised.
Conclusion	The PSF had been made public for receiving stakeholder feedback and no comments were raised during the GSC process

D.10. Environmental Safeguards (E+)

Means of Project Verification	The Project owner has chosen to apply for the Environmental No-net-harm Label (E+). The assessment of the impact of the project activity on the environmental safeguards has been carried out in section E.1 of the PSF. Out of all the safeguards no risks were identified to the environment due to the project implementation and operation. and the following have been indicated as positive impacts Environment – Air- CO_2 emissions Environment – Air- Noise Pollution Environment – Air- Methane emissions The detailed matrix has been included in appendix 5 of the report.

Findings	CAR 06 and CAR 12 are raised and closed successfully
Conclusion	Based on the documentation review the project verification team can confirm that Project Activity is not likely to cause any negative harm to the environment but would have a positive impact, hence, is eligible to achieve additional E+ certifications

D.11. Social Safeguards (S+)

Means of Project Verification	The Project owner has chosen to apply for the Social No-net-harm Label (S+). The assessment of the impact of the project activity on the social safeguards has been carried out in section E.2 of the PSF. Out of all the safeguards no risks were identified to the society due to the project implementation and operation. Only positive impacts identified by the Project owner which is not likely to cause any harm. The following have been identified as positive impacts of the project activity. Social – Jobs - Long-term jobs (> 1 year) created/ lost. Social - Health & Safety - Disease prevention Social - Health & Safety - Occupational health hazards Social - Health & Safety - Reducing / increasing accidents. The detailed matrix has been included in appendix 6 of the report.
Findings	CAR 06 and CAR 12 are raised and closed successfully.
Conclusion	Based on the documentation review the verification team can confirm that Project Activity is not likely to cause any negative harm to the society but would have a positive impact, hence, is eligible to achieve additional S+ certifications

D.12. Sustainable development Goals (SDG+)

Means of Project Verification	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 3 SDGs: Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all Goal 13. Take urgent action to combat climate change and its impacts The detailed matrix has been included in appendix 7 of the report.
Findings	CL 04, CAR 06 and CAR 12 are raised and closed successfully.
Conclusion	Based on the documentation review the verification team can confirm that Project Activity is likely to contribute to the United Nations Sustainable Development Goals and would have a positive impact, hence, is eligible to achieve additional SDG+ certifications

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

Means of Project Verification	A declaration under section A.5 of the PSF has been included for offsetting the approved carbon credits (ACCs) for the entire crediting period from 29/05/2020 to 28/05/2030.
Findings	FAR 01 was raised for future verification.
Conclusion	The project owner has clarified the intent of use of carbon credits for CORSIA hence no double counting will take place. The project owner declared that no host country attestation is required for the pilot phase of 2021-23 (accepting credits issued for monitoring periods between 2016 and 2020), which is appropriate and acceptable according to paragraph 16 of the Standard on Avoidance of Double Counting, V1.0. Also, the verification team raised to

	Forward Action request to project owner to submit Host Country Authorization beyond the issuance period 31/12/2020 and also the host country must ensure that no emission reductions from the corresponding monitoring period of project are claimed under NDC during issuance of HCLOA for the project activity as per the guidance.

D.14. CORSIA Eligibility (C+)

Means of Project Verification	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. It was also confirmed that the project activity does not fall under the excluded unit types, methodologies, programme elements, and/or procedural classes. The Project Activity does not cause any net harm to the environment and/or society and therefore achieves Environmental No-net-harm Label (E+) and Social No-net-harm Label (S+) as per the Environmental and Social Safeguards Standard also make contributions for achieving United Nations Sustainable Development Goals (SDGs) to achieving at least three SDGs as per Project Sustainability Standard to achieve SDG+ Label
Findings	FAR 01 was raised.
Conclusion	The project activity meets the CORSIA Label (C+) eligibility: a) The Project Activity complies with all the requirements for the Emission Unit Criteria of CORSIA b) A written attestation from the host country's national focal point on double counting is not required for Emission units till 31st December 2020; c) The Project Activity complies with all the applicable requirement of the GCC Program and ICAO's requirements on CORSIA Emissions Unit Eligibility Criteria and CORSIA Eligible Emissions Units, as per Clarification No 1., v1.3 paragraph 23-25, 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. d) 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 will achieve Environmental No-net-harm Label (E+), Social No-net-harm Label (S+) for this project activity e) The Project Activity is likely to contribute to the achievement of United Nations Sustainable Development Goals (SDGs), complies with the Project Sustainability Standard and will achieve UN SDG Certification Labels (Silver SDG+ Label) for this project activity

Section E. Internal quality control

The project verification report prepared by team leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by 4KES are duly followed and the Verification report/opinion is reached in an objective manner and complies with the applicable GCC requirements.

The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the verification team. The independent technical reviewer(s) may approve or reject the draft verification report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before submit final report to GCC. The final approval decision is taken by the Head of DOE/Director

Section F. Project Verification opinion

4K Earth Science Private Limited has been contracted by 'EKI Energy Services Limited' to undertake verification of the project activity "Yenikent Landfill Gas to Electricity Project" in Türkiye. The verification was performed based on rules and requirements defined by GCC for the project activity.

The project activity is operational with one number of gas engine with a total installed capacity of 15.565 MW. The gas engine is expected to generate approximately 108,955 MWh/year of electricity to be delivered to the Turkish national grid which is mainly dominated by fossil fuel-based power plant through grid connection agreement with Başkent Elektrik Dağıtım A.Ş. /37/. The Project mainly consists of the following components: Landfill cover, LFG collection system, electricity generation unit and other controlling / measurement equipment. Thus, The Project activity is expected to result in annual average emission reductions of 75,098 tCO2e and cumulative emission reduction of 750,984 tCO2e over the crediting period. The project correctly applies the approved baseline and monitoring ACM0001 Version 19.0 and is assessed against latest valid PS, VS and Environment and Social Safeguards Standard, Project-Sustainability-Standard and/or other applicable GCC/CDM Decisions/Tools/Guidance/Forms.

The project activity is likely to achieve the anticipated emission reductions stated in the PSF provided the underlying assumptions do not change. The expected emission reductions (annual average) from the project activity are estimated to be 75,098 tCO_2e/year over the 10 years crediting period starting from 29/05/2020.

4K Earth Science Private Limited has verified and hereby certifies that the GCC Project Activity "Yenikent Landfill Gas to Electricity Project":

- has correctly described the Project Activity in the Project Submission Form (version 2.0, dated 26/09/2023) including the applicability of the approved methodologies ACM0001 Version 19.0 and meets the methodology applicability conditions, is additional and is expected to achieve the forecasted real measurable and additional GHG emission reductions, complies with the monitoring methodology, has appropriately conducted local and global stakeholder consultation processes and has calculated emission reduction estimates correctly and conservatively;
- is likely to generate GHG emission reductions amounting to the estimated 750,984 tCO_{2eq} over the fixed crediting period of ten years, as indicated in the PSF, which are additional to the reductions that are likely to occur in absence of the Project Activity and complies with all applicable GCC rules, including ISO 14064-2 and ISO 14064-3, and therefore requests the GCC Program to register 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 Sustainable Development Goals (SDGs), comply with the Project Sustainability Standard, and contribute to achieving a total of 3 SDGs, which is likely to achieve the silver SDG certification label (SDG+).
- The Project Activity complies with all the applicable requirement of the GCC Program and ICAO's requirements on CORSIA Emissions Unit Eligibility Criteria and CORSIA Eligible Emissions Units, as per Clarification No 1., v1.3 paragraph 23-25, 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
- is likely to contribute to CORSIA Eligible Emission Units and has CORSIA Label (C+) certification valid till 31 December 2020. A written attestation from the Host country on double counting is not required

until 31 December 2020 and the project was found meeting the applicable requirements prescribed by ICAO.

Appendix 1. Abbreviations

Abbreviations	Full texts
ACC	Approved Carbon Credits
ACM	Approved Large Scale Consolidated Methodologies
BE	Baseline Emission
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CM	Combined Margin
CO_2	Carbon dioxide
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CP	Crediting Period
EIA	Environmental Impact Assessment
FAR	Forward Action Request
GHG	Green House Gas
GW	Giga Watt
GWh	Giga Watt hour
IPCC	Intergovernmental Panel on Climate Change
kW	kilo Watt
kWh	kilo Watt hour
LSC	Local Stakeholder Consultation
MoV	Means of Verification
MP	Monitoring Plan
MW	Mega Watt
MWh	Mega Watt hour
OM	Operating Margin
PA	Project Activity.
PSF	Project Submission Form
PS	Project Standard
PE	Project Emission
PLF/CUF	Plant Load Factor/Capacity utilization factor
PO	Project Owner
PS	Project Standard
SDG	Sustainable Development Goal
tCO_2e	Tonnes of Carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VS	Verification Standard
VVS	Validation and Verification Standard (CDM)

Appendix 2. Competence of team members and technical reviewers

Certificate of Competence						
Name	☒ Mr. ☐ Ms.	**Ma Paa Puratchikkanal**				
Qualification Procedure	*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GCC/GHG Projects.*					
Appointed to work as:						
	CDM Validator/Verifier	**Team Leader**	**Team Member**	**Technical Expert**	**Technical Reviewer**	**Financial Expert**
Appointed	Yes	Yes	Yes	Yes	Yes	Yes
Appointed Date	15-07-2023					
Authorized to work as Technical Expert for:						
Authorized Technical Area	**Sectoral Scope**	**TA Code**	**Technical Area within the scope**			
	Energy industries (renewable - / non-renewable sources)	1.1	Thermal energy generation			
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables			
	Energy demand	3.1	Energy demand			
	Construction	6.1	Construction			
	Waste handling and disposal	13.1	Solid waste and wastewater			
	Waste handling and disposal	13.2	Manure			
	Agriculture	15.1	Agriculture			
	GHG+					
	E+					
	S+					
	SDG+					
Authorized to work as Local Expert for:						
Country/Countries	India, Sri Lanka, Indonesia, Vietnam, Turkey, Thailand, Brazil, Myanmar					
Compliance check by: Anand S. R.						

Certificate of Competence						
Name	☒ Mr. ☐ Ms.	**Praveen Babu**				
Qualification Procedure	*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GCC/GHG Projects.*					
Appointed to work as:						
	CDM Validator/Verifier	**Team Leader**	**Team Member**	**Technical Expert**	**Technical Reviewer**	**Financial Expert**
Appointed	Yes	No	Yes	Yes	No	No
Appointed Date	15/07/2023					
Authorized to work as Technical Expert for:						
Authorized	**Sectoral Scope**	**TA Code**	**Technical Area within the scope**			

Technical Area	Energy industries (renewable - / non-renewable sources)	1.2	Renewables
	GHG+		
	E+		
	S+		
	SDG+		
Authorized to work as Local Expert for:			
Country/Countries	India		
Compliance check by: Anand S. R.			

Certificate of Competence						
Name ☒ Mr. ☐ Ms.	**Chetan Swaroop Sharma**					
Qualification Procedure	*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.*					
Appointed to work as:						
	CDM Validator/Verifier	**Team Leader**	**Team Member**	**Technical Expert**	**Technical Reviewer**	**Financial Expert**
Appointed	Yes	Yes	Yes	Yes	Yes	No
Appointed Date	15/07/2023					
Authorized to work as Technical Expert for:						
Authorized Technical Area	**Sectoral Scope**		**TA Code**	**Technical Area within the scope**		
	Energy industries (renewable - / non-renewable sources)		1.1	Thermal energy generation		
	Energy industries (renewable - / non-renewable sources)		1.2	Renewables		
	Energy distribution		2.1	Energy distribution		
	Energy demand		3.1	Energy demand		
	Waste handling and disposal		13.1	Solid waste and wastewater		
	Waste handling and disposal		13.2	Manure		
	GHG+					
	E+					
	S+					
	SDG+					
Authorized to work as Local Expert for:						
Country/Countries	India					
Compliance check by: Swati S Acharya						

Appendix 3. Document reviewed or referenced

No.	Author	Title	References to the document	Provider
1	GCC	GCC Program Manual	Version 03.1	Publically available
2	GCC	Project Standard	Version 03.1	Publically available
3	GCC	Verification Standard	Version 03.1	Publically

No.	Author	Title	References to the document	Provider
				available
4	GCC	Environment-and-Social - Safeguards-Standard	Version 3.0	Publically available
5	GCC	Project-Sustainability-Standard	Version 3.1	Publically available
6	GCC	Template for Letter of Authorization of Project Owners and Project Representatives	Version 01.1	Publically available
7	GCC	Project Submission Form (PSF)-Template	Version 4.0	Publically available
8	Project Owner	ER Sheet related PSF Version 2.1 (Final Version)	Dated 27/09/2023	Project Owner
9	UNFCCC	Methodology: ACM0001: Flaring or use of landfill gas - Version 19.0	Version 19	Publically available
10	UNFCCC	Tool to calculate the emission factor Version 7.0	TOOL 07	Publically available
11	UNFCCC	TOOL 32- Positive lists of technologies	Tool 32	Publically available
12	UNFCCC	TOOL04-Emissions from solid waste disposal sites	Version 8.1	Publically available
13	Project Owner	Commissioning Certificates for Gas Engine-Generator Groups GMG-1 and GMG-2 Approved by the Ministry of Energy and Natural Resources of the Republic of Turkey	Dated 29/05/2020	Project Owner
		Commissioning Certificates for Gas Engine-Generator Groups GMG-3 Approved by the Ministry of Energy and Natural Resources of the Republic of Turkey	Dated 14/07/2021	
		Commissioning Certificates for Gas Engine-Generator Groups GMG-4 Approved by the Ministry of Energy and Natural Resources of the Republic of Turkey	Dated 16/12/2021	
14	Project Owner	Authorization Letter regarding Project Owner	-	Project Owner
15	Project Owner	Technical Details & Data sheets of Major Equipments involved in the project activity.	-	Project Owner
16	Project Owner	Generation License approved by T.C. Enerji Piyasası Düzenleme Kurumu (EPDK)	Dated 19/04/2018	Project Owner
17	UNFCCC	TOOL05-Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation	Tool 05	Project Owner
18	Project Owner	Regulation on solid waste control	Document	Project Owner
19	Project Owner	Local Stakeholder Consultation documents like invitation, Notes on LSC, Meeting Photos, MOM	-	Project Owner

No.	Author	Title	References to the document	Provider
20	Project Owner	Employee Records / HR Records Grievance Register maintained at Site. Log sheets of the water tankers entered at the site.	-	Project Owner
21	UNFCCC	TOOL06-Project emissions from flaring	Tool 06	Project Owner
22	Project Owner	ODA Declaration	Dated 16/08/2023	Project Owner
23	GCC	Clarification 01	Version 1.3	Publically available
24	GCC	Clarification 02	Version 01.0	Publically available
25	GCC	Project Verification Report Template	Version 03.1	Publically available
26	Ministry of Energy and Natural Sources	Turkey National Network Emission Factor Data Sheet, Dated 02/09/2022	Document	Publically available
27	Project Owner	PSF Version 1.0 (Initial Version)	Dated 30/09/2023	Project Owner
		PSF Version 2.0	Dated 21/09/2023	
		PSF Version 2.1 (Final Version)	Dated 27/09/2023	
28	Project Owner	Alanya LFG Website Notice	Dated 29/03/2022	Project Owner
29	Project Owner	Declaration for Intended use of ACCs	Dated 16/08/2023	Project Owner
30	EPDK	EMRA Sectoral Report 2021 https://www.epdk.gov.tr/Detay/Icerik/3-0-24/yillik-sektor-raporu	-	Publically Available
31	Project Owner	Company Registration certificates and Passport Details of the Project Owners.	-	Project Owner
32	Ministry of Environment and Energy Resources	Electricity Market Law https://www.mevzuat.gov.tr/mevzuatmetin/1.5.6446.pdf Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy https://www.mevzuat.gov.tr/mevzuatmetin/1.5.5346.pdf	Dated 03/03/2001 Dated 18/05/2005	Publicly available
33	Ministry of Environment and Forestry	Environmental Law https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=2872&MevzuatTur=1&MevzuatTertip=5	Dated 11/08/1983	Publically available
34	Ministry of Environment and Forestry	Regulation on Solid Waste Control https://www.resmigazete.gov.tr/eskiler/2015/04/20150402-2.htm	Dated 05/04/2005	Publically available
35	Ministry of Environment and Forestry	Regulation on Managed Waste Land Filling https://www.resmigazete.gov.tr/eskiler/2010/03/20100326-	Dated 26/03/2010	Publically available
36	UCR	UCR registry: https://www.ucarbonregistry.io	-	Publically Available
37	Project Owner	Grid Connection Agreement Başkent Elektrik Dağıtım A.Ş. and	Dated 30/12/2019	Project Owner

No.	Author	Title	References to the document	Provider
		ITC-KA Enerji Üretim Sanayi ve Ticaret A.Ş. for interconnection of the project activity.		
38	4KES	Site Installations Check Photos of monitoring equipments.	-	4KES.
39	CDM	CDM Website https://cdm.unfccc.int/Projects/projsearch.html https://cdm.unfccc.int/Projects/Validation/index.html	-	Publically Available.
40	VERRA	Verra Registry https://registry.verra.org/app/search/VCS/All%20Projects	-	Publically Available.
41	Gold Standard	GS Website https://registry.goldstandard.org/projects?q=&page=1	-	Publically Available
42	Indian REC	Renewable Energy Certificate Registry https://www.recregistryindia.nic.in/index.php/publics/registered_regens	-	Publically Available
43	I.REC Standard	International REC Standard (I-REC) https://www.irecstandard.org/registries/	-	Publically Available.
44	UNFCCC	TOOL08-Tool to determine the mass flow of a greenhouse gas in a gaseous stream	Tool 08	Project Owner.
45	Ministry of Environment, Forest and Climate Change Govt of Tukey	Environmental Impact Assessment notification Environmental Impact Assessment Notification Amendment	Dated 14/09/2006 Dated 14/07/2018	Publically Available.
46	Project Owner	Pre-feasibility report	August 2013	Project Owner
47	Project Owner	No EIA requirement decision	25/11/2014	Publically Available
48	Project Owner	Flow meter (Flare) calibrated by UMS ANKARA KALİBRASYON LABORATUVARI	Dated 29/11/2022	Publically Available
49	UNFCCC	CDM validation and verification standard for project activities Version 3.0	.Version 3.0	Publically Available
50	UNFCCC	ACM0022: Alternative waste treatment processes - Version 3.0	Version 3.0	Publically Available
51	Project Owner	Regulation on Evaluation and Management of Environmental Noise https://www.resmigazete.gov.tr/eskiler/2010/06/20100604-5.htm		Publically Available
52	Project Owner	Flow meter (Gas Engine) (serial number: 225579-134828) calibrated by SAGE Metering Inc.	Dated 24/03/2022	Project Owner
		Flow meter (Gas Engine) (serial	Dated 24/03/2022	

No.	Author	Title	References to the document	Provider
		number: 225581-134830) calibrated by SAGE Metering Inc.		
53	UNFCCC	CDM Glossary Terms	Version 11.0	Publically Available
54	UNFCCC	Guidelines for the reporting and validation of plant load factors EB 48 Annex 11	Version 1.0	Publically Available
55	Project Owner	Main meter Calibration Certificates issued by MAKEL ELEKTRİK MALZEMELERİ SAN. TİC. AŞ.	Date 02/06/2020	Project Owner
		Spare meter Calibration Certificates issued by MAKEL ELEKTRİK MALZEMELERİ SAN. TİC. AŞ.	Dated 11/10/2019	
56	Project Owner	Gas analyzer calibrated by AVL AKUSTİK VİBRASYON KALİBRASYON LAB. LTD. ŞTİ.	Dated 18/04/2022	Project Owner
57	Project owner	Temperature (Flare Exhaust) meter calibrated by Emek - ANKARA	Dated 01/06/2023	Project Owner
58	Project Owner	Thermometer (lanfill) calibrated by UMS ANKARA KALİBRASYON LABORATUVARI	Dated 14/04/2022	Project Owner
59	UNFCCC	Tool 02 “Combined tool to identify the baseline scenario and demonstrate additionality” Version 07.0	Tool 02	Publically Available
60	UNFCCC	Tool 14 “Project and leakage emissions from anaerobic digesters” Version 02.0	Tool 14	Publically Available

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

Table 1. CLs from this Project Verification

CL ID	01	**Section no.**	PSF/ER Sheet	**Date :** 13/09/2023
Description of CL				
• Check for the latest guidelines and notifications of the GCC to update the PSF • ER Sheet – All evidences used shall be provided, basis for selection of the year of BE calculation needs to be provided				
Project Owner's response				**Date :** 21/09/2023
1. The latest guidelines and notifications of the GCC have been referred to in revising the PSF. 2. Evidence relating to ER estimation submitted a. Electricity generation license (for electricity generation) b. Feasibility report.				
Documentation provided by Project Owner's				
1. Revised PSF 2. Electricity generation license for annual electricity generation Technical pre-feasibility report regarding the start of landfilling operation/selection of year for BE calculation.				
GCC Verifier assessment				**Date: 27/09/2023**
The pre-feasibility report cannot be located within the provided folder. Thus, the CL 01 is open				
Project Owner's response				**Date: 27/09/2023**
Pre-feasibility report is provided.				
Documentation provided by Project Owner's				
Revised Document				
GCC Verifier assessment				**Date: 01/10/2023**
The document above has been reviewed and accepted. As a result, CL 01 is now considered closed.				

CL ID	02	**Section no.**	A.1 and A.3	**Date :** 13/09/2023
Description of CL				
1. Please provide the Proof for assumption of waste generated. 2. Use MWh wherever possible and proof of installation 3. In the PSF it is stated that the landfill will certain amount of waste in tons till a date? What is the basis for this? Proof to be submitted for all the projects. 4. Provide all the equipment details, along with proofs such manufacture specifications, planned installations, name plate, meter details and calibration records. 5. PPA and commissioning certificate can be provided.				
Project Owner's response				**Date :** 21/09/2023
1. Pre-feasibility report has been referred to for waste generated. *2. GWh has been modified to MWh and commissioning certificate is provided.* *3. Prefeasibility report projecting annual amount of waste proposed to be deposited in the landfill is being used to estimate the amount of landfill deposited till the start of the project activity/till date. Copy of prefeasibility report submitted as evidence.* *4. Equipment details are included under section A.3 of the PSF and related evidence submitted.* *5. Turkey does not have a specific Power Purchase Agreement (PPA) framework for power plants. Instead, grid connection agreement and grid usage agreements are provided which includes technical requirements, grid connection procedures, and the terms of electricity purchase and sale. Commissioning certification is provided.*				
Documentation provided by Project Owner's				
1. Pre-feasibility report 2. Manufacturer specification/ brochure, name plate details, calibration certificate 3. Grid connection agreement 4. Commissioning certificate				
GCC Verifier assessment				**Date: 27/09/2023**
The pre-feasibility report cannot be located within the provided folder. The CL 02 is closed				

CL ID	03	Section no.	B.2	Date : 13/09/2023
Description of CL				
In Section B.2 of the PSF, • All proofs needs to be submitted. • All demonstration should be on installed capacity				
Project *Owner's* response				**Date :** 21/09/2023
1. Information related to establish/justify the applicability criteria submitted a. LFG utilisation – Technical Specification of Gas Engine and Commissioning certification b. No recycling facility - Declaration by Municipal Authority c. No change in management of the solid waste disposal site – Declaration by Municipal Authority d. Details of Power Generation Project - Commissioning certificate and Technical Specification of Gas Engine e. No methane / LFG extraction facility existed prior to implementation of the gas engine - Declaration by Municipal Authority f. Sales and supply of electricity to the grid - Grid connection agreement g. Methane content in LFG – Sample of database h. Enclosed Flare – Flaring system specification i. Installed capacity - Commissioning certificate 2. Demonstration of eligibility of the project for positive list is based on the installed capacity is included.				
Documentation provided by Project Owner's				
1. Revised PSF 2. Commissioning certificate for installed capacity 3. Pre-feasibility Report 4. Technical brochure of gas engine 5. Declaration by Municipal Authority to establish no recycling facility, no change in management of the solid waste disposal site, no methane /LFG extraction facility existed prior to implementation of the gas engine 6. Grid connection agreement 7. Manufacturer specification for the flaring system *8.* Sample of database				
GCC Verifier assessment				**Date: 27/09/2023**
The above document has been revised. The CL 03 is closed.				

CL ID	04	Section no.	F	Date : 13/09/2023
Description of CL				
In section F of the PSF, • In SDG 5: Provide HR policy and proofs for claiming equal pay packages will be provided to the both men and women employees • SDG 8 – Employment records of the project activity till webhosting of the PSF.				
Project Owner's response				**Date :** 21/09/2023
1. In line with the guidelines of the project sustainability standard V3.1, SDG 5 is not applicable and hence not considered under the current version of the PSF. 2. SSI (Social Security Institution) records of employees and sample of ITC-KA Employee Contracts submitted				
Documentation provided by Project Owner's				
1. Revised PSF 2. SSI (Social Security Institution) records of employees and sample of ITC-KA Employee Contracts				
GCC Verifier assessment				**Date: 27/09/2023**
The SSI list and records has been revised and found to be ok. The CL 04 is closed.				

Table 2. CARs from this Project Verification

CAR	01	Section no.	A.1	Date : 13/09/2023
Description of CAR				

In section A.1 of the PSF shall up updated based on the Installed Capacity. Correction requested.
Project Owner's response **Date:** 21/09/2023
Installed capacity is corrected throughout the PSF including Section A.1.
Documentation provided by Project Owner's
Revised PSF
GCC Verifier assessment **Date: 27/09/2023**
The installed capacity has been revised in the A.1 of the PSF. The CAR 01 is closed.

CAR	02	**Section no.**	A.3 and C	**Date :** 13/09/2023
Description of CAR				
In Section A.3 of the PSF, • Technical details proof can be provided • All generation and values considered can be provided with proof • Use either MWh or Gwh throughout the PSF. kWh some places are shown again in MWh it is not clear. • And the crediting period start date should be based on the first certificate, check the same				
Project Owner's response				**Date :** 21/09/2023
1. Equipment brochure, name plate details and, calibration certificates provided to establish technical details 2. Generation license and commissioning certificate are provided as a proof of generation values. 3. Unit of all generation values are corrected as MWh in PSF. 4. Commissioning certificate date is 29/10/2020. Crediting period start date is revised in this manner.				
Documentation provided by Project Owner's				
1. Revised PSF 2. Equipment brochure, name plate details and, calibration certificates 3. Generation license 4. Commissioning certificate				
GCC Verifier assessment				**Date: 27/09/2023**
The above document has been revised and found to be ok. The CAR 02 is closed.				

CAR	03	**Section no.**		**Date :** 13/09/2023
Description of CAR				
Project Owner (PO) is requested to submit the following documents / supporting's • Nomination letter or authorisation letters to support the Ownership of the project and documents related like company registration certificate etc. • Declaration of intended use of Approved Carbon Credits (ACCs). • ODA Declaration				
Project Owner's response				**Date :** 21/09/2023
Letter of authorisation letters to support the Ownership, declaration of intended use of Approved Carbon Credits (ACCs) and ODA Declaration submitted. Furthermore, mandatory laws related to project activity are included and Version of the project standard is included (please refer to first sentence of Section B.5).				
Documentation provided by Project Owner's				
• Letter of authorisation letters to support the Ownership, • Declaration of intended use of Approved Carbon Credits (ACCs) • ODA Declaration • Revised PSF				
GCC Verifier assessment				**Date: 27/09/2023**
The above all declaration has been revised. The CAR 03 is closed.				

CAR	04	**Section no.**	D.1	**Date :** 13/09/2023
Description of CAR				
Demonstration of common Eligibility Criteria as per section 5.1 of the Project Standard, Version 3.1 & Demonstration of Specific Eligibility Criteria for Type A Projects as per section 5.2 of the Project Standard, Version 3.1. to be demonstrated in section B.2 of the GSC. Correction requested.				

Project Owner's response	**Date :** 21/09/2023
Demonstration of common eligibility criteria and specific eligibility criteria included under section B.2 of the revised PSF. Furthermore, GCC clarification No.01 is demonstrated and applicability condition number 2 of Tool 06- Project emission from flaring Version 04 is included in Section B.2.	
Documentation provided by Project Owner's	
Revised PSF	
GCC Verifier assessment	**Date: 27/09/2023**
The demonstration of common eligibility criteria as per section 5.1 of the project standard and Demonstration of Specific Eligibility Criteria for Type A Projects as per section 5.2 of the project standard has been revised. Furthermore, GCC clarification No.01 is revised and found to be accepted. On the cover page of "Applicable Rules and Requirements for Project Owners," please ensure that the box labelled "GCC Clarification No. 02" is checked.	
Project Owner's response	**Date : 27/09/2023**
Box labelled "GCC Clarification No. 02" is checked.	
Documentation provided by Project Owner's	
Revised PSF	
GCC Verifier assessment	**Date:01/10/2023**
The correction made by the project owner in PSF has been revised and found to be ok. Thus, the CAR 04 is closed.	

CAR	05	**Section no.**	B.4 and ER sheet	**Date :** 13/09/2023
Description of CAR				
1. It is mentioned as Operational Emission Factor, it should be Operating Margin? 2. Please provide OM, BM and EF as specified in the methodology				
Project Owner's response				**Date :** 21/09/2023
1. "Operational Emission Factor" is revised as Operating Margin Emission Factor 2. OM, BM and EF are elaborated under section B.6.1 of the revised PSF in accordance with Tool 07 Version 07				
Documentation provided by Project Owner's				
Revised PSF				
GCC Verifier assessment				**Date: 27/09/2023**
The above correction has been revised in the section B.4 of the PSF. The Car 05 is closed.				

CAR	06	**Section no.**	D, E & F	**Date :** 13/09/2023
Description of CAR				
Refer to the latest guidelines on the E+, S+ and SDG claims. Revise accordingly and send the PSF				
Project Owner's response				**Date :** 21/09/2023
Section E (E.1 – Environmental Safeguard, E.2 – Social Safeguard) and Section F have been revised in accordance with the latest version of Environment and Social Safeguards Standard V3.0 – 2022 and Project Sustainability Standard V3.1 – 2023.				
Documentation provided by Project Owner's				
Revised PSF				
GCC Verifier assessment				**Date: 27/09/2023**
The latest version of Environment and social safeguards standard has been revised and found to be accepted. The CAR 06 is closed.				

CAR	07	**Section no.**	G	**Date :** 13/09/2023
Description of CAR				
Stakeholders' invitation process, records and outcomes should be submitted for each project.				
Project Owner's response				**Date :** 21/09/2023
Invitation letter/email copy, attendance sheet, feedback forms and photographs submitted				
Documentation provided by Project Owner's				

1. Invitation letter/email copy 2. Attendance sheet 3. Feedback forms 4. Photographs
GCC Verifier assessment **Date: 27/09/2023**
Above document has been revised and found to be ok. Thus, the CAR 07 is closed.

CAR	08	**Section no.**	G	**Date :** 13/09/2023
Description of CAR				
The chemical formula of CO_2 is shown as CO2 without 2 underscored, at a few places in PSF				
Project Owner's response				**Date :** 21/09/2023
The chemical formula of CO_2 is corrected throughout the PSF.				
Documentation provided by Project Owner's				
Revised PSF				
GCC Verifier assessment				**Date: 27/09/2023**
The PSF has been revised. Thus, the CAR 08 is closed.				

CAR	09	**Section no.**	G	**Date :** 13/09/2023
Description of CAR				
In Technologies / measures of PSF, the age of gas engine is not mentioned as per the requirements of the template. Please clarify				
Project Owner's response				**Date :** 21/09/2023
The operational lifetime of the gas engine is included in Section A.3.				
Documentation provided by Project Owner's				
Revised PSF				
GCC Verifier assessment				**Date: 27/09/2023**
The operational lifetime of the gas engine has been revised and found to be accepted. Thus, the CAR 09 is closed.				

CAR	10	**Section no.**	G	**Date :** 13/09/2023
Description of CAR				
In section A.6 of PSF, these sections fulfil para 16 (c) and (d) of the instruction's manual. PO is requested to fulfil the rest of the criteria as stated in the guidance document.				
Project Owner's response				**Date :** 21/09/2023
Instruction's manual criteria is included in Section A.6.				
Documentation provided by Project Owner's				
Revised PSF				
GCC Verifier assessment				**Date: 27/09/2023**
The section A.6 has been revised as per the sections fulfil para 16 (c) and (d) of the instruction's manual and found to be accepted. Thus, the CAR 10 is closed.				

CAR	11	**Section no.**	G	**Date :** 13/09/2023
Description of CAR				
• In section B.7.2 of the PSF, in that $EG_{d,y}$ or $EG_{PJ,facility,I,y}$ table, kindly mention the meter details, serial number, calibration details of the meter. • The calibration certificate of main and spare meter has to be provided.				
Project Owner's response				**Date :** 21/09/2023
Meter details are mentioned and calibration certificates along with the nameplates are provided.				
Documentation provided by Project Owner's				
Revised PSF Please refer to "Equipment Documents" folder in supporting documents.				
GCC Verifier assessment				**Date: 27/09/2023**
The meter details have been revised. Thus, the CAR 11 is closed.				

CAR	12	**Section no.**	G	**Date :** 13/09/2023

Description of CAR	
Please provide the following for claims in the PSF: • Claims for environmental safeguards in the section E.1 • Claims for social safeguards in the section E.1 • And proof for claims on SDGs in section F.	
Project Owner's response	**Date :** 21/09/2023
Section E (E.1 – Environmental Safeguard, E.2 – Social Safeguard) and Section F have been revised in accordance to the latest version of Environment and Social Safeguards Standard V3.0 – 2022 and Project Sustainability Standard V3.1 – 2023. All proof of claims on E+ S+ and SDGs are provided.	
Documentation provided by Project Owner's	
Revised PSF Please refer to "E+ and S+" folder in supporting documents.	
GCC Verifier assessment	**Date: 27/09/2023**
The proof has been revised and found to be ok. Thus, the CAR 12 is closed.	

Table 3. FARs from this Project Verification

FAR ID	01	**Section no.**		**Date:** 13/09/2023
Description of FAR				
Project Owners shall demonstrate the compliance to CORSIA requirements for the credits claimed beyond 31 December 2020 with respect to double counting and HCLOA requirements and also future CORSIA requirements applicable time to time for the project activity				
Project Owner's response				**Date:**
Documentation provided by Project Owner				
GCC Project Verifier assessment				**Date:**

Appendix 5. Matrix for Identifying Environmental Impacts, Establishing Safeguards and Performing Do-No-Harm Risk Assessments in the PSF and GCC Verifier's conclusion

Impact of Project Activity on		**Information on Impacts, Do-No-Harm Risk Assessment and Establishing Safeguards**									**Project Owner's Conclusion**		**GCC Verifiers Conclusion**	
		Description of Impact *(both positive and negative)*	**Legal requirement / Limit**	**Do-No-Harm Risk Assessment**			**Risk Mitigation Action Plans**		**Do-No-Harm Residual Risk Assessment**		**Self-Declaration**		**3rd Party Audit**	
				Not Applicable *(No actions required)*	**Harmless** *(No actions required)*	**Harmful** *(Actions required)*	**Operational Controls**	**Program of Risk Management Actions**	**Re-evaluate Risks**	**Monitoring**	**Explanation of Conclusion**	**The Project Activity will not cause any harm**	**Verification Process**	**Will the project activity cause any harm ?**
Environmental impacts on the identified categories[22] indicated below.	*Indicators for environmental impacts*	*Describe anticipated environmental impacts, both positive and negative from all sources (stationary and mobile), that may result from the Project Activity, within and outside the project boundary, over which the Project Owner(s) has control, and beyond what would reasonably be expected to occur in the absence of the Project Activity.*	*Describe the applicable national regulatory requirements /legal limits related to the identified risks of environmental impacts.*	*If no environmental impacts are anticipated, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as* ***Not Applicable*** *(No actions required)*	*If environmental impacts are anticipated, but are expected to be in compliance with applicable national regulatory requirements/ below the legal limits, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as* ***Harmless*** *(No actions required)*	*If environmental impacts are anticipated that will not be in compliance with the applicable national regulatory requirements or are likely to exceed legal limits, then the Project Activity is likely to cause harm (may be un-safe) and shall be indicated as* ***Harmful*** *(Actions required).*	*Describe the operational controls and best practices, focusing on how to implement and operate the Project Activity, to reduce the risk of impacts that have been identified as* ***Harmful****.*	*Describe the Program of Risk Management Actions (refer to Table 3), focusing on additional actions (e.g., installation of pollution control equipment) that will be adopted to reduce the risk of impacts that have been identified as* ***Harmful****.*	*Re-evaluate risks after Risk Mitigation Action Plans have been developed (refer to previous two columns) for impacts that have been identified as Harmful. Indicate whether the risks have been eliminated or reduced and, where appropriate, indicate them as* ***Harmless*** *(No actions required)*	*Describe the monitoring approach and the parameters to be monitored for each impact that has been identified as Harmful and described in the PSF (refer to Table 3).*	*Describe how the Project Owner has concluded that the Project Activity is likely to achieve the identified Risk Mitigation Action Plan targets for managing risks to levels that are unlikely to cause any harm.*	*Confirm that the Project Activity risks of negative environmental impacts are expected to be managed to levels that are unlikely to cause any harm (Mark +1 for* ***Yes*** *or and -1 for* ***No****)*	*Describe how the GCC Verifier has assessed that the Project Activity has adopted Risk Mitigation Action Plans to mitigate the risks of negative environmental impacts to levels that are unlikely to cause any harm.*	*Confirm whether the Project Activity is expected to manage risks of negative environ mental impacts to levels that are unlikely to cause any harm (Mark +1 for* ***Yes*** *or and -1 for* ***No****)*
Environmental Safeguards														

[22] sourced from the CDM SD Tool and the sample reports are available (https://www4.unfccc.int/sites/sdcmicrosite/Pages/SD-Reports.aspx)

Environment - *Air*	*SO_x emissions*	*Capture and utilization of LFG for power generation does not result in emission of SO_x. Therefore, environmental impact is not anticipated from the project activity.*	*The national legal limit as specified by Ministry of Environment, Urbanization and Climate Change[23].*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*			
	NO_x emissions	*Capture and utilization of LFG for power generation does not result in emission of NO_x. Therefore, environmental impact is not anticipated from the project activity.*	*The national legal limit of NO_x specified in Industrial Air Pollution Control Regulation[24].*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	NA	No risks identified	-
	CO_2 emissions	*Utilization of methane for power generation in gas engine results in emission of CO2, however considering the renewable origin of fossil fuel the generation of CO2 is not considered.* *The project reduces the CO_2 emission by avoiding replacing equivalent electricity generated by the power plant connected power grid.*	*There are no laws and regulations which limit the CO_2 emissions by LFG power generation projects in Türkiye.*	*The project activity results in reduced CO_2 emissions by replacing high carbon intensive grid power with renewable based generation and thereby result in positive environmental impact*	*Harmless No Action Required*	*Not Applicable. No action required*	*Not Applicable*	*Not Applicable*	*The generated electricity and supplied to the grid by the project activity will be continuously measured and the related CO2 emission reduction will be calculated according to the applied method. Detailed monitoring plan and approach is presented as a part of monitoring under section B.7.1.*	*Utilization of methane for power generation in gas engine results in emission of CO2, however considering the renewable origin of fossil fuel the generation of CO2 is not considered.* *The project reduces the CO_2 emission by avoiding replacing equivalent electricity generated by the power plant connected power grid.*	*The project is expected to result in lower CO2 emission by replacing generation of electricity in existing grid connected power plant of fossil fuel origin.*	+1	The project will have a positive impact by reducing measurable amount of CO_2 emissions. This amount of emission reduction will be monitored as per monitoring plan in the PSF in section B.7.1.	+1

[23] https://cevreselgostergeler.csb.gov.tr/en/number-of-exceedances-of-air-quality-limit-values-i-85998
[24] https://www.mevzuat.gov.tr/mevzuatmetin/yonetmelik/7.5.13184%20ek.doc

	CO emissions	*Capture and utilization of LFG for power generation does not result in emission of CO. Therefore, environmental impact is not anticipated from the project activity.*	*The national legal limit of CO emissions as specified in Industrial Air Pollution Control Regulation*[25]*.*	Not Applicable	No Action Required	No action required	Not Applicable	Not Applicable	No Action Required	Not Applicable	-	NA	No risks identified	-
	Suspended particulate matter (SPM) emissions	*Emission of particulate matter due to utilization of LFG in gas engine is negligible. Therefore, environmental impact is not anticipated from the project activity.*	*Not Applicable*	Not Applicable	No Action Required	No action required	Not Applicable	Not Applicable	No Action Required	Not Applicable		NA	No risks identified	-
	Fly ash emissions	*The Project activity includes capture and utilization of LFG for power generation and does not result in release of Fly ash.*	*The national legal limit specified by Ministry of Environment, Urbanization and Climate Change*[26]*.*	*No negative environmental impact is anticipated as the project activity does not results in release of Fly ash.*	*Since the project activity does not result in release of fly ash therefore the anticipated impact is harmless.*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*The Project activity includes capture and utilization of LFG for power generation and does not result in release of Fly ash.*	-	NA	No risks identified	-
	Non-Methane Volatile Organic Compounds (NMVOCs)	*The project reduces NMVOCs emission due to combustion of LFG that is previously released to the atmospheric*	*The national legal limit specified by Ministry of Environment, Urbanization and Climate Change*[27]*.*	*The project reduces NMVOCs emission that were released to the atmosphere and hence positive environmental impact is anticipated.*	*Since the project activity results in reduction of NMVOC in compared to the baseline therefore the impact is considered as harmless.*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*The quantum of NMVOC reduced cannot be monitored*		*The project will result in lowering NMVOCs emission than the baseline due to combustion of LFG in gas engine. However, the quantum of NMVOC in the input gas and exhaust gas will not be monitored and therefore the parameter will not be scored.*	0	No risks identified	0

25 https://www.mevzuat.gov.tr/mevzuatmetin/yonetmelik/7.5.13184%20ek.doc
26 https://cevreselgostergeler.csb.gov.tr/en/number-of-exceedances-of-air-quality-limit-values-i-85998
27 https://cevreselgostergeler.csb.gov.tr/en/number-of-exceedances-of-air-quality-limit-values-i-85998

	Odor emissions	*The project reduces odor emissions by LFG recovery and anaerobic digester.*	*No environmental regulation is associated*	*The project reduces odor due to capture and utilization of LFG and prevention of its release to the atmosphere and hence positive environmental impact is anticipated.*	*Since the project activity results in reduction of odor in compared to the baseline therefore the impact is considered as harmless.*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*The amount of odour reduced due to the project activity cannot be monitored*	Not Applicable	*The project will result in lower odor emissions than the baseline throughout the crediting period, however the parameter cannot be monitored and therefore the parameter will not be scored.*	0	No risks identified	0
	Noise Pollution	*The gas engines may cause noise pollutions during operation.*	*According to the Regulation on Evaluation and Management of Environmental Noise*[28]*.*	*Since the monitored noise is within the permissible limit no negative environmental impact is anticipated.*	*The noise by the project is expected to be lower than the permissible limits, hence the project is deemed Harmless*	*Not Applicable. No action required*	*Not Applicable. No action required*	*The noise level is anticipated to be within the permissible limit; however, the parameter will be monitored once in a years through third party agency to assess on whether the noise level is within permissible limit*	*The noise level is anticipated to be within the permissible limit; however, the parameter will be monitored annually years through third party agency*	Not Applicable	*The noise from the project activity is within the permissible limits.*	+1	The project activity is creating noise due to operation of gas turbine. Since the monitored noise is within the permissible limit no negative environmental impact is anticipated. Moreover, the operators and plant personnel are provided with ear plugs to reduce the impact of noise if any. However, the parameter will be monitored annually years through third party agency. This will be monitored as per monitoring	+1

[28] https://www.resmigazete.gov.tr/eskiler/2010/06/20100604-5.htm

													plan in the PSF section B.7.2 and assessment of the same is provided section D.3.7 of the Project Verification Report.	
	Methane emissions (EA10)	*The project reduces methane emission through capture and utilization of LFG which was previously released to the atmosphere. However, there might be methane emissions due to leakage in collection network of the LFG gas collection system.*	*No legal regulation for emission of methane*	*The project reduces methane emission through capture and utilization of LFG that were released to the atmosphere and hence positive environmental impact is anticipated.* *The methane leakage is very low and are immediately identified/detected and arrested and are not likely to cause any environmental harm.*	*Since the project activity results in reduction of methane emission through capture and utilization of LFG in compared to the baseline therefore the impact is considered as harmless.* *The leakage of LFG/ methane if any is considered as harmless to environment as the same is rectified immediately upon detection.*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*The quantum of methane release avoided to the atmosphere is assessed based on two monitored data parameters (a) quantum of LFG utilized (b) methane content in the LFG. The parameters is monitored under section B.7.1*	-	*The project will result in lowering of in reduction of methane emission through capture and utilization of LFG than the baseline where LFG was directly released to atmosphere. The quantum of methane avoided is based on the monitoring of two data parameters (a) quantum of LFG utilized (b) methane content in the LFG and therefore the parameters is scored.*	+1	The project activity is reducing methane emission through capture and utilization of LFG which was previously released to the atmosphere. Hence, positive environment impact is anticipated. This will be monitored as per monitoring plan in the PSF section B.7.2 and assessment of the same is provided section D.3.7 of the Project Verification Report.	+1
Environment - *Land*	*Solid waste Pollution from Plastics*	*The project includes capture and utilization of methane and does not result*	*Solid Waste Regulation*[29]	*Since the project activity does not results in solid waste pollution from plastic therefore*	*Since the project activity does not results in solid waste pollution from plastic therefore*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable.*	*Not Applicable. No action required*	NA	No risks identified	-

[29] https://www.cevko.org.tr/images/stories/mevzuat/kati_atiklarin_kontrolu_yonetmeligi.pdf

		in solid waste pollution from plastic nor does it alter the existing process of solid waste management practice.		*no negative environmental impact is anticipated.*	*the project is deemed Harmless*								
	Solid waste Pollution from Hazardous wastes	*The project includes capture and utilization of methane and does not result in Solid waste Pollution from Hazardous wastes, nor does it alter the existing process of solid waste management practice.*	*According to the "Waste Control Regulation", hazardous waste shall be taken by the licensed recycling firms.*	*Since the project activity does not result in Solid waste Pollution from Hazardous wastes therefore no negative environmental impact is anticipated.*	*Since the project activity does not results in Solid waste Pollution from Hazardous wastes therefore the project is deemed Harmless*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable.*	*Not Applicable. No action required*	*N/A*	N/A	-
	Solid waste Pollution from Bio-medical wastes	*The project includes capture and utilization of methane and does not result in Solid waste Pollution from Bio-medical wastes, nor does it alter the existing process of solid waste management practice.*	*Solid Waste Regulation*	*Since the project activity does not results Solid waste Pollution from Bio-medical wastes therefore no negative environmental impact is anticipated.*	*Since the project activity does not results in Solid waste Pollution from Bio-medical wastes therefore the project is deemed Harmless*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable.*	*Not Applicable. No action required*	NA	No risks identified	-
	Solid waste Pollution from E-wastes	*The project includes capture and utilization of methane and does not result in Solid waste Pollution from E-wastes, nor does it alter the existing process of solid waste*	*Solid Waste Regulation*	*Since the project activity does not results Solid waste Pollution from E-wastes therefore no negative environmental impact is anticipated.*	*Since the project activity does not results in Solid waste Pollution from E-wastes therefore the project is deemed Harmless*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable.*	*Not Applicable. No action required*		*Not Applicable*	*Not Applicable*

		management practice												
	Solid waste Pollution from Batteries	*The project includes capture and utilization of methane and does not result in Solid waste Pollution from Batteries nor does it alters the existing process of solid waste management practice*	*Solid Waste Regulation*	*Since the project activity does not results Solid waste Pollution from Batteries therefore no negative environmental impact is anticipated.*	*Since the project activity does not results in Solid waste Pollution from Batteries therefore the project is deemed Harmless*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable.*	*Not Applicable. No action required*	NA	No risks identified	-
	Solid waste Pollution from end-of-life products/ equipment	*Generation of solid waste either due to end of product life or due to overhaul of blower, compressor system, gas engines and internals might result due to the project activity.*	*Solid Waste Regulation* **Error! Bookmark not defined.**	*The solid waste generated due to end of life or overhaul activity is stored at a particular site/location and handed over to third party for recycling. . therefore the waste product does not harms the environment and no negative environmental impact is anticipated.*	*Since the product of end of life or machinery overhaul are properly stored and handed over to third party agency for recycling therefore no negative environmental impact is anticipated.*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*The amount of waste generated at the end of product lifetime or overhaul of blower, compressor system, gas engines and internals will be recorded including their handover to third party agency for recycling. Monitoring details is outlined under section B.7.2 . Although monitorin*		*Practice has been institutionalized for proper collection, storage and handover of solid waste either due to end of product life or due to overhaul of blower, compressor system, gas engines and internals to third party agency for recycling. Although monitoring will include on whether the waste are properly collected and hand overed for recycling , however the quantum of the aforesaid*	0	The Project owner provided mitigation plan to reduce the risk is not likely to cause any harm to the environment The appropriate monitoring plan has been put in place to monitor the risks identified due to the implementation of the project activity This will be monitored as per monitoring plan in the PSF section B.7.2 and	0

									g will include on whether the waste are properly collected and hand overed for recycling , however the quantum of the aforesaid waste recycled is not monitored .		waste recycled is not monitored and hence the parameter is not scored.		assessment of the same is provided section D.3.7 of the Project Verification Report.	
	Soil Pollution from Chemicals (including Pesticides, heavy metals, lead, mercury)	*The project includes capture and utilization of methane and does not result in Soil Pollution from Chemicals (including Pesticides, heavy metals, lead, mercury) nor does it alters the existing process of solid waste management practice*	*Solid Waste Regulation,*	*Since the project activity does not results Soil Pollution from Chemicals (including Pesticides, heavy metals, lead, mercury) therefore no negative environmental impact is anticipated.*	*Since the project activity does not results in Soil Pollution from Chemicals (including Pesticides, heavy metals, lead, mercury) therefore the project is deemed Harmless*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable.*	*Not Applicable. No action required*	NA	No risks identified	-
	land use change (change from cropland /forest land to project land)	*The project includes capture and utilization of methane and does not result in Solid erosion*	*Areas vulnerable to the erosion is determined by the ministry according to the Soil Protection Law.*	*Since the project activity does not results Soil erosion therefore no negative environmental impact is anticipated.*	*Since the project activity does not results in Soil erosion therefore the project is deemed Harmless*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable.*	*Not Applicable.*	NA	No risks identified	-
	Contamination from waste oil (spilled/ released oil)	*Release of waste oils/ lubricants from plant operation that is considered*	*According to the "Waste Control Regulation "hazardous waste shall be taken by the licensed recycling firms.*	*Released oil/ lubricants can be result in environmental impact if exposed to water bodies. It is therefore*	*Released oil/ lubricants can be harmful to environment if left out with adoption of effective waste*	*Effective waste management practice has been adopted to prevent any*	*The spilled oil will be collected, stored in a way to prevent any kind of exposure to*	*The collected oil will be hand overed to recycling firm*	*Monitoring will include whether the discharged waste oil/ spilled*	-	*The organization is already arresting any oil spill and is hand overing the collected oil to a recycling*	0	No risks identified	0

		as hazardous.		*collected, stored and handed over to third party agency for recycling and hence no negative environmental impact is anticipated from waste oil (spilled/ released oil)*	*management techniques. Since waste management techniques are adopted, it is not deemed to be harmful.*	*harmful impact.*	*land and/or water bodies and handed over to third party agency for recycling.*		*oil/ lubricant is collected and supplied to an agency for recycling, details is outlined under section B.7.2. However, the quantum of waste oil collected/ hand overed will not be monitored and therefore the parameter is not scored.*		*agency. Monitoring will include on whether the discharged waste oil/ spilled oil/ lubricant is collected and supplied to agency for recycling, However the quantum of waste oil collected/ hand overed will not be monitored and therefore the parameter is not scored.*			
	Fire Hazard	*LFG emissions due to leakage might lead to fire hazard.*	*Regulation on Preventing Major Industrial Accidents and Reducing Their Effects*[30]	*The incident is more of a hazard than an environmental concern. As a part of safety measures gas leakage, if any will be immediately detected. Once identified the leakage will be arrested immediately.*	*Fire hazards will be prevented through adoption of effective fire hazards prevention method. Since there is no environmental harm envisaged the project is deemed Harmless*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Although the leak incidence will be detected but no monitoring is associated with quantum of methane leakage.*	-	*The leak, if any will be immediately identified as per the existing practice. Once the leakage is identified appropriate measures will be adopted towards arresting the leakage. However, the quantum of leakage cannot be monitored and hence the parameter is not scored.*	0	No risks identified	0

[30] https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=31298&MevzuatTur=7&MevzuatTertip=5

Environment - *Water*	*Reliability/ accessibility of water supply*	*The project includes capture and utilization of methane and does not impact Reliability/ accessibility of water supply*	*N/A*	*The project includes capture and utilization of methane and does not impact Reliability/ accessibility of water supply and hence no negative environmental impact is anticipated*	*The project includes capture and utilization of methane and does not impact Reliability/ accessibility of water supply and hence the project is deemed Harmless*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable*	*Not Applicable*	N/A	N/A	N/A
	Water Consumption from ground and other sources	*The project includes capture and utilization of methane, and the required water is supplied by the local authority.*	*Not Applicable*	*Not Applicable*	*Since the water used by the project activity is supplied by the local authority no environmental impact is anticipated from water usage.*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	Not Applicable	*Supply water from local body will be used is necessary and necessary approval to be obtained..*	NA	No risks identified	-
	Generation of wastewater	*The wastewater generated as part of the landfilling operation (not directly related to the project activity) is completely collected followed by transport to Bingöl Municipality for treatment which is in compliance with the environmental governance*	*Water Pollution Control Regulation*[31]	*Generated wastewater is sent to the wastewater treatment system of Bingöl Municipality for treatment as per the Water Pollution Control Regulation. The project owner also has an agreement with the Municipality for collection and management of wastewater and therefore no*	*Wastewater is collected via vacuum trucks of Municipality and sent to wastewater treatment facility hence the project is deemed Harmless.*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*The wastewater collected and transported to Bingöl Municipality for treatment although monitored but the quantum of wastewater collected and treated is not monitored.*	Not Applicable	*Wastewater is collected via vacuum trucks of Municipality and sent to wastewater treatment facility. The project owner also have an agreement with the Municipality for collection and management of wastewater. Since the quantum of wastewater collected and transported for treatment is not monitored, therefore the parameter is not scored.*	0	*The wastewater generated as part of the landfilling operation (not directly related to the project activity) is completely collected followed by transport to Bingöl Municipality for treatment which is in compliance with the environmental governance*	0

[31] https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=7221&MevzuatTur=7&MevzuatTertip=5

				environmental impact is anticipated.									
	Wastewater discharge without/with insufficient treatment	*The wastewater /leachate generated as part of the landfilling operation (not directly related to the project activity) is completely collected followed by transport to Bingöl Municipality for treatment which is in compliance with the environmental governance Therefore no wastewater is discharged without/with insufficient treatment.*	*Water Pollution Control Regulation*	*Generated wastewater and leachate are sent to the wastewater treatment system of Bingöl Municipality for treatment as per the Water Pollution Control Regulation. The project owner also has an agreement with the Municipality for collection and management of wastewater and therefore no waste water is discharged without/with insufficient treatment. And as such no environmental impact is anticipated.*	*Wastewater is collected via vacuum trucks of Municipality and sent to wastewater treatment facility hence the project is deemed Harmless.*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable*	*Generated wastewater and leachate are sent to the wastewater treatment system of Bingöl Municipality for treatment as per the Water Pollution Control Regulation. Therefore, no wastewater is discharged without/with insufficient treatment.*	NA	No risks identified	-
	Pollution of Surface, Ground and/or Bodies of water	*The wastewater/leachate generated as part of the landfilling operation (not directly related to the project activity) is completely collected followed by transport to Bingöl*	*Water Pollution Control Regulation*	*Generated wastewater and leachate are sent to the wastewater treatment system of Bingöl Municipality for treatment as per the Water Pollution Control Regulation. The project owner*	*Generated wastewater*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable*	*Generated wastewater and leachate are sent to the wastewater treatment system of Bingöl Municipality for treatment as per the Water Pollution Control Regulation. Therefore, the incidence of pollution of surface and*	NA	No risks identified	-

		Municipality for treatment which is in compliance with the environmental governance Therefore pollution of Surface, Ground and/or Bodies of water are not anticipated from wastewater /leachate generated from the landfilling operation.		*also has an agreement with the Municipality for collection and management of wastewater and therefore the waste water/leachate is not anticipated to cause any pollution fo the surface/ground water bodies, and as such no environmental impact is anticipated.*						*ground water bodies are not anticipated.*			
	harmful chemicals like marine pollutants / toxic waste	*The project includes capture and utilization of methane and does not result in discharge of harmful chemicals like marine pollutants / toxic waste*	*Water Pollution Control Regulation,*	*The project includes capture and utilization of methane and does not generate harmful chemicals that could pollute surface/ground water bodies. Therefore, no negative environmental impact is anticipated from the project activity.*	*The project includes capture and utilization of methane and does not generate harmful chemicals that could pollute surface/ground water bodies. Hence the project is deemed Harmless.*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable.*	*Not Applicable*	*The project includes capture and utilization of methane and does not generate harmful chemicals like marine that could pollute surface/ground water bodies.*	NA	No risks identified	-
	Pollution of leachate	*The leachate generated as part of the landfilling operation (not directly related to the project activity) is completely collected followed by transport to Bingöl Municipality for treatment which is in compliance with the environmental governance*	*Water Pollution Control Regulation*[32]	*Generated leachate is sent to the wastewater treatment system of Bingöl Municipality for treatment as per the Water Pollution Control Regulation. The project owner also has an agreement with the Municipality for collection and management of*	*Leachate is collected via vacuum trucks of Municipality and sent to wastewater treatment facility hence the project is deemed Harmless.*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Not Applicable. No action required*	*Leachate collected and transported to Bingöl Municipality for treatment although monitored but the quantum of wastewater collected and treated is not monitored.*	-				

[32] https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=7221&MevzuatTur=7&MevzuatTertip=5

				leachate and therefore no environmental impact is anticipated.										
Environment – *Natural Resources*	*Conserving mineral resources*	*The project includes capture and utilization of methane and does not result in conservation of natural resources*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	NA	No risks identified	-
	Protecting/ enhancing plant life	*The project includes capture and utilization of methane and does not result in protection/ enhancement of plant life*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	NA	No risks identified	-
	Protecting/ enhancing species diversity	*The project includes capture and utilization of methane and does not result in protection/ enhancing species diversity*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	NA	No risks identified	-
	Protecting/ enhancing forests	*The project includes capture and utilization of methane and does not result in protection/ enhancing forests*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	NA	No risks identified	-
	Protecting/ enhancing other depletable natural resources	*The project includes capture and utilization of methane and does not result in protection/ enhancing other depletable natural resources*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	NA	No risks identified	-
	Conserving energy	*The project includes capture and*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	NA	No risks identified	-

		utilization of methane and does not result in conservation of energy												
	Replacing fossil fuels with renewable sources of energy	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
	Replacing ODS with non-ODS refrigerants	*The project includes capture and utilization of methane and does not result in replacement of ODS with Non-ODS refrigerants*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	NA	No risks identified	-
Note: If the score is: (a) zero or greater, the overall impact is neutral or Negative and there is no net harm; and (b) less than zero, the overall impact is negative and there is net harm to Environment. Score is obtained after adding the individual scores in each of the rows in the last column of the above table.														
Net Score:		**+3**												
Project Owner's Conclusion in PSF:		The Project Owner confirms that the Project Activity will not cause any net harm to the environment.												
GCC Project Verifier's Opinion		The GCC Verifier certifies that the Project Activity is not likely to cause any net harm to Environment.												

Appendix 6. Matrix for Identifying Environmental Impacts, Establishing Safeguards and Performing Do-No-Harm Risk Assessments in the PSF and GCC Verifier's conclusion

Impact of Project Activity on		**Information on Impacts, Do-No-Harm Risk Assessment and Establishing Safeguards**									**Project Owner's Conclusion**		**GCC Verifier's Conclusion**	
		Description of Impact (*both Negative and negative)*	**Legal requirement /Limit**	**Do-No-Harm Risk Assessment**			**Risk Mitigation Action Plans**		**Do-No-Harm Residual Risk Assessment**		**Self-Declaration**		**3rd Party Audit**	
				Not Applicable *(No actions required)*	**Harmless** *(No actions required)*	**Harmful** *(Actions required)*	**Operational Controls**	**Program of Risk Management Actions**	**Re-evaluate Risks**	**Monitoring**	**Explanation of Conclusion**	**The Project Activity will not cause any harm**	**Verification Process**	**Will the Project Activity cause any harm?**
Social impacts on the identified categories[33] indicated below.	*Indicators for social impacts*	*Describe the impacts on society and stakeholders, both Negative and negative, that may result from constructing and operating of the Project Activity.*	*Describe the applicable national regulatory requirements / legal limits related to the identified risks of social impacts.*	*If no social impacts are anticipated, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as **Not Applicable** (No actions required)*	*If social impacts are anticipated, but are expected to be in compliance with applicable national regulatory requirements/ legal limits, then it the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as **Harmless** (No actions required)*	*If social impacts are anticipated that will not be in compliance with the applicable national regulatory requirements / legal limits, then the Project Activity is likely to cause harm (may be unsafe) and shall be indicated as **Harmful** (Actions required).*	*Describe the operational controls and best practices, focusing on how to implement and operate the Project Activity, to reduce the risk of impacts that have been identified as **Harmful**.*	*Describe the Program of Risk Management Actions (refer to Table 3), focusing on additional actions (e.g., construction of crèche for workers) that will be adopted to reduce the risk of impacts that have been identified as **Harmful**.*	*Re-evaluate risks after Risk Mitigation Actions plans have been developed (refer to previous two columns) for impacts that have been identified as Harmful. Indicate whether the risks have been eliminated or reduced and, where appropriate, indicate them as **Harmless** (No actions required)*	*Describe the monitoring approach and the parameters to be monitored for each impact that has been identified as Harmful and to be described in the PSF (refer to Table 3).*	*Describe how the Project Owner has concluded that the Project Activity is likely to achieve the identified Risk Mitigation Action Plan targets for managing risks to levels that are unlikely to cause any harm.*	*Confirm that the Project Activity risks of negative social impacts are expected to be managed to levels that are unlikely to cause any harm (Mark +1 for **Yes** or and -1 for **No**)*		
Social Safeguards														

[33] sourced from the CDM SD Tool and the sample reports are available (https://www4.unfccc.int/sites/sdcmicrosite/Pages/SD-Reports.aspx)

Social - *Jobs*	*Long-term jobs (> 1 year) created/ lost*	*The project activity has resulted in long term employment generation for operation of the project activity. In comparison to the baseline scenario the project activity has resulted in an additional 15 number of employments in the project power plant. these 15 numbers of employment are for the project activity and is additional to the employment in the landfilling site.*	*No regulation / legal requirement for long term employment*	Positive social impact is attributable	*Since the project activity results in employment in compliance with regulation of country, thereby the social aspects result in positive social impact. Therefore, the project activity is deemed to be Harmless*	*Not Applicable*	*Not Applicable.*	*KPI- Number of persons employed / continuing employment during any particular year. Project activity has resulted in an additional 5 number of employments in the project power plant.* *Frequency of monitoring – Annual* *Monitoring approach including data source – Review of employment record to be cross verified with social insurance (SSI) recordings.*	-	-	*Although there is no mandatory law to generate permanent employment from the project activity, the project activity has resulted in employment generation therefore this parameter will be scored.* *Since the project activity is already operational the project activity has already resulted in employability.* *No risks have been identified and hence no risk mitigation action is required.* *The social impact is expected to increase in employment, which can be confirmed by the Social Security*	+1	The project operation has created new job opportunities in the area during operational phase of the project activity. The number of persons employed would be monitored through HR records/ payroll records. . Also, project owner ensures that at least ten employment will be provided in the project activity This will be monitored as per monitoring plan in the PSF section B.7.1 and assessment of the same is provided section D.3.7 of the Project Verification Report.	+1

											Institution (SSI) recordings.			
	New short-term jobs (< 1 year) created/ lost	*The Short term employment during construction is through third party agency and therefore short term employment is not attributable to the project activity.*	*No regulation / legal requirement*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*N/A*	NA	No risks identified	-
	Sources of income generation increased / reduced	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
Social - *Health & Safety*	*Disease prevention*	*Training has been imparted to employees in the area of disease prevention.*	*There is no regulation or legal requirement for imparting training towards disease prevention.*	*There is no negative social impact anticipated and the activity is not likely to cause any harm*	*The activity is expected to increase awareness of disease prevention among plant workers hence activity can be considered as harmless.*	*Not Applicable*	*Not Applicable*	Number of persons trained. Frequency of monitoring – Annual Monitoring approach including data source – Review of number of persons trained and topic of training on an annual basis..	Not Applicable	Not Applicable	There is no regulatory requirement for training in disease prevention. A number of people trained are voluntary. As the project activity results positive social impact and KPI during a particular year is monitorable the parameter is scored	+1	The Project owner will provide regular safety training to the employees and also encouraging tto do the work with always with PPE kits for avoiding the accidents at the project site which is assessed as positive impacts of the project activity and hence the score claim by the project owner is acceptable and appropriate This will be monitored as per monitoring plan in the PSF section B.7.1 and	+1

													assessment of the same is provided section D.3.7 of the Project Verification Report.	
	Occupational health hazards	*Training has been imparted to employees in the area of occupational health hazards with the objective of reducing occupational health hazards and therefore the social aspects is likely to result in positive social impact.*	*There is no regulation or legal requirement for imparting of training towards reducing occupational health hazards*	Positive social impact is attributable	Training is imparted to employees in the area of occupational health hazards. Hence attributes to positive social impact.	*Not Applicable*	*Not Applicable*	KPI- Number of persons trained. Frequency of monitoring – Annual Monitoring approach including data source – Review of number of persons trained and topic of training on an annual basis.	N/A	N/A	There is no regulatory requirement for training in occupational health issues. A number of people rained are voluntary. As the project activity results positive social impact and KPI during a particular year is monitorable the parameter is scored.	+1	The Project owner will provide regular safety training to the employees and also encouraging tto do the work with always with PPE kits for avoiding the accidents at the project site which is assessed as positive impacts of the project activity and hence the score claim by the project owner is acceptable and appropriate This will be monitored as per monitoring plan in the PSF section B.7.1 and assessment of the same is provided section D.3.7 of the Project Verification Report.	+1
	Reducing / increasing accidents	*Training has been imparted to employees in the area of reducing*	*There is no regulation or legal requirement for imparting of training*	Positive social impact is attributable	Training is imparted to employees in the area reducing accident including fire	*Not Applicable*	*Not Applicable*	KPI- Number of persons trained.	N/A	N/A	There is no regulatory requirement for training in occupation	+1	The Project owner will provide regular safety training to the employees	+!

		accident including fire hazards with the objective of reducing accidents/ incidents/ fatality and therefore the social aspects are likely to result in positive social impact.	*towards reducing accidents/ incidents/ fatality*		hazards, hence attributes to positive social impact.			Frequency of monitoring – Annual Monitoring approach including data source – Review of number of persons trained and topic of training on an annual basis.			al health issues. A number of people trained are voluntary. As the project activity results positive social impact and KPI during a particular year is monitorable the parameter is scored.		and also encouraging tto do the work with always with PPE kits for avoiding the accidents at the project site which is assessed as positive impacts of the project activity and hence the score claim by the project owner is acceptable and appropriate This will be monitored as per monitoring plan in the PSF section B.7.1 and assessment of the same is provided section D.3.7 of the Project Verification Report.	
	Reducing / increasing crime	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
	Reducing / increasing food wastage	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
	Reducing / increasing indoor air pollution	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
	Efficiency of health services	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*

	Sanitation and waste management	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
	Other health and safety issues	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
Social - *Education*	*Job related training imparted or not*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
	Educational services improved or not	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
	Project-related knowledge dissemination effective or not	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
	Other educational issues	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
Social - *Welfare*	*Improving/ deteriorating working conditions*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
	Community and rural welfare	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
	Poverty alleviation (more people above poverty level)	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*
	Improving / deteriorating wealth distribution/ generation	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*

	of income and assets													
	Increased or / deterioratin g municipal revenues	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicabl e*	*Not Applicable*	*Not Applicable*
	Women's empowerm ent	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicabl e*	*Not Applicable*	*Not Applicable*
	Reduced / increased traffic congestion	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicabl e*	*Not Applicable*	*Not Applicable*
	Other social welfare issues	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicable*	*Not Applicabl e*	*Not Applicable*	*Not Applicable*
Note: If the score is: (a) zero or greater, the overall impact is neutral or Negative and there is no net harm; and (b) less than zero, the overall impact is negative and there is net harm to society. Score is obtained after adding the individual scores in each of the rows in the last column of the above table.														
Net Score:	+4													
Project Owner's Conclusion in PSF:	The Project Owner confirms that the Project Activity will not cause any net harm to society.													
GCC Project Verifier's Opinion:	The GCC Verifier certifies that the Project Activity is not likely to cause any net harm to Society													

Appendix 7. Matrix for Demonstration of Contribution of Project to Sustainable Development

UN-level SDGs	UN-level Target	Declared Country-level SDG	Defining Project-level SDGs					Project Owner(s)'s Conclusion		GCC Project Verifier's Conclusion (to be included in Project Verification Report only)	
			Project-level SDGs	Project-level Targets/ Actions	Project-level Indicators	Contribution of Project-level Actions to SDG Targets	Monitoring	Explanation of Conclusion	Are Goal/ Targets Likely to be Achieved ?	Verification Process	Are Goal/ Targets Likely to be Achieved?
Describe UN SDG targets and indicators ***See:*** ***https://unstats.un.org/sdgs/indicators/indicators-list/***	*Describe the UN-level target(s) and correspo-nding indicator no(s)*	*Has the host country declared the SDG to be a national priority? Indicate Yes or No*	*Define project-level SDGs by suitably modifying and customizing UN/ Country-level SDGs to the project scope.*	*Define project-level targets/actions, by suitably modifying and customizing UN/Country-level targets to the project scope. Define the target date by which the Project Activity is expected to achieve the project-level SDG target(s). Refer to the previous column for guidance*	*Define project-level indicators by suitably modifying and customizing UN/Country-level indicators to the project scope or creating a new indicator(s). Refer to the previous column for guidance*	*Describe and justify how actions taken under the Project Activity are likely to result in a direct positive effect that contributes to achieving the defined project-level SDG targets and is additional to what would have occurred in the absence of the Project Activity*	*Describe the monitoring approach and the monitoring parameters to be applied for each project-level SDG target and Indicator*	*Describe how the Project Owner has concluded that the project is likely to achieve the identified Project level SDGs target(s).*	*Describe whether the project-level SDG target(s) is likely to be achieved by the target date (Yes or No)*		

			For guidance see: *Integrating the SDGs into Corporate Reporting- A Practical Guide: https://www.unglobalcompact.org/docs/publications/Practical_Guide_SDG_Reporting.pdf* *Case-study from Coca-Cola and other organizations to develop organization-wide SDGs (page 114):* https://pub.iges.or.jp/pub/realising-transformative-potential-sdgs								
Goal 1: End poverty in all its forms everywhere	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Goal 3. Ensure healthy lives and promote well-being for all at all ages	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 5. Achieve gender equality and empower all women and girls	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 6. Ensure availability and sustainable management of water and sanitation for all	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all	SDG Target 7.2 Increase global percentage of renewable energy	No	The project level SDG target will be mapped from the total amount of renewable energy (electricity generated from the LFG based power plant) supplied to the national grid annually which will replace equivalent amount of electricity feed to the grid by fossil fuel-based power plant and increase renewable energy share in the total final	The project activity is expected to supply around of 108,955 MWh of clean energy per year) to the grid		The project activity is already in operation since 29/05/2020 and supplying electricity to the national grid and therefore supporting in achieving of SDG target	The clean energy generated from the project activity supplied to the is result in increasing the renewable energy share in total grid energy consumption as the electricity generated from the project activity is considered as renewable energy.	The electricity supplied to the grid by the project activity will be monitored continuously through electricity meters (main and check meter). Please refer to Section B.7.1 for monitoring details	Yes	This project is renewable power project started operation from 29/05/2020 and same was verified with the commissionin g certificates provided by the project owner. The generated power from the project activity is the clean energy and continuously monitored by	Yes

			energy consumption.							the energy meters installed at the site and included in the monitoring plan in the PSF.	
Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Target 8.3: Promote policies to support Job creation and growing enterprise.	No	Number of persons employed as a part of project activity	Around 15 people are employed in the project activity.		The project activity is already in operation and hence is supporting the achievement of SDG target of employment generation	The project activity has resulted in employment generation and ensured continuation of employment thereby contributes to achieving the defined project-level SDG targets i.e., amount of job created.	Number of persons employed will be assessed/estimated from the SSI records of the Organization (Social Security Institution of Türkiye) on an annual basis. Please refer to Section B.7.1 for monitoring details	Yes	This is a direct positive impact of the project activity, which will help to reduce unemployment in the host country, This parameter is verifiable during the monitoring period. The total number of persons working in the project activity along with details of female-male break up, age and role and persons with disabilities, if any will be monitored and Payroll/ HR records will be used to monitor this parameter. The relevant monitoring plan is included in the section B.7.1 of the PSF also the assessment of	Yes

										the same has been provided D.3.7 of PVR.	
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 10. Reduce inequality within and among countries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 12. Ensure sustainable consumption and production patterns	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 13. Take urgent action to combat climate change and its impacts	Target SDG Target 13.2 Integrate climate change measures into national policies, strategies and planning.	No	Avoidance of GHG emission reductions per year	The project activity is expected to result in avoidance of 75,098 tCO_2e per annum.		The project activity is already in operation and hence is supporting the achievement of SDG target of GHG emission avoidance.	Project activity results in avoidance of GHG emission by capturing and using LFG for power generation which would otherwise being released to the atmosphere. The project through generation and supply of renewable electricity to the grid will	Monitoring of avoidance of GHG emission is estimated based on the monitoring of electricity generated and supplied to the grid as well as quantum of methane (LFG) captured and utilized for power generation. Please refer to Section B.7.1	Yes	This is direct positive impact of the project which will avoid around 75,098 tCO_2 annual average over the crediting period. The generated power from the project activity is the clean energy and continuously	Yes.

							avoid generation of equivalent quantum of grid electricity from fossil fuel-based power plant. Therefore, the project activity contributes to achieving the defined project-level SDG targets.	for monitoring details.		monitored by the energy meters installed at the site and included in the monitoring plan in the PSF.	
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

effective, accountable and inclusive institutions at all levels											
Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

SUMMARY	**Targeted**	**Likely to be Achieved**	
Total Number of SDGs	**3**	**3**	
Certification label (Bronze, Silver, Gold, Platinum, or Diamond) for the ACCs as defined in the PSF	**Silver**	**Silver**	

Appendix 8. Project Monitoring Equipments Photographs

	
Main electricity meter	Spare electricity meter
	
Gas engine flowmeter	Gas engine nameplate
	
Temperature meter	Gas analyzer

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: o Change of name from Global Carbon Trust (GCT) to Global Carbon Council (GCC); o 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[34];
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

[34]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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