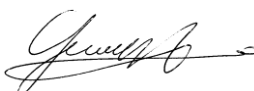




Validation report form for GS project activities

VALIDATION REPORT

Title of the project activity	Gazişehir LFG Utilization Project
Version number of the validation report	1.1Aa
Completion date of the validation report	06/07/2024
Version number of PDD to which this report applies	7.0 of 04/07/2024
GS Reference number of the project activity	GS 11662
Project participant(s)	Gazişehir Enerji Üretim Sanayi Ticaret A.S. (project owner, private entity) Oak Danismanlik (project representative, consultant)
Host Party	Türkiye
Estimated annual average GHG emission reductions or net removals in the crediting period (tCO₂e)	293,576 tCO ₂
Sectoral scope(s) and selected methodology(ies)	Sectoral scope 1: Energy Industries (Renewable-/non-renewable sources) Sectoral scope 13: Waste handling and disposal ACM0001: Flaring or use of landfill gas --- Version 19.0
Name of DOE	RINA Services S.p.A. (RINA)
Name, position and signature of the approver of the validation report	Giovanni D'Angelo (Authorized officer signing for the VVB) Sustainability & Food Certification Compliance Unit 

SECTION A. Executive summary

Purpose and general description of the project

The purpose of the project activity is to collect and to recover LFG gas accumulated in the landfill area and generate electricity via gas engines to generate electricity with a total installed capacity of 13.520 Mwe as per the Generation License [/18/](#). The generated electricity will be fed to national grid. The project activity fits into the renewable energy supply category, qualifies as a large scale, as defined in the GS4GG project activity. The project activity has a total active 11 engines ((5x1.451) + (5x1.161) + 0.823 MWm / ((5x1.413) + (5x1.131) + 0.800 MWe) verified through site visit and generation license/[18/](#). The activity is expected to generate approximately 85.17 GWh/year of energy and delivered to the national grid. The Project is estimated to reduce 293,576 tCO_{2eq} emission reductions per year with a total of 1,467,881 tCO₂ over the 5 year first crediting period [/1/](#).

Location

The project is within boundaries of Gaziantep Province, Şahinbey District, Türkiye

Scope of validation

The scope of the Validation is to have an independent evaluation of a project activity by a VVB against the GS4GG requirements and principles [/20/](#), on the basis of the PDD [/1/](#). Validation is a requirement and it is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of VERs and sustainability development.

Validation process

Validation is conducted using RINA procedures in line with the GS requirements and principles and applying standard auditing techniques. The validation assessment involved a document review of relevant documentation, the interview and/or on-site visit and the reporting. Validation is not meant to provide any consultancy towards the project participants. However, stated request for clarifications and/or corrective actions may have provided input for improvement of the project design.

Conclusion

RINA commissioned by Gazişehir Enerji Üretim Sanayi Ticaret A.S. has performed the combined validation & verification of the project activity “Gazişehir LFG Utilization Project”, regarding the relevant GS4GG requirements and principles for project activities.

In conclusion, it is RINA's opinion that the project activity “Gazişehir LFG Utilization Project”, in “Türkiye”, as described in the PDD version 7.0 of 04/07/2024 [/1/](#) meets all relevant requirements for GS activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 19.0 of 14/06/2019 [/9/](#).

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader, Local Expert, GS Approved Validator, Technical Expert TA 13.1, TA 1.2	ER	Ekinci Özen	Fulya	Outsourced	✓	✓	✓	✓
2.	Financial Expert	ER	Milkov	Viktor	Bulgaria	✓			✓

B.2. Technical reviewer and approver of the validation report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	RACHEV	Konstantin	RINA Bulgaria

SECTION C. Means of validation**C.1. Desk review**

The PDD version 7.0 of 04/07/2024 and previous versions [/1/](#), in particular the applicability of the methodology, the baseline determination, the additionality of the project activity, the starting date, the project eligibility, the monitoring plan, the sustainability indicators, the stakeholder consultation, the emission reductions calculation and all equations and footnotes [/2/](#) were assessed as part of the validation. All documents reviewed or referenced during the validation are listed in Appendix 3.

C.2. On-site inspection

Duration of Site visit: 19/07/2023				
No.	Activity performed on-site	Site location	Date	Team member
1.	- Implementation and operation of the proposed project activity; - Baseline and Additionality - Emission reductions calculations - Interviewed key personnel of the plant to confirm the operational and data collection procedures; QA QC procedures - Extraction of Raw data - GS4GG Sustainable Indicators - Local stakeholder consultation - Grievance & Input mechanism - Physical inspection of the project activity: Site visit and interview of monitoring personnel - Residues entrance - LFG Collection - Electricity generation	Gaziantep, Türkiye	19/07/2023	Fulya Ekinci Özen

C.3. Interviews

No	Interview			Date	Subject	Team member
	Last name	First name	Affiliation			
1	Yakut	Şerif	Plant Manager	19/07/2023	Description of the project activity	Fulya Ekinci Özen
2	Acar	Yusuf	Plant Environmental Engineer	19/07/2023	Baseline and Additionality Emission reductions calculations	Fulya Ekinci Özen
3	Şentürk	Burak	Consultant	19/07/2023	Monitoring plan and monitoring arrangements GS Sustainable Indicators (SDGs)	Fulya Ekinci Özen
4	Akyürek	Ömer	Climate Neutral Group (CNG) Consultant	19/07/2023	Local stakeholder consultation	Fulya Ekinci Özen
5	Mayda	Cemil	Akbük Village	19/07/2023	Benefit of the project to the village	Fulya Ekinci Özen
6	Mayda	Mehmet	Akbük Village (headman)	19/07/2023	Odour Local employees Roads of the village	Fulya Ekinci Özen
7	Mayda	Cahit	Akbük Village	19/07/2023	Dust Logbook & Input Expropriation	Fulya Ekinci Özen

The site visit was conducted on 19/07/2023 with the PP and carbon consultant by the VVB. Hence, the interviews were conducted at on-site. Odor problem is thoroughly discussed with local stakeholders and it they confirmed that odour problem was greatly reduced via project activity.

VVB has carried out interviews with relevant employees to verify the implementation and operation of the GS project activity as per the prepared PDD or any supporting documentation.

During onsite visit it was confirmed that no negative feedback or comments were received related to project activity during grievance mechanism and continuous inputs for the project.

In addition to this during interview, it is asked to the stakeholders and project employees if any legal contests or disputes have arisen during the monitoring period, and they confirmed that there is no legal contest or disputes have arisen.

C.4. Sampling approach

There is no sampling approach applied.

C.5. Clarification requests, corrective action requests and forward action requests raised

Areas of validation findings	No. of CR	No. of CAR	No. of FAR
Project design document			
Description of project activity	1		
Application of selected baseline and monitoring methodology and selected standardized baseline			
- Applicability of methodology and standardized baseline			
- Deviation from methodology			
- Clarification on applicability of methodology, tool and/or standardized baseline			
- Project boundary			
- Establishment and description of baseline scenario			

- Project eligibility			
- Demonstration of additionality		1	
-Sustainability assessment			
- Emission reductions			
- Monitoring plan			
- Sustainability Monitoring plan			
Duration and crediting period			
Environmental impacts			
Local stakeholder consultation			
Pre-feasibility assessment			
Others (please specify)			
Total	1	1	

SECTION D. Validation findings

D.1. Project design document

Means of validation	The title of the project activity is defined as “Gazişehir LFG Utilization Project” in the PDD version 7.0 of 04/07/2024/ /1/ which is in line with the GS Registry. The version and the completion date of the report are available at the cover page of the PDD. “GS4GG Project Design Document Template /22/ , version 1.5” which is the latest version is applied with the PDD /1/ .
Findings	N/A
Conclusion	RINA confirms that the PDD is based on the currently valid GS4GG Project Design Document Template /22/ , version 1.5.

D.2. GS Passport

Means of validation	No GS Passport is available under GS4GG.
Findings	NA
Conclusion	No GS Passport is available under GS4GG.

D.3. Description of project activity

Means of validation	The proposed project is a Greenfield project where no other power plant was located at the same site prior to the implementation of the project activity, which is confirmed during the site visit audit. The proposed project activity involves installation of a new LFG capture system. The project activity consists of 11 engines ((5x1,451) + (5x1,161) + 0,823 MWm / ((5x1,413) + (5x1,131) + 0,800 MWe) verified through site visit and generation license /18/. Total capacity has been checked during the validation process as confirmed through the Temporary Acceptance Protocol /19/. The technical specifications of engine are discussed in PDD. The Project Activity uses; Innio Jenbacher Type 4 j420 Model /29/ /35/. The generated electricity will be fed to grid at Gaziantep 6 TM as per the Generation License /18/. It is confirmed that the expected annual average electricity generation is 60,000 MWh (this is based on 85,176 MWh electricity generation, which is based on 6300 operational hours) in the PDD /1/. The latitude and longitude of the plant is presented in the PDD /1/ as confirmed through the Generation License /18/. The category of the project activity is identified correctly in the PDD /1/. The project activity is a landfill plant and considered as a Waste Handling and Disposal. The sectoral scope is “13” and “1” as defined in Section A.1.1 of the PDD /1/. The demonstration of the Project activity meeting the eligibility criteria has been represented below in line with the GS requirements /11/ /20/: a) Type of project: The project is a Project Activity using landfill gas, in accordance with Activity Requirements. (Project type is eligible for issuance of GSVERs in line with the product requirements.
----------------------------	---

- b) Location of project: The project is located in Gaziantep Province, Türkiye.
- c) Project Area, Boundary and Scale: The host country for the project activity is Türkiye. The proposed project activity is a renewable energy project, which involves LFG coverage and utilization of the LFG for electricity generation. The licensed capacity of the proposed project activity is 13.520 MWe. Although this capacity is below the small-scale threshold for Gold Standard, the expected emission reductions exceed 60,000 tCO₂ which is the upper limit for applicability of small-scale methodology AMS-III-G "Landfill methane recovery". Therefore, ACM0001 approved consolidated methodology "Flaring or Use of Landfill Gas" is considered applicable to the project activity, and the scale is defined as large scaled)
- d) Project activity is in compliance with Host Country's legal, environmental, ecological and social regulations. No Suppressed Demand scenario has been applied when establishing a baseline.
- e) Contact details of the project owner can be found in Appendix 2 of PDD.
- f) Gazişehir Enerji Üretim Sanayi Ticaret A.S." holds the legal ownership of VERs generated /16/.
- g) Other rights: There are no disputes or contested rights that have been identified in relation to rights relevant to the project activity. The PDD declares that there are no declared disputes or contested rights.
- h) The Official Development Assistance (ODA) Declaration was also signed by the Project Developer and provided /5/.

The main equipment used at the project activity is given below:

Equipment	Purpose	Technical Details
Flow Meter	Used to monitor $V_{t,wb}$ the volumetric flow of the gaseous stream in time interval t on wet basis	EPI Series 540 thermal mass flow Serial number: 21021903 Accuracy +/- 1% Date of Calibration: 17/03/2021 /44/
Gas Analyzer (stationary)	Used to monitor vCH_4, t, wb the volumetric fraction of CH ₄	EPI Series 540 Serial number: 21041502 Accuracy +/- 1.8% Date of Calibration: 10/05/2021/44/
Gas Analyzer (non stationary)	Used to monitor vCH_4, t, wb the volumetric fraction of CH ₄	SWG100biogas Serial number: 081440 Date of Calibration: 25/05/2021
Electricity Meter	Used to monitor ECBL,y and ECPJ,y amount of electricity that is generated and consumed by the project activity.	KÖH – AELTF 21012222 Accuracy Class C 0.5 Date of Calibration: 29/06/2021 performed by Toroslar Elektrik Dağıtım A.S.

Findings	Please refer to CR 1 Appendix 4 of this project.
Conclusion	RINA confirms that the given explanation of project activity provided in PDD is in accordance with what was checked during the on-site visit and based on the above referred documents.

D.4. Application of selected baseline and monitoring methodology

D.4.1. Applicability of methodology

Means of validation	The project correctly applies the approved baseline and monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 19.0 of 14/06/2019 /9/ as indicated in the PDD /1/. The applied methodology is approved by CDM and the applied version is the latest version at the time of PDD submission.	
	Applicability criteria	Project activity
	ACM0001	
	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 amount of LFG capture and flared is available;	A new LFG capture system has been installed in an existing SWDS where no LFG capture system was or would have been installed prior to the implementation of the project activity.
	(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;	In scope of the project activity, the captured LFG is used for only generating electricity. Thus, it meets this criterion.
	(d) Do not reduce the amount of organic waste that would be recycled in the absence of the project activity.	The project activity has no effect on the amount of organic waste that would be recycled in the absence of the project activity, since there is no current treatment for the wastes on the landfill site.
	2. 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;	The baseline scenario for LFG is assumed to be the atmospheric release of the LFG since there was no capture of LFG and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons before the project activity.
	(b) In the case that the LFG is used	The LFG is used in the project activity for

	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;	generating electricity that is fed into the grid.
	(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 assumed to be displacement of natural gas.	In scope of the project, there is no LFG supply to the end-user(s).
	(d) 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.	A new LFG capture system has been installed in an existing SWDS. The baseline scenario for LFG is assumed to be the atmospheric release of the LFG since there was no capture of LFG and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons before the project activity.
	3. 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;	Project is not involved in an activity related with kiln, glass melting furnace or any other energy efficiency activity.
	(b) 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	If any situation occurs related with change of the management of the SWDS in the project activity during the crediting, the VVB and the Gold Standard will be informed.
Findings	N/A	
Conclusion	RINA confirms that the selected baseline and monitoring methodologies have been previously approved by the CDM Executive Board and are applicable to the project, which complies with all the applicability conditions therein the selected versions are valid at the time of submission of crediting period. It is also confirmed that the methodologies are correctly applied by comparing them with the actual text of the applicable versions.	

D.4.2. Deviation from methodology

Means of validation	There is no deviation from methodology “ACM0001”, “Flaring or use of landfill gas”, version 19.0 of 14/06/2019 /9/. However, the project has a deviation related to retroactive submission /45/. After thorough review and consideration of the deviation request submitted by the Project Developer (PD) regarding the Gazişehir LFG Utilization Project (GS11662), it is concluded that the requested deviation is justifiable and in accordance with the applicable rules and requirements outlined in the Gold Standard for Global Goals (GS4GG) Principles and Requirements version 1.2 /20/. The deviation request pertains to paragraphs 4.1.49(b) and 5.1.7 of the Principles
----------------------------	--

	and Requirements, specifically regarding the submission timeline for preliminary review documents and the interpretation of the start of the Preliminary Assessment process. Comprehensive documentation and reasoning provided by the Project Developer support their request. Compliance with core principles and requirements of the Gold Standard, including the timely submission of key project information and documents relevant to the preliminary review process, has been demonstrated. Regarding the interpretation of paragraph 5.1.7, alignment with the Project Developer's explanation is found. Their clarification on the partial submission of documents and the delayed payment of the Preliminary Review Fee is deemed reasonable given the circumstances outlined in the deviation request. Furthermore, the requested deviation will not compromise environmental integrity, contribute to Sustainable Development Goals (SDGs), or contravene safeguarding principles and requirements. It also does not conflict with local regulations in the host country (Türkiye). Based on the information provided and the assessment of the deviation request, it is recommended to approve the deviation and allow the Gazişehir LFG Utilization Project (GS11662) to proceed with the retroactive project cycle as requested by the Project Developer.
Findings	NA
Conclusion	RINA validated that no deviation from methodology is available. However, it has been validated that the project has approved deviation related to preliminary submission process /45/ .

D.4.3. Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	The project correctly applies the approved baseline and monitoring methodology "ACM0001", "Flaring or use of landfill gas", version 19.0 of 14/06/2019 /9/ as indicated in the PDD /1/. The applied methodology is approved by CDM and the applied version is the latest version at the time of PDD submission. The project activity meets the eligibility criteria in accordance with GS4GG Principles and Requirements /20/, GHG Emissions Reduction & Sequestration Product Requirements, Renewable Energy Activity Requirements as well /11/. The following tools are applied: 1. Emissions from solid waste disposal sites (version 08.1 of 24/03/2023); /12/ 2. Investment analysis (version 12.0. of 28/11/2019) /13/. 3. Tool to determine the remaining lifetime of equipment (version 01.0.0 of 16/10/2009); /15/ 4. Tool to determine the mass flow of a greenhouse gas in a gaseous stream (version 03.0.0 of 27/11/2015); /32/ 5. Combined tool to identify the baseline scenario and demonstrate additionality (version 07.0.0 of 22/09/2017); /17/ 6. Tool to calculate project or leakage CO2 emissions from fossil fuel combustion (version 03.0.0 of 22/09/2017); /33/ 7. Tool to calculate the emission factor for an electricity system (version 07.0.0 of 31/08/2018); /10/
Findings	NA
Conclusion	RINA confirms that the selected baseline and monitoring methodologies have been previously approved by the CDM Executive Board and are applicable to the project, which complies with all the applicability conditions therein the selected versions are valid at the time of submission of crediting period. It is also confirmed that the methodologies are correctly applied by comparing them with the actual text of the applicable versions.

D.4.4. Project boundary

Means of validation	The project boundary clearly defined in accordance with the applied methodology, According to the approved baseline and monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 19.0 of 14/06/2019 /9/ and the project boundary is the site where the gas is captured and destroyed/used (including gas collection system, electric generators and flaring system), and includes the project power plant and connected physically to the electricity system that the project is connected to. A flow diagram of the project boundary, physically delineating the project activity is presented in the PDD /1/. The source of baseline emission CO₂ and CH₄ emissions are included in baseline calculation since fossil fuels fired for electricity generation. N₂O emissions are neglected regarding to the methodologies. Project emissions are calculated regarding to the methodology of ACM0001. The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available in the PDD /1/ in accordance with the “Tool to calculate emission factor of electricity system” /10/.
Findings	NA
Conclusion	RINA confirmed that the project boundary is clearly defined and in accordance with the applied methodology, ACM0001. /9/ .

D.4.5. Establishment and description of baseline scenario

Means of validation	The baseline scenario for the project activity for ACM0001 /9/ is the situation where, in the absence of the project activity, biomass and other organic matter are left to decay within the project boundary and methane is emitted to the atmosphere. Baseline emissions shall exclude methane emissions that would have to be removed to comply with national or local safety requirement or legal regulations. According to Section 5.3.1. of ACM0001 (version 19), electricity generated by the project activity is exported to the grid, the baseline scenario for all or the part of the electricity exported to the grid is assumed to be new grid-connected power plants. According to para 24 of ACM0001, the baseline scenario for heat is assumed to be a new natural-gas-fired heat generation equipment with a default baseline efficiency of 100 per cent or with a default baseline efficiency as provided in Option F of the “Tool to determine the baseline efficiency of thermal or electric energy generation systems”. The current baseline is assessed using the following Sub-steps: Step 0: Demonstration whether the proposed project activity is the First-of its-kind This step is not applied. Step 1: Identification of alternative scenarios It is assessed that this step serves to identify all alternative scenarios to the proposed project activity which can be the baseline scenario following the sub-steps: Step 1a: Define alternative scenarios to the proposed project activity: In line with ACM0001 “Flaring or Use of Landfill Gas” version 19.0.0 and applicable tool(s), alternative scenarios are identified as follows: <i>LFG1: The proposed project activity undertaken without being registered as GS VER project activity</i> <i>LFG2: 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</i> <i>LFG3: Atmospheric release of the LFG or capture of LFG in an unmanaged SWDS and destruction through flaring to comply with regulations or contractual</i>
----------------------------	--

requirements, to address safety and odour concerns, or for other reasons
 LFG4: LFG generation is partially avoided because part of the organic fraction of the solid waste is recycled and not disposed in the SWDS
 LFG5: LFG generation is partially avoided because part of the organic fraction of the solid waste is treated aerobically and not disposed in the SWDS
 LFG6: LFG generation is partially avoided because part of the organic fraction of the solid waste is incinerated and not disposed in the SWDS

Since LFG is used for generating electricity for export to the grid, the following alternatives have been also assessed:

E1: Electricity generated from LFG undertaken without being registered as a VER project activity

E2: Electricity generation in existing or new renewable or fossil fuel based captive power plant

E3: Electricity generation in existing and/or new grid connected power plants

The proposed project activity does not involve thermal energy generation, all the alternatives for heat generation are not included in the analysis.

All alternatives are similar to other comparable project activities within Türkiye.

Outcome of Step 1a:

Two alternatives' scenarios have been identified by the PP as follows;

Scenario	Alternatives			Description of situation
	Landfill Gas	Electricity	Heat	
1	LFG 1	E 1	n.a.	Project activity including power generation from LFG without being registered as a VER project activity.
2	LFG 2	E 3	n.a.	Atmospheric release of the LFG and electricity would have been generated by the existing grid connected power plants as continuation of the situation before the project activity.

Step 1.b: Consistency with mandatory laws and regulations

Related laws and regulations to the proposed project activity are as followed:

- Electricity Market Law [Law Number: 4628 Ratification Date: 20.02.2001 Enactment Date: 03.03.2001]
- Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy [Law Number: 5346 Ratification Date: 10.05.2005 Enactment Date: 18.05.2005]
- Environmental Law [Law Number: 2827 Ratification Date: 09.08.1983 Enactment Date: 11.08.1983]
 - Regulation on Solid Waste Control [Last updated on 05.04.2005]

Findings	NA
Conclusion	RINA confirmed that the baseline scenario is clearly defined and in accordance with the applied methodology, ACM0001 /9/.

D.4.6. Proof of project eligibility

Means of validation	The demonstration of the Project activity meeting the eligibility criteria has been represented below in line with the GS requirements /11/ /20/: a) Type of project: The project is a Project Activity using landfill gas, in accordance with Activity Requirements. (Project type is eligible for issuance of
----------------------------	--

	GSVERs in line with the product requirements. b) Location of project: The project is located in Gaziantep Province, Türkiye. c) Project Area, Boundary and Scale: The host country for the project activity is Türkiye. The proposed project activity is a renewable energy project, which involves LFG coverage and utilization of the LFG for electricity generation. The licensed capacity of the proposed project activity is 13.520 MWe. Although this capacity is below the small-scale threshold for Gold Standard, the expected emission reductions exceed 60,000 tCO₂ which is the upper limit for applicability of small-scale methodology AMS-III-G "Landfill methane recovery". Therefore, ACM0001 approved consolidated methodology "Flaring or Use of Landfill Gas" is considered applicable to the project activity, and the scale is defined as large scaled) d) Project activity is in compliance with Host Country's legal, environmental, ecological and social regulations. No Suppressed Demand scenario has been applied when establishing a baseline. Generation license has been used as evidence /18/ Related laws and regulations to the proposed project activity are as followed: • Electricity Market Law [Law Number: 4628 Ratification Date: 20.02.2001 Enactment Date: 03.03.2001] • Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy [Law Number: 5346 Ratification Date: 10.05.2005 Enactment Date: 18.05.2005] • Environmental Law [Law Number: 2827 Ratification Date: 09.08.1983 Enactment Date: 11.08.1983] Regulation on Solid Waste Control [Last updated on 05.04.2005] e) Contact details of the project owner can be found in Appendix 2 of PDD. f) Gazişehir Enerji Üretim Sanayi Ticaret A.S. holds the legal ownership of VERs generated /16/. g) Other rights: There are no disputes or contested rights that have been identified in relation to rights relevant to the project activity. The PDD declares that there are no declared disputes or contested rights. h) The Official Development Assistance (ODA) Declaration was also signed by the Project Developer and provided /5/. Therefore, the proposed project activity is deemed to be eligible under gold standard GS4GG. Finally, it is confirmed that the project is located in an area where there is no other Gold Standard or any carbon standard programme of similar nature /37/.
Findings	NA
Conclusion	RINA hereby confirms that the selected baseline and monitoring methodology has been previously approved by the CDM Executive Board and allowed the use of GS Board, and is applicable to the Project, which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed project activity for registration. It is also confirmed that the methodologies are correctly applied by comparing it with the actual text of the applicable version of the methodology.

D.4.7. Demonstration of additionality and conservativeness

Means of validation	According to the GS4GG Requirements /20/, the additionality of the project has been established applying the "Tool for the demonstration and assessment of additionality", version 07.0 of 23/11/2012 /17/. According to the GS4GG Principles & Requirements /20/, the additionality of the project has been established applying the "Tool for the demonstration and assessment of additionality",
----------------------------	---

07.0.0 of 23/11/2012 /17/.

Choice of approach

For the demonstration of additionality the PP has used the “Combined tool to identify the baseline scenario and demonstrate additionality Version 07.0 /17/, choosing Investment Analysis, Option III: Benchmark analysis as appropriate for the project since the project generates financial and economic benefits through the sales of electricity generating other than Verified Emissions Reductions (VER) related income (and hence the “Simple Cost Analysis” is not applicable).

The rejecting Investment comparison analysis as a method is in line with the Tool /17/ – the baseline scenario is the continuation of electricity supply from the existing power grid to meet the electricity demand rather than a new power investment project, hence investment comparison analysis is not appropriate.

The investment analysis has been carried out in accordance with the specific guidance of the EB (Tool 27: Investment analysis, v.12 /13/), which could be verified by checking the IRR calculation spreadsheet provided by the project participant's /06/. It could be verified that the cash flow calculation had the right structure, is complete, and is accurate. All the formulas in the spreadsheet are readable, relevant cells are viewable and unprotected.

Benchmark selection

As stated above the Project Proponent used a benchmark calculated according to the requirements of the “Tool for the Demonstration and Assessment of Additionality” ver. 07.0.0 /17/ - Sub-step 2b: Option III. Apply benchmark analysis.

The Project Proponent has based the choice of the benchmark on the World Bank Report “IMPLEMENTATION COMPLETION AND RESULTS REPORT”/46/, dated 19/06/2017. According to that report the recommended benchmark IRR for biogas projects is 20 %. The IRR in that case is defined as equity IRR after taxes.

Choice of financial indicators

The PP has identified the equity IRR after taxes as the most suitable financial indicator for the project that corresponds to the type of the benchmark chosen /46/.

The equity IRR of -12 % after taxes is calculated based on the input parameters that have been valid at the time of the investment decision taking which is 14/02/2021 – Board Decision of the Project Owner Gazişehir Enerji Uretim Sanayi Ticaret A.S. /40/.

The IRR is calculated for 10 years (plus 1 year investment period) which is in line with the requirements of Tool 27 :Investment Analysis, v.12 /13/.

RINA has validated the input parameters used in the investment analysis as follows:

Assessment of the sources used for input parameters

RINA compared the input parameters for the financial analysis included in the PDD /01/ and in the IRR spreadsheet /4/ with the parameters stated in the publicly third-party sources /42/, /43/, /46/, /47/, /48/, /49/, /50/, /51/, /52/, /54/ and was able to confirm that the values applied are consistent with the values stated in the document mentioned before.

All the data used for the investment analysis were available at the time of the investment decision (14/02/2021) The PDD /01/ and the IRR calculation spreadsheet /06/ present the input parameters used for the calculation of the equity IRR after taxes, as follows:

Input parameter	Unit	Value
Total Investment Cost	\$/kW (\$)	4,114.00 (49,684,778.00)
Loan	\$	9,936,956.00
Equity	\$	39,747,822.00
Equity/Loan rate	%	80/20
Rate	%	3.0
Repayment period	Years	5
Installed Capacity	MWe	13.52

Annual Electricity Generation (Net)	MWh/year	85,176
Electricity tariff	\$cent/kWh	5.82
Estimated load factor	Hours/y (-)	6,300 (0.72)
Annual Operational Expenses (fixed)	\$/kW/year (\$/year)	105.00 (1,419,600)
Annual Operational Expenses (variable)	\$/kW/year (\$/year)	5.22 (448,026)
Corporate Tax Rate	%	25
Depreciation Rate	%	10

Assessment:

In order to verify the input parameters the audit team performed the following assessment:

1. Installed capacity 13.52 MWe: The value has been checked by studying the Generation License No EU/10239-1/04905, dated 27/05/2021/[/18/](#) and Gas Engine Purchase Invoices for INNIO company [/29/](#). The capacity of the plant was crosschecked by studying the System Connection Agreement with Toroslar Elektrik Dağıtım A.Ş [/36/](#), dated 27/10/2022.

The capacity of the installation was verified and confirmed by the audit team.

2. Grid Connected Output /net/ to be sold 85,176 MWh/year. The Plant Load Factor (PLF) represents 72% of the total annual generating capacity and has been defined based on 6,300 hours operation annually leaving the rest of the time for maintenance and shut-downs. The value applied for the calculation of the equity IRR takes into consideration the PLF and the electric energy delivered for plant own needs.

The value has been checked by studying the Generation Licenses No EU/10239-1/04905, dated 27/05/2021 [/18/](#).

The annual net generation capacity was verified and confirmed by the audit team.

3. Total capital investment of 4,114.00 US\$/kWe (total of 49,684,778.00 US\$). The unit investment cost has been estimated based on the Cost Analysis of Energy Generation Plants in Türkiye Report [/52/](#). The total investment cost has been calculated by multiplying the estimated installed capacity of 12.077 MWe by the unit cost. The audit team verified the estimated values by studying the "Financing Energy Transition in Turkey" Report [/51/](#), issued by the government agency SHURA (Energy Transition Center), and the IRR financial analysis calculation sheet [/06/](#).

The amount of the investment considered in the Investment analysis was verified confirmed by the audit team.

4. O&M expenses (fixed) of 1,419,600.00 US\$/year plus 448,026 (variable). The fixed O&M expenses of 105.00 US\$/kW/year have been estimated based on the publicly available source "Cost Analysis of Energy Generation Plants" Report [/52/](#). The variable O&M expenses of 5.26 US\$/kW/Year have been estimated based on the same Report as the fixed expenses [/52/](#). In order to verify the estimated values the audit team studied the referred Report [/52/](#) and the IRR financial analysis calculation sheet [/06/](#).

The amount of the O&M expenses considered in the Investment analysis was confirmed by the audit team.

5. Corporate tax rate 25%.

The value was verified confirmed by visiting the website of KPMG [/49/](#) for Türkiye.

6. Electricity tariffs of 5.82 US\$cent/kWh. The Turkish laws guarantee that high feed-in tariff for a period of 10 years. The tariff was confirmed by visiting the website of the Turkish government [/42/](#) [/43/](#) [/50/](#).

7. Depreciation rates of 10 years for the equipment.

The values were verified by visiting the website of the Turkish government [/47/](#) and Turkish revenue administration [/48/](#).

8. Loan/Equity ratio of 20/80. The estimated parameters of the loan are as follows:

- Loan amount – 9,936,956.00 US\$;
- Interest rate – 3.0%
- Payment period – 5 years

This ratio and the interest rate have been defined based on the SHURA Report [/51/](#). In order to verify the estimated values the audit team studied the referred Report [/51/](#), the website of the Turkish Central Bank for the loan rates [/54/](#), and the IRR financial analysis calculation sheet [/06/](#).

The estimated parameters of the loan have been confirmed.

The result of the equity IRR calculated is as follows:

Equity IRR after taxes of Scenario 1: Project activity including power generation from LFG without being registered as a VER project activity	Benchmark: 20%	IRR: -12%
---	----------------	-----------

Sensitivity analysis

The Sensitivity analysis has been performed for the following parameters, representing at least 20 % of the total amount of revenues/expenses, as per the requirements of TOOL 27:Investment Analysis,v.12 [/42/](#):

Electricity generation

Investment cost

Tariff

The results of the analysis are given in the following modified table because the equity IRR calculated is negative and applying a -/+ % variance has no meaning:

Parameter	Value applied	Equity IRR reached	Change %
Electricity price	6.40 \$cent/kWh	-9%	+10%
Electricity generation	93,6 GWh/y	-10%	+10%
General Overheads (O&M expenses)	95 \$/kW	-11%	-10%
Total Investment	3,702 \$/kW	-10%	-10%

% of change required to reach benchmark	
Electricity Price	+340%
Electricity Generation	+340%
Investment	-24%
Electricity Tariff	+300%

Parameter	Value applied to hit the benchmark	Assessment
Electricity Price	19.79 \$cent/kWh	The IRR only reaches the benchmark value if the electricity price is 19.79 \$cent/kWh. The recent developments in the global energy market have

			resulted in a steep increase in the overall energy prices as well causing prices to fluctuate violently. The average whole sales price has spiked for the year 2022 with 15,34 \$cent/kWh. It should be noted that this spike was due to extreme market conditions mostly associated with the Ukraine – Russia conflict and energy crises. Based on August 2023 figures the average wholesale price very quickly was decreased to 4.08 \$cent/kWh. There is also a feed-in tariff guarantee applicable to renewable energy utilization. This has been established since 2005 mainly to support the development of renewable energy. For generation capacities commissioned after 01/07/2021 can benefit from this feed-in tariff. However the law also provides a cap for the guaranteed tariff which is set to 6,05 \$cent/kWh²⁸ which sets the maximum level of subsidies price a LFG Utilization project can benefit. Even under the most extreme market conditions the IRR couldn't reach to 18.15 \$cent/kWh ranges so it is concluded that this is not plausible scenario, and the IRR is likely to remain under the benchmark value.
	Electricity Generation	258,690 MWh/y	The project activity has a licensed capacity of 13.52 MWe which means that it can generate a maximum of 118,435 MWh/y at full load, 100% annual availability. Although increasing the licensed capacity is technically possible, this will mean that additional investment is required for the additional capacity. Furthermore, a capacity increase will be only viable if there is matching amount of LFG from the landfill itself. The electricity generation will not reach to 258,960 MWh/y values so it is concluded that this is not plausible scenario, and the IRR is likely to remain under the benchmark value.
	Total Investment	49,684,778.00 \$	Initial investment costs differ from region to region and with scale. Many sources such as IRENA (The International Renewable Energy Agency) -serving as the principal platform provides state of the art data and analyses on technology, innovation, policy, finance and investment- provide detailed analysis of costs and comparisons for each technology. Taking into account biogas as the feedstock for bioenergy the latest figures (2022), indicate a low price of 702 USD/kWe up to 7445 USD/kW range. The lower cost ranges are more with feedstocks such as bagasse, rice husks and other vegetal and agricultural waste types while upper cost ranges are with landfill and renewable municipal waste types. Landfill gas utilization projects are considered as more costly to other types of renewable energy (particularly solar and wind) and the initial costs associated with the investment is higher for such projects especially in Europe and close regions. For landfill gas projects can go as high of 7,445 USD /kW for renewable municipal waste projects in Europe. This is because in these regions, the technological options used to develop projects are more heterogeneous and, on average, more expensive²⁹. It is concluded that this is not plausible scenario, and

		the IRR is likely to remain under the benchmark value.
	O&M expenses	- Even if O&M expenses become 0, the IRR will still remain negative.
	The sensitivity analysis demonstrates that the project is not the most financially attractive and therefore can be considered as additional to the baseline scenario. Following the investment analysis and the sensitivity analysis assessment RINA approves the selected benchmark and the equity IRR after taxes calculated for this project. Common Practice Analysis According to the methodological tool for the Demonstration and Assessment of Additionality /17/ and Tool24: Common Practice, Ver.3.1, the stepwise approach for common practice analysis have been conducted applying the following steps: Step 1: The applicable output range is calculated as +/-50% of the capacity of the project activity in line with the tool. The project comprises an installed capacity of 13 MWe; therefore, the applicable output range is 6 MWe to 20 MWe. Step 2: The applicable geographical area for the proposed project covers the entire host country (Türkiye) as the default area specified in the guideline. All plants that deliver the same output, within the applicable output range calculated in Step 1, as the proposed project activity and have the same measure and the same energy source are selected. All of the selected plants deliver the same service which is the electricity generation. Applicable output range has been determined and all of the power plants are taken from the latest available year 2023. Ministry of Energy and Natural Sources of the Republic of Türkiye Database have been used as a main resource. Therefore all of the compared power plants have been operational before the implementation of the project activity. Step 3: All the power plants except CDM projects are identified as Nall. Characteristics of the power plants are also indicated in this excel sheet /3/. After excluding the registered VER projects, there exist only 41 power plants being operated in Türkiye. Therefore; Nall = 41 Step 4: Since the total number of Nall is calculated as 41, different technologies in the proposed project activity defined as Ndiff is calculated as 40. There is no different scale and different to the technology project therefore Ndiff=40. Step 5: Factor $F = 1 - Ndiff / Nall$ representing the share of plants using technology similar to the technology used in the proposed project activity in all plants that deliver the same output or capacity as the proposed project activity. $F = 1 - Ndiff / Nall = 1 - (40 / 41) = 0.024 (> 0.2)$ $Nall - Ndiff = 42 - 40 = 1$ According to “Tool 24, Common Practice”, Version 03.1 (https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-24-v1.pdf), if the factor F is greater than 0.2 and Nall-Ndiff is greater than 3, then the proposed project is a “common practice”. The Nall-Ndif is calculated as 1, Therefore, the project is not a common practice.	
	Findings	Please refer to CAR 1 of Appendix 4 of this project.
	Conclusion	RINA confirmed that the additionality of the project has been established applying the “Tool for the demonstration and assessment of additionality”, 07.0.0 of 23/11/2012 /17/.

D.4.8. Sustainability assessment

Means validation of	As per GS4GG Safeguarding principles and requirements version 2.1 /14/, all projects shall conform to the Gold Standard for the Global Goals Safeguarding Principles & Requirements. SDG Impact tool has been also implemented as required by GS4GG and verified through the assessment tool by VVB.		
	The assessment is done as follows:		
	Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.
	Assessment team's Opinion/ justification for the mitigation measure		
	Principle 1: Human Rights		
	1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights. 2. The Project shall not discriminate with regards to participation and inclusion	Yes	The project respects human rights requirements especially through the respect of internationally proclaimed human rights and Declaration of Human Rights. Türkiye has ratified European Convention on Human Right /19/ on 10/03/1954. Therefore, the project is not expected to violate the rules regarding human rights.
	Principle 2. Gender Equality		
	1. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women 2. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work 3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks	Yes	The Project will not directly or indirectly lead or contribute to adverse impacts on gender. During the local stakeholder consultation and throughout the project's lifetime, women are welcome and encouraged to provide feedback about the project through various means of communication. For jobs created,
	No mitigation measure is required.		

	4. (Where required) Summary of opinions and recommendations of an Expert Stakeholder(s)		the equal pay for equal work principle is respected by the project developer. Türkiye has ratified ILO convention 100, 111, 122 and 142, which provides gender equality and promotes women's employment /20/. The project outputs serve everyone without regarding gender. It provides electricity for all.	
	Principle 3: Community Health, Safety and Working Conditions			
	1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community	Yes	The project activities don't include exposing the community to increased health risks and is not adversely affecting the health of workers and the community. Both the construction of project and their operation will respect the country's regulation and will not include any hazardous chemicals or material. Türkiye has ratified ILO convention 155 /26/ and about work safety and precautions. Staff will be trained during operation phases.	The project activities don't include exposing the community to increased health risks. material. Türkiye has ratified ILO convention 155 /26/ and about work safety and precautions. Staff will be trained during operation phases.
	Principle 4.1 Sites of Cultural and Historical Heritage			
	Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	No	The project activity doesn't include sites, structures or objects with historical, cultural, artistic, traditional, or religious values or intangible forms of culture it does not require alternation, damage or removal of any historical, artistic,	The Project Is implemented in accordance with the local municipalities and does not affect sites of cultural and historical heritage. No mitigation measure is required.

			traditional, religion or cultural heritage issues.	
	Principle 4.2 Forced Eviction and Displacement			
	Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The Project implementation does not cause relocation of any people.	The project activity does not require the physical or economic relocation of people. No mitigation measure is required.
	Principle 4.3 Land Tenure and Other Rights			
	(a) Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership? (b) For Projects involving land use tenure, are there any uncertainties with regards to land tenure, access rights, usage rights or land ownership?	No	a. There is no resettlement issue associated with the Project. The project does not cause any resettlement. All the lands to be used for the project are treasury lands. Therefore, there is no private lands and resettlement included in this project. The site is located on bare hills with poor vegetation like grass and bush land. b. There are no uncertainties with regards land tenure, access rights, usage rights or land ownership.	The Project does not involve land tenure arrangements, usage rights or land ownership. No mitigation measure is required.
	Principle 4.4-- Indigenous people			
	Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	There are no indigenous people present within the area of influence nor the project is located on territory claimed by indigenous people.	The project activity is not envisaged to have any negative impact on local communities. No mitigation measure is required.
	Principle 5 Corruption			
	The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	Yes	The project doesn't involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects. Türkiye has ratified several	The Project does not involve in any such activities. No mitigation measure is required.

			conventions on bribery and corruption /25/ including OECD and UN conventions.	
	Principle 6.1 Labour Rights			
	1. The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions 2. Workers shall be able to establish and join labour organisations 3. Working agreements with all individual workers shall be documented and implemented and include: a) Working hours (must not exceed 48 hours per week on a regular basis), AND b) Duties and tasks, AND c) Remuneration (must include provision for payment of overtime), AND d) Modalities on health insurance, AND e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave. 4. No child labour is allowed (Exceptions for children working on their families' property requires an <u>Expert Stakeholder</u>	Yes	The project developer is fully aligned with Türkiye's national labour law and with the principles and standards embodied in the ILO fundamental conventions. The project developer does not restrict workers to be able to establish and join Labour organisations. No child labour is used at all. Working agreements with all individual workers are documented and implemented. The labor contracts specify working hours, tasks and payments.	The Project activity abides by regulations of the host country and therefore follows the labour laws and policies of Türkiye including ILO ratificas /26/. No mitigation measure is required.

	opinion) 5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures			
	Principle 6.2 Negative Economic Consequences			
	1. Does the project cause negative economic consequences during and after project implementation?	No	No negative economic consequence is expected here.	No mitigation measure is required.
	Principle 7.1 Emissions			
	Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project is a wind power project and does not cause any greenhouse gas emissions in project scenario. Therefore, the does not lead to an increase in greenhouse gas emissions over the baseline scenario.	The Project reduces GHG emissions. No mitigation measure is required.
	Principle 7.2 Energy Supply			
	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	The intends to Generate renewable energy to the grid.	The Project will contribute to the increase of availability of energy supply. No mitigation measure is required.
	Principle 8.1 Impact on Natural Water Patterns/Flows			
	Will the Project affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	The project is not involved in abstraction from water resources required to support biodiversity and other ecosystem services. It doesn't negatively affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s). The project operation does not consume surface or groundwater, or	No mitigation measure is required.

			discharge wastewater containing heat of chemicals.	
	Principle 8.2 Erosion and/or Water Body Instability			
	(a) Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? (b) Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	No	The project activity has developed activities for prevention of soil erosion. The planning has been done in a way that the amount of excavation soil is equalized to the filling volume and excavation soils are utilized within the operation area.	The Project does not increase the erosion and/or lead to water body instability. No mitigation measure is required.
	Principle 9.1 Landscape Modification and Soil			
	Does the Project involve the use of land and soil for production of crops or other products?	No	The project activity does not involve the use of land and soil for production of crops or other products.	No mitigation measure is required.
	Principle 9.2 Vulnerability to Natural Disaster			
	Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	The Project will not be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions.	No mitigation measure is required.
	Principle 9.3 Genetic Resources			
	Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?	No	The Project doesn't involve the use of genetically modified organisms or GMO.	No mitigation measure is required.
	Principle 9.4 Release of pollutants			
	Could the Project potentially result in the release of pollutants to the environment?	No	The project activity is a renewable energy. Hence it does not lead to release of any pollutants. The project complies	The PA does not involve the release of pollutants to the environment. No mitigation measure is required.

			with the related regulations of Ministry of Environment and Urbanization.	
	Principle 9.5 Hazardous and Non-hazardous Waste			
	Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	During operation of the project activity, there are no positive nor negative impacts expected. During excavation and construction no hazardous, toxic or flammable materials have not been used. Hazardous wastes are handled appropriately in closed containers and transported by licensed transporters to the licensed processing and disposal facilities. The waste oil generated during the operation of the power plant will be disposed/managed in accordance with the applicable law and regulations. Waste oil disposal will be monitored through visual inspection or through evidence of disposal.	The Project does not involve hazardous waste generation. No mitigation measure is required. The waste oil generated during the operation of the power plant will be disposed/managed in accordance with the applicable law and regulations. This parameter will be verified through visual inspection or evidence of disposal.
	Principle 9.6 Pesticide and Fertilizers			
	Will the Project involve the application of pesticides and/or fertilizers?	No	The project does not involve any application of pesticides and/or fertilizers.	No mitigation measure is required.
	Principle 9.7 Harvesting of Forests			
	Will the Project involve the harvesting of forests?	No	The project does not involve the harvesting of forest.	No mitigation measure is required.
	Principle 9.8 Food			
	Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The project does not involve the modification of the quantity or nutritional quality of food available.	No mitigation measure is required.

	Principle 9.9 Animal Husbandry			
	Will the Project involve animal husbandry?	No	The project does not involve animal husbandry.	No mitigation measure is required.
	Principle 9.10 High Conservation Value Areas and Critical Habitats			
	Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	The Project does not physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified. Although the project is not located on a bird migration route and the bird collision risk is very low, the blades were painted by reflecting colour and appropriate lighting of the wind turbines were provided.	No mitigation measure is required.
	Principle 9.11 Endangered Species			
	a. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? AND/OR b. Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	No	The project activity does not have any foreseeable negative impacts on any endangered species.	No mitigation measure is required.
Findings	N/A			
Conclusion	RINA confirms that conservative approach has been applied by PP to demonstrate sustainable development of the project activity which is in line with GS4GG requirements.			

D.4.9. Emission reductions

Means of validation	Emission Reduction $ER_y = BE_y - PE_y$ ER_y = Emission reductions in year y (t CO₂e/yr) BE_y = Baseline emissions in year y (t CO₂e/yr) PE_y = Project emissions in year y (t CO₂/yr) Baseline Emissions $BE_y = BE_{CH4,y} + BE_{EC,y} + BE_{HG,y} + BE_{NG,y}$
----------------------------	--

BE_y = Baseline emissions in year y (t CO₂e/yr)
 $BE_{CH_4,y}$ = Baseline emissions of methane from the SWDS in year y (t CO₂e/yr)
 $BE_{EC,y}$ = Baseline emissions associated with electricity generation in year y (t CO₂/yr)
 $BE_{HG,y}$ = Baseline emissions associated with heat generation in year y (t CO₂/yr)
 $BE_{NG,y}$ = Baseline emissions associated with natural gas use in year y (t CO₂/yr)

Project activity does not include heat generation and natural gas use. Therefore;

$$BE_{HG,y} = 0$$

$$BE_{NG,y} = 0$$

Thus, baseline emissions are;

- Emissions of methane from the SWDS,
- Emissions associated with electricity generation

STEP A Emissions of methane from the SWDS

Baseline emissions of methane from the SWDS are determined and validated as follows, based on the amount of methane that is captured under the project activity. In addition, the effect of methane oxidation that is present in the baseline and absent in the project is taken into account as follows;

$$BE_{CH_4} = ((1 - OX_{top_layer}) \times F_{CH_4,PJ,y} - F_{CH_4,BL,y}) \times GWP_{CH_4}$$

$BE_{CH_4,y}$ = Baseline emissions of methane from the SWDS in year y (t CO₂e/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)

$F_{CH_4,PJ,y}$ = Amount of methane in the LFG which is flared and/or used in the project activity in year y (t CH₄/yr)

$F_{CH_4,BL,y}$ = Amount of methane in the LFG that would be flared in the baseline in year y (t CH₄/yr)

GWP_{CH_4} = Global warming potential of CH₄ (t CO₂e/t CH₄)

Since there is no regulatory or contractual requirement to destroy methane in the baseline;

$$F_{CH_4,BL,y} = 0$$

Step A.1: Ex-post determination of $F_{CH_4,PJ,y}$

During the crediting period $F_{CH_4,PJ,y}$ is determined as the amount of methane used in power plant(s) as follows:

$$F_{CH_4,PJ,y} = F_{CH_4,EL,y}$$

$$F_{CH_4,PJ,y} = F_{CH_4,flared,y} + F_{CH_4,EL,y} + F_{CH_4,HG,y} + F_{CH_4,NG,y}$$

$F_{CH_4,PJ,y}$ = Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH₄/yr)

$F_{CH_4,flared,y}$ = Amount of methane in the LFG which is destroyed by flaring in year y (t CH₄/yr)

$F_{CH_4,EL,y}$ = Amount of methane in the LFG which is used for electricity generation in year y (tCH₄/yr)

$F_{CH_4,HG,y}$ = Amount of methane in the LFG which is used for heat generation in year y (tCH₄/yr)

$F_{CH_4,NG,y}$ = Amount of methane in the LFG which is sent to the natural gas distribution network in year y (tCH₄/yr)

The amount of methane destroyed by electricity generation ($F_{CH_4,EL,y}$)

$F_{CH_4,PJ,y}$ is determined using the "Tool to determine the mass flow of a greenhouse

gas in a gaseous stream" version 03.0. The tool provides 6 different ways (A to F) to make these measurements and the corresponding calculation option for $F_{i,t}$.

Option C is applied in the proposed project activity. Since option B and E has not been selected as an option, the absolute humidity of the gaseous stream will not be determined.

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

Option C:

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

$$F_{i,t} = V_{t,db} \times V_{i,db,t} \times P_{i,t}$$

$$P_{i,t} = (P_t \times MM_i) / (R_u \times T_t)$$

$F_{i,t}$ = Mass flow of greenhouse gas i 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 wet basis (m³ dry gas/h)

$V_{i,t,db}$ = Volumetric fraction of greenhouse gas i in the gaseous stream in a time interval t on a wet basis (m³ gas i/m³ dry gas)

$P_{i,t}$ = Density of greenhouse gas i in the gaseous stream in time interval t (kg gas i/m³ gas i)

P_t = Absolute pressure of the gaseous stream in time interval t (Pa)

MM_i = Molecular mass of greenhouse gas i (kg/kmol)

R_u = Universal ideal gases constant (Pa.m³/kmol.K)

T_t = Temperature of the gaseous stream in time interval t (K)

It has been validated through site visit the Project used a flow meter directly measure normalized volume flow of gases ($V_{t,wb,n}$) without any additional pressure and temperature compensation.

Step A.1.1: Ex-ante estimation of $F_{CH4,PJ,y}$

An ex-ante estimate of $F_{CH4,PJ,y}$ is required to estimate baseline emissions of methane from the SWDS in order to estimate the emission reductions of the proposed project activity. In accordance with ACM0001 "Flaring or Use of Landfill Gas", it is determined as follows:

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

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

$BE_{CH4,SWDS,y}$ = Amount of methane in the LFG that is generated from the SWDS in the baseline scenario in year y (t CO₂e/yr)

η_{PJ} = Efficiency of the LFG capture system that will be installed in the project activity

GWP_{CH4} = Global warming potential of CH₄ (t CO₂e/t CH₄)

$$BE_{CH4,SWDS,y} = \varphi_y \times (1 - f_y) \times GWP_{CH4} \times (1 - OX) \times (16/12) \times F \times DOC_{f,y} \\ \times MCF_y \times \sum_{x=1}^y \sum_j (W_{j,x} \times DOC_j \times e^{-kj \times (y-x)} \times (1 - e^{-kj}))$$

$BE_{CH4,SWDS,y}$ = Baseline, project or leakage methane emissions occurring in year y generated from waste disposal at a SWDS during a time period ending in year y (t CO₂e/yr)

x = Years in the time period in which waste is disposed at the SWDS, extending from the first year in the time period ($x = 1$) to year y ($x = y$)

y = Year of the crediting period for which methane emissions are calculated (y is a consecutive period of 12 months)
 $DOC_{f,y}$ = Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y (weight fraction)
 $W_{j,x}$ = Amount of solid waste type j disposed or prevented from disposal in the SWDS in the year x (t)
 ϕ_y = Model correction factor to account for model uncertainties for year y (0.75)
 f_y = Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y
 GWP_{CH_4} = Global Warming Potential of methane
 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)
 MCF_y = Methane correction factor for year y
 DOC_j = Fraction of degradable organic carbon in the waste type j (weight fraction)
 k = Decay rate for the waste type j
 j = Type of residual waste or types of waste in the MSW

Parameters required applying the FOD model:

The parameters required to apply the FOD model is listed below. The parameters are selected according to Application A as defined under the tool "Emissions from solid disposal sites"

Parameter	Value
ϕ_y	A default value of 0.75
OX	A default value of 0.1
F	A default value of 0.5
$DOC_{f,y}$	A default value of 0.5
MCF_y	A default value of 0.1

All of them has been provided under section D.4.10 of this report.

Step A.2: Determination of $FCH_{4,BL,y}$

This step provides a procedure to determine the amount of methane that would have been captured and destroyed (by flaring) in the baseline due to regulatory requirements, or to address safety and odour concerns. ACM0001 "Flaring or Use of Landfill Gas" version 13.0.0 provides 4 cases and corresponding instructions.

"Case 1: No requirement to destroy methane exists and no existing LFG capture System" is related to project activity hence;

$$FCH_{4,BL,y}=0$$

STEP B Emissions associated with electricity generation

According to the methodological tool, baseline emission for electricity generation is calculated by multiplying the amount of electricity generated using LFG with carbon emission factor of the electricity source, which is the Turkish national grid.

$$BE_{EC,y} = \sum_k EC_{BL,k,y} \times FE_{EL,k,y} \times (1+TDL_{k,y})$$

$BE_{EC,y}$ = Baseline emissions for electricity generation in year y (tCO₂/yr)

$EC_{BL,k,y}$ = Quantity of electricity that would be generated using LFG in year y

	(MWh/yr) $FE_{EL,k,y}$ = Emission factor for electricity generation for source k in year y (tCO₂/MWh) $TDL_{k,y}$ = Average technical transmission and distribution losses for providing electricity to source k in year y Project Emissions $PE_y = PE_{EC,y} + PE_{FC,y} + PE_{DT,y} + PE_{SP,y}$ PE_y = Project emissions in year y (t CO₂/yr) $PE_{EC,y}$ = Emissions from consumption of electricity due to the project activity in year y (t CO₂/yr) $PE_{FC,y}$ = Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (t CO₂/yr) $PE_{DT,y}$ = Emissions from the distribution of compressed/liquefied LFG using trucks, in year y (t CO₂/yr) $PE_{SP,y}$ = Emissions from the supply of LFG to consumers through a dedicated pipeline, in year y (t CO₂/yr) $PE_{EC,y} = \sum_j EC_{PJ,j,y} \times EF_{EF,j,y} \times (1 + TDL_{j,y})$ $PE_{EC,y}$ = Project emissions from electricity consumption in year y (tCO₂/yr) $EC_{PJ,j,y}$ = Quantity of electricity consumed by the project electricity consumption source j in year y (MWh/yr) $EF_{EF,j,y}$ = Emission factor for electricity generation for source j in year y (tCO₂/MWh) $TDL_{j,y}$ = Average technical transmission and distribution losses for providing electricity to source j in year y Leakage The leakage emissions are neglected as per ACM0001 /9/. Emission Reduction The ex-ante emission reduction has been calculated as following equation in line with the ACM0001 /9/: $ER_y = BE_y - PE_y - LE_y$ All the documentation used by the project participants as the basis for assumptions and source of data are quoted and interpreted in the PDD and the Emission Reduction Calculation Spread Sheet /2/.
Findings	Please refer to CR 1 of Appendix 4 of this project.
Conclusion	It is RINA's opinion: (a) All assumptions and data used by the PP are listed in the PDD; (b) All documentation used by the PP as the basis for assumption and source of data is correctly quoted and interpreted in the PDD (c) All values used in the PDD and Ex-ante VERs spreadsheet including GWPs are considered reasonable in the context of the proposed project activity (d) The baseline methodology and methodological tools have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions; All estimates of the baseline and project emissions can be replicated using the data and parameters values provided in the PDD and Ex-ante VERs spreadsheet.

D.4.10. Monitoring plan

Means of validation	The monitoring plan (data and parameters fixed ex ante) includes all data and parameters fixed ex ante required by the applied methodology /9/.			
	Parameters ex-ante:			
		Data/ parameter	Unit	Value applied
	/1/	ϕ_y	-	0.75
		Assessment		
		The value has been applied according to the methodological tool "Tool to determine emissions avoided from disposal of waste at a solid waste disposal site" /12/.		
	/2/	OX (OX _{top_layer})	-	0.1
		Fraction of methane that would be oxidized in the top layer of the SWDS in the baseline. According to IPCC /30/, the oxidation factor is taken as 0.1. "When methane passes through the top-layer, part of it is oxidized by methanotrophic bacteria to produce CO ₂ . The oxidation factor represents the proportion of methane that is oxidized to CO ₂ . This should be distinguished from the methane correction factor (MCF) which is to account for the situation that ambient air might intrude into the SWDS and prevent methane from being formed in the upper layer of SWDS".		
	/3/	F	-	0.5
		A default value of 0.5 has been used as recommended by IPCC 2006 Guidelines for National Greenhouse Gas Inventories and 2019 Refinement/30/.		
	/4/	DOC _{f,default}	-	0.5
		A default value of 0.5 has been used as recommended by IPCC 2006 Guidelines for National Greenhouse Gas Inventories and 2019 Refinement/30/.		
	/5/	MCF _{default}	-	1
		According to IPCC /30/ the value of 1 has been used justified for anaerobic managed solid waste disposal sites. These must have controlled placement of waste (i.e.waste directed to specific deposition areas, a degree of control of scavenging and a degree of control of fires) and will include at least one of the following: (i) cover material; (ii) mechanical compacting; or (iii) leveling of the waste.		
	/6/	DOC _j	-	Different Values
		The following values for the different waste types have been applied (% wet waste): –43% wood and wood products –40% pulp, paper and cardboard –15% food, food waste, beverages and tobacco –24% textile –0% Glass, plastic, metal, other inert		

					waste –20% Garden, yard and park waste
/7/	k_j	1/yr	Different values		Decay rate for the waste type j The following values for the different waste types have been applied (boreal and temperature – wet): –0.03% wood, wood products and straw –0.06% pulp, paper, cardboard –0.185% food, food waste, sewage sludge, beverage and tobacco –0.1% non-food organics, putrescible garden and park waste
/8/	GWP_{CH_4}	tCO_2e/tCH_4	28		Global Warming Potential of CH_4 . As per the IPCC /30/, the value is fixed. It shall be updated according to any future COP/MOP decision
/9/	η_{PJ}	%	50		Efficiency of the LFG capture system that will be installed in the project activity. The value is taken as 50%.
/10/	$EF_{grid,OM,y}$ Operating Margin of Türkiye National Grid	tCO_2e/MWh	0.7424		The data used to determine the OM emission factor of the grid is obtained from “Informative Note on Emission Factor of Türkiye's National Electricity Grid” (ETKB-EVÇED-FRM-039 Rev.02) published /24/ by the Ministry of Energy and Resources., 20/09/2022”.
/11/	$EF_{grid,BM,y}$ Build Margin of Türkiye National Grid	tCO_2e/MWh	0.3680		The data used to determine the OM emission factor of the grid is obtained from The data used to determine the OM emission factor of the grid is obtained from “Informative Note on Emission Factor of Türkiye's National Electricity Grid” (ETKB-EVÇED-FRM-039 Rev.02) published /24/ by the Ministry of Energy and Resources., 20/09/2022”.
/12/	$EF_{grid,CM,y}$ Combined Margin of Türkiye National Grid	tCO_2e/MWh	0.5552		The data used to determine the OM emission factor of the grid is obtained from The data used to determine the OM emission factor of the grid is obtained from “Informative Note on Emission Factor of Türkiye's National Electricity Grid” (ETKB-EVÇED-FRM-039 Rev.02) published /24/ by the Ministry of Energy and Resources., 20/09/2022”. The emission factor is calculated as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the tool /10/.

/13/	Ru	Universal ideal gases constant. (Pa.m ³ /kmol.K). Tool to determine the mass flow of a greenhouse gas in a gaseous stream. A default value of 8314 Pa.m ³ /kmol.K has been used.
/14/	MM _{CH₄}	Molecular mass of CH ₄ (kg/kmol). Tool to determine the mass flow of a greenhouse gas in a gaseous stream. A default value of 16.04 kg/kmol has been used.
/15/	Pn	Total pressure at normal conditions. (Pa). A default value of 101325 Pa has been used.
/16/	Tn	Temperature at normal conditions. (K). A default value of 273.15 K has been used.
Parameters ex-post:		
	Parameter	Description/Assessment
/1/	EG _{PJ,y} (MWh/yr)	SDG7 Affordable and Clean Energy/ Indicator: 7.2.1 Renewable energy share in the total final energy consumption: Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y The quantity of electricity supplied by the project plants/units to the grid and the quantity of electricity delivered to the project plant/unit from the grid will be measured. There are two official and viable sources where the meter readings could be extracted from. One is the State Regulated Automated Meter Reading System (OSOS) and the other source is the EPIAS platform. OSOS will be considered as the main source for this parameter. If there is a difference more than 1% between two sources, the conservative value will be considered during ex-post calculations /1/. Net electricity generation will be measured by two meters which will be sealed by TEIAS and located at project site. The meters will comply with EMRA (Energy Market Regulatory Authority) regulation /27/. The accuracy class of the main meter defined and confirmed as 0.5s is in line with the “Communiqué for Measurement Devices used in the Electricity Market” /29/ as explained in the PDD /1/. The back-up meter’s accuracy class is defined as 0.5 and confirmed during the site visit. The maintenance and calibration of meters are under TEIAS responsibility. If any major discrepancy occurs between the two meters, TEIAS performs necessary calibration.
/2/	V _{t,wb}	Volumetric flow of the gaseous stream in time interval t on wet basis (m ³ wet gas/h): This parameter will be monitored continuously by volumetric flow meters. The flow meters will be calibrated (10 year) as per the regulations /27/. The Project uses a Flow Meter that provides normalized volume flow of gases without any additional pressure (Pt) and temperature (Tt) compensation. Value applied 25,661,969 m ³ of LFG
/3/	v _{CH₄,t,wb}	Volumetric fraction of CH ₄ in a time interval t on wet basis (m ³ gas CH ₄ / m ³ wet gas): This parameter will be monitored continuously by gas analyzer Continuous gas analyzer operating in wet-basis will be calibrated (10 year) as per the regulations /27/.
/4/	ECBL,y	SDG 7- Net amount of electricity generated using LFG by the project activity in year y (MWh/yr): The quantity of net electricity generation supplied to the grid by the project plant will be monitored based on the main meter (also referred as TEİAŞ meters) readings. If there is a difference more than 1% between two sources, the conservative value will be considered during ex-post calculations. Value applied as 85,176 MWh/yr. (This is based on 85,176 MWh electricity generation, which is based on 6300 operational hours.

	/5/	ECPJ,y	Quantity of electricity consumed by the project activity (MWh): The quantity of electricity consumed by the project plant will be monitored based on the main meter (also referred as TEIAS meters) readings Value applied 2 MWh. The quantity of electricity consumed is monitored by the same equipment, which monitors the net amount of electricity generated by the project activity. If there is a difference more than 1% between two sources, the conservative value will be considered during ex-post calculations
	/6/	TDLy	Average technical transmission and distribution losses (%): This parameter will be monitored annually. Value is taken as 13.8% for ex-ante calculations from TEIAS statistics.
	/7/	Operation of the power plant	Operational duration of the power plant (h) will be monitored annually by data log system of the power plant. The value for this crediting period is expected as 6300 h.
	/8/	ERy	SDG13 - Emission Reductions in year y (t CO _{2e}): This parameter will be calculated once for each monitoring period by electricity meters and emission factor of the project. The Project is estimated to reduce 293,576 tCO _{2e} emission reductions per year with a total of 1,467,881 tCO _{2e} over the 5 year first crediting period /2/
	/9/	Management of SWDS	Management of SWDS: Project participants will refer to the original design of the landfill to ensure that any practice to increase methane generation occurs prior to the implementation of the project activity. Any change in the management of the SWDS after the implementation of the project activity should be justified by referring to technical or regulatory specifications.
	/10/	SDG.8 / Quantification of employment	SDG.8.a / Quantification of employment: Minimum of 25 employee will be worked for project activity. Social security records will be provided for each verification.
	/11/	SDG.8 / Quality of Employment	SDG.8.b / Quality of Employment: All employees will be provided occupational health and security trainings training for each verification through training log book.
	/12/	Air quality	Air Quality (m ³):- Levels of sulphides combusted in the landfill gas engines. Calculated based on the amount of methane destroyed.the value has been applied as 128,309 m ³ The amount of sulphide will be calculated based on the amount of landfill gas combusted in the engines as followed: V sulphide destroyed=VLFG destroyed * 0.005 Where "V" represents the volume in m3. A conservative approach of 0.5% is set for the sulphide content.
	/13/	SDG.1 Social security coverage	SDG.1 Social security coverage: 100% of employees will have social security. Social security records will be provided for each verification.
	/14/	SDG.3 / LFG destroyed	SDG.3 / LFG destroyed: LFG amount destroyed by utilization is continuously monitored through volumetric flow meters. It will be provided for each verification.
Findings	Please refer to CR 1 of Appendix 4 of this project		
Conclusion	It is RINA's opinion that the monitoring plan is in accordance with the monitoring methodology; the monitoring plan will give opportunity for real measurement of achieved emission reductions. RINA has checked all the parameters presented in the monitoring plan against the requirements of the methodology and methodological tools. RINA confirms that the monitoring arrangements described in the monitoring plan, including the data management and quality assurance and quality control procedures, are feasible within the project design, and the means of implementation of the monitoring plan are sufficient to ensure the emission reductions achieved by/resulting from the proposed GS4GG project activity can be reported ex post and verified.		

D.4.11. Sustainability Monitoring plan

Means of validation	The Sustainability Monitoring Plan includes the way of monitoring for each GS indicator.		
		Parameter	Description/Assessment
	1	Quality of employment	SDG.8.b / Quality of Employment: All employees will be provided occupational health and security trainings training for each verification through training log book.
	2	Quantification of employment:	SDG.8.a / Quantification of employment: Minimum of 20 employee will be worked for project activity. Social security records will be provided for each verification.
	3	EG _{PJ,y} (MWh/yr)	SDG7 Affordable and Clean Energy/ Indicator: 7.2.1 Renewable energy share in the total final energy consumption: Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y The quantity of electricity supplied by the project plants/units to the grid and the quantity of electricity delivered to the project plant/unit from the grid will be measured. There are two official and viable sources where the meter readings could be extracted from. One is the State Regulated Automated Meter Reading System (OSOS) and the other source is the EPIAS platform. OSOS will be considered as the main source for this parameter. If there is a difference more than 1% between two sources, the conservative value will be considered during ex-post calculations /1/. Net electricity generation will be measured by two meters which will be sealed by TEIAS and located at project site. The meters will comply with EMRA (Energy Market Regulatory Authority) regulation /27/. The accuracy class of the main meter defined and confirmed as 0.5s is in line with the "Communiqué for Measurement Devices used in the Electricity Market" /29/ as explained in the PDD /1/. The back-up meter's accuracy class is defined as 0.5 and confirmed during the site visit. The maintenance and calibration of meters are under TEIAS responsibility. If any major discrepancy occurs between the two meters, TEIAS performs necessary calibration.
	4	ERY	SDG13 Climate Action/ Indicator: 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula: SDG13 - Emission Reductions in year y (t CO₂e): This parameter will be calculated once for each monitoring period by electricity meters and emission factor of the project. The Project is estimated to reduce 293,576 tCO₂eq emission reductions per year with a total of 1,467,881 tCO₂e over the 5 year first crediting period /2/.
	5	Air quality	Air Quality (m³):- Levels of sulphides combusted in the landfill gas engines. Calculated based on the amount of methane destroyed.the value has been applied as 128,309m³ The amount of sulphide will be calculated based on the amount of landfill gas combusted in the engines as followed: V sulphide destroyed=VLFG destroyed * 0.005

			Where “V” represents the volume in m3. A conservative approach of 0.5% is set for the sulphide content.
	6	SDG.1 Social security coverage	SDG.1 Social security coverage: 100% of employees will have social security. Social security records will be provided for each verification.
	7/	SDG.3 / LFG destroyed	SDG.3 / LFG destroyed: LFG amount destroyed by utilization is continuously monitored through volumetric flow meters. It will be provided for each verification.
Findings	NA		
Conclusion	RINA confirms that sustainability monitoring plan and indicators included in the PDD confirm to the sustainable development requirements of GS4GG.		

D.5. Duration and crediting period

Means of validation	The project is already listed in GS4GG registry. The crediting starting date is defined as from 01/01/2022 – 31/12/2026 under section A.1 and C.2.1 of the PDD /1/ which is the real action. The length of crediting period is defined as 5 years and is planned to be renewed twice.
Findings	N/A
Conclusion	RINA confirmed that this is the first crediting period of the registered GS4GG project activity.

D.6. Environmental impacts

Means of validation	Connection agreement /36/ has been validated by VVB. The EIA exemption is provided by the PP /37/. EIA is not required for landfill gas to energy projects. The project type is neither on Annex I (EIA Required) nor Annex II (Pre-EIA Required) of the applicable regulation.
Findings	N/A
Conclusion	RINA confirmed that the project activity has no negative impact to the environment as per the license and EIA not required document.

D.7. Local stakeholder consultation

Means of validation	The local stakeholder consultation is found conducted following guideline as outlined in GS4GG ‘stakeholder consultation & Engagement procedure, requirement and guidelines. The stakeholder consultation was held on 16/04/2022 in Gaziantep Province, Şahinbey District, Akbulut Mahallesi Muhtarlığı. The stakeholder feedback round was performed between 09/05/2023 – 09/07/2023. It is noted that a continuous grievance mechanism as detailed during stakeholder meeting is found in practice at site. They can contact the project owners by logbook and report any complaints or suggestions. No comments were recorded during the stakeholder feedback round.
Findings	N/A
Conclusion	RINA verified that the stakeholder meeting was held on 16/04/2022 in line with the GS4GG.

D.8. Pre-feasibility assessment

Means of validation	As part of GS4GG requirement, a preliminary review is required to undergo for each project for listing under GS4GG. It is noted that preliminary review for the project successfully completed /39/. 4 FARs raised for validating/verifying VVB during the preliminary review process. FARs have been detailed and validated as below; FAR #1. VVB shall check the effectiveness of the grievance mechanism including the availability of the grievance logbook. Grievance log book have been provided to the Muchtar on 16/04/2022 as part of the grievance mechanism. It has been checked by VVB during the site visit /31/.
----------------------------	--

	During onsite visit it was confirmed that no negative feedback or comments were received related to project activity during grievance mechanism and continuous inputs for the project /31/. FAR #2. VVB shall validate the relevant evidence with regards to the project start date on 11 May 2021. The Gas Engines Purchase Invoice for Innio (25488391) dated on 11/05/2021 has been provided and validated by VVB /29/. FAR #3. VVB shall validate the activity is not located in a host country, region, locality, or state that has an emission reduction cap enforced or has the possibility to trade emissions that include the scope of the proposed project. The host country for the project activity is Türkiye, where there is currently no enforced emission reduction cap (such as ETS, etc.) or the possibility to trade emissions that encompass the scope of the proposed project. FAR#4 VVB shall validate how the PP conduct stakeholder feedback round in line with GS4GG STAKEHOLDER CONSULTATION AND ENGAGEMENT REQUIREMENTS. The process on SFR shall be reported in LSC report. The stakeholder feedback round was performed between 09/05/2023 – 09/07/2023 as in line with the GS requirements. No comments were recorded during the stakeholder feedback round. The process on SFR has been reported in SCR report version 2 /41/.
Findings	NA
Conclusion	The project has successfully completed the GS preliminary review and listed under GS4GG /39/ . All 4 FARs raised for validating VVB have been thoroughly assessed and validated by VVB.

SECTION E. Internal quality control

The draft final validation report before being submitted to the client is subjected to an independent technical review to confirm that all validation activities has been completed according to the pertinent RINA's procedures. The technical review is performed by a technical reviewer(s) qualified in accordance with the RINA's qualification procedure.

SECTION F. Validation opinion

RINA Services Spa (RINA) has performed validation of the project activity Gazişehir LFG Utilization Project in Türkiye, with regard to the relevant GS requirements and principles.

The review of the project design document, and the subsequent follow-up interviews have provided RINA with sufficient evidence to determine the fulfillment of the stated criteria.

The host Party is Türkiye and the Annex I Party is Türkiye.

The project correctly applies the approved baseline and monitoring methodology "ACM0001", "Flaring or use of landfill gas", version 19.0 of 14/06/2019 [/9/](#).

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

The total emission reductions from the "Gazişehir LFG Utilization Project" are estimated to be on average 293,576 tCO₂ per year over the selected 5 years renewable crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

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

In conclusion, it is RINA's opinion that the project activity Gazişehir LFG Utilization Project in Türkiye, as described in the PDD, version 7.0 of 04/07/2024 [/1/](#) meets all relevant GS requirements and principles and correctly applies the baseline and monitoring methodology "ACM0001", "Flaring or use of landfill gas", version 19.0 of 14/06/2019 [/9/](#).

Appendix 1. Competence of team members and technical reviewers



CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig.:
We declare that Mr:

Mehmet ERDOGAN

è qualificato come¹:
is qualified as:

TL – VAL⁴ – VER – TEC – REG-EXP³ – ITR

nello schema²:
for the scheme:

VCS – CCB – GS4GG

per le seguenti aree tecniche:
for the following technical areas:

1.1 – 1.2 – 9.2 – 13.1 – 13.2

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.1	Thermal energy generation	1
1.2	Renewables	1
3.1	Energy demand	3
9.2	Iron, steel and Ferro-alloy production	9
13.1	Waste handling and disposal	13
13.2	Manure	13

in accordo alle istruzioni dell'Unità responsabile (OU) per sostenibilità & cambiamenti climatici.
in accordance with the instructions of the responsible unit (OU) for the sustainability & climate change.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	24.03.2023	First Issue
1	12/04/2023	GS4GG extension
2	24/07/2023	GS4GG VAL extension
3	10/12/2023	TEC SS3 extension
4	31/01/2024	ITR extension

Il Responsabile di schema
Scheme Manager

¹

VAL:	Validator
VER:	Verifier
TEC:	Technical Expert
TL:	Team Leader
FIN-EXP:	Financial Expert
REG-EXP:	Regional Expert
ITR:	Independent Reviewer
DET:	Determiner

²

CDM:	Clean Development Mechanism
VCS:	Verified Carbon Standard
GS4GG:	Gold Standard for Global Goals
SCS:	SocialCarbon Standard
Jl:	Joint Implementation
ISO14064-2:	International standard 14064 part 2
UER:	Upstream Emission Reduction
CCB:	The Climate, Community & Biodiversity Alliance

³ Turkey

⁴ For GS4GG only

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS4GG Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports

GHG_QUAL_CERT_EN(06-2021)

Page 1 of 2



CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that ~~Mr/Mrs/Ms.~~

Konstantin Dimitrov RACHEV

è qualificato come¹:
~~is qualified as:~~

TL – VAL – VER – TEC – ITR

nello schema²:
~~for the scheme:~~

GS4GG – VCS – SCS – UER – CCB – ISO14064-2

per le seguenti aree tecniche:
~~for the following technical areas:~~

1.2 – 3.1 – 5.1 – 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
5.1	Chemical industry	5
13.1	Solid waste and wastewater	13
3.1	Energy demand	3

in accordo alle istruzioni dell'Unità responsabile (OU) per sostenibilità & cambiamenti climatici.
in accordance with the instructions of the responsible unit (OU) for the sustainability & climate change.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19/07/2016	-
1	20/03/2022	Update qualification as ITR
2	31/01/2024	Update to TA 3.1

Il Responsabile di schema
~~Schema Manager~~

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
REG-EXP: ~~Regional Expert~~
ITR: Independent ~~Reviewer~~
DET: Déterminer

² Legend:

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard
GS4GG: Gold Standard for Global Goals
SCS: ~~Social Carbon Standard~~
JI: ~~Joint Implementation~~
ISO14064-2: International standard 14064 ~~part 2~~
UER: ~~Upstream~~ Emission Reduction
CCB: The ~~Climate~~, Community & ~~Biodiversity~~ Alliance

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologia Institute per condurre la Validazione e la Verifica di rapporti SCS.
RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS4GG Projects and by the ~~Ecologia~~ Institute, to carry out Validation and Verification of SCS Reports.

GHG_QUAL_CERT_EN(06-2021)

Page 1 of 1



CERTIFICATO DI QUALIFICA PER GLI SCHEMI VOLONTARI*
QUALIFICATION CERTIFICATE FOR VOLUNTARY SCHEMES*

Si attesta che il sig./sig.ra:
 We declare that Mr/Mrs/Ms:

Victor Milkov

è qualificato come:
 is qualified as:

TEC, FIN EXP

per le seguenti aree tecniche:
 for the following technical areas:

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.1	Thermal energy generation	1
1.2	Renewables	1

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19/07/2016	First issue with new template (this certificate is linked to CDM qualification)

Responsabile di schema
 Scheme Leader
 Rita Valoroso

*SCHEMI VOLONTARI/ VOLUNTARY SCHEMES: ACR American Carbon Registry, CCB The Climate, Community & Biodiversity Alliance, GS Gold Standard, JI Joint Implementation, SGS Social Carbon Standard, VCS Verified Carbon Standard.

TEC: Technical expert; VAL: Validator; VER: Verifier; TL: Team leader; FIN EXP: Financial Expert; ITRP: Independent technical reviewer

RINA Services S.p.A. è accreditato/riconosciuto da

RINA Services S.p.A. is accredited/recognized by

UNFCCC	quali Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects
VCSA	per condurre la Validazione e la Verifica di Progetti VCS to carry out Validation and Verification of VCS Projects
GS Foundation	per condurre la Validazione e la Verifica di Progetti GS to carry out Validation and Verification of GS Projects
Ecologica Institute	per condurre la Validazione e la Verifica di rapporti SGS to carry out Validation and Verification of SGS Reports
American Carbon Registry ACR	per condurre la Validazione e la Verifica di Progetti ACR to carry out Validation and Verification of ACR projects
The Climate, Community & Biodiversity Alliance CCB	per condurre la Validazione e la Verifica di Progetti co-benefit CCB to carry out Validation and Verification of co-benefit CCB projects

GHG_QUAL_CERT_EN_07_16 Voluntary(Certificate)

Page 1 of 1

Appendix 2. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CER(s)	Certified Emission Reduction(s)
CH ₄	Methane
CL	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CRT	Coordination and Technical Control Staff
DCI	Certification Division of RINA Services Spa
DNA	Designated National Authority
EB	Executive Board
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GS4GG	Gold Standard for Global Goal
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MoV	Means of Verification
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VVB	Validation and Verification Body
VVS	Validation and Verification Standard

Appendix 3. Documents reviewed or referenced

No	Author	Title	References to the document	Provider
1.	OakDanismanlik	PDD for “Gazişehir LFG Utilization Project” in Türkiye	Version 7.0 of 04/07/2024 version 6.0 of 30/05/2024 version 5.0 of 08/04/2024 version 4.0 of 20/12/2023 version 3.0 of 01/11/2023 version 2.0 of 11/05/2023	Project Participant
2.	OakDanismanlik	Ex-ante Emission Reduction Calculation Excel Sheet	version 5.0 of 08/04/2024 version 4.0 of 20/12/2023 version 3.0 of 01/11/2023 version 2.0 of 11/05/2023	Project Participant
3.	OakDanismanlik	Common Practice Calculation	date of 11/05/2023	Project Participant
4.	OakDanismanlik	SDG Impact tool	version 2 of 08/04/2024 version 1 of 11/05/2023	Project Participant
5.	OakDanismanlik	ODA Declaration of Project Activity	Date of 16/05/2022	Project Participant
6.	OakDanismanlik	Financial Analysis Calculation	Version 3 of 30/05/2024 version 2.1 of 20/12/2023 version 01, of 14/12/2020	Project Participant
7.	CDM Executive Board	Clean Development Mechanism Project Standard for Project Activities	version 03.0 of 09/09/2021	Publicly Available
8.	CDM Executive Board	Clean Development Mechanism Validation and Verification Standard	version 03.0 of 09/09/2021	Publicly Available
9.	CDM Executive Board	Baseline and Monitoring Methodology ACM0001: “Flaring or use of landfill gas”	Version 19.0 of 14/06/2019	Publicly Available
10.	CDM Executive Board	Methodological Tool “Tool to calculate the emission factor for an electricity system”	version 07.0 of 31/08/2018	Publicly Available
11.	GS4GG	GS4GG Standard Renewable Energy Activity Requirements	version 1.4 of 16/08/2021	Publicly Available
12.	CDM Executive Board	Methodological tool “Emissions from solid waste disposal sites”	Version 08.1 of 04/05/2017	Publicly Available
13.	CDM Executive Board	Investment analysis	Version 12.0 of 28/11/2019	Publicly Available
14.	GS4GG	GS4GG Safeguarding principles and requirements version 2.1	date of 29/06/2023	Publicly Available

15.	CDM Executive Board	Methodological Tool “Tool to determine the remaining lifetime of equipment”	Version 01.0 of 16/10/2009	Publicly Available
16.	Gazisehir Enerji	Signed Cover Letter	Date of 16/05/2022	Publicly Available
17.	CDM Executive Board	Baseline and Monitoring Tool “Tool for the demonstration and assessment of additionality”	version 07.0 of 23/11/2012	Publicly Available
18.	EPDK	Generation License, No. EU/10239-1/04905	of 27/05/2021	Project Participant
19.	Ministry of Energy and Natural Resources	Temporary Acceptance Protocols Gas Engines for GM1- GM2-GM3-GM4 GM7-GM8-GM9-GM10-GM11 GM5-GM6	Date of 29/06/2021 13/01/2022 11/03/2022 30/11/2022	Project Participant
20.	GS4GG	GS4GG Principles & Requirements	version 1.2 of 23/10/2019	Publicly available
21.	Website: Argument: Language:	https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6701.pdf Human Rights; Turkish	Retrieved on 04/01/2024	Publicly Available
22.	GS4GG	Project Design Document Template	version 1.5 of 29/06/2023	Publicly Available
23.	Website: Argument: Language:	http://www.ilo.org/ankara/areas-of-work/equality-discrimination/lang--tr/index.htm Gender Equality and Women’s Rights; Turkish	Retrieved on 04/01/2024	Publicly Available
24.	ETKB	Emission Factor of Türkiye Grid	20/09/2022	Publicly Available
25.	Website: Argument: Language:	http://www.oecd.org/daf/anti-bribery/Türkiye-oecdanti-briberyconvention.htm Bribery and Corruption; Turkish	Retrieved on 04/01/2024	Public Available
26.	Website: Argument: Language:	http://www.ilo.org/ipecc/programme/lang--en/index.htm Elimination of Child Labour; English	Retrieved on 04/01/2024	Public Available
27.	The Ministry of Trade and Industry	Regulation of Metering and Testing of Metering Systems	of 24/07/1994	Publicly Available
28.	Turkish Energy Market Regulatory Authority	Communiqué for Measurement Devices used in the Electricity Market	of 22/03/2003	Publicly Available
29.	INNIO	Gas Engines Purchase Invoice for Innio (25488391)	of 11/05/2021	Project Participant
30.	TEIAS	TEIAS Statistic for transmission losses	Submitted on 15/11/2023	Public Available
31.	OAKDanismanlik	Log book as part of the grievance mechanism	Date of 16/04/2022	Project Participant
32.	CDM Executive Board	Methodological Tool “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”	version 03.0.0 of 27/11/2015	Publicly Available
33.	CDM Executive Board	Methodological Tool “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion”	version 03.0.0 of 22/09/2017	Publicly Available
34.	CDM Executive Board	Methodological Tool “Determining the baseline efficiency of thermal or electric energy generation systems”	version 03.0.0 of 12/06/2020	Publicly Available
35.	Website	Technical Details of Gas Engines	Submitted on: 15/11/2023	Publicly available

		https://www.jenbacher.com/en/gas-engines/type-4/i420		
36.	Toroslar Elektrik Dağıtım A.Ş	System Connection Agreement	Date of 27/10/2022	Project Participant
37.	Gaziantep Major	Non- Environmental Impact Assessment (EIA) Decision (No: E-46818599-220.03-605131)	of 24/03/2021	Project Participant
38.	Website: Argument: Language:	https://registry.goldstandard.org/projects/details/4247 GS4GG Registry English	Retrieved on: 04/01/2024	Publicly Available
39.	GS4GG	GS11662_GS4GG Preliminary Review _Final Round.pdf	Dated of: 08/11/2022	Project Participant
40.	Gazisehir Enerji	Board Decision for prior consideration of carbon credits (no.2021/4)	Date of 14/02/2021	Project Participant
41.	OakDanismanlık	Stakeholder Consultation Report	Version 2 of 19/10/2023 Version 1 of 03/04/2022	Project Participant
42.	Turkish government	Energy Market Regulatory Authority: Renewable Energy Sources Law No:6094	29/12/2010	Public Available
43.	Turkish government	Energy Market Regulatory Authority: Electricity Market Law, No: 6446	14/03/2013	Public Available
44.	EPI & MRU AIR	EPI Calibration Document (sales order respectively SO21030502 – RO21041501-0) MRU AIR – gas analyser SWG100biogas	Date of 17/03/2021 10/05/2021 25/05/2021	Project Participant
45.	GS	Deviation Approval Form final decision form (DEV_315)	Date of 26/10/2022	
46.	World Bank	Website: https://documents1.worldbank.org/curated/en/799701498842988254/pdf/ICR00004069-06192017.pdf Argument: World bank Report for Türkiye No: ICR00004069; Date:19/07/2017; Language: English	Retrieved on 24/05/2024	Publicly Available
47.	Turkish government	Website: http://www.gib.gov.tr/fileadmin/user_upload/Yarali_Bilgiler/amortisman_oranlari2011.html Argument: Amortization rates; Language: Turkish	Retrieved on 24/05/2024	Publicly Available
48.	Turkish government	The Presidency of the Turkish Revenue Administration: General Communique on Tax Procedural Law, Depreciation Rate List, Official Gazette No: 28405, Enactment Date: 08/09/2012	Retrieved on 24/05/2024	Publicly Available
49.	KPMG	Website: http://www.kpmg.com/global/en/service/tax/tax-tools-and-resources/pages/corporate-tax-rates-table.aspx Argument: KPMG, Corporate tax rate in Türkiye Language: English, Retrieved on: 19/10/2020	Retrieved on 24/05/2024	Publicly Available
50.	Turkish government	Website: http://www.epdk.gov.tr/index.php/4b360128-53aa-4174-8104-a6c10434ac9c Argument: Electricity tariffs – Türkiye Language: Turkish, Retrieved on 19/10/2020	Retrieved on 24/05/2024	Publicly Available

51.	SHURA	Website: (https://shura.org.tr/en/) https://shura.org.tr/wp-content/uploads/2019/10/SHURA-2019-10-Turkiyede-Enerji-Donusumunun-Finansmani.pdf Argument: “Financing Energy Transition in Türkiye” Report; Language: Turkish	Retrieved on 24/05/2024	Publicly Available
52.	Kadir Kaya Erdem Koc	Website: https://www.mmo.org.tr/sites/default/files/14c4511b3c98f14_ek.pdf Argument: Cost Analysis of Energy Generation Plants Report; Language: Turkish	Retrieved on 24/05/2024	Publicly Available
53.	Turkish government	Website: https://www.mevzuat.gov.tr/MevzuatMetin/20.5.7189.pdf Argument: Electricity tariffs for project type; Language: Turkish	Retrieved on 24/05/2024	Publicly Available
54.	Turkish Central Bank	Website: https://evds2.tcmb.gov.tr/index.php?/evds/serieMarket/collapse_13/5936/DataGroup/turkish/bie_abres2/ Argument: Loan rates; Language: Turkish	Retrieved on 24/05/2024	Publicly Available

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

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

FAR ID	1	Section no.		Date:
Description of FAR				
Project participant response				Date:
Documentation provided by project participant				
VVB assessment				Date:
1.				

Table 2. CR from this verification / validation

CR ID	Section no.	Date: 31/07/2023
Description of CR		
1- In excel sheet waste production is recorded since 1997 and the second lot is opened in 2021. Please share the evidence with VVB to prove that second lot has been active since 2021. 2- Please share EF link in spread sheet. 3- Please share details for all monitoring equipment such as electricity meter, flow meter with calibration and test reports in PDD and MR. 4- Please share evidence to proof gaseous stream flow temperature is below 60 °C for parameter ID.13.16. 5- In PDD it is stated that main source for electricity is TEİAŞ but EPIAŞ-PMUM values are shared for net amount of electricity generated and quantity of electricity consumed by the project activity parameters. Moreover, there is no statement about cross check of data in PDD. Please revise related sections (QA/QC) sections. 6- Please check ID.27 / TDL in PDD and also source of data because values have inconsistency with TEİAŞ publication. 7- In SG principles if Justification of Relevance is yes or potentially please add mitigation measures. 8- MP start date is 21/01 but for net electricity generation covers all days of 01/2021 (please see daily production AA70) please revise values. Also please be sure that values that is given in daily production excel sheet is net electricity values and round down values only for vintage values. 9- For SDG 8 trainings please add them under Section 8.8. 10- Sm3 transition is conducted via automatic counter (IPCC density is used) so please explain the density choice approach in PDD and MR. 11- Please add table source/description in MR page 20 12- For parameter ID.13.15 / vCH4,t,db value applied as %57 so please explain how to obtain this value. 13- For parameter ID.13.3 / nPJ values applied as %85 so please explain how to obtain this value with proofs. 14- Please correct and revise SDG Impact Tool. 15- Please use latest version of GS4GG template for PDD. 16- Please share the deviation request in PDD with response. 17- GS4GG Preliminary Review approval form should be shared with VVB. Calculations (Baseline and emission reduction calculation) and reports (PDD and MR) shall be amended according to the findings.		
Project participant response		Date: 31/10/2023

6. The landfill area was established in 1996 and receiving waste since then.
<https://webdosya.csb.gov.tr/db/ced/icerikler/gaz-antep-cdr2018-20200210112211.pdf> (Section C.1.)
 The reference has been included in the PDD and excel is revised accordingly.
7. The emission factor is defined as per the official information note of Ministry of Energy and Natural Resources. The document could be reached under the following link. <https://enerji.gov.tr/evced-cevre-ve-iklim-turkiye-ulusal-elektrik-sebekesi-emisyon-faktoru>. The link has been provided under the revised PDD as well as the ER calculation sheet.
8. Initial calibration documents have been provided to the VVB and dates have been included in the revised Monitoring Report. In accordance with the applicable law (ölçü v) Electricity meter calibrations and gas meters have a calibration frequency of 10 years. Calibrations for all meters are within the validity period.
9. The Project uses Thermal Flow Meter. Thermal Flow Meters, an external heat source will heat the pipe or the fluid. Temperature field changes when the fluid flows through the pipe. Thermal flow meter measures the relationship between the energy required to increase the temperature of a fluid and the mass of the fluid to measure the mass flow of the fluid. The flowmeters directly measure normalized volume flow of gases without any additional pressure and temperature compensation. Generally, thermal flow meter used to measure the normalized volume flow of a gas (like LFG gas).
- The PDD has been revised also to follow Option C rather than Option A as referred under Table 6 (Measurement options for Fi,t). MR report has been revised as well to reflect the revisions accordingly.
10. There are two official and viable sources where the meter readings could be extracted from. One is the State Regulated Automated Meter Reading System (OSOS) and the other source is the monthly protocols confirmed by the distribution company. For clarity, State Regulated Automated Meter Reading System will be considered as the main source for this parameter while monthly protocols could be used for cross check. This explanation has been provided under the revised versions of both PDD and MR. Also ER Calculation Sheet has been revised accordingly.
11. Source for parameter has been revised to TEIAS statistics (<https://webim.teias.gov.tr/file/01638a5d-94aa-484b-9c48-b4c86fa99469?download>) Ex ante and MR calculations have been revised accordingly.
12. Editorial errors have been corrected. Under the safeguard principles #2.
13. The gas readings start on 21/01/2022. For practicality, the beginning of the year 01/01/2022 has been set as the start of crediting period. All documents have been revised accordingly.
14. Health and safety trainings have been added as a monitoring parameter. PDD and MR have been revised accordingly.
15. The Project uses Thermal Flow Meter. Thermal Flow Meters, an external heat source will heat the pipe or the fluid. Temperature field changes when the fluid flows through the pipe. Thermal flow meter measures the relationship between the energy required to increase the temperature of a fluid and the mass of the fluid to measure the mass flow of the fluid. The flowmeters directly measure normalized volume flow of gases without any additional pressure and temperature compensation. Generally, thermal flow meter used to measure the normalized volume flow of a gas (like LFG gas).
- The PDD has been revised also to follow Option C rather than Option A as referred under Table 6 (Measurement options for Fi,t). MR report has been revised as well to reflect the revisions accordingly.
16. MR has been revised accordingly
17. The value is the average of hourly readings and presented as a representative number. Please refer to the ER calculation sheet for hourly readings. Explanation has been provided in the revised MR.
18. Since the actual methane collection of the Project Activity is known, the collection efficiency could be estimated based on the actual figures. Therefore 70% is used.
19. Impact tool has been revised.
20. The PDD format has been updated to v1.5
21. Details on deviation has been provided under the revised version of the PDD.
22. Review form has been shared with the VVB. Also PDD is revised to include communication of how comments from GS has been taken into account.

Documentation provided by project participant	
VVB assessment	Date: 15/11/2023

1- Excel sheet input-waste LFG and output avoid methane LFG sections it is not so clear why waste acceptance and LFG generation start from 1997 while lot has been active since 2021. Please share only results for MP and related values and other information can be frozen. It is understood that waste projection is taken from one source please share the source of data. Related link doesn't cover waste projection-waste fraction etc.. 2- OK. 3- In MR calibration dates of electricity meter, flow meter and gas analyzer is shared but evidences is not shared with VVB. Moreover it is advised to create an table and show all monitoring equipment here with calibration dates. 4- ID 13.17, 13.18 why condition changes from dry to wet. Option A "Demonstrate that the temperature of the gaseous stream (T_t) is less than 60°C (333.15 K) at the flow measurement point. 24. If it cannot be demonstrated that the gaseous stream is dry, then the flow measurement should be assumed to be on a wet basis and the corresponding option from Table 2 should be applied instead." Moreover A) Table 2 Summary of monitoring results for this monitoring period there is no reference link. Also for calculation of mass flow it is not clear how to calculate density of gas, please show all calculation in excel sheet. B) Moreover as stated "The Project will use a flow meter directly measure normalized volume flow of gases ($V_{t,wb,n}$) without any additional pressure and temperature compensation so PP shall demonstrate that how flow meter directly normalize the values and please share the evidence. 5- In excel sheet it is not clear the main source and cross check source. Please classified as main-cross check. Also please share deviation between TEİAŞ and OSOS records and be sure that if deviation is more than %1 use TEİAŞ value. 6- OK. 7- SG Principles are corrected it is verified but when all clauses are closed, SG principles will be reviewed again. 8- Please share the evidence of 21/01/2021 date for gas reading-collection. 9- OK. 10- Same as Clause 4. Please clarify how to get direct-normalized values from flow meter. 11- OK. 12- It is clear now. But please share tools number and titles on source of Date for all monitoring parameters. 13- Please share the reference of data. 14- OK 15- OK. Template will be controlled again when all corrections are applied. 16- Please mention deviation request in PDD. "The validating VVB shall, through appropriate means at its disposal, evaluate the information and provide its opinion in the Validation Report". 17- Please detail SFR in PDD also share the evidences with VVB by regarding GS4GG requirements.	
Project participant response	Date:

1. Please note the difference between ex-ante estimation and ex-post calculations of baseline emissions. This is due to ACM0001 (please refer to par. 3 (a) of Tool 4). Ex-Ante uses FOD model to estimate the methane generation based on assumptions, while ex-post calculates baseline emissions based on the actual destroyed methane based on monitored parameter. The excel with "input-waste LFG" and "output avoid methane LFG" are relevant to ex-ante estimations, hence the question on only to share Monitoring Period relevant results is not applicable.

A Lot refers to a portion of the landfill, however there are no physical boundaries between one another. Therefore, from a baseline perspective (taking into account the baseline describes the scenario where there is no project activity implemented), the start of the waste accumulation is considered as the start of landfill site. The VVB should also note the requirement under par 38 (b) of ACM0001 V19, which requires "In the tool, x begins with the year that the SWDS started receiving wastes (e.g. the first year of SWDS operation)", which is 1996.

The waste amount projection is based on TUIK database <https://biruni.tuik.gov.tr/medas/?kn=119&locale=tr> Reference has been added to the PDD. Please note the yearly collected amount of waste for Gaziantep is 1870 t/y. Ex-Ante calculation has been revised to take into account this figure.

The projection (past and future) is based on annual growth rate of the Gaziantep population. Since MSW has a linear link to the population, this provides a conservative estimation.

2. N.A.

3. The documents were shared during the site visit. The PP has provided the copies again as an attachment to this round for convenience. Information on quality and assurance is presented under the fixed table formats under section D.2. A summary of calibration information has been provided here as follows:

Equipment and description	Parameter	Calibration Date
Volumetric flow meter of the gaseous stream in time interval t on a wet basis	ID.13.17 / Vt,wb	Calibration has been conducted on 17/03/2021 Accuracy Specifications are as follows: +/- 1%
Gas analyser for volumetric fraction of CH ₄ in a time interval t on a wet basis	ID.13.18 / vCH ₄ ,t,wb	Calibration has been conducted on 25/05/2021 Accuracy Specifications are as follows: +/- 1.8%
Electricity meters for Net amount of electricity generated and consumed	ID.13.20 / ECBL,y & ECPJ,y	Electricity meters are checked, installed and sealed to the site by TOROS Elektrik Dağıtım A.Ş. which is the Distribution Company on 29/06/2021 (Meter initial installation protocol is available to the VVB).

4. The 2nd round question of the VVB is not clear to the PP. The PDD has been already revised to carry out option C under table 2 in line with the Applicable Tool. Choice of measurement is an option for the PP and PP opts to go forward with option C. As discussed, option C is applicable to the Project. The second portion of the question is assumed to be related with the Monitoring Report.

Table 2 of the Monitoring Report "Summary of monitoring results for this monitoring period" is a summary of all the calculations presented to the VVB in the excel format and explained in the Monitoring Report. The calculation of the density is now clarified under the ER EXCEL. Please refer to raw Z.

Project uses EPI Series 540 Inline thermal mass flow meter that provides real-time flow measurement with a sensor that is both temperature and pressure corrective. Thermal Mass Flow Meters measure the mass flow of a fluid. An external heat source will heat the pipe or the fluid. Temperature field changes when the fluid flows through the pipe. Thermal mass flow meter measures the relationship between the energy required to increase the temperature of a fluid and the mass of the fluid to measure the mass flow of the fluid. Reference has been provided. 5. The excel has been revised accordingly. Now the OSOS is stated as Main Source. Also the function is now corrected to take into account OSOS reading if the difference is below 1%. 6. N.A. 7. N.A. 8. The RAW file has been shared with the VVB. 9. N.A. 10. Project uses EPI Series 540 Inline thermal mass flow meter that provides real-time flow measurement with a sensor that is both temperature and pressure corrective. Thermal Mass Flow Meters measure the mass flow of a fluid. An external heat source will heat the pipe or the fluid. Temperature field changes when the fluid flows through the pipe. Thermal mass flow meter measures the relationship between the energy required to increase the temperature of a fluid and the mass of the fluid to measure the mass flow of the fluid. Reference has been provided. 11. N.A. 12. There are no tools referred for monitored parameters. 13. The reference is the 1st Monitoring Report and all documents shared with the VVB. Monitoring Report covers the actual methane destructed in the monitoring period. 14. N.A. 15. N.A. 16. The request is for the VVB and related with the Validation Report and Verification Report. 17. PDD has been revised accordingly.	
Documentation provided by project participant	
Set of documents have been provided to the VVB as Annex.	
VVB assessment	Date: 26/03/2024
1- Explanation is found reasonable. 3- In addition to the system connection agreement please share the system usage agreement and control test frequency for electricity meter there. 4- OK 5- Main and cross check values are controlled and verified. But please update ID.13.20 / ECBL,y and ID.13.20 / ECBL,y according to CP and MP. Also please explain the reason of difference of estimated and actual values. 7- OK. 8- OK 10- OK. 12- OK 13- Please review the parameter again. Parameter means collected LFG/Total produced LFG. ACM 001 default value is %50. If %70 is chosen it should be provided clearly. 16- OK. 17- OK. New Comment 18- Please share: - EIA report etc. - no double accounting commitment, - cover letter with VVB.	
Project participant response	

3. System usage agreement is shared with the VVB. There are no test frequency requirements mentioned. The PP adopts 10 year calibration frequency for the meters which is in line with the Turkish Legislation.	
5. The MP and CP starts on 01/01/2022 and ends on 31/03/2023. With a total net electricity of 98,693 MWh net generation and 5 MWh consumption. MR is accurate. Excel sheet has been revised by excluding electricity generation information after May 2023 to avoid ambiguity.	
MR has been revised to include explanation on difference in exante-and ex-post calculations.	
13. The exante excel is now using the default value of 50%. Excel and PDD has been revised accordingly.	
18. Documents are now shared with VVB.	
Documentation provided by project participant	
Set of documents have been provided to the VVB as Annex.	
VVB assessment	Date: 19/04/2024
3- OK.	
5- Approved.	
13- Approved.	
New Comment 18- OK.	
Hence, CR 1 is closed.	

Table 3. CAR from this verification / validation

CAR ID	1	Section no.	B.4	Date: 31/07/2023
Description of CAR				
1- Link to the website of Bilkent University Report is not working – error code 404 (page not found). Unit investment costs cannot be verified. Please provide working web-link. 2- Equity/loan ratio of 80/20% cannot be defined as a default value. In case this value is a typical in the sector, please provide justification as per paragraph 26 of Tool 27. Tool 27: Investment analysis recommends in case loan structure is not yet available to use a default equity/loan ratio of 50/50 (paragraph 25). 3- Interest rate of 6% and repayment period of 5 years are not justified and no evidence is included. Please provide reference at the time of investment decision taking for the loan parameters. 4- Unit O&M expenses cannot be verified – the link to the website of Bilkent University Report is not working – error code 404 (page not found). 5- Plant load factor (PLF) of 6300 annual working hours is not justified as per CDM EB48 Report, Annex 11-Guidelines for the reporting and validation of plant load factor. Please provide additional justification of the estimated PLF. 6- The equity IRR calculated as -7% is negative meaning that the investment will be at constant loss and, in fact, the project should not be implemented. Please provide additional explanation of why the PP proceeds with the project regardless of that fact. If the project relies on some kind of additional financial support from the municipality or the state, this cash in-flow should be included in the analysis. 7- The sensitivity analysis presented in the PDD is not sufficiently clear and transparent. The result of the different variations is not presented. 8- The estimated lifetime of the project is defined as 25 years but the investment analysis is made for 15 years. According to CDM Tool 27:Investment analysis, if a shorter period than the technical lifetime is chosen, the investment analysis shall be conducted for at least 10 years and include the fair value of the project activity assets at the end of the assessment period. The fair value should be estimated as per the requirements of paragraph 7 of the Tool. 9- The value of the electricity tariff is not justified. Since 2021 the Turkish government guarantees special feed-in tariffs for renewable energy plus possibility for local premium, for the first 10 years of project operation. Please provide justification of the tariff applied for the whole period of the investment analysis. 10- The item “Other variable costs” cannot be verified. Link to the website of Bilkent University Report is not working. Please provide working web-link. 11- The value of installed capacity applied in the IRR calculation sheet is decreased to 5.82 starting year 11 and net electric energy generated is correspondingly lower but the number of working units is still 11. Please provide explanation. 12- A reference link to the Project Appraisal Document of World Bank to TSKB (Turkish Industrial Development Bank) is missing. Please provide relevant link to the referred document. 13- The type of the equity IRR and the benchmark (pre/post taxes) is not clearly defined in the PDD. Please include a clear statement. 14- The type of electric energy generated (gross/net) is not clearly defined in Table 3 of the PDD.				
Project participant response				Date: 31/10/2023

2. The editorial mistake has been revised. The reference is the MMO (Makina Muhendisleri Odası) Publication Energy Investments Cost Analysis.
https://www.mmo.org.tr/sites/default/files/14c4511b3c98f14_ek.pdf has been added
3. Recent study of SHURA Report “Financing Energy Transition in Turkey” indicate RE investments in Turkey show a higher share of loan/equity with an average of 70-80%. Reference:
<https://shura.org.tr/wp-content/uploads/2019/10/SHURA-2019-10-Turkiyede-Enerji-Donusumunun-Finansmani.pdf> The PDD has been revised to include a reference.
4. The interest rate is revised to 3%. The data has been based on Central Bank of Turkey Electronic Data Delivery System
(https://evds2.tcmb.gov.tr/index.php?/evds/serieMarket/collapse_13/5936/DataGroup/turkish/bie_abres2/) using Euro based Commercial Lending Rates Data sets for year 2021 averages (TP KTF17 EUR). 2021 is the year of investment decision.
5. The editorial mistake has been revised. The reference is the MMO (Makina Muhendisleri Odası) Publication Energy Investments Cost Analysis.
https://www.mmo.org.tr/sites/default/files/14c4511b3c98f14_ek.pdf has been added
6. Since the actual electricity generation is known, the load factor could be estimated based on the actual figures. Therefore 6300 h annual working hours is used to represent a yearly average.
7. The project does not rely on the additional financial support from the municipality or the state, this cash in-flow. It is also true that the project activity is not financially attractive, which is in line with the definitions and requirements of additionality.
8. The applicable tools require a sensitivity analysis that shows whether the conclusion regarding the financial/economic attractiveness is robust to reasonable variations in the critical assumptions. The PDD presents test of equity IRR when critical parameters are changed by 10% when changed in favor of a higher IRR. The result table provides IRR values as a result of each changed parameter and the value of the parameter. Financial Analysis J26 – J29 allows to increase or decrease parameters by a given percentage change and IRR is calculated automatically. The PDD has been revised to include some further clarification on the approach. Results are already presented under Table 5 under Sensitivity Analysis of the PDD.
9. The expected operational lifetime of the project activity is revised to 17 years. The operational lifetime reflects (Section C.1.2) how many years is the project activity is allowed to operate. This is reflected in the Generation License as 2038 (already shared with the VVB).

The financial analysis is now revised to 10 years based on the comments of the VVB and the requirements of the applicable tool(s). In accordance with “Tool to determine the remaining lifetime of equipment”, the technical lifetime of a gas fired generator set is determined as 50.000 hours as a conservative approach. Looking to industry standards the technical lifetime could be also extended to 80.000 hours (https://www.jenbacher.com/en/news-media/media-center?task=download&file=seb_media_file&id=854). Based on the 6300 h annual operation, the technical lifetime of the component can be calculated within a range of 8 – 13 years. Also taking into account the minimum analysis period of 10 years under Tool 27 on investment analysis, the IRR calculation is now revised to cover 10 years investment horizon. No fair value has been considered since it passes the default technical lifetime.

10. In accordance with EB 22 Annex 3 the following definition and clarifications apply for baseline and additionality:
National and/or sectoral policies or regulations that identify as “E- Policies” that have been implemented since the adoption by the COP of the CDM M&P (decision 17/CP.7, 11 November 2001) need not be taken into account in developing a baseline scenario (i.e. the baseline scenario could refer to a hypothetical situation without the national and/or sectoral policies or regulations being in place). In accordance with EB 16 Annex 3 E- Policies defined as National and/or sectoral policies or regulations that give positive comparative advantages to less emissions-intensive technologies over more emissions-intensive technologies (e.g. public subsidies to promote the diffusion of renewable energy or to finance energy efficiency programs).
The 10 year Guaranteed Feed in Tariff for Renewable Energy is a clear E- Policy which was based on Law No. 5346 on Generation of Electricity from Renewable Energy Resources enacted after 11 November 2001. Therefore the financial analysis was based on 2021 average wholesale price for electricity.

The PP would like to also highlight the timeline of the Renewable Energy Law. Enacted in 2015 the Law was applicable till 31/12/2020 and it was only extended for 6 months twice by a Precedential Decree. Considering the investment decision was determined in 2021, the applicability of the Law was not definite.

11. The editorial mistake has been revised. The reference is the MMO (Makina Muhendisleri Odası) Publication Energy Investments Cost Analysis. https://www.mmo.org.tr/sites/default/files/14c4511b3c98f14_ek.pdf has been added 12. Document have been revised accordingly. 13. Document is accessible from https://documents1.worldbank.org/curated/en/799701498842988254/pdf/ICR00004069-06192017.pdf PDD has been revised to include the link as reference. 14. The Equity IRR is calculated with post tax cash flows. The WB reference also indicates “Costs considered in the FRR analysis include capital costs and incremental O&M expenses, including applicable taxes and duties”. Necessary clarifications have been added to the PDD. 15. The figure is net generation. PDD has been revised to include the information.	
Documentation provided by project participant	
VVB assessment	Date: 11/10/2023
1- A working link has been presented in the revised PDD. ISSUE IS CLOSED. 2- The PP has added a reference to the applied equity/loan ratio of 80/20 % in the revised PDD. ISSUE IS CLOSED. 3- The estimated interest rate of the loan has been revised to 3% referring to information based on Central Bank of Turkey Electronic Data Delivery System. ISSUE IS CLOSED. 4- The link to the website of Bilkent University Report has been repaired referring to the unit O&M expenses. ISSUE IS CLOSED. 5- The value of the Plant Load Factor applied to the project based on 6300 working hours annually has been justified by the PP. ISSUE IS CLOSED. 6- The purpose of the equity IRR calculation is to determine the final return on the initial equity investment (TOOL 27: Investment analysis, paragraph 14). The equity IRR calculated at -13% demonstrates that the project is at loss during the whole period and is not able to return the invested capital. Still the PP insists with the implementation of the project in any case. Please clarify. 7- Furthermore: - The PP has revised the investment analysis period to 10 years yet the IRR calculation workbook is presented for 15 years. Please delete extra columns. - No value is presented in cell L78 that gives a wrong value for the IRR. Please revise the IRR calculation table and the PDD. ISSUE IS OPEN 8- The Sensitivity analysis has been presented properly in the revised PDD. ISSUE IS CLOSED. 9- The Operational lifetime of the project has been revised to 17 years as per the Generation License. The financial analysis has been done for a 10 years period. However, the technical lifetime of the project is defined at the range of 8-13 years, which covers the investment analysis period so no fair value of the equipment is expected at the end of the period. ISSUE IS CLOSED. 10- The PP has presented a reliable justification of the electricity tariff applied to the investment analysis. ISSUE IS CLOSED. 11- The Internet link referring to the value of the variable costs has been repaired and is working. ISSUE IS CLOSED. 12- The period of the investment analysis has been revised to 10 years. ISSUE IS CLOSED. 13- The link has been repaired and is working. ISSUE IS CLOSED. 14- The equity IRR used as a financial indicator has been stated as post-tax equity IRR. ISSUE IS CLOSED. 15- Electricity generated by the project and stated in Table 4 of the PDD is clearly stated as “net”. ISSUE IS CLOSED.	
Project participant response	Date:

6- TOOL 27 Investment analysis, paragraph 14 is related which portion of the investment cost to be taken into the calculations of Equity IRR (equity vs debt). The IRR calculation already conducted in line with this requirement. However it does not refer to any guidance on CDM revenues to be taken into account or not during the IRR calculations. This is referred under EB69 Annex 21.

It is true that the project activity is not financially attractive, which is in line with the definitions and requirements of additionality. In line with the requirements of the methodology the additionality is defined in combination of a baseline and additionality exercise simultaneously. The tool requires identification of alternative scenarios available for the project activity and analysis. The investment scenario is used to identify the most plausible investment decision among the alternative investment decisions available to project participants without the CDM (Please refer to EB69 Annex 21 definitions to investment scenarios). The investment scenario leads to the determination of the baseline. In the project case there are 2 viable project scenarios: A) Project activity including power generation from LFG without being registered as a VER project activity; and B) Atmospheric release of the LFG and electricity would have been generated by the existing grid connected power plants as continuation of the situation before the project activity. Demonstrating (A) through investment analysis is not a viable choice for the investor is satisfactory to determine the Baseline as well as to prove additionality.

The investment decision of the PP could be based on several factors and assumptions including but not limited to the expectations on the future Carbon Credit Value, which is very volatile by nature and represented in a wide spectrum. However, the expectations on carbon credit value reaches to significant values over time based on even the most skeptical analysis.

7- Extra columns are now deleted. L78 is now corrected. PDD has been revised accordingly.

Documentation provided by project participant

VVB assessment

Date: 19/04/2024

6. PP's explanation and justification is deemed sufficient. ISSUE IS CLOSED.

7. ISSUE IS CLOSED.

Hence, CAR 1 is closed.

Table 4. FAR from this verification / validation

FAR ID	Section No.	Date:
Description of FAR		
Project participant response		Date:
Documentation provided by project participant		
VVB assessment		Date:

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	10/06/2016	Initial publication.