

TEMPLATE

KEY PROJECT INFORMATION & PROJECT DESIGN DOCUMENT (PDD)

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VERSION **v.1.5**

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KEY PROJECT INFORMATION

GS ID of Project	GS715
Title of Project	Adana Landfill Waste Management Project Turkey
Time of First Submission Date	28/03/2024
Date of Design Certification	13/06/2012
Version number of the PDD	8
Completion date of version	07/05/2025
Project Developer	ITC Invest Trading & Consulting A.G. Turkish Ankara Branch
Project Representative	Climate Balanced İklim Enerji Ticaret ve Eğitim Ltd. Şti.
Project Participants and any communities involved	ITC Invest Trading & Consulting A.G. Turkish Ankara Branch
Host Country (ies)	Türkiye
Activity Requirements applied	☐ Community Service Activity ☒ Renewable Energy ☐ Land-Use and Forests Activity Requirements/Risks & Capacities ☐ N/A
Scale of the project activity	☐ Micro scale ☐ Small Scale ☒ Large Scale
Other Requirements applied	Not Applicable
Methodology (ies) applied and version number	Large-scale Consolidated Methodology ACM0001: Flaring or use of landfill gas Version 19.0 ¹
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label

¹ <https://cdm.unfccc.int/UserManagement/FileStorage/HEJ2MD41GB0PUZISL9FNTAYQV38750>

	☐ N/A
Project Cycle:	☒ Regular
	☐ Retroactive

Land-use & Forest Key Project Information²

Table 1 – Estimated Sustainable Development Contributions

SUSTAINABLE DEVELOPMENT TARGETED	GOALS	SDG (DEFINED IN B.6)	IMPACT	ESTIMATED AVERAGE	ANNUAL	UNITS PRODUCTS	OR
13 Climate Action		13.2 Integrate climate change measures into national policies, strategies and planning		118,470		GSVERs/yr	
8 Economic Growth and Decent Work		8.5 By 2030 achieve full and productive employment and decent work for all women and men including for young people and persons with disabilities, and equal pay for work of equal value		10 workers will be employed and the numbers of persons employed will be continued during the crediting period, and at least 1 training yearly will be conducted		Number	
7 Affordable and Clean Energy		7.2 By 2030, increase substantially the share of renewable energy in the global energy mix		7,917		MWh/yr	

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and general description of project

The Adana Landfill Waste Management Project, developed by the Ankara Branch of "ITC Invest Trading & Consulting A.G.," ³(hereafter referred to as the "project participant").

² Please refer to Appendix 3 for detailed information on LUF projects

³ <http://www.itcturkiye.com/en>

The Adana-Sofulu Landfill, operational since 1990, currently receives waste from 15 municipalities namely Pozantı, Sarıçam, Aladağ, Ceyhan, Karataş, Yumurtalık, Karaisalı, İmamoğlu, Seyhan, Yüreğir, Tufanbeyli, Kozan, Saimbeyli, Feke, Çukurova Municipalities.⁴ During the current crediting period, the annual waste goes to the LFG is taken from those 15 municipalities and the annual estimated waste amount is 48,845 tonnes of waste. Average of 133 tonnes of waste is received daily.⁵

During the current crediting period, an average of 133 tonnes of waste, comprising municipal waste to landfill sites, is disposed of daily and 48,845 tonnes of waste annually.

The proposed Verified Emission Reduction (VER) project aims to cover the landfill, install a gas extraction system, and channel the captured landfill gas into gas engines for electricity generation. Biogas captured are going to the booster, and the temperature, pressure, and flow meter of the biogas are measured. Electricity generated is metered with two electricity meters, including a main meter and a secondary meter.

The overall capacity of the VER project is estimated to reach 15.961MWm/15.565MWe⁶, and the generated electricity will be supplied to the national grid. The project is expected to reduce emissions of greenhouse gases by an estimated 118,470 tCO₂e/year, which is a total reduction 829,292 tCO₂e/year over the second 7-year crediting period.

Table 2-The Important Milestones

Milestone	Event
19/05/2008	Board decision on to continue the project development taking into account the CO2 certificate

⁴ Please refer to the agreement between Adana Greater Municipality and ITC provided to VVB.

⁵ Please refer to the excel sheet called "Eski Saha Atık Alım Takip" provided to VVB.

⁶ Please refer to the generation license.

24/11/2008	Adana Sofular Landfill Area has been handed over to the Project Participant by the Adana Greater Municipality
30/05/2009	Local Stakeholders Consultation Meeting
24/08/2009	Start of Construction
01/09/2010	First start of energy generation
01/01/2011-31/12/2017	First crediting period
01/01/2011 – 31/12/2012	1 st monitoring period
01/01/2013 – 31/12/2013	2 nd monitoring period
01/01/2018-31/12/2024	Second crediting period
04/07/2022	Decommissioning of Anaerobic Digester

Prior to the start of project activities, on May 19, 2008, the board made a decision that clearly showed the investment choice was predicated on the carbon credits. These records offer clear and convincing proof that the PP knew about the CDM/VER before the project activity. To establish the project activity as a GS VER project activity, the PP hired a consulting firm in 2008. Additionally, on August 20, 2009, the LSC report was published to the GS registry. These documents all demonstrate to the PP's knowledge of the GS VERs and their implementation of real, ongoing measures to ensure the project activity's carbon status.

Moreover, as stated in the registered PDD Version 10.5, Project included two activities, one being the LFG extraction and utilization project and the other one is the anaerobic digesters biogas generation and utilization. However, the anaerobic digester installed within the project activity is deactivated on 04/07/2022 at 02:00 PM. As a consequence of deactivation of anaerobic digester, 7 gas engines with the total capacity of 9.905 MW that were previously operated using biogas from the anaerobic digester are currently operated using landfill gas. Thus, total of 11 gas engines are installed in the project and all of them are operate to generate electricity from LFG. The total volume of landfill gas captured is currently used to operate gas engines with cumulative capacity of 15.961MWm/15.565MWe⁷.

⁷ Please refer to the generation license.

The total capacity of the installed engines can be found below:

Years	06/2022	07/2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Landfill (MW)	5.66	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565
Anaerobic Digester (MW)	9.905	-	-	-	-	-	-	-	-	-	-
Total (MW)	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565

The details of the gas engines can be found below:⁸

Manufacturer	Engine Type	Capacity (MWm / MWe)	Gas Volume (Full Load to Part Load)	Electrical Efficiency (Full Load to Part Load)
GE Jenbacher GmbH & Co OG	JGS 420 GS-L.L	Electrical Generation Capacity - 1.415 MW Mechanical capacity - 1.450 MW	Full load - 755 Nm ³ /h Part Load - 583 / 410 Nm ³ /h	Full load 41.6 % Part Load - 40.4 / 38.1 %

In the baseline situation, municipal waste was placed in an uncovered landfill site, where it underwent decay, resulting in the production and release of substantial quantities of landfill gas. Landfill gas, containing around 50% methane, constitutes a significant contributor to methane emissions in the atmosphere, being a potent greenhouse gas.

⁸ Please refer to the technical description document provided to VVB.

The VER project aims to decrease greenhouse gas (GHG) emissions through various measures:

- Capturing methane from the landfill for electricity generation.
- Substituting electricity that would have been generated by power plants connected to the Turkish grid.

The proposed VER project significantly contributes to sustainable development in the region by:

- Introducing an innovative waste management approach to Türkiye, marking one of the initial implementations of its kind in the country.
- Addressing health concerns associated with the unmanaged landfill area in close proximity to the city center, Çukurova University, and Balcalı Hospital, thus positively impacting public health.
- Creating local employment opportunities during both the construction and operational phases.
- Facilitating the transfer of knowledge regarding waste management principles.
- Mitigating issues related to odor and the high risk of fire in uncontrolled landfill areas by covering the landfill and extracting landfill gas, thereby reducing the risk of explosion and fire.
- Utilizing landfill gas, a byproduct, not only for the destruction of methane (a potent greenhouse gas) but also for electricity production, resulting in decreased emissions from Türkiye's power generation sector and reducing the country's reliance on imported electricity.

Electricity generated are measured with two electricity meters. The details of the meters are given below:

Electricity Meters	Brand/Model	Accuracy Class	Serial No
Primary Meter	Landis+Gyr E550	1.0	40184798
Secondary Meter	Itron SL7000	0.5	84500425

A.1.1. Eligibility of the project under Gold Standard

The project activity meets the eligibility criteria as per section 3.1.1 of GS4GG Principles & Requirements document, V2 ⁹, as described below:

(a) Project Type: The project involves extracting and utilizing landfill gas (LFG), Since the project includes methane recovery and considers emission reductions from both methane avoidance and make use of biogas recovered for the delivery of energy services (electricity) the project is an eligible project in accordance with 1.3.1 of the Annex A – Additional Eligibility Criteria for Specific Project Types under Gold Standard for The Global Goals Renewable Energy Activity Requirements, Version 1.4. The project applies one methodology which approved methodology under Gold Standard namely, Approved consolidated baseline methodology ACM0001: Flaring or use of landfill gas Version 19.0.

(b) Project Location: The project is located in Türkiye is eligible. Refer section A.2 for the coordinates of the project.

(c) Project Area, Boundary and Scale: The project Area and Boundary is in line with methodological requirement. The project activity is a Waste Handling and Disposal project along with electricity generation units and qualifies under large scale projects. In accordance with GS Product Requirement - GHG Emissions Reduction & Sequestration Product Requirements, Version 3.

¹⁰Paragraph 9: Project Scale, All Projects exceeding the small-scale thresholds are defined as large scale.

(d) Host Country Requirements: The necessary approvals for project commissioning have been secured from the host country government, and the project is in accordance with the relevant legal, environmental, ecological, and social regulations of the host country.

(e) Contact Details: Please refer Appendix 2 for the contact details. ITC Invest Trading & Consulting A.G. Turkish Ankara Branch is acting as project proponent (PP) of project activity.

⁹ https://globalgoals.goldstandard.org/standards/101_V2.0_TC_PAR_Principles-Requirements.pdf

¹⁰ https://globalgoals.goldstandard.org/standards/501_V3.0_PR_GHG-Emissions-Reductions-Sequestration.pdf

(f) Legal ownership: For legal ownership please refer to section A.1.2 for the legal ownership details.

(g) Other Rights: The project activity complies with the Turkish Republic Laws and Regulations governing the landfill gas component.

(h) Official Development Assistance (ODA) Declaration: Refer Section A.5 for the information of funding sources of projects.

The project results in the displacement of electricity from fossil fuel-powered stations supplying the grid, contributing to the sustainable development of Türkiye and aligning with the Gold Standard Vision and Mission. In accordance with the GS4GG-Renewable-Energy-Activity-Requirements-v1.4¹¹, the project adheres to the Gold Standard for the Global Goals Principles & Requirements and associated documents, as well as the Gold Standard Renewable Energy Activity Requirements.

As outlined in the Renewable-Energy-Activity-Requirements-v1.4, Section 2 Eligible Project Types, the project conforms to the following criteria:

- The project generates electricity from non-fossil fuel sources, specifically landfill gas and biogas.
- It involves electricity generation through landfill gas and biogas (waste-to-energy) and supplies electricity to the national grid.
- The project is a grid-connected energy project.
- Given its waste-to-energy nature, it is exempt from satisfying the eligibility conditions of Section 2.1.3.
- The project utilizes landfill gas and biogas for power generation, claiming emission reductions from both methane avoidance and non-renewable fuel substitution. The system is designed to use at least some of the recovered biogas for delivering energy services in line with Annex A of the Renewable-Energy-Activity-Requirements-v1.4 document.
- The project does not seek renewable energy labels, making criteria 2.1.6 of the Renewable-Energy-Activity-Requirements-v1.4 document not applicable to the project activity.

¹¹ https://globalgoals.goldstandard.org/standards/202_V1.4_AR-Renewable-Energy-Activity-Requirements.pdf

- New Gold Standard Verified Emission Reductions (GS VER) or Gold Standard labels for Certified Emission Reductions (GS CER), Renewable Energy projects connected to national or a regional electricity grid must be located in either a;
 - a. Least Developed Country (LDC), Small Island Developing State (SIDS) or a Land Locked Developing Country (LLDC) or
 - b. Low Income and Low Middle-income country where the penetration level of the proposed

Renewable Energy Technology type is less than 5% of the total grid installed capacity, at the time of the first submission to preliminary review Renewable Energy projects connected to national or a regional electricity grid are ineligible for GS VERs/CERs, if located in:

- an Upper Middle-Income Country or High-Income Country or
- SIDS and LLDC, defined as a High- Income Country

Since this is not a new project, project is considered eligible.

- Projects is not generating on-site electricity for captive use.
- A single Renewable Energy project may potentially pursue any number and combination of Certified Impact Statements or Products. However, certain Product Requirements, which supersede the generic requirements stated in GS4GG-Renewable-Energy-Activity-Requirements-v1.4 can set restrictions on co-issuance of Certified Impact statements or Products. For instance, GS VERs or GS CERs with REC labels cannot be claimed for the same MWh
 - Project only claims GSVERs.
- Project is eligible for emission reductions from both methane avoidance (including from the flared biogas fraction) and non-renewable fuel substitution as long as evidence is provided on time for validation to demonstrate that the system was designed in a way to at least make use of some of the biogas recovered for the delivery of energy services (e.g., electricity, heat).
- Project is not related to Palm Oil production and does not make use of Palm oil and/or palm oil mill by-products .

Project is eligible under section 4 of GS4GG-Renewable-Energy-Activity-Requirements-v1.4:

- Project contributes to 3 SDGs. These are SDG 13, SDG 7 and SDG 8. This project is generating electricity from LFG. Thus, it contributes to SDG 7. Project provides employment opportunities to people which contribute to SDG 8.
- Project Developer conducted safeguarding principles assessment and conforming to the relevant requirements. Please see Appendix 1 for detailed information.
- Project identified and engaged relevant stakeholders and complied to stakeholder consultation requirements.
- Project start date is determined according to the GS4GG Principles & Requirements document.
- Project undergoes Design Certification Renewal as per GS4GG Principles & Requirements document.
- The baseline reassessment conducted at the time of Crediting Period Renewal as per GS4GG Principles & Requirements document.
- Project is in compliance with principle 5- Financial Additionality and Ongoing Financial Need of Renewable Energy Activity Requirements.

Project 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. Türkiye doesn't have any Emission Trading System or regulation that enforces emission reduction cap.

There is no potential for double counting of impacts and Project area does not overlap with another Gold Standard or other voluntary or compliance standard programme of a similar nature. Project is not registered with any other voluntary or compliance schemes.¹²

¹² Please refer to the declaration provided by the Project Developer.

Project is in compliance with applicable Host Country's legal, environmental, ecological and social regulations. Related laws and regulations to the project activity are as followed:

- Electricity Market Law¹³ [Law Number: 6446 Ratification Date:14/03/2013 Enactment Date: 30/03/2013]
- Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy¹⁴ [Law Number: 5346 Ratification Date: 10/05/2005 Enactment Date: 18/05/2005]
- Environmental Law¹⁵ [Law Number: 2872 Ratification Date: 09/08/1983 Enactment Date: 11/08/1983]
 - Regulation on Solid Waste Control¹⁶ [Last updated on 05/04/2005]
 - Regulation on Managed Waste Land Filling¹⁷ [Regulation number 27533 Enactment Date: 26/03/2010]

A.1.2. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

The project proponent (PP) of the project activity is ITC Invest Trading & Consulting A.G. Turkish Ankara Branch.

A.2 Location of project

The project location is the Sofulu district of Adana province which is located in Türkiye East of Mediterranean Region. Adana landfill area receives fresh waste from the municipalities of Adana Greater Municipality.

Coordinates of the project location: Latitude: 37°3'5.84"N, Longitude: 35°23'43.44" E¹⁸

¹³ Reference: <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6446&MevzuatTur=1&MevzuatTertip=5>

¹⁴ Reference: <https://www.mevzuat.gov.tr/mevzuatmetin/1.5.5346.pdf>

¹⁵ Reference: <https://www.mevzuat.gov.tr/mevzuatmetin/1.5.2872.pdf>

¹⁶ Reference: <https://www.resmigazete.gov.tr/eskiler/2015/04/20150402-2.htm>

¹⁷ Reference:

[https://www.mevzuat.gov.tr/anasayfa/MevzuatFihristDetayIframe?MevzuatTur=7&MevzuatNo=13887&MevzuatTertip=5#:~:text=MADDE%202%20%E2%80%93%20\(1\)%20Bu,ve%20tabi%20olunacak%20sorumluluklar%C4%B1%20kapsar.](https://www.mevzuat.gov.tr/anasayfa/MevzuatFihristDetayIframe?MevzuatTur=7&MevzuatNo=13887&MevzuatTertip=5#:~:text=MADDE%202%20%E2%80%93%20(1)%20Bu,ve%20tabi%20olunacak%20sorumluluklar%C4%B1%20kapsar.)

¹⁸ Please refer to the KML file provided.

https://earth.google.com/web/search/37%C2%B03%E2%80%9991.93%22N,+35%C2%B023%2744.22%22+E/@37.0505361,35.3956167,116.57904734a,1000d,30y,0h,0t,0r/data=CiwiJgokCfILoX7sCTIAEWMqE-ZqCTIAGSjnrb0mAFFAIeDAPq7e_1BAQqIIAToDCgEwQqIIAEoICLGDhe4GEAA

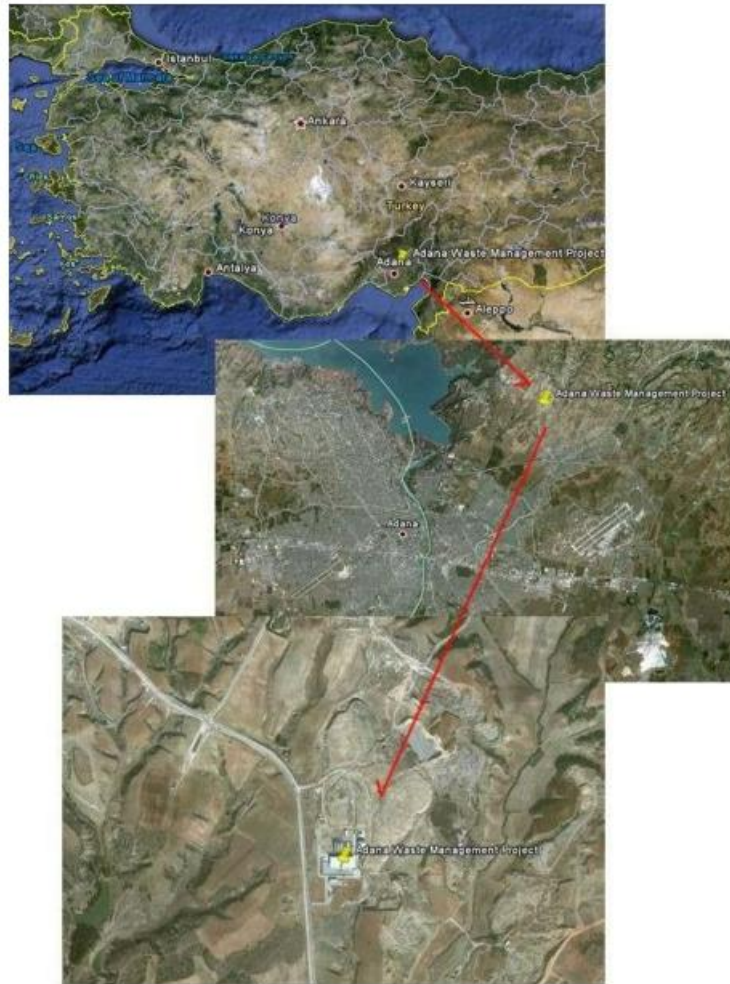


Figure 1- Project Location

There is another project next to the side of the GS715 belongs to Project Owner. The other project has been installed as part of a separate investment and is currently being registered in another carbon mechanism.

A.3 Technologies and/or measures

Project participant aims to minimize or offset the impact of waste. The project, in a broad sense, includes (1) the extraction and utilization of Landfill Gas (LFG) to manage waste in the landfill area, (2) a gasification system, for processing incoming fresh waste. The successful implementation of these technologies is deemed economically feasible only through revenue generated from carbon credits. Consequently, a distinction is made between "GS VER project activities" and "Other Activities," both of which form integral parts of the overarching "Generic Project Activity." The table below illustrates this classification.

Table 3 - Activities under the scope of the generic and GS VER project activities

Activity			Impacts on:		
			Environment	Safety	Electricity Production
Generic Project Activity	GS VER Project activity (Project Boundary)	Covering of the landfill	Reduction of odour nuisance and prevent LFG to be emitted to the atmosphere	Reduce health hazards	Increase the efficiency of the landfill gas collection system
		Landfill gas collection system	Prevent LFG to be emitted to the atmosphere	Controlled capture of LFG reduced the risk on explosion and fires	Provides the fuel for the gas engines, methane.
		Energy generation units	Displace electricity otherwise produced by the grid	Combustion of methane reduces the risk on explosion and fires.	Renewable energy production from a waste stream
		Landfill leachate drainage system	Controls the leachate, this is directed to a waste water treatment system	Prevents the leachate to enter the environment, reduce health hazards	Enables to manage the humidity level of the land filled waste, therefore enhances the LFG recovery.
		Gas flaring system	Reduce environmental effects of Methane	Combustion of methane reduces the	Required as safety device.

				risk on explosion and fires.	
		Connection to the grid via transmission line			Delivery of the generated electricity to the national grid
	Other Activities (Outside the Project Boundary)	Sorting Facility & Recycling Centre	Saves natural resources		

GS VER Project Activity (Project Boundary)

Covering of the Landfill: Landfill will be covered to decrease the odour and increase the efficiency of the gas collection system.

Landfill Gas Collection System: There are vertical gas wells and horizontal collectors in the LFG collection system. The collected LFG will be sent to 11 gas engines to support 15.961MWm/15.565 MWe¹⁹ of total installed capacity for only LFG utilization part of the plant. In addition, the waste coming to landfill is measured with two weighbridges currently. The details of the weighbridges can be found below:

¹⁹ Please refer to the generation license.

Table 4-Weighbridge Information

Weighbridges Serial Number	Manufacturing Year	Calibration Date ^{20 21}	Brand/Model
3333	2020	12/10/2022	Medeni Baskül/B2
3396	2021	09/11/2023	Medeni Baskül/B2

Energy Generation Units: Gas engines will use the captured LFG for electricity generation. The anticipated energy generation capacity for the GS VER project is projected to reach a total of 15.961MWm/15.565MWe²² during the crediting period. There is potential for further capacity enhancement based on the effectiveness of potential innovative technologies related to landfill cover and extraction.

Table 5-Timeline of projected capacity development of the proposed GS VER Adana Landfill Waste Management Project

Years	06/2022	07/2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Landfill (MW)	5.66	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565
Anaerobic Digester (MW)	9.905	-	-	-	-	-	-	-	-	-	-
Total (MW)	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565	15,565

The gas generated is measured with flow meters. There are total of 3 flow meters in the project. First flow meter is placed on the input line and second flow meter is placed on the output line. The third flow meter is placed before the flare unit for the measurement of the flow.

²⁰ Please refer to the calibration reports of weighbridges.

²¹ The calibration frequency of the weighbridges are 10 years according to the Regulation on Measurement Devices of Turkey. The regulation is provided as a supportive document to the VVB.

²² Please refer to the generation license.

The details of the flow meters can be found below:

Flow Meter	Brand	Serial Number	Calibration Date ²³
First Flow Meter	SAGE	239327-12128	17/08/2023
Second Flow Meter	ABB	3K646615008777	28/11/2022
Third Flow Meter	ABB	6410028945	27/04/2022

Electricity generated is being measured from the electricity meters. There are two electricity meters for the measurement. The Serial number of the main meter is 40184798, and a serial number of the secondary meter is 84500425.

Table 6-Details of the Electricity Meters²⁴

Electricity Meters	Brand/Model	Accuracy Class	Serial No
Primary Meter	Landis+Gyr E550	1.0	40184798
Secondary Meter	Itron SL7000	0.5	84500425

Leachate Drainage System: The proposed initiative encompasses the implementation of a system for collecting leachate, where the liquid is gathered through subterranean channels and conveyed via pipes to the ASKI water treatment facility. At this facility, the wastewater undergoes treatment, including aerobic processes.²⁵

Gas Flaring System: An enclosed flaring system will be employed only if the quantity of captured gas surpasses what can be utilized in the gas engines. In addition to the flaring apparatus, a gas booster is installed to ensure the necessary discharge pressure. The primary objective of the enclosed flaring system is to guarantee the safety of the project.

²³ Calibration frequency is 10 years as per the Regulation on Measurement Devices.

²⁴ Please refer to the calibration reports of the electricity meters.

²⁵ Please refer to the declaration provided by ASKI.

Table 7-Flare Specifications

Flare Specifications	
Flare Type	Ground Flare
Firing Capacity	6,000Nm ³ /h
Fuel Gas	Landfill Gas
Year of Manufacture	2010
Exhaust Gas Temperature Max	1100C
Combustion Plant Serial Number	7681931
Fuel Gas Admission Pressure Min	40mbar

Grid Connection: The project also includes connection to the national grid, spanning a length of 2.2 km and operating at a 31.5 kV level. The facility links to the grid at the Cihadiye feeder 154/31.5 ASKI feeder transformer station. ITC is actively exploring innovative waste management technologies to enhance the efficiency of gas collection and extraction systems in the future.

Activites Outside Project Boundary

Sorting Facility and Recycling Center Beyond Project Limits: Within the sorting facility, municipal waste received is categorized into organic and inorganic types, facilitating effective recycling. It's important to note that the sorting facility and recycling center are not included in the VER project scope. The facility targets a 50% capture rate for all non-organic materials received, anticipating a recycling rate of 4 - 6% for the total waste directed to the landfill.

Gasification System: In the previously registered PDD for the crediting period, it was mentioned that the gasification system was scheduled to commence in 2015. However, the implementation of the gasification system did not take place as part of the project activity. As the gasification system has not been initiated either in the past or within the current crediting period, emission reductions from facilities that could have been included in the 'general project' but are ineligible for VERs under Gold Standard regulations are not considered part of the ongoing project activity.

There is another LFG Project site next to the GS715 project. The electricity generation from these two distinct plants are measured separately. The calculations that affect

emission reduction are done by referring to the internal data records saved and archived for the project activity separately and specifically. The other parameters that require specific treatment as per the project are supported by these distinguished records as well.

A.4 Scale of the project

The project involves the prevention of methane emissions by capturing and utilizing landfill gas for power generation. The total generation capacity from the gas engine linked to the landfill gas extraction unit is 15.961MWm/15.565MWe. According to the para 3.3.2 of Renewable Energy Activity Requirements Project capacity exceeds 15 MW capacity, thus classified as large scale.

The average emission reduction/greenhouse gas avoidance resulting from the project activity is 118,470 tCO₂e per annum.

Paragraph 3.3 of the 'Renewable Energy Activity Requirements-V1.4' delineates the thresholds for small-scale and micro-scale project activities. Given that the installed renewable energy capacity and/or annualized emission avoidance exceed the micro-scale and small-scale thresholds and adhere to the requirements of the large-scale methodology, the project activity is categorized as a large-scale project activity.

In accordance with GS Product Requirement - GHG Emissions Reduction & Sequestration Product Requirements, Version 3. ²⁶Paragraph 9: Project Scale, All Projects exceeding the small-scale thresholds are defined as large scale. The project activity being a landfill gas and alternate water treatment measures belongs to Type 3: Other project activities.

Since the annualized emission reduction from the project activity of tCO₂e/annum is higher than small-scale thresholds of 60,000 tCO₂e per year in any year of the crediting period therefore the project activity complies to the large-scale project activity.

²⁶ https://globalgoals.goldstandard.org/standards/501_V3.0_PR_GHG-Emissions-Reductions-Sequestration.pdf

A.5 Funding sources of project

The project activity does not have any public funding or diversion of Official Development Assistance (ODA) funding.

SECTION B. APPLICATION OF APPROVED GOLD STANDARD METHODOLOGY (IES) AND/OR DEMONSTRATION OF SDG CONTRIBUTIONS

B.1. Reference of approved methodology (ies)

Applied approved baseline and monitoring methodology:

- Approved consolidated baseline methodology ACM0001: Flaring or use of landfill gas Version 19.0²⁷
- Used tools:
 - "Tool for the demonstration and assessment of additionality"²⁸ Version 07.0.0;
 - "Project emissions from flaring" Version 04.0²⁹;
 - "Emissions from solid waste disposal sites" Version 08.1³⁰;
 - "Tool to calculate the emission factor for an electricity system"³¹ Version 07.0;
 - "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" Version 03.0³²
 - "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" Version 03.0.1³³
 - "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 03.0.0.³⁴

²⁷ <https://cdm.unfccc.int/UserManagement/FileStorage/HEJ2MD41GB0PUZISL9FNTAYQV38750>

²⁸ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

²⁹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-06-v4.0.pdf>

³⁰ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.1.pdf>

³¹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

³² <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-05-v3.0.pdf>

³³ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf>

³⁴ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-08-v3.0.pdf>

B.2. Applicability of methodology (ies)

The project activity utilizes various waste management technologies, such as Landfill Gas (LFG) extraction, and the use of the produced LFG for electricity generation. This necessitates the adoption of one methodology and associated tools. The suitability of these methodology and tools is elaborated upon below.

Applicability of ACM0001 Version 19.0

For the emission reduction calculation for the landfill gas recovery component of proposed VER project , ACM0001: Flaring or use of landfill gas Version 19.0 is used. The choice of methodology is justified as the proposed project activity meets its applicability criteria:

Table 8- Applicability of ACM0001 Version 19.0

Ref	Applicability Criteria	Justification
Para 3	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	The project involves implementing a new Landfill Gas (LFG) capture system within an established Solid Waste Disposal Site (SWDS) where no such system previously existed or was planned before the project's initiation. Consequently, the conditions outlined in methodology condition 3.a are applicable to this project activity. The approach involves incorporating a new Landfill Gas (LFG) capture system, and as a result, paragraph 3.b is not relevant to the project activity.

	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; (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; (d) Do not reduce the amount of organic waste that would be recycled in the absence of the project activity.	The captured Landfill Gas (LFG) is utilized for electricity generation, making methodology condition 3.c applicable to the project activity. The project activity does not reduce the amount of organic waste that would be recycled in the absence of the project activity. Hence, 3.d. is applicable to project.
Para 4	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	In the initial scenario, municipal waste was disposed of and allowed to decompose openly at the landfill site without any covering. This resulted in the substantial generation and emission of landfill gas, a significant

	LFG or capture of LFG and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons; and (b) In the case that the LFG is used in the project activity for generating electricity and/or generating heat in a boiler, air heater, glass melting furnace or kiln: (i) For electricity generation: that electricity would be generated in the grid or in captive fossil fuel fired power plants; and/or (ii) For heat generation: that heat would be generated using fossil fuels in equipment located within the project boundary; (c) In the case of LFG supplied to the end-user(s) through natural gas distribution network, trucks or the dedicated pipeline, the baseline scenario is assumed to be displacement of natural gas. (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.	source of methane emissions into the atmosphere. Landfill gas commonly consists of around 50% methane, a potent greenhouse gas. Therefore, the baseline condition for the project activity involves the atmospheric release of Landfill Gas (LFG), aligning with the applicability condition (4.a) of the methodology.
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Para 5	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; (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.	The project does not involve making claims for emission reductions resulting from displacing fossil fuels in a kiln or glass melting furnace. Instead, the focus of the Clean Development Mechanism (CDM) project activity is on implementing energy efficiency measures at a kiln or glass melting furnace. During the crediting period of the project activity, there has been no alteration in the management of the Solid Waste Disposal Site (SWDS) to intentionally enhance methane generation compared to the conditions existing prior to the implementation of the project activity. Given that the project does not meet the specified non-applicability conditions, it is deemed applicable for the methodology.
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Furthermore, the methodologies make reference to various tools outlined in section B.1, "Title and reference of the approved baseline and monitoring methodology applied to the project activity." The discussion regarding the relevance of these tools is provided below:

**Applicability of “Tool for the demonstration and assessment of additionality”
Version 07.0.0:**

The tool used for demonstrating and assessing additionality offers a comprehensive framework applicable to various project types. As mentioned in both methodologies ACM0001 and the additionality tool is suitable for the proposed project activity.

Applicability of “Project emissions from flaring” Version 04.0:

The tool provides procedures to calculate project emissions from flaring of a residual

gas stream where the component with the highest concentration is methane.

Applicability of “**Project emissions from flaring**” is discussed below:

Table 9- Applicability of project emissions from flaring

Ref	Applicability Criteria	Justification
A	This tool provides procedures to calculate project emissions from flaring of a residual gas. The tool is applicable to enclosed or open flares and project participants should document in the CDM-PDD the type of flare used in the project activity.	In the planned project activity, only the Landfill Gas (LFG) that exclusively consists of methane, with no other combustible gases, is flared in the event of an emergency or when the project equipment is unavailable for electricity production.
B	This tool is applicable to the flaring of flammable greenhouse gases where: (a) Methane is the component with the highest concentration in the flammable residual gas; and (b) The source of the residual gas is coal mine methane or a gas from a biogenic source (e.g., biogas, landfill gas or wastewater treatment gas).	In the intended project activity, (a) Methane is the component with the highest concentration. (b) The gas stream remaining to be flared is obtained from the decomposition of organic material within a landfill.
C	The tool is not applicable to the use of auxiliary fuels and therefore the residual gas must have sufficient flammable gas present to sustain combustion. For the case of an enclosed flare, there shall be operating specifications provided by the manufacturer of the flare.	No additional/ auxiliary fuel is used.

Applicability of “Emissions from solid waste disposal sites” Version 08.1:

The tool outlines methods for computing baseline, project, or leakage emissions of methane arising from the disposal or prevention of solid waste at a Solid Waste Disposal Site (SWDS). This tool is relevant when the site where the waste would be deposited can be distinctly identified, and the proposed project does not involve stockpiling or processing hazardous waste.

The tool can be used to determine emissions for the following types of applications:

Application A: The CDM project activity mitigates methane emissions from a specific existing SWDS. Methane emissions are mitigated by capturing and flaring or combusting the methane (e.g. “ACM0001: Flaring or use of landfill gas”). The methane is generated from waste disposed in the past, including prior to the start of the CDM project activity. In these cases, the tool is only applied for an ex ante estimation of emissions in the

project design document (CDM-PDD). The emissions will then be monitored during the crediting period using the applicable approaches in the relevant methodologies (e.g. measuring the amount of methane captured from the SWDS);

Application B: The CDM project activity avoids or involves the disposal of waste at a SWDS. An example of this application of the tool is ACM0022, in which municipal solid waste (MSW) is treated with an alternative option, such as composting or anaerobic digestion, and is then prevented from being disposed of in a SWDS. The methane is generated from waste disposed or avoided from disposal during the crediting period. In these cases, the tool can be applied for both ex ante and ex post estimation of emissions. These project activities may apply the simplified approach detailed in 0 when calculating baseline emissions.

Project is generating electricity from captured LFG. Application A is applicable to the project.

**Applicability of “Tool to calculate the emission factor for an electricity system”
Version 07.0:**

This methodological tool establishes the CO₂ emission factor for displacing electricity produced by power plants within an electricity system. It achieves this by computing the "combined margin" emission factor (CM) of the electricity system. The tool can be utilized to estimate the OM, BM, and/or CM when determining baseline emissions for a project activity replacing grid electricity. Given that the proposed project activity contributes electricity to the national grid, the "Tool to calculate the emission factor for an electricity system" version 07 is relevant to the project. Under this tool, the value applied to the CO₂ emission factor of biofuels is zero.

Applicability Conditions	Justification of eligibility
This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g., demand-side energy efficiency projects).	This condition of applicable, OM, BM and CM are estimated using this tool for calculating of the baseline emission.
Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under	Since the project activity is grid connected, the condition is applicable and emission factor has been calculated accordingly.

Applicability Conditions	Justification of eligibility
the step 2 of the tool are available to the project participants, i.e., option IIa and option IIb. If option IIa is chosen, the conditions specified in "Appendix 1: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	
In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	The project activity is located in Türkiye which is not an Annex I country. Therefore, this condition is applicable to the project activity.
Under this tool, the value applied to the CO2 emission factor of biofuels is zero.	The project activity is a waste to energy project and hence the condition of biofuel emission factor is not applicable.

Applicability of "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" Version 03.0:

This tool outlines procedures for estimating baseline, project, and/or leakage emissions related to electricity consumption. Its application depends on specific scenarios associated with the sources of electricity consumption. Three potential scenarios are discussed as follows:

Table 10-Applicability of "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation"

Ref	Applicability Criteria	Justification
A	If emissions are calculated for electricity consumption, the tool is only applicable if one out of the following three scenarios applies to the sources of electricity consumption:	In the intended project activity, electricity is exclusively procured from

	(a) Scenario A: Electricity consumption from the grid. The electricity is purchased from the grid only, and either no captive power plant(s) is/are installed at the site of electricity consumption or, if any captive power plant exists on site, it is either not operating or it is not physically able to provide electricity to the electricity consumer; (b) Scenario B: Electricity consumption from (an) off-grid fossil fuel fired captive power plant(s). One or more fossil fuel fired captive power plants are installed at the site of the electricity consumer and supply the consumer with electricity. The captive power plant(s) is/are not connected to the electricity grid; or (c) Scenario C: Electricity consumption from the grid and (a) fossil fuel fired captive power plant(s). One or more fossil fuel fired captive power plants operate at the site of the electricity consumer. The captive power plant(s) can provide electricity to the electricity consumer. The captive power plant(s) is/are also connected to the electricity grid. Hence, the electricity consumer can be provided with electricity from the captive power plant(s) and the grid.	the grid, and there is no installation of a fossil fuel power plant at the location of electricity consumption.
B	This tool can be referred to in methodologies to provide procedures to monitor amount of electricity generated in the project scenario, only if one out of the following three project scenarios applies to the recipient of the electricity generated: (a) Scenario I: Electricity is supplied to the grid; (b) Scenario II: Electricity is supplied to consumers/electricity consuming facilities; or (c) Scenario III: Electricity is supplied to the grid and consumers/electricity consuming facilities	The projects entail compliance with Scenario I: Electricity is supplied to the grid
C	This tool is not applicable in cases where captive renewable power generation technologies are installed to provide electricity in the project	No captive renewable power generation technologies are installed to provide

	activity, in the baseline scenario or to sources of leakage. The tool only accounts for CO2 emissions.	electricity in the project activity, in the baseline scenario or to sources of leakage.
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Applicability of “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” Version 03.0

This tool provides methodological guidance to determine the mass flow of greenhouse gases.

Ref	Applicability Criteria	Justification
5	Typical applications of this tool are methodologies where the flow and composition of residual or flared gases or exhaust gases are measured for the determination of baseline or project emissions.	This tool is used together with ACM0001.
6	Methodologies where CO ₂ is the particular and only gas of interest should continue to adopt material balances as the means of flow determination and may not adopt this tool as material balances are the cost effective way of monitoring flow of CO ₂ .	As per ACM0001 this tool is recommended to be applied.
7	The underlying methodology should specify: (a) The gaseous stream the tool should be applied to; (b) For which greenhouse gases the mass flow should be determined; (c) In which time intervals the flow of the gaseous stream should be measured; and (d) Situations where the simplification offered for calculating the molecular mass of the gaseous stream (equations (3) or (17)) is not valid (such as the gaseous stream is predominantly composed of a gas other than N ₂).	Applied methodologies specify the points.

Applicability of “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” Version 03.0.1

Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period (Version 03.0.1)	
a) This tool provides a stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period, as required by paragraph 49 (a) of the modalities and procedures of the clean development mechanism. The tool consists of two steps. The first step provides an approach to evaluate whether the current baseline is still valid for the next crediting period. The second step provides an approach to update the baseline in case that the current baseline is not valid anymore for the next crediting period.	a) Detailed assessment of the validity of the original baseline as per the Tool was carried out in Section B.4 of this PDD. Please see Section B.4.

B.3. Project boundary

As per ACM0001: Flaring or Use of Landfill Gas Version 19.0, where the project boundary is defined at the site where gas is captured and either destroyed or utilized.

The project boundary's spatial extent also covers power generation sources using Landfill Gas (LFG) , linked to the national grid. This inclusion is in line with ACM0001 Flaring or Use of Landfill Gas Version 19.0 given that the proposed Verified Emission Reduction (VER) project supplies electricity to the national grid.

The geographic and system boundaries for the relevant electricity grid are identifiable, and information on the grid's characteristics, as required by the "Tool to calculate the

emission factor for an electricity system" Version 07, is accessible. The electricity generated on-site will be fed into the Turkish national grid.

The gases and sources relevant to the proposed VER project are listed in the below table

Table 11-Greenhouse Gas Emission Sources

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Emissions from decomposition of waste at the landfill site	CH ₄	Yes	The major source of emissions in the baseline
		CO ₂	No	CO2 emissions from the decomposition of organic waste are not accounted.
		N ₂ O	No	N2O emissions are small compared to CH4 emissions from landfills. Exclusion of this gas is conservative
	Emissions from electricity consumption	CO ₂	Yes	Main emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source
Project scenario	Emissions from on-site electricity use	CO ₂	Yes	This is an important source of emissions in the project activity
		CH ₄	No	Excluded for simplification. This emission source is assumed to be very small
		N ₂ O	No	Excluded for simplification. This emission source is assumed to be very small
	Direct emissions from the waste treatment process	CO ₂	No	CO2 emissions from the decomposition of organic waste are not accounted
		CH ₄	No	Excluded for simplification. This emission source is assumed to be very small
		N ₂ O	No	Excluded for simplification. This emission source is assumed to be very small

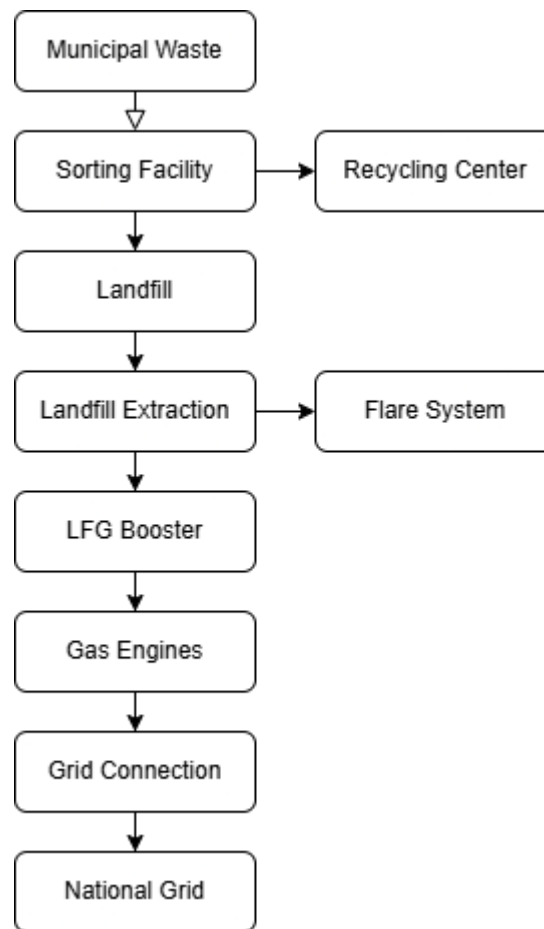


Figure 2-VER Project Boundaries

There is another waste management project next to the GS715 project which seeks registration in another GHG program. The electricity generated is measured with different electricity meters and there is no double accounting.

B.4. Establishment and description of baseline scenario

Both methodologies employ a systematic step-by-step process to identify the most credible baseline scenario, while also considering the guidelines outlined in the 'Tool for demonstration and assessment of additionality' (Version 07.0.0).

As per the methodologies and the "Tool for demonstration and assessment of additionality", the steps for identification of alternatives are as followed:

Steps defined to identify the most plausible baseline scenario under the related methodologies and tools

Table 12-Steps defined under ACM0001

Steps defined under ACM0001	Steps defined under the additionality tool
Step1: Identification of alternative scenarios	Step 1: Identification of alternatives to the project activity consistent with current laws and regulations.
Step 2: Identify the fuel for the baseline choice of energy source taking into account the national and/or sectoral policies as applicable	Sub-step 1a: Define alternatives to the project activity
Step 3: Step 2 and/or Step 3 of the latest approved version of the tool for demonstration and assessment of additionality shall be used to assess which of these alternatives should be excluded from further consideration (e.g. alternatives facing prohibitive barriers or those clearly economically unattractive).	Sub-step 1b: Consistency with the mandatory laws and regulations; - Electricity Market Law³⁵ - Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy³⁶ - Environmental Law³⁷ - Regulation on Solid Waste Control³⁸ - Regulation on Managed Waste Landfilling³⁹
Step 4: Where more than one credible and plausible alternative remains, project participants shall, as a conservative assumption, use the alternative baseline scenario that results in the lowest baseline emissions as the most likely baseline scenario. The least emission alternative is identified for each component of the baseline scenario. In assessing these scenarios, any regulatory or contractual requirements should be taken into consideration.	

To avoid complexity, steps under the methodologies and the Tool have been incorporated as followed:

³⁵ <https://www.mevzuat.gov.tr/mevzuatmetin/1.5.6446.pdf>

³⁶ <https://www.mevzuat.gov.tr/mevzuatmetin/1.5.5346.pdf>

³⁷ <https://www.mevzuat.gov.tr/mevzuatmetin/1.5.2872.pdf>

³⁸ <https://www.resmigazete.gov.tr/eskiler/2015/04/20150402-2.htm>

³⁹ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=13887&MevzuatTur=7&MevzuatTertip=5>

Consolidated steps to identify the most plausible baseline scenario under the related methodologies and tools

Steps ⁴⁰	Description	Reference
Step A	Identification of alternative scenarios	Step 1 defined under ACM0001 and sub-step 1a & under the Tool.
Step B	Identify the fuel for the baseline choice of energy source taking into account the national and/or sectoral policies as applicable	Step 2 defined under ACM0001
Step C	Assessment of which of these alternatives should be excluded from further consideration	Step 3 defined under ACM0001
Step D	Selection of the lowest baseline emissions as the most likely baseline scenario.	Step 4 defined under ACM0001. This step is applicable only if more than one credible and plausible alternative remains.
Step E	Consistency with mandatory laws and regulations	Sub step 1b defined under the Tool.

Step A. Identification of alternative scenarios

Assessed alternatives to the project activities are defined according to ACM0001: Flaring or use of landfill gas - Version 19.0 as followed:

Alternatives to LFG project (ACM0001)

LFG 1	The project activity (landfill gas extraction) undertaken without being registered as a VER project
LFG 2	Atmospheric release of the landfill gas or partial capture of landfill gas and destruction to comply with regulations or contractual requirements or to address safety and odor concerns.
LFG 3	Atmospheric release of the LFG or capture of LFG in an unmanaged SWDS and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons;
LFG 4	LFG generation is partially avoided because part of the organic fraction of the solid waste is recycled and not disposed in the SWDS;
LFG 5	LFG generation is partially avoided because part of the organic fraction of the solid waste is treated aerobically and not disposed in the SWDS;
LFG 6	LFG generation is partially avoided because part of the organic fraction of

⁴⁰ In order to avoid confusion, the consolidated steps are named alphabetically.

	the solid waste is incinerated and not disposed in the SWDS.
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Alternatives for electricity generation (ACM0001)

E1	Electricity generation from LFG, undertaken without being registered as CDM project activity;
E2	Electricity generation in existing or new renewable or fossil fuel based captive power plant(s);
E3	Electricity generation in existing and/or new grid-connected power plants;

The project activity does not involve treatment of the wastewater, all the alternatives of treatment of the wastewater are not assessed/considered.

As the project does not involve thermal energy generation, all the alternatives of heat generation are not considered.

Based on the combination of the above alternatives, the following baseline scenarios have been identified for further evaluation.

Alternative baseline scenarios

Scenario	Alternatives		Description of the baseline scenario
	LFG	Electricity	
1	LFG 1	E1	The project activity undertaken without being registered as a VER project
2	LFG 2	E3	Atmospheric release of the landfill gas or partial capture of landfill gas and destruction to comply with regulations or contractual requirements or to address safety and odour concerns (baseline LFG). The electricity is generated by existing grid connected power plants.

The project activity is located in an area allocated for land filling and therefore there is no possibility to develop a cogeneration plant either based on fossil or renewable energy resources (other than waste originating gas). Moreover, construction of onsite and offsite power plant require investment which is constrained by project proponent capacity to invest.

Alternatives LFG 3,LFG 4,LFG 5 ,E2, have been excluded from further evaluation as they are not realistic and credible alternatives to the project activity.

Step B. Identify the fuel for the baseline choice of energy source taking into account the national and/or sectoral policies as applicable

The electricity generation in Türkiye is mainly based on fossil fuel fired power plants and there is no supply constraint, and the baseline fuel is available in abundance.

Step C. Assessment of which of these alternatives should be excluded from further consideration

Scenario 1: This scenario refers to the project activity undertaken without being registered as a VER project. The project activities face certain barriers and are not considered as financially attractive without the revenues from VER credits and therefore excluded as a realistic and credible baseline scenario. A detailed barrier and investment analysis is presented under section B.5 of PDD registered with GS for additionality.

Scenario 2: This scenario refers to the disposal of the waste at a landfill where landfill gas is captured and flared. Adana Landfill Area is established as a landfill in 1995 and is operational since 1998. No waste management measures (e.g., LFG capture, flaring) have been taken before the start of the Project Activity⁴¹. The common practice in Türkiye shows that landfilling would have continued without any capture and/or flaring in the absence of the project Activity as only flaring doesn't generate any income, hence would not have been viable from a commercial point of view, and therefore the alternative baseline scenario 2 is excluded as a realistic and credible baseline scenario.

Step D. Selection of the lowest baseline emissions as the most likely baseline scenario

According to the applicable methodologies, where more than one credible and plausible alternative remains, project participants shall, as a conservative assumption, use the alternative baseline scenario that results in the lowest baseline emissions as the most likely baseline scenario.

As there is only one credible and plausible alternative remained, this step is not applicable to the project activity.

Step E. Consistency with mandatory laws and regulations

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

- Electricity Market Law⁴² [Law Number: 6446 Ratification Date:14/03/2013 Enactment Date: 30/03/2013]
- Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy⁴³ [Law Number: 5346 Ratification Date: 10/05/2005 Enactment Date: 18/05/2005]
- Environmental Law⁴⁴ [Law Number: 2872 Ratification Date: 09/08/1983 Enactment Date: 11/08/1983]

⁴¹ Reference: Chamber of Environmental Engineers, Ankara Environmental Situation Report 2009, page 4
<http://www.cmo.org.tr/dosyalar/cdr2009/ankara.pdf>

⁴² Reference: <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6446&MevzuatTur=1&MevzuatTertip=5>

⁴³ Reference: <https://www.mevzuat.gov.tr/mevzuatmetin/1.5.5346.pdf>

⁴⁴ Reference: <https://www.mevzuat.gov.tr/mevzuatmetin/1.5.2872.pdf>

- Regulation on Solid Waste Control⁴⁵ [Last updated on 05/04/2005]
- Regulation on Managed Waste Land Filling⁴⁶ [Regulation number 27533
Enactment Date: 26/03/2010]

Relevance of mentioned Laws and Regulations

Electricity Market Law: The objective of this legislation is to facilitate the establishment of a financially robust and transparent electricity market that functions within a competitive framework governed by civil law. The primary aims include providing consumers with an ample supply of high-quality, cost-effective, and environmentally friendly electricity. The law further seeks to enable autonomous regulation and supervision of this market. Importantly, the scope of this law encompasses electricity generation, making it a pertinent regulatory framework for the project activity, given its significant focus on electricity generation.

Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy: This legislation aims to promote the widespread use of renewable energy resources for the production of electricity, ensuring their secure, economical, and efficient utilization. The objectives include enhancing the diversification of energy sources, minimizing greenhouse gas emissions, evaluating waste products, safeguarding the environment, and fostering the growth of the associated manufacturing sector. Notably, at the time of making investment decisions, the law provided assurance by guaranteeing a price range of 5-5.5 ¢/kWh for electricity generation. As one of the important aspects of the project activity is electricity generation from renewable energy sources the "Renewable Energy Law" is one of the regulating legislations regarding the project activity⁴⁷.

Environmental Law: This legislation provides a broad framework for Türkiye's environmental policy, with the overarching goal of preserving the environment and the country's natural resources for the well-being of future generations. It incorporates the polluter pays principle and has specific regulations addressing air quality protection, water pollution control, environmental impact assessment, waste control, noise control, and the management of hazardous materials. The Environmental Law holds significant relevance to the project activity, particularly in relation to waste management activities. Two specific sub-regulations within this law directly pertain to the Project Activity:

⁴⁵ Reference: <https://www.resmigazete.gov.tr/eskiler/2015/04/20150402-2.htm>

⁴⁶ Reference: [https://www.mevzuat.gov.tr/anayasa/MevzuatFihristDetayIframe?MevzuatTur=7&MevzuatNo=13887&MevzuatTertip=5#:~:text=MADDE%202%20%E2%80%93%20\(1\)%20Bu,ve%20tabi%20olunacak%20sorumluluklar%C4%B1%20kapsar.](https://www.mevzuat.gov.tr/anayasa/MevzuatFihristDetayIframe?MevzuatTur=7&MevzuatNo=13887&MevzuatTertip=5#:~:text=MADDE%202%20%E2%80%93%20(1)%20Bu,ve%20tabi%20olunacak%20sorumluluklar%C4%B1%20kapsar.)

⁴⁷ On 29/12/2010, the Renewable Energy Law has been amended in order to provide technology-based incentives, increasing the price to U\$cents 13.3 per kWh.

- Regulation on Solid Waste Control: In summary, the regulation emphasizes the responsibility of the party overseeing solid waste management to safeguard the health and welfare of society. However, it does not specify any particular technology for achieving this goal (as outlined in articles 5 and 27), nor does it outline sanctions or penalties for deviating from prescribed solid waste management practices. Consequently, the regulation provides guidance on solid waste management matters without establishing strict norms. It is noteworthy that while some landfills engage in the semi-controlled release of landfill gas into the air (referred to as 'venting,' as indicated in B.5 step 4), the law does not mandate the mandatory destruction of methane.

- Regulation on Managed Waste Landfilling: The recently enacted regulation on managed waste landfilling, dated March 26, 2010, is designed to achieve several objectives: (1) minimize the adverse effects of leachate and landfill gas (LFG) on soil, air, and water quality; (2) govern the acceptance of waste in landfill areas; and (3) outline procedures for the opening and closure of landfill areas.

According to the regulation, newly established landfill areas, established after the enactment date, must implement measures such as covering waste and constructing LFG drainage wells to mitigate potential risks like explosions and fires within the landfill (stipulated in article 17).

For existing landfill areas, like the Adana Landfill Area, the regulation mandates that the Ministry will establish legislation in the future for enhancing landfill practices. However, the regulation does not specify when these regulations will be implemented, providing no indication or reference to a timeline.

In summary: While Türkiye has established regulations for solid waste management, they are not effectively enforced, lacking defined sanctions or penalties. In practice, none of the landfill areas adhere to these regulations, as evidenced by landfill statistics. The majority of landfill areas in Türkiye are essentially 'waste dumps,' lacking proper waste management practices, including landfill covering.

Given the above considerations, the baseline scenario involves waste disposal at landfills without capturing or flaring landfill gas. This scenario reflects the ongoing uncontrolled and unmanaged landfill practices. Electricity is generated through existing grid-connected power plants in this baseline scenario.

Identified baseline scenario for the project activity

Scenario	Baseline		Description of the baseline scenario
	LFG	Electricity	

Scenario 2	LFG 2	E3	Disposal of the waste at a landfill without the capture and/or flaring of landfill gas. The electricity is generated by existing grid-connected power plants.
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Assessment of the validity of the original baseline in accordance with Tool for “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” version 03.0.1

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

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

The list of laws and regulations that are valid at the beginning of the crediting period are given in Section B.4, Step E. The compliance of laws and regulations for both electricity generation and the environment at the beginning of the crediting period is explained in the Section B.4, Step E. From the beginning of the first crediting period to current date (beginning of the second crediting period), there has been no changes related with given laws and regulations and there has been change to the project concerning the compliance status of the project. No change regarding the compliance to laws and regulation is determined.

Step 1.2: Assess the impact of circumstances

Factors other than the grid emission factor used for estimation of baseline emissions are valid at the point of renewal of crediting period. The grid emission factor is revised at the point renewal.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested

This sub-step is not applicable since the baseline scenario identified at the validation of the project activity was not the continuation of use of the current equipment(s) without any investment.

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

Sections B6 and B7 have been updated.

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

Step 2.1: Update the current baseline

The current baseline scenario and baseline emissions for the subsequent crediting period have been updated.

Step 2.2: Update the data and parameters

Sections B6 and B7 have been updated.

Baseline Emission Factor

The establishment of the baseline and the computation of emission reductions for the proposed project activity follow the guidelines outlined in "Tool to calculate the emission factor of an electricity system" version 07.0. The baseline is determined through the Landfill Methane Recovery identified in the baseline selection procedure.

The emission factor has been calculated conservatively in accordance with the proposed methodology. Key assumptions include:

- The emission factor will remain constant throughout the crediting period.
- When there is no information available, the emission factor for fuel sources is assumed to be "0" or the lowest value as per the references.

As per "Tool to Calculate the Emission Factor for an Electricity System" Version 07.0, Option 1 has been chosen.

Option 1: A delineation of the project electricity system and connected electricity systems published by the DNA or the group of the DNAs of the host country(ies), In case a delineation is provided by a group of DNAs, the same delineation should be used by all the project participants applying the tool in these countries;

The Ministry of Energy and Natural Sources has published the Operating, Build and Combined Margin Emission Factors for Turkish National Grid. ⁴⁸ The Ministry has calculated the emission factor by using the "Tool to calculate the emission factor for an electricity system" methodology. Since it was updated in 18.03.2024 by the Ministry, these factors have been used for emission reduction calculation.

Table 13- Operating, Build and Combined Margin Emission Factors for Turkish National Grid

Factor Type	Value (tCO2/MWh)
Operating Margin	0.7279
Build Margin	0.3541

⁴⁸ https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisionFktr/Belgeler/TUESEF_Bilgi_Formu.pdf

Combined Emission Factor	0.4476
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Existing Landfill Sites

As per the latest data available⁴⁹ for Türkiye, total waste emissions for the year 2021 are 14.7 Mt CO₂ eq., or 2.6% of total GHG emissions (without LULUCF). Within the sector, 63.5% of the emissions were from solid waste disposal, followed by 36.3% from wastewater treatment and discharge, 0.17% from biological treatment of solid waste and 0.05% from open burning of waste. The major GHG emissions from the waste sector are CH₄ emissions, which represent 83.9% of total emissions from this sector in 2021, followed by N₂O emissions with 16.1% and a very small percent of CO₂ as 0.02%. As it can be seen in the table below, the majority of the GHG emissions from waste sector is resulted from Solid waste disposal activity.

Table 14: CO₂ equivalent emissions for the waste sector, 2021 (kt CO₂e)⁵⁰

GHG source and sink categories	CO ₂	CH ₄	N ₂ O	Total
Waste	3.6	12,327	2,367.3	14,698
Solid waste disposal	NA	9,337.6	NA	9,337.6
Biological treatment of solid waste	NA	12.0	8.5	20.5
Incineration and open burning of waste	3.6	3.1	0.6	7.3
Wastewater treatment and discharge	NA	2,971.8	2,356.4	5,328.2

⁴⁹ Turkey National Inventory Report 2023 published by UNFCCC; <https://unfccc.int/documents/627786>

⁵⁰ Turkey National Inventory Report 2023 published by UNFCCC; <https://unfccc.int/documents/627786>

Waste emissions are 32.6% (3.6 Mt CO₂ eq.) higher in 2021 than they were in 1990 and 9.9% (1.6 MtCO₂ eq.) lower than in 2020:

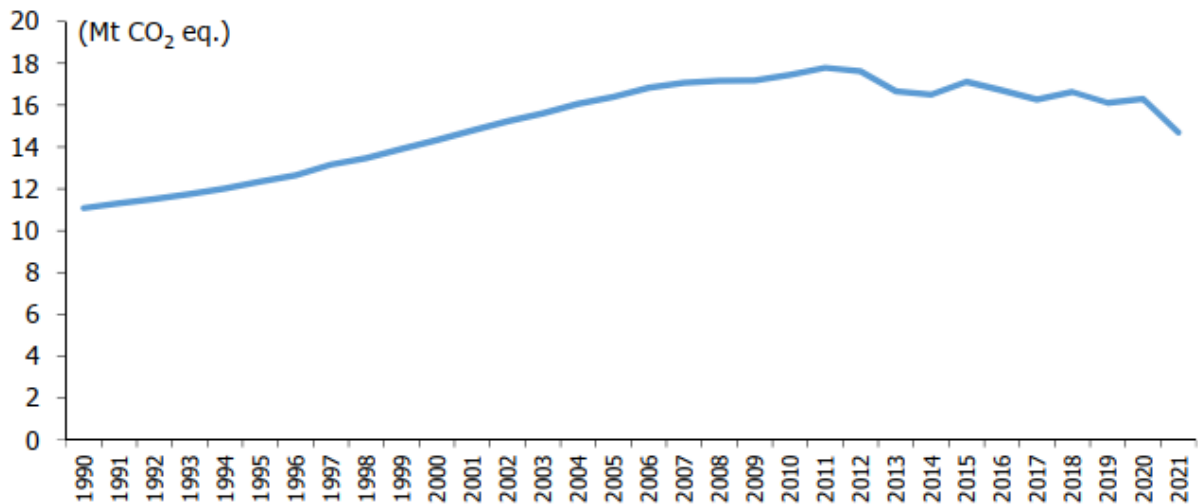


Figure 1: Total GHG emissions of waste sector, 1990-2021

The total amount of CH₄ generated, CH₄ recovered and net CH₄ emissions from solid waste disposal sites are estimated as given below:

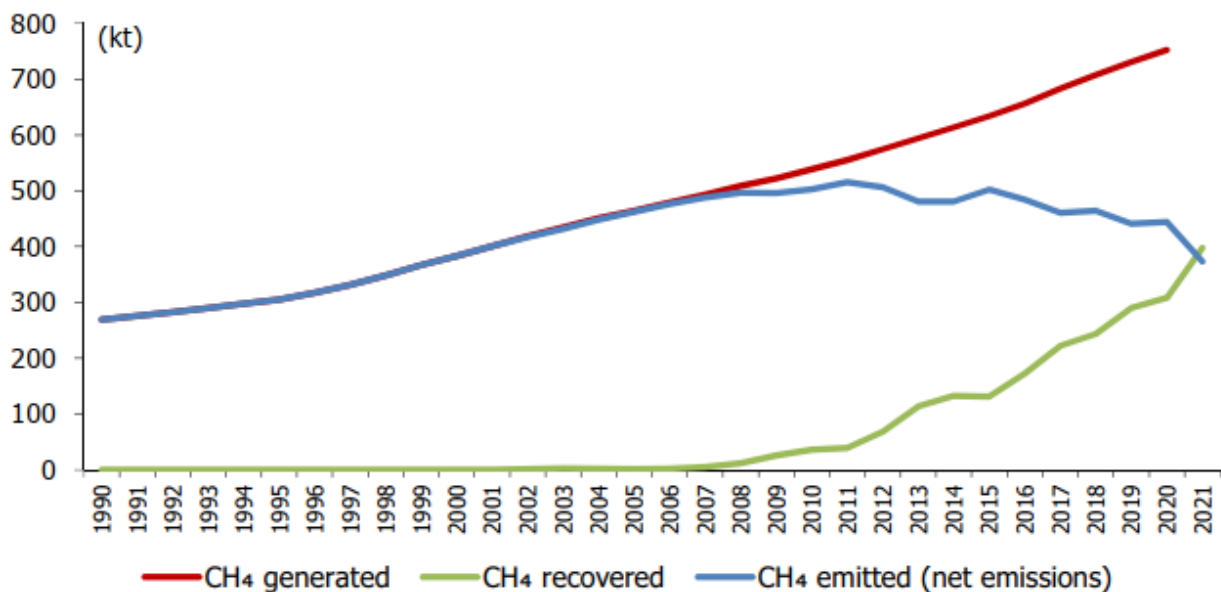


Figure 2: CH₄ emissions from solid waste disposal, 1990-2021

Net methane emissions tend to decrease with the increase in methane recovery amount due to the increase in the capacity and number of methane recovery facilities producing electricity/heat energy from landfill gas in Türkiye.

Solid Waste Disposal Sites and Methane Recovery: The total number of managed SWDS has increased by years as shown in Table 12 below.

Table 15: Number of managed SWDS, 1992-2021⁵¹

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
	1	1	2	6	6	8	8	10	10	12
2003	2004	2005	2006	2008	2010	2012	2014	2016	2018	2020
15	16	18	22	37	52	80	113	134	159	174

Methane recovery from landfill gas started to be implemented in Türkiye in 2002. In 2013, Waste Disposal and Recovery Facilities Survey, 2012 was applied to all waste disposal and recovery facilities having a license or a temporary license, and regardless of license, to controlled landfill sites, incineration plants and composting plants operated by or on behalf of municipalities. The number of managed and unmanaged SWDS with landfill gas recovery and the amount of recovered methane, by year, are given in Table 13.

Table 16: Methane recovery, 1992-2021⁵²

	Number of managed SWDS with landfill gas recovery	Number of unmanaged SWDS with landfill gas recovery	Recovered methane in managed SWDS (kt)	Recovered methane in unmanaged SWDS (kt)
1990-2001	NA	NA	NO	NO
2002	1	NA	1.5	NO
2003	1	NA	2.5	NO
2004	1	NA	2.3	NO
2005	1	NA	1.7	NO
2006	1	NA	2.2	NO
2007	2	NA	4.9	NO
2008	3	NA	11.8	NO
2009	4	NA	25.8	NO
2010	5	NA	36.3	NO
2011	8	NA	39.4	NO
2012	13	NA	68.6	NO
2013	15	NA	109.5	4.4
2014	17	1	128.4	4.0
2015	24	1	127.6	4.0
2016	34	1	169.7	3.0
2017	36	1	214.3	7.9
2018	48	1	236.8	6.5
2019	50	2	282.6	7.0
2020	66	1	305.8	2.2
2021	63	1	396.2	1.6

⁵¹ Turkey National Inventory Report 2023 published by UNFCCC; <https://unfccc.int/documents/627786>

⁵² Turkey National Inventory Report 2023 published by UNFCCC; <https://unfccc.int/documents/627786>

The data is collected with surveys applied to all waste disposal and recovery facilities having a license or a temporary license, and regardless of license, to controlled landfill sites, incineration plants and composting plants operated by or on behalf of municipalities. In response to the aforementioned survey, there is still no official data on landfill gas flaring. It will be also considered in the upcoming inventory (Türkiye National Inventory Report) in the case that new information is obtained.

Turkish GHG inventory report 1990-2021 submitted to UNFCCC (<https://unfccc.int/documents/461926>), establish the baseline scenario of atmospheric release of methane due to anerobic decomposition of solid waste and absence of adequate numbers of landfill gas recovery and utilization unit. Of the total amount of GHG emitted from the waste sector 68.5% of the GHG emissions pertain to the emission from decomposition of solid waste disposed in the landfill sites.

The regulation for solid waste management in Türkiye pertains to the guided practices for collection and removal of domestic and industrial waste; as well as management of solid waste site without any regulatory compliance for capture and utilization of landfill gas for electricity generation. Absence of regulatory compliance supports continuation of current practice of atmospheric release of landfill gases.

B.5. Demonstration of additionality

For the demonstration of additionality, please see section B.5. of registered PDD⁵³ for the first crediting period. There has been a capacity decrease in the project activity; thus, the additionality assessment should not be reperformed as the project generation capacity is lower with respect to registered capacity. Furthermore, as per CDM project standard for project activities, Version 03.0 para 281⁵⁴, the project participant is not required to reassess the project activity's additionality nor update the PDD section relating to additionality for renewal of crediting period. At the time of the registration project demonstrated its additionality with the Tool for the demonstration and assessment of additionality and this additionality remains valid as per CDM project standard for project activities.

B.5.1 Prior Consideration

Since the project is regular cycle, it is exempt from any kind of prior consideration of revenues from Gold Standard certification checks as per Principles and Requirements

⁵³ <https://registry.goldstandard.org/projects/details/1157>

⁵⁴ https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20210921115752577/reg_stan04_v03.0.pdf

Version 2 para 4.1.49, ⁵⁵ demonstration of prior consideration of revenues from Gold Standard certification for standalone projects.

B.5.2 Ongoing Financial Need

The project is facing substantial financial challenges that threaten its sustainability and ability to deliver environmental and developmental benefits. These challenges stem from a decline in waste input, uncertainties in electricity generation, the expiration of the YEKDEM program, and external market factors such as fluctuating carbon credit prices. Combined with the lingering impacts of the COVID-19 pandemic, the project's operational and financial sustainability has been severely impacted.

During the previous crediting period, the project relied heavily on stable revenues generated under Türkiye's Renewable Energy Support Mechanism (YEKDEM), which enabled the sale of electricity at fixed, higher prices. However, with the expiration of YEKDEM⁵⁶, the project is now required to sell electricity in the open market, where prices are significantly lower and more volatile. This shift has created substantial uncertainties in income generation due to electricity market dynamics at a time when the project is also receiving less waste, further decreasing electricity generation.

The challenges are compounded by the complex nature of landfill gas generation, which is subject to unpredictable factors such as waste quality, rehabilitation of uncontrolled waste dumps, and fluctuating water table levels. These uncertainties introduce considerable financial risk, particularly for projects like this one that combine waste management and power generation.

Moreover, the sharp decline in voluntary carbon credit prices in recent years has disrupted the carbon market, hindering the project's ability to generate sufficient revenue from the sale of Verified Emission Reductions (VERs). While the Project Design Document (PDD) initially projected a total generation of 2,260,628 metric tons of CO₂ equivalent, the actual credits realized amounted to 938,929 metric tons—approximately

⁵⁵ https://globalgoals.goldstandard.org/standards/101_V2.0_TC_PAR_Principles-Requirements.pdf

⁵⁶ YEKDEM is expired on 31/12/2021 for the Project.

42% of the expected credits. The reduced carbon credit prices have further limited actual revenue, exacerbating the financial gap.

The COVID-19 pandemic has further worsened the situation by disrupting waste supply chains, increasing operational costs, and delaying key processes. This has placed additional strain on the project's ability to meet its financial obligations, particularly the cost of essential operation and maintenance (O&M). The inability to repay debt on time has led to increasing interest accrual and additional financial burdens, jeopardizing the long-term viability of the project.

Considering the project type which is LFG to electricity, the expected trading price of the carbon credits from this project in the carbon market is approximately 4.5 USD per GSVER. The Project is anticipated to generate around 118,470 GSVERs annually, resulting in estimated carbon credit revenues of approximately 533,115 USD per year. The Project's operational expenditures (OPEX) are around 4,800,000 USD annually. Therefore, the carbon credit revenue corresponds to about 11.11% of the total OPEX. This clearly illustrates that the Project remains in need of carbon finance support to maintain the project.

Given these ongoing challenges, revenue from Gold Standard certification is essential for ensuring the project's financial sustainability. The carbon credit revenue will be used to cover critical operation and maintenance costs, mitigate the financial risks caused by reduced waste input, and offset the loss of stability in revenue stream following the expiration of YEKDEM. Without this revenue, the project's operations—and its ability to deliver significant environmental benefits—will be severely compromised. Gold Standard certification provides a vital lifeline, enabling the project to continue its contributions to sustainable development and climate mitigation.

B.6. Sustainable Development Goals (SDG) outcomes

SDG IMPACT

SUSTAINABLE DEVELOPMENT GOALS TARGETED	MOST SDG TARGET	RELEVANT INDICATOR (PROPOSED OR SDG INDICATOR)
13 Climate Action	13.2 Integrate climate change measures into national policies, strategies and planning	Refers to total amount of greenhouse gases avoided or sequestered during the reporting period. Average emission reductions from the project is calculated as 118,470 tCO ₂ e/year
7 Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix.	7.2.1 "Renewable energy share in the total final energy consumption. The project generates 7,917 MWh/year. ⁵⁷
8 Decent Work and Economic Growth	8.5 By 2030 achieve full and productive employment and decent work for all women and men including for young people and persons with disabilities, and equal pay for work of equal value	Refers to the total jobs generated as a result of the project. Total of 10 people employed in the project. At least one training is provided to each employee.

B.6.1 Explanation of methodological choices/approaches for estimating the SDG Impact

Table 17-SDG Impact Estimation

SDG Goal	Methodological choices/approaches for estimating the SDG outcome
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⁵⁷ As the amount of waste delivered to the landfill has decreased, electricity generation has also declined. Since the waste volume is not expected to increase, annual electricity generation is not anticipated to rise. To take a conservative approach, the electricity generation value from the previous year has been used for annual projections.

SDG 7-Affordable and Clean Energy	Measurement Approach: The electricity generated and supplied to the grid is tracked using an energy meter. Monthly protocols, signed by both project participants and the grid operator, are documented and preserved. The quantity of electricity produced by each gas type is directly observed at the engines. Electricity meter is monitored by monthly TEIAS records provided by TEIAS or company authorized by TEIAS (Electricity distribution company). QA/QC Procedure: Monthly monitoring of this parameter involves cross-verifying the parameter value with invoices. The meters undergo regular calibration to maintain accuracy. This parameter is monitored monthly, and value of parameter is cross checked with EPIAS records.⁵⁸ The meters are calibrated on regular frequency.⁵⁹
SDG 8- Decent Work and Economic Growth	Measurement Approach: Training and employment generation activities are tracked using training records, staff registers, letters from the Operations and Maintenance (O&M) contractor detailing training and employment, or Health, Safety, and Environment (HSE)/Human Resources (HR) records.⁶⁰ QA/QC Procedure: This parameter relies on records and data, requiring no specific QA/QC process. DOE can verify this parameter through interviews with the Project Participant, Site in charge, or

⁵⁸ The EPIAS Screenshots have been provided.

⁵⁹ Please refer to the Regulation on Measurement Devices.

⁶⁰ Please refer to the training records provided.

	employees regarding training and employment generation.
SDG 13-Climate Action	Measurement Method: The emission reduction from the project activity is calculated accordingly with the relevant tools and methodologies. QA/QC Process: This parameter is calculated, and no QA/QC procedure required.

Explanation of methodological choices

The emission reductions are calculated as the following equation:

$$ER_y = BE_y - PE_y - LE_y$$

Equation 26 in ACM0001 V19

Where:

ER_y Emission reductions in year y (tCO₂e/year)

BE_y Baseline emissions in year y (tCO₂e/year)

PE_y Project emissions in year y (tCO₂e/year)

L_y The leakage in year y (tCO₂e/year)

LFG Capture and its Utilization for Power Generation

Baseline Emissions

The baseline emissions are:

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

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

$$BE_y = BE_{CH_4,y} + BE_{EC,y} + BE_{HG,y} + BE_{NG,y} \text{ Equation 1 in ACM0001 V19}$$

Where:

BE_y =Baseline emissions in year y (tCO₂e/year)

$BE_{CH_4,y}$ =Baseline emissions of methane from the SWDS in year y (tCO₂e/year)

$BE_{EC,y}$ =Baseline emissions associated with electricity generation in year y

(tCO₂e/year)

$BE_{HG,y}$ = Baseline emissions associated with heat generation in year y (tCO₂e/year)

$BE_{NG,y}$ = Baseline emissions associated with natural gas use in year y (tCO₂e/year)

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

$$BE_y = BE_{CH_4,y} + BE_{EC,y}$$

Estimation of Baseline Emission of methane from the SWDS in year ($BE_{CH_4,y}$)

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

Equation 2 in ACM0001 V19

Where:

$BE_{CH_4,y}$ = Baseline emissions of methane from the SWDS in year y (tCO₂e/year)

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 (tCH₄/yr)

GWP_{CH_4} = Global warming potential of CH₄ (tCO₂e/tCH₄)

Ex ante estimation of $F_{CH_4,PJ,y}$

$$F_{CH_4,PJ,y} = \eta_{PJ} \times BE_{CH_4,SWDS,y} / GWP_{CH_4}$$

Equation (5) in ACM0001 V19

Where:

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

$BE_{CH_4,SWDS,y}$ = 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_{CH_4} = Global warming potential of CH₄ (t CO₂e/t CH₄)

The amount of methane produced in year y ($BE_{CH_4, SWDS, y}$) is calculated as follows:

$$BE_{CH_4, SWDS} = \phi_y \times (1 - f_y) \times GWP_{CH_4} \times (1 - OX) \times \frac{16}{12} \times F \times DOC_{f, y} \times MCF_y \\ \times \sum_{x=1}^y \sum_j (W_{j, x} \times DOC_j \times e^{-k_j \times (y-x)} \times (1 - e^{-k_j}))$$

Equation 1 in TOOL04 V8

Where:

$BE_{CH_4, SWDS, y}$ =Methane emissions avoided during the year y from preventing waste disposal at the solid waste disposal site (SWDS) during the period from the start of the project activity to the end of the year y (tCO₂e)

ϕ_y =Model correction factor to account for model uncertainties

f_y =Fraction of methane captured at the SWDS and flared, combusted or used in another manner

GWP_{CH_4} =Global Warming Potential of methane valid for the commitment period (tCO₂e/tCH₄)

OX =Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)

F= Fraction of methane in the SWDS gas (volume fraction)

DOC_f =Fraction of degradable organic carbon (DOC) that can decompose

MCF =Methane correction factor

$W_{j, x}$ =Amount of organic waste type j prevented from disposal in the SWDS in the year x (tons)

DOC_j =Fraction of degradable organic carbon (by weight) in the waste type j

k_i =Decay rate for the waste type j

j =Waste type category (index)

x =Year during the crediting period: x runs from the first year of the first crediting period (x=1) to the year y for which avoided emissions are calculated (x=y)

y=Year for which methane emissions are calculated

Ex-post determination of $F_{CH_4,PJ,y}$

During the crediting period, $F_{CH_4,PJ,y}$ determined using the methodology ACM0001 Version 19.0. as the sum of the quantities of methane flared and used in power plant(s), boiler(s), air heater(s), glass melting furnace(s), kiln(s) and natural gas distribution, as follows:

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

Equation 3 in ACM0001 V19

Where:

$F_{CH_4,PJ,y}$ =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 (tCH₄/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 and/or dedicated pipeline and/or to the trucks in year y (t CH₄/yr)

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

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

$F_{CH_4,PJ,y}$ is determined using the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 03.0.0.⁶¹

The tool provides procedures to determine the following parameter:

Parameter	SI Unit	Description
$F_{i,t}$	kg/h	Mass flow of greenhouse gas i (CO ₂ , CH ₄ , N ₂ O, SF ₆ or a PFC) in the gaseous stream in time interval t.

The mass flow of CH₄ in LFG is determined through measurement of the flow and volumetric fraction of the gaseous stream (LFG). The "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 03.0.0 provides 6 different ways to make these measurements and the corresponding calculation option for $F_{i,t}$.

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

Option A is applied in the 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.

Option A:

According to the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 03.0.0, flow measurement on a dry measurement is not doable for a wet gaseous stream. Therefore, it will be demonstrated that the temperature of the gaseous stream (T_t) is less than 60°C (333.15 K) at the flow measurement point.

The mass flow of CH₄ ($F_{CH_4,t}$) is determined as follows:

$$F_{CH_4,t} = V_{t,db} * v_{CH_4,t,db} * \rho_{CH_4,t} \quad \text{Equation 5 in TOOL08}$$

With

$$\rho_{CH_4,t} = P_t * MM_{CH_4} / R_u * T_t \quad \text{Equation 6 in TOOL08}$$

Where:

$F_{CH_4,t}$ Mass flow of CH₄ in the gaseous stream in time interval t (kg gas/h)

⁶¹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-08-v3.0.pdf>

$V_{t,db}$	Volumetric flow of the gaseous stream in time interval t on a dry basis (m ³ dry gas/h)
$V_{CH_4,t,db}$	Volumetric fraction of CH ₄ in the gaseous stream in a time interval t on a dry basis (m ³ gas CH ₄ /m ³ dry gas)
$\rho_{CH_4,t}$	Density of CH ₄ in the gaseous stream in time interval t (kg gas CH ₄ / m ³ gas CH ₄)
P_t	Absolute pressure of the gaseous stream in time interval t (Pa)
MM_{CH_4}	Molecular Mass of CH ₄ (kg/kmol)
R_u	Universal ideal gases content (Pa.m ³ /kmol.K)
T_t	Temperature of gaseous stream in time interval t (K)

Baseline Emissions from Generation of Electricity Displaced by the Project Activity

For the emission factors that were used to calculate estimated emission reductions, the publication of the Turkish Ministry of Energy and Natural Resources, which indicates Türkiye's National Electric Grid Emission Factor for the year 2024 and build margin-BM which was calculated in the second crediting period were used. The publication includes calculated Emission Factor values that are Operating Margin (OM), Growth Based Margin (Build Margin-BM) and Combined Margin (CM) Emission Factors, for the relevant year with the usage of the IPCC's Clean Development Methodology Tool 07-V07.0. For this calculation, information regarding the data set is given below in detail;

- TEİAŞ Türkiye's electricity generation-consumption and loss statistics,
- Common prepared report under Türkiye's National Greenhouse Gas Inventory Reporting Format. - Common Reporting Format (CRF) tables for electricity generation (1.A.1.a.i) emission values
- Chronological order of power generation plants from TEİAŞ Load Dispatch Department with commissioning dates, plant names, fuel types, installed power values, electricity generation for the calculated year
- Checking off Volunteers from the websites of Gold Standard (GS) and Verified Carbon Standard (VCS) for the ownership status of the carbon reduction certificate and,
- From Clean Development Mechanism (CDM) Tool 009- V2.0, Power plant efficiency figures are used
- According to this publication;
 - Operating Margin-OM; 0.7279 tCO₂/MWh
 - Build Margin-BM; 0.3541 tCO₂/MWh

For OM factor calculation, Chronological order of power generation plants from TEİAŞ Load Dispatch Department with, fuel types, electricity generation for the calculated year were used as input data. By using all the data which were mentioned above, Turkish Ministry of Energy and Natural Resources calculated $EF_{grid,OM}$:

$$EF_{grid,OM,y} = 0.7279 \text{ tCO}_2/\text{MWh}$$

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

$$EF_{grid,BM,y} = 0.3541 \text{ tCO}_2/\text{MWh}$$

The combined margin emission factor is calculated by using weighted average CM as per the tool formula below:

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

$EF_{grid,BM,y}$ = Build margin CO2 emission factor in year y (tCO2/MWh)

$EF_{grid,OM,y}$ = Operating margin CO2 emission factor in year y (tCO2/MWh)

w_{OM} = Weighting of operating margin emissions factor (%)

w_{BM} = Weighting of build margin emissions factor (%)

According to the para 86 (b) Tool to calculate the emission factor for an electricity system Version 07.0;

$w_{OM} = 0.25$ and $w_{BM} = 0.75$

Then:

$$EF_{grid,CM,y} = 0.4476 \text{ tCO}_2/\text{MWh}$$

Project Emissions

Project emission is calculated as follows;

$$PE_y = PE_{EC,y} + PE_{FC,y} + PE_{DT,y} + PE_{SP,y}$$

Equation 22 in ACM0001 V19

Where:

PE_y = Project emissions in year y (tCO₂e/yr)

$PE_{EC,y}$ = Emissions from consumption of electricity due to the project activity in year y (tCO₂e/yr)

$PE_{FC,y}$ = Emissions from consumption of fossil fuels due to the project activity, for

purpose other than electricity generation, in year y (tCO₂e/yr)

$PE_{DT,y}$ = Emissions from the distribution of compressed/liquefied LFG using trucks, in year y (tCO₂e/yr)

$PE_{SP,y}$ = Emissions from the supply of LFG to consumers through a dedicated pipeline, in year y (tCO₂e/yr)

Project activity only includes consumption of electricity. Thus;

$$PE_y = PE_{EC,y}$$

Application of “Tool to determine project emissions from flaring”

According to TOOL06: “Project emission from flaring” Version 04.0.0”, the project emissions from flaring of the residual gas stream $PE_{flare,y}$ are determined considering the following steps:

STEP 1: Determination of the mass flow rate of the residual gas

STEP 2: Determination of the hourly flare efficiency

STEP 3: Calculation of project emissions from flaring

This tool's calculation process assesses methane flow rates before and after destruction in a flare, considering factors like the supplied air amount and exhaust gas composition (oxygen and methane).

It calculates project emissions from flaring residual gas ($PE_{flare,y}$) by incorporating flare efficiency ($\eta_{flare,m}$) and methane mass flow to the flare ($F_{CH_4,RG,m}$). The flare efficiency is determined for each minute of the year based on monitored data or default values.

The project utilizes an enclosed flare, with flare operation determined by measuring the temperature in the flare's exhaust gas.

STEP 1. Determination of the mass flow rate of the residual gas

This step involves determining the hourly mass flow rate of residual gas by using the volumetric flow rate and the density of the residual gas. The density is established based on the volumetric fraction of all components present in the gas. Specific requirements for this process include:

1. Application of the gaseous stream tool exclusively to the residual gas.
2. Continuous measurement of the flow of the gaseous stream is a prerequisite.
3. Identification of CH₄ as the specific greenhouse gas for which the mass flow needs to be determined.
4. Proper utilization of the simplified method to calculate the molecular mass of the gaseous stream, as outlined in equations 3 and 17 within the tool.
5. Mass flow calculations are conducted at every minute (t) interval.

$FC_{H_4,m}$, representing the mass flow during minute m , is subsequently employed to calculate the mass of methane in kilograms supplied to the flare in the same minute

($F_{CH_4, RG, m}$). $F_{CH_4, m}$ is determined on a wet-dry basis due to challenges in verifying that the temperature exceeds 60 degrees Celsius. This computation adheres to the outlined procedure in TOOL08, titled "Tool to determine the mass flow of a greenhouse gas in a gaseous stream," Version 03.0. Option C is implemented, ensuring consistency in using the wet-dry basis for both measuring the volumetric flow rate of the residual gas and the volumetric fraction of methane in the residual gas. The mass flow of CH_4 is determined by applying the specified equations in the current document.

The mass flow of greenhouse gas i ($F_{CH_4, t}$) is determined as follows:

$$F_{CH_4, t} = V_{t, db} \times v_{CH_4, wb, t} \times \rho_{CH_4, n} \text{ Equation 9 in TOOL08 V3}$$

With:

$$\rho_{CH_4, n} = \frac{P_n \times MM_{CH_4}}{R_u \times T_n} \text{ Equation 10 in TOOL08 V3}$$

Where:

$F_{CH_4, t}$ = Mass flow of greenhouse gas (CH_4) in the gaseous stream in time interval t (kg gas/h)

$V_{t, db}$ = Volumetric flow of the gaseous stream in time interval t on a dry basis (m^3 dry gas/h)

$v_{CH_4, wb, t}$ = Volumetric fraction of greenhouse gas CH_4 in the gaseous stream in a time interval t on a dry basis ($m^3 CH_4 / m^3$ dry gas)

$\rho_{CH_4, n}$ = Density of greenhouse gas CH_4 in the gaseous stream at normal conditions t (kg $CH_4 / m^3 CH_4$)

P_n = Absolute pressure of the gaseous stream at normal conditions (Pa)

MM_{CH_4} = Molecular mass of methane (kg/kmol)

R_u = Universal ideal gases constant (Pa. m^3 /kmol.K)

T_n = Temperature of the gaseous stream at normal conditions (K)

STEP 2. Determination of flare efficiency

The calculation of hourly flare efficiency relies on factors such as flare operation (e.g., temperature), the type of flare (open or enclosed), and, for enclosed flares, the chosen method for determining efficiency (default value or continuous monitoring) as specified by the project owner.

In the case of the Adana Landfill Project, an enclosed flare is employed, and the flare efficiency is determined using the default value, corresponding to Option A. For enclosed flares categorized as low height flares, the flare efficiency at minute m (denoted as $\eta_{flare, m}$) undergoes adjustment, employing a conservative approach by subtracting 0.1 from the efficiency determined in Options A or B.

Option A: Default value

Since enclosed flare is employed and conditions met required in Option A, the flare efficiency in the minute m is default value as 90%. Option A says the following:

The flare efficiency for the minute m ($\eta_{flare, m}$) is 90% when the following two conditions are met to demonstrate that the flare is operating:

- (a) The temperature of the flare (TEG_m) and the flow rate of the residual gas to the flare (FRG_m) is within the manufacturer's operating specification for the flare (SPEC_{flare}) in the minute m; and
- (b) The flame is detected in the minute m (Flame_m).

Otherwise, ($\eta_{\text{flare},m}$) is 0%

STEP 3. Calculation of project emissions from flaring

Project emission from flaring is calculated as the sum of emission from each minute m, based on the methane mass flow in the residual gas ($F_{\text{CH}_4, \text{RG}, m}$) and the flare efficiency ($\eta_{\text{flare}, m}$), as follows:

$$PE_{\text{flare}, y} = GWP_{\text{CH}_4} \times \sum_{m=1}^{525600} F_{\text{CH}_4, \text{RG}, m} \times (1 - \eta_{\text{flare}, m}) \times 10^{-3}$$

Equation 15 in TOOL06 V4

Where:

$PE_{\text{flare}, y}$ = Project emissions from flaring of the residual gas in year y (tCO₂e)

$F_{\text{CH}_4, \text{RG}, m}$ = Mass flow of methane in the residual gas in the minute m (kg)

$\eta_{\text{flare}, m}$ = Flare efficiency in minute m

Leakage

No leakage effects are accounted for under this methodology.

Emission Reductions

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Equation 26 in ACM0001 V19.0

Where:

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

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

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

Baseline emissions of Methane from the SWDS ($BE_{\text{CH}_4, t, y}$)

Baseline methane emissions from the SWDS are determined using "TOOL04: Emissions from solid waste disposal sites" Version 08.1.

The amount of methane produced in year y ($BE_{\text{CH}_4, \text{SWDS}, y}$) is calculated as follows:

$$BE_{CH_4, SWDS} = \varphi_y \times (1 - f_y) \times GWP_{CH_4} \times (1 - OX) \times \frac{16}{12} \times F \times DOC_{f,y} \times MCF_y \times \sum_{x=1}^y \sum_j (W_{j,x} \times DOC_j \times e^{-k_j \times (y-x)} \times (1 - e^{-k_j}))$$

Equation 1 in TOOL04 V08.1

Where:

- $BE_{CH_4, SWDS,y}$ Methane emissions avoided during the year y from preventing waste disposal at the solid waste disposal site (SWDS) during the period from the start of the project activity to the end of the year y (tCO₂e)
- φ_y Model correction factor to account for model uncertainties for year y
- 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 valid for the commitment period (tCO₂e/tCH₄)
- OX Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)
- F Fraction of methane in the SWDS gas (volume fraction)
- $DOC_{f,y}$ Fraction of degradable organic carbon (DOC) that can decompose
- MCF Methane correction factor
- $W_{j,x}$ Amount of organic waste type j prevented from disposal in the SWDS in the year x (tons)
- DOC_j Fraction of degradable organic carbon (by weight) in the waste type j
- k_i Decay rate for the waste type j
- j Waste type category (index)
- x Year during the crediting period: x runs from the first year of the first crediting period (x=1) to the year y for which avoided emissions are calculated (x=y)
- y Year for which methane emissions are calculated

B.6.2 Data and parameters fixed ex ante

SDG13

Data/parameter	Article
Unit	N/A
Description	Regulatory requirements relating to landfill gas projects

Source of data	Prime Ministry, Directorate of Legislation Development and Publication Official Website http://mevzuat.basbakanlik.gov.tr/mevzuat/metinx.asp?mevzuatkod=7.5.8132&sourceXmlSearch=kat%FD%20at%FDk
Value(s) applied	0
Choice of data or Measurement methods and procedures	"Directorate of Legislation Development and Publication" under The Prime Ministry is the official governmental organization responsible for publication of any legislative changes in Türkiye
Purpose of data	Statutory Clearance
Additional comment	Relevant regulations for LFG project activities shall be updated at renewal of each credit period. Changes to regulation will be concerted to the amount of methane that would have been destroyed/combusted during the year in the absence of the project activity ($MD_{BL,y}$).

SDG13

Data/parameter	GWP_{CH_4}
Unit	tCO ₂ e/tCH ₄
Description	Global warming potential of CH ₄
Source of data	IPCC 5th Assessment Report
Value(s) applied	28 ⁶²
Choice of data or Measurement methods and procedures	Default value of 28 from IPCC Fifth Assessment Report (AR5)

⁶² https://ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf

Purpose of data	Estimation of baseline emission
Additional comment	This parameter is fixed ex-ante

SDG13

Data/parameter	GWP _{N2O}
Unit	tCO ₂ e/t N ₂ O
Description	Global warming potential of N ₂ O
Source of data	IPCC 5th Assessment Report
Value(s) applied	265 ⁶³
Choice of data or Measurement methods and procedures	Value is 265 for the current commitment period. Shall be updated according to any future COP/MOP decisions.
Purpose of data	Estimation of baseline emission
Additional comment	This parameter is fixed ex-ante

SDG13

Data/parameter	ρCH ₄
Unit	tCH ₄ /m ³ CH ₄
Description	Density of methane
Source of data	Estimated in accordance with Equation 10 of Tool to determine the mass flow of a greenhouse gas in a gaseous stream, Version 03.0.

⁶³ https://ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf

Value(s) applied	0.000716 ⁶⁴
Choice of data or Measurement methods and procedures	At standard temperature and pressure, the density of the methane is 0.000716 tCH ₄ /m ³ CH ₄ .
Purpose of data	Estimation of baseline emission
Additional comment	Normal temperature and pressure is defined as 0° degree Celsius and 1.013 bar, respectively

SDG13

Data/parameter	BE _{CH4,SDWS,Y}																			
Unit	tCO ₂ e																			
Description	Methane generation from the landfill in absence of the project activity at year y																			
Source of data	Calculated as per “Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site”.																			
Value(s) applied	<table><tr><td></td><td>Baseline Emissions BE_{CH4,SDWS,y} (tCO₂e/year)</td></tr><tr><td>Years</td><td></td></tr><tr><td>01/01/2025-31/12/2025</td><td>130,146</td></tr><tr><td>01/01/2026-31/12/2026</td><td>124,614</td></tr><tr><td>01/01/2027-31/12/2027</td><td>119,376</td></tr><tr><td>01/01/2028-31/12/2028</td><td>114,415</td></tr><tr><td>01/01/2029-31/12/2029</td><td>109,718</td></tr><tr><td>01/01/2030-31/12/2030</td><td>105,269</td></tr><tr><td>01/01/2031-31/12/2031</td><td>101,055</td></tr></table>			Baseline Emissions BE _{CH4,SDWS,y} (tCO ₂ e/year)	Years		01/01/2025-31/12/2025	130,146	01/01/2026-31/12/2026	124,614	01/01/2027-31/12/2027	119,376	01/01/2028-31/12/2028	114,415	01/01/2029-31/12/2029	109,718	01/01/2030-31/12/2030	105,269	01/01/2031-31/12/2031	101,055
	Baseline Emissions BE _{CH4,SDWS,y} (tCO ₂ e/year)																			
Years																				
01/01/2025-31/12/2025	130,146																			
01/01/2026-31/12/2026	124,614																			
01/01/2027-31/12/2027	119,376																			
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01/01/2029-31/12/2029	109,718																			
01/01/2030-31/12/2030	105,269																			
01/01/2031-31/12/2031	101,055																			

⁶⁴ This value is estimated according to the TOOL08 version 03.0. Equation 10 is used to calculate the density. The ex-ante parameters (Ru,MMi,Pn,Tn values) of the tool are used in the estimation.

Choice of data or Measurement methods and procedures	As required per ACM0001: Flaring or use of landfill gas --- Version 19.0
Purpose of data	Estimation of baseline emission
Additional comment	This value is estimated ex-ante

SDG13

Data/parameter	ϕ_y
Unit	-
Description	Model correction factor to account for model uncertainties
Source of data	"TOOL04: Emissions from solid waste disposal sites" Version 08.1 ⁶⁵
Value(s) applied	0.75
Choice of data or Measurement methods and procedures	For LFG baseline emission calculation 0.75 is taken as model correction factor as per the "Emissions from solid waste disposal sites". Given the uncertainties associated with the model and in order to estimate emission reductions in a conservative manner, a discount of 10% is applied to model results.
Purpose of data	Estimation of baseline emission
Additional comment	This value is estimated ex-ante

SDG13

Data/parameter	OX
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⁶⁵ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.1.pdf>

Unit	-
Description	Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)
Source of data	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories ⁶⁶
Value(s) applied	0
Choice of data or Measurement methods and procedures	The oxidation factor (OX) reflects the amount of CH ₄ from SWDS that is oxidized in the soil or other material covering the waste. The baseline scenario the landfill area is uncovered, hence oxidation factor OX is taken zero. ⁶⁷
Purpose of data	Estimation of baseline emission
Additional comment	This value is estimated ex-ante

SDG13

Data/parameter	F
Unit	-
Description	Fraction of methane in the SWDS gas (volume fraction)
Source of data	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories ⁶⁸
Value(s) applied	0.5 ⁶⁹
Choice of data or Measurement methods and procedures	This factor reflects the fact that some degradable organic carbon does not degrade, or degrades very slowly, under anaerobic conditions in the SWDS. A default value of 0.5 is recommended by IPCC.

⁶⁶ https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/5_Volume5/19R_V5_3_Ch03_SWDS.pdf

⁶⁷ https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/5_Volume5/V5_3_Ch3_SWDS.pdf Table 3.2

⁶⁸ https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/5_Volume5/19R_V5_3_Ch03_SWDS.pdf

⁶⁹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.1.pdf>

Purpose of data	Estimation of baseline emission
Additional comment	This value is estimated ex-ante

SDG13

Data/parameter	DOC _f
Unit	Weight fraction
Description	Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y (weight fraction)
Source of data	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories ⁷⁰
Value(s) applied	0.5 ⁷¹
Choice of data or Measurement methods and procedures	"TOOL04: Emissions from solid waste disposal sites" Version 08.1
Purpose of data	Estimation of baseline emission
Additional comment	This value is estimated ex-ante

SDG13

Data/parameter	MCF
Unit	-
Description	Methane correction factor
Source of data	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories ⁷²
Value(s) applied	0.8

⁷⁰ https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/5_Volume5/19R_V5_3_Ch03_SWDS.pdf

⁷¹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.1.pdf>

⁷² https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/5_Volume5/19R_V5_3_Ch03_SWDS.pdf

Choice of data or Measurement methods and procedures	According to "TOOL04: Emissions from solid waste disposal sites" Version 08.1, MCF should be taken as 0.8 for unmanaged solid waste disposal sites-deep. ⁷³
Purpose of data	Estimation of baseline emission
Additional comment	This value is estimated ex-ante

SDG13

Data/parameter	DOC _j														
Unit	-														
Description	Fraction of degradable organic carbon in the waste type j (weight fraction)														
Source of data	IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Tables 2.4 and 2.5) ⁷⁴														
Value(s) applied	The following values for the different waste types have been applied:⁷⁵ <table border="1"> <thead> <tr> <th>Waste type j</th><th>DOC_j (% wet waste)</th></tr> </thead> <tbody> <tr> <td>Wood and wood products</td><td>43</td></tr> <tr> <td>Pulp, paper and cardboard</td><td>40</td></tr> <tr> <td>Food, food waste, beverages and tobacco</td><td>15</td></tr> <tr> <td>Textiles</td><td>24</td></tr> <tr> <td>Garden, yard and park waste</td><td>20</td></tr> <tr> <td>Glass, plastic, metal, other inert</td><td>0</td></tr> </tbody> </table>	Waste type j	DOC _j (% wet waste)	Wood and wood products	43	Pulp, paper and cardboard	40	Food, food waste, beverages and tobacco	15	Textiles	24	Garden, yard and park waste	20	Glass, plastic, metal, other inert	0
Waste type j	DOC _j (% wet waste)														
Wood and wood products	43														
Pulp, paper and cardboard	40														
Food, food waste, beverages and tobacco	15														
Textiles	24														
Garden, yard and park waste	20														
Glass, plastic, metal, other inert	0														
Choice of data or Measurement methods and procedures	In accordance to the "Emissions from solid waste disposal sites" Version 08.1														
Purpose of data	Estimation of baseline emission														

⁷³ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.1.pdf>

⁷⁴ https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/5_Volume5/19R_V5_2_Ch02_Waste_Data.pdf Since there is no refinement to this parameter, values in previous version IPCC 2006 Guidelines for National Greenhouse Gas Inventories is used.

⁷⁵ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.1.pdf>

Additional comment	This value is estimated ex-ante
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SDG13

Data/parameter	k_j																	
Unit	1/yr.																	
Description	Decay rate for the waste type j																	
Source of data	IPCC 2019 Guidelines for National Greenhouse Gas Inventories (Volume 5, Table 3.3) ⁷⁶																	
Value(s) applied	The following values for the different waste types have been applied: ⁷⁷ <table><tr><th colspan="2" rowspan="2">Waste type j</th><th>Boreal and Temperate (MAT < 20°C)</th></tr><tr><th>DRY (MAP/PET <1)</th></tr><tr><td rowspan="2">Slowly degrading</td><td>Pulp, paper, cardboard</td><td>0.04</td></tr><tr><td>Wood, wood products and straw</td><td>0.02</td></tr><tr><td>Moderately degrading</td><td>Other (non-food) organic putrescible garden and park waste</td><td>0.05</td></tr><tr><td>Rapidly degrading</td><td>Food, food waste, sewage sludge, beverages, and tobacco</td><td>0.06</td></tr></table>			Waste type j		Boreal and Temperate (MAT < 20°C)	DRY (MAP/PET <1)	Slowly degrading	Pulp, paper, cardboard	0.04	Wood, wood products and straw	0.02	Moderately degrading	Other (non-food) organic putrescible garden and park waste	0.05	Rapidly degrading	Food, food waste, sewage sludge, beverages, and tobacco	0.06
Waste type j		Boreal and Temperate (MAT < 20°C)																
		DRY (MAP/PET <1)																
Slowly degrading	Pulp, paper, cardboard	0.04																
	Wood, wood products and straw	0.02																
Moderately degrading	Other (non-food) organic putrescible garden and park waste	0.05																
Rapidly degrading	Food, food waste, sewage sludge, beverages, and tobacco	0.06																

⁷⁶ https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/5_Volume5/19R_V5_3_Ch03_SWDS.pdf

⁷⁷ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.1.pdf>

	MAT (Mean Annual Temperature): 19.2 °C ⁷⁸ MAP (Mean Annual Precipitation): 668.8 mm ⁷⁹ PET (Potential Evapotranspiration): 906mm ⁸⁰ MAP/PET=0,74<1
Choice of data or Measurement methods and procedures	Emissions from solid disposal sites
Purpose of data	Calculation of baseline emissions
Additional comment	This value is estimated ex-ante

SDG13

Data/parameter	f_y
Unit	-
Description	Fraction of methane captured at the SWDS and flared, combusted or used in another manner.
Source of data	Written information from the operator of the solid waste disposal site and/or site visits at the solid waste site
Value(s) applied	0, according to ACM0001 ⁸¹
Choice of data or Measurement methods and procedures	Annually
Purpose of data	Estimation of baseline and project emission
Additional comment	This value is estimated ex-ante

⁷⁸ <https://www.mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?m=ADANA>

⁷⁹ <https://www.mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?m=ADANA>

⁸⁰ http://tucaum.ankara.edu.tr/wp-content/uploads/sites/280/2015/08/tucaum4_4.pdf

⁸¹ <https://cdm.unfccc.int/UserManagement/FileStorage/HEJ2MD41GB0PUZISL9FNTAYQV38750>

SDG13

Data/parameter	EF _{grid,OM,y}
Unit	tCO ₂ e/MWh
Description	Operating Margin CO ₂ emission factor for the project electricity system in year y
Source of data	Türkiye National Grid Emission Factor Data Sheet ⁸²
Value(s) applied	0.7279
Choice of data or Measurement methods and procedures	The Ministry of Energy and Natural Sources has published the Operating, Build and Combined Margin Emission Factors for Turkish National Grid . The Ministry has calculated the emission factor by using the "Tool to calculate the emission factor for an electricity system"
Purpose of data	Estimation of combined margin emission factor
Additional comment	This parameter is fixed ex-ante for the entire crediting period

SDG13

Data/parameter	EF _{grid,BM, y}
Unit	tCO ₂ /MWh
Description	Build Margin emission factor for the project electricity system in year y
Source of data	Türkiye National Grid Emission Factor Data Sheet ⁸³
Value(s) applied	0.3541

⁸²

https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisyonFktr/Belgeler/TUESEF_Bilgi_Formu.pdf

⁸³

https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisyonFktr/Belgeler/TUESEF_Bilgi_Formu.pdf

Choice of data or Measurement methods and procedures	The Ministry of Energy and Natural Sources has published the Operating, Build and Combined Margin Emission Factors for Turkish National Grid . The Ministry has calculated the emission factor by using the "Tool to calculate the emission factor for an electricity system"
Purpose of data	Estimation of combined margin emission factor
Additional comment	This parameter is fixed ex-ante for the entire crediting period

SDG13

Data/parameter	EF _{grid,CM,y}
Unit	tCO ₂ /MWh
Description	Combined Margin CO ₂ emission factor for the project electricity system in year y
Source of data	Calculated using the OM and BM values in the Türkiye National Grid Emission Factor Data Sheet ⁸⁴
Value(s) applied	0.4476
Choice of data or Measurement methods and procedures	The Ministry of Energy and Natural Sources has published the Operating, Build and Combined Margin Emission Factors for Turkish National Grid . The Ministry has calculated the emission factor by using the "Tool to calculate the emission factor for an electricity system"
Purpose of data	Estimation of combined margin emission factor
Additional comment	This parameter is fixed ex-ante for the entire crediting period

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https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisyonFktr/Belgeler/TUESEF_Bilgi_Formu.pdf

B.6.3 Ex ante estimation of SDG Impact

SDG 7: Affordable and Clean Energy

The clean energy generated by the project is determined based on the amount of electricity generated by the project per annum. The project activity is expected to generate Affordable and Clean Energy of 7,917 MWh per year.

SDG 8: Decent Work and Economic Growth

The project creates job opportunities and employs approximately 5 individuals. Additionally, the project enhances the quality of employment by providing training to its workforce. Consequently, the project conducts one training session annually, and this aspect will be monitored through employment records.

SDG 13: Climate Action

The project is expected to result in emission reduction in tune of 118,470 tCO₂e/per annum.

For a given year, the emission reductions contributed by the project activity (ER_y) is calculated as follows:

The ex-ante emission reductions are calculated using the formulas as described under section B.6.1

Baseline emissions:

The baseline emissions include the baseline emissions from fresh waste, baseline emissions from existing waste and baseline emissions from electricity.

The details regarding inputs, assumptions, and outcomes of these calculations, as outlined in section B.6.1, are provided below.

In accordance with ACM0001: Flaring or Use of Landfill Gas Version 19.0, the pre-project assessment of the quantity of methane that would have been eliminated or combusted from the existing waste throughout the year, measured in methane tonnes, will be conducted using the most recent version of the approved methodological tools outlined in "Emissions from Solid Waste Disposal Sites"⁸⁵.

The composition of organic waste in the Adana Landfill, crucial for the ex-ante estimation of the methane that would have been eliminated, is outlined as follows:

⁸⁵ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.1.pdf>

Table 18-Waste composition of organic waste at Adana Landfill, including DOC_j and k_j values

Years	Wood		Paper		Food Waste		Non-Food Organics	
Before 07/2022	3%		8%		53%		6%	
After 07/2022	3.4%		8.4%		61.37%		6.8%	
Parameters	DOC_j	k_j	DOC_j	k_j	DOC_j	k_j	DOC_j	k_j
Values applied	43%	0.02	40%	0.04	15%	0.06	20%	0.05

Table 19- Baseline Emission from Methane Avoidance from Landfill Gas (tCO_2e /year)

	Baseline Emission From Methane Avoidance from LFG (tCO_2 /year)
01/01/2025-31/12/2025	130,146
01/01/2026-31/12/2026	124,614
01/01/2027-31/12/2027	119,376
01/01/2028-31/12/2028	114,415
01/01/2029-31/12/2029	109,718
01/01/2030-31/12/2030	105,269
01/01/2031-31/12/2031	101,055

Emission Reductions resulting from the Generation of Electricity

Table 20- Emission Reductions resulting from the Generation of Electricity

	Annual Generation (MWh) ⁸⁶ $EC_{BL,y}$	$EF_{grid,y}$ (tCO_2e/MWh)	Baseline Emission $BE_{EC,PJ,y}$ (tCO_2e/y)
01/01/2025-31/12/2025	7,917	0.4476	3,543
01/01/2026-31/12/2026	7,917	0.4476	3,543
01/01/2027-31/12/2027	7,917	0.4476	3,543

⁸⁶ As the amount of waste delivered to the landfill has decreased, electricity generation has also declined. Since the waste volume is not expected to increase, annual electricity generation is not anticipated to rise. To take a conservative approach, the electricity generation value from the previous year has been used for annual projections.

01/01/2028-31/12/2028	7,917	0.4476	3,543
01/01/2029-31/12/2029	7,917	0.4476	3,543
01/01/2030-31/12/2030	7,917	0.4476	3,543
01/01/2031-31/12/2031	7,917	0.4476	3,543

Summary of the Baseline Emissions

Table 21- Summary of the Baseline Emissions⁸⁷

	Baseline Emission (Methane Avoidance LFG)	Baseline Emission Power Generation	Baseline Emission
01/01/2025-31/12/2025	130,146	3,543	133,689
01/01/2026-31/12/2026	124,614	3,543	128,157
01/01/2027-31/12/2027	119,376	3,543	122,919
01/01/2028-31/12/2028	114,415	3,543	117,958
01/01/2029-31/12/2029	109,718	3,543	113,261
01/01/2030-31/12/2030	105,269	3,543	108,812
01/01/2031-31/12/2031	101,055	3,543	104,598

Project Emissions

Project emissions includes emissions from electricity consumption.

Table 22-Project Emissions from electricity consumption

	Electricity Consumption	EF _{EF}	TDL	PE _{LFG,y}
01/01/2025-31/12/2025	29.3	0.4476	11%	14.5
01/01/2026-31/12/2026	29.3	0.4476	11%	14.5
01/01/2027-31/12/2027	29.3	0.4476	11%	14.5
01/01/2028-31/12/2028	29.3	0.4476	11%	14.5
01/01/2029-31/12/2029	29.3	0.4476	11%	14.5
01/01/2030-31/12/2030	29.3	0.4476	11%	14.5
01/01/2031-31/12/2031	29.3	0.4476	11%	14.5

⁸⁷ Please refer to the ER calculation excel to see the calculations.

Table 23- Total Project Emissions

	$PE_{LFG,y}$	$PE_{y,y}$
01/01/2025-31/12/2025	14.5	14.5
01/01/2026-31/12/2026	14.5	14.5
01/01/2027-31/12/2027	14.5	14.5
01/01/2028-31/12/2028	14.5	14.5
01/01/2029-31/12/2029	14.5	14.5
01/01/2030-31/12/2030	14.5	14.5
01/01/2031-31/12/2031	14.5	14.5

B.6.4 Summary of ex ante estimates of each SDG Impact

SDG 7: Affordable and Clean Energy

YEAR	BASILINE ESTIMATE (tCO ₂ e)	PROJECT ESTIMATE (tCO ₂ e)	NET BENEFIT (tCO ₂ e)
01/01/2025-31/12/2025	0	7,917	7,917
01/01/2026-31/12/2026	0	7,917	7,917
01/01/2027-31/12/2027	0	7,917	7,917
01/01/2028-31/12/2028	0	7,917	7,917
01/01/2029-31/12/2029	0	7,917	7,917
01/01/2030-31/12/2030	0	7,917	7,917
01/01/2031-31/12/2031	0	7,917	7,917
Total		55,419	55,419
Total number of crediting years 7			
Annual average over the crediting period		7,917	7,917

SDG 8: Decent Work and Economic Growth

The project creates job opportunities and employs approximately 10 people. Moreover, it enhances the quality of employment by offering training to its workforce. As part of this initiative, the project conducts one training session annually, and this will be tracked through employment records.

YEAR	BASELINE ESTIMATE (tCO ₂ e)	PROJECT ESTIMATE (tCO ₂ e)	NET BENEFIT (tCO ₂ e)
01/01/2025-31/12/2025	0	10	10
01/01/2026-31/12/2026	0	10	10
01/01/2027-31/12/2027	0	10	10
01/01/2028-31/12/2028	0	10	10
01/01/2029-31/12/2029	0	10	10
01/01/2030-31/12/2030	0	10	10
01/01/2031-31/12/2031	0	10	10
Total	0	10	10
Total number of crediting years	7		
Annual average over the crediting period	0	10	10

SDG 13: Climate Action

YEAR	BASELINE ESTIMATE (tCO ₂ e)	PROJECT ESTIMATE (tCO ₂ e)	NET BENEFIT (tCO ₂ e)
01/01/2025-31/12/2025	133,689	14.5	133,674
01/01/2026-31/12/2026	128,157	14.5	128,142
01/01/2027-31/12/2027	122,919	14.5	122,904
01/01/2028-31/12/2028	117,958	14.5	117,943
01/01/2029-31/12/2029	113,261	14.5	113,246
01/01/2030-31/12/2030	108,812	14.5	108,797
01/01/2031-31/12/2031	104,598	14.5	104,583
Total	829,394	36.71	829,292
Total number of crediting years		7	

Annual average over the crediting period	118,845	14.5	118,470
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B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

SDG 13

Data and parameters under ACM0001 "Flaring or use of landfill gas" Version 19.0, that are monitored:

Data / Parameter	$EG_{p,y}$
Unit	MWh/year
Description	Amount of electricity generated using LFG by the project activity in year y
Source of data	Electricity meter
Value(s) applied	7,917
Measurement methods and procedures	The quantity of net electricity generation supplied to the grid by the project plant will be monitored based on the main meter readings. The electricity generation will be cross-checked between EPIAŞ records and TEİAŞ monthly reading records.
Monitoring frequency	Continuous monitoring and monthly recording
QA/QC procedures	Maintenance and calibration of equipment will be carried out according to the instructions of the manufacturer. The electricity meters are used to measure the net electricity exported to the grid and used for billing purposes. Therefore, the meters are sealed by TEİAŞ (Turkish Electricity Transmission Company).

	Maintenance and calibration of equipment is carried out according to recognised procedures ⁸⁸ . In accordance with the regulation on metering equipment's, the calibration frequency is set for a 10-year period.
Purpose of data	Calculation of baseline emissions
Additional comment	Data will be archived electronically during the crediting period and two years after. EG _{PJ,y} in ACM0001 Version 19.0 is referred as "EG _{PJ,grid,y} " under "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" Version 03.0.

Data / Parameter	EG _{EC,y}
Unit	MWh/year
Description	Amount of electricity consumed from the grid as a result of the project activity
Source of data	Electricity meter
Value(s) applied	29.3
Measurement methods and procedures	The consumed electricity is measured continuously by electricity meters operated by the Turkish grid company who is the owner of the meter. The amount is determined by a distance reading system, reported and invoiced every month by the grid company
Monitoring frequency	The consumed electricity is measured continuously.
QA/QC procedures	Maintenance and calibration of equipment is carried out according to recognised procedures. In accordance with the regulation on metering equipment's, the calibration frequency is set for a 10 years period
Purpose of data	Estimation of project emission
Additional comment	Data will be archived electronically during the crediting period and two years after.

⁸⁸ In accordance with the Regulation on metering equipment's, the calibration frequency is set for a 10-year period. Reference: <http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod=7.5.12316&MevzuatIliski=0&sourceXmlSearch=>

Data and parameters under "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 03.0, that are monitored:

Data / Parameter	$V_{t,db}$
Unit	Nm ³ dry gas
Description	Volumetric flow of the gaseous stream in time interval t on a dry basis
Source of data	Flow meter
Value(s) applied	-
Measurement methods and procedures	Measurement of the total amount of captured landfill gas will be continuously performed by using flow meters and all data will be archived electronically. $V_{t,db}$ is measured in normal conditions.
Monitoring frequency	The monitoring system works with continuous measurement devices.
QA/QC procedures	The flow meters are subject to a regular maintenance and testing regime to ensure accuracy. Records of calibration and maintenance is archived. Calibration frequency of flow meters is 10 years.
Purpose of data	Calculation of baseline emissions
Additional comment	Used to calculate $F_{CH_4,EL,y}$ under ACM0001 Version 19.0

Data / Parameter	$V_{CH_4,t,db}$
Unit	m ³ CH ₄ / m ³ dry gas
Description	Volumetric fraction of CH ₄ in a time interval t on a dry basis
Source of data	The volumetric fraction of CH ₄ will be monitored with a gas analyzer
Value(s) applied	-
Measurement methods and procedures	Continuous gas analyzer operating in dry basis
Monitoring frequency	Continuous
QA/QC procedures	The gas analyzers are subject to a regular maintenance and testing regime to ensure accuracy.
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data / Parameter	T_t
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Unit	°C
Description	Temperature of the gaseous stream in time interval t
Source of data	Temperature reading instruments
Value(s) applied	-
Measurement methods and procedures	Measured continuously to determine the density of methane D_{CH_4} .
Monitoring frequency	Continuous
QA/QC procedures	The temperature meters are subject to a regular maintenance and testing regime to ensure accuracy. Records of calibration and maintenance will be archived. Calibration frequency is 1 years.
Purpose of data	Calculation of baseline emissions
Additional comment	Since all parameters are converted to normal conditions during the monitoring process, this parameter is only monitored to verify the applicability condition is met related gaseous stream flow temperature being 60°C.

Data and parameters under "Project emissions from flaring" Version 04.0, that are monitored:

Data / Parameter	$T_{EG,m}$
Unit	°C
Description	Temperature in the exhaust gas of the enclosed flare
Source of data	Project participant
Value(s) applied	-
Measurement methods and procedures	Measure the temperature of the exhaust gas in the flare by an appropriate temperature measurement equipment. Measurements outside the operational temperature specified by the manufacturer may indicate that the flare is not functioning correctly and may require maintenance.
Monitoring frequency	The monitoring system works with continuous measurement devices. It is programmed to automatically save half hourly values. The data are stored automatically at the booster stations
QA/QC procedures	Temperature measurement equipment should be replaced or calibrated in accordance with their maintenance schedule. Calibration frequency is 1 years.
Purpose of data	Calculation of project emissions
Additional comment	Data will be archived electronically during the crediting period and two years after.

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Data / Parameter	$PE_{flare,y}$
Unit	tCO ₂ e
Description	Project emissions from flaring of the residual gas stream in year y
Source of data	-
Value(s) applied	0
Measurement methods and procedures	As per "TOOL06:Project emissions from flaring Version 04.0" ⁸⁹
Monitoring frequency	-
QA/QC procedures	As per "TOOL06:Project emissions from flaring Version 04.0"
Purpose of data	Estimation of project emission
Additional comment	-

Data and parameters under "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" Version 03, that are monitored:

Data / Parameter	$TDL_{j,y}$
Unit	%
Description	Average technical transmission and distribution losses for providing electricity for source j, in year y.
Source of data	Recent, accurate and reliable data available within the host country. Best available recent reliable and accurate data.(TEDAŞ:Türkiye Electricity Distribution Report for 2023) ⁹⁰
Value(s) applied	11%

⁸⁹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-06-v4.0.pdf>

⁹⁰ <https://www.tedas.gov.tr/FileUpload/MediaFolder/25819eac-d024-4308-891a-d248db8c1e0a.pdf>

Measurement methods and procedures	Annually. In the absence of the data from the relevant year, most recent figures should be used, but not older than 5 years.
Monitoring frequency	-
QA/QC procedures	The Grid company calculated the TDL factor monthly and use the factor directly for the creation of the monthly reports.
Purpose of data	Calculation of project emission
Additional comment	Data will be archived electronically during the crediting period and two years after

Data / Parameter	Operation of the energy plant
Unit	Hours/year
Description	Operation of the energy plant
Source of data	The amount of hours is registered by a counting device in each power generation unit.
Value(s) applied	7,500 The value is estimated for the purpose of ex-ante emission reduction calculation.
Measurement methods and procedures	Each engine will have an own internal counting device.
Monitoring frequency	The system in place is related to the three shifts policy guaranteeing 24 hour support. So once per shift the totalized values are recorded manually.
QA/QC procedures	The data will be cross checked with energy generation.
Purpose of data	Estimation of Baseline emission
Additional comment	Data will be archived electronically during the crediting period and two years after

Data and parameters under "Emissions from solid waste disposal sites" version 08.1, that are monitored:

Data / Parameter	$p_{n,j,x}$
Unit	%
Description	Weight fraction of the waste type j in the sample n collected during the year x
Source of data	Project participant

Value(s) applied	-
Measurement methods and procedures	The waste prevented from disposal, using the waste categories j, as provided in the table for DOC _j and k _j will be sampled and each waste fraction will be weighed.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Estimation of emission reduction
Additional comment	Data will be archived electronically during the crediting period and two years after

SDG 8

Data / Parameter	Quantitative employment
Unit	N/A
Description	Number of employments
Source of data	Social security records of the employees/employee register
Value(s) applied	10 people employed ⁹¹
Measurement methods and procedures	The number of working people will be monitored based on social insurance registries and receipts of employees.
Monitoring frequency	Annually
QA/QC procedures	Social security records will be provided
Purpose of data	To exhibit employment performance of the plant
Additional comment	-

Data / Parameter	Quality of employment
Unit	-
Description	Number of contracts, number of trainings & attendance. Safe and healthy working conditions

⁹¹ Please refer to the SGK records.

Source of data	Attendance at trainings, Assessment of working conditions by checking safety material, tasks of the personnel etc.
Value(s) applied	The project activity will provide a safe working environment to its employees. The employees are also given training and education on occupational health and safety issues. ⁹²
Measurement methods and procedures	-
Monitoring frequency	Training certificates will be checked at each verification activity
QA/QC procedures	-
Purpose of data	To ensure that necessary safety equipment is available and properly used and the working environment does not present health risks or hazardous tasks.
Additional comment	-

B.7.2 Sampling plan

Not applicable

B.7.3 Other elements of monitoring plan

Monitoring will adhere to the procedures outlined in the consolidated baseline methodologies ACM0001 along with the relevant tools pertaining to the parameters explained above. The monitoring process includes:

- Quantifying the landfill gas combusted in power generation units
- Measuring the landfill gas flared
- Monitoring the exhaust gas temperature in enclosed flares to estimate flare efficiency
- Analyzing the methane concentration in landfill gas
- Recording the total electricity exported to the grid
- Tracking the operating hours of power generation units
- Noting the total electricity imported from the grid
- Quantifying and characterizing the fresh waste prevented from being disposed of at the solid waste disposal site.

Measuring of exported electricity

⁹² Please refer to the training records provided to VVB.

The primary meter for electricity monitoring is located at the grid connection point. Monthly protocols, endorsed by both project participants and the grid operator, will be signed and preserved. The quantity of electricity generated by each gas type will be directly monitored at the engines.

Flare efficiency

Temperature and inlet flow rate of LFG in normal operation will be monitored according to manufacturer's specification.

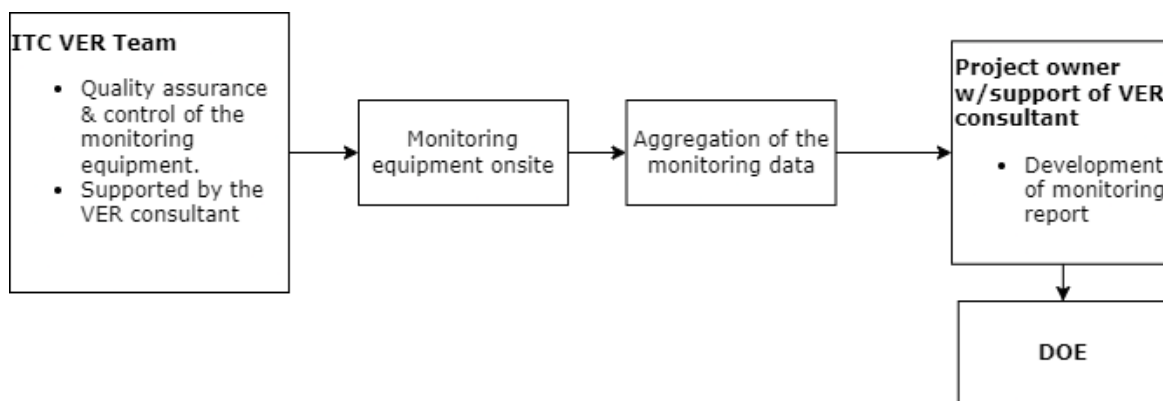
In case of enclosed flares and use of the default value for the flare efficiency, the efficiency in the hour h

(n_{flare}, h) is:

- 0% if the temperature in the exhaust gas of the flare (T_{flare}) is below 500°C for more than 20 minutes during the hour h .
- 50% if the temperature in the exhaust gas of the flare (T_{flare}) is above 500°C for more than 40 minutes during the hour h , but the manufacture's specifications on proper operation of the flare are not met at any point in time during the hour h .
- 90% if the temperature in the exhaust gas of the flare (T_{flare}) is above 500°C for more than 40 minutes during the hour h and the manufacture's specifications on proper operation of the flare are met continuously during the hour h .

Responsibilities of Monitoring

The project participant is accountable for the operation and maintenance of both the landfill and the installed equipment. Additionally, the project owner assumes responsibility for data administration and establishes a Verification (VER) team tasked with monitoring all necessary data to calculate emission reductions. The diagram below illustrates the structure of monitoring management and data application.



Registration of the monitored data

The ITC Verification (VER) Team will oversee the quality assurance and quality control of the monitoring equipment. The data recorded by this equipment will be stored and transformed into a monitoring report, to be submitted by the project owner. All monitored data will be retained throughout the crediting period and for a minimum of two years after the conclusion of the crediting period.

Corrective actions and emergency preparedness

The VER-Team will conduct periodic checks on the monitoring system to identify any errors. If errors are detected, corrective measures will be implemented by the VER-Team or, if necessary, by the supplier of the monitoring equipment.

QA/QC procedure

A robust quality assurance and quality control process will be implemented to oversee equipment and data collection. The equipment and facilities will undergo routine maintenance and testing as per the supplier's manual to ensure accuracy.

Electricity generated is measured by main and secondary meter. These meters are calibrated every 10 years in compliance with Turkish regulations. The brand and serial numbers of the electricity meters are given in the table below:

Table 24-Electricity Meters

Electricity Meters	Brand/Model	Accuracy Class	Serial No	Calibration Date
Primary Meter	Landis+Gyr E550	1.0	40184798	22/08/2019 ⁹³
Secondary Meter	Itron SL7000	0.5	84500425	20/02/2020 ⁹⁴

Weighbridge used in the Project is calibrated according to the regulations and calibration reports with serial number is available.

Table 25-Weighbridge Details

Weighbridges Serial Number	Manufacturing Year	Calibration Date ^{95 96}	Brand/Model
3333	2020	12/10/2022	Medeni Baskül/B2
3396	2021	09/11/2023	Medeni Baskül/B2

⁹³ Please refer to the calibration report provided for primary meter.

⁹⁴ Please refer to the calibration report provided for secondary meter.

⁹⁵ Please refer to the calibration reports of weighbridges.

⁹⁶ The calibration frequency of the weighbridges are 10 years according to the Regulation on Measurement Devices of Turkey. The regulation is provided as a supportive document to the VVB.

The gas generated is measured with flow meters. There are total of 3 flow meters in the project. First flow meter is placed on the input line and second flow meter is placed on the output line. The third flow meter is placed before the flare unit for the measurement of the flow.

The details of the flow meters can be found below:

Table 26-Details of the flow meters

Flow Meter	Brand	Serial Number	Accuracy Class	Calibration Frequency	Calibration Date ⁹⁷
First Flow Meter	SAGE	239327-12128	+/- 0.5% of Full Scale +/- 1% of reading	10 years	17/08/2023
Second Flow Meter	ABB	3K646615008777	±0.075%	10 years	28/11/2022
Third Flow Meter	ABB	6410028945	±0.075%	10 years	27/04/2022

Name of the Equipment	Brand	Serial Number	Accuracy Class	Calibration Frequency	Calibration Date
Thermocouples	TEKON	110074	< ±0,2%	5 years	27/04/2022
Thermocouples	NOVA	0802-01120	B Class	10 years	27/04/2022
Thermocouples	ELIMKO	22030580.011.01029960	0.5	1 years	13/05/2024
Pressure Transmitter	ABB	3K646616036084	±0.10%	10 years	25/04/2022
Pressure Transmitter	ABB	261GS6600081829	±0.10%	10 years	04/10/2023
Pressure Transmitter	ABB	27026422018239	±0.10%	10 years	23/06/2022

⁹⁷ Calibration frequency is 10 years as per the Regulation on Measurement Devices.

In addition, all monitored data is retained throughout the crediting period and for a minimum of two years after its conclusion.

The simplified version of SLD⁹⁸ and flow scheme is provided below:

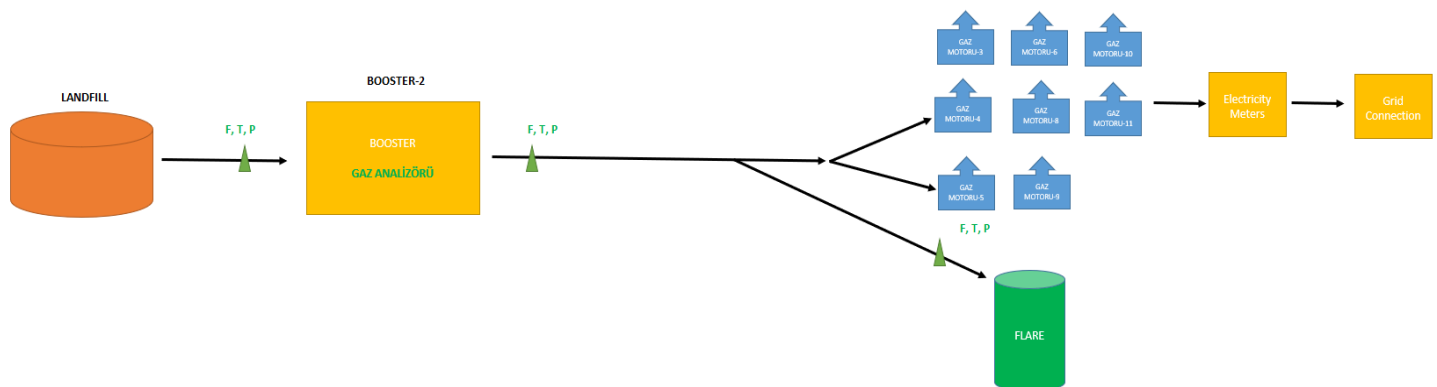


Figure 3-Simplified SLD

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1 Start date of project

24/08/2009

The Project is a “regular” project activity as per Paragraph 4.1.42 of the Principles and Requirement Version 2 as the Local Stakeholders Consultation Meeting was carried out (on 30/05/2009) before the start date of the project activity which is 24/08/2009.

C.1.2 Expected operational lifetime of project

30 years 0 month 0 day

C.2. Crediting period of project

C.2.1 Start date of crediting period

01/01/2018-31/12/2024 2nd Crediting Period (both days included)

01/01/2025 to 31/12/2031 3rd Crediting Period(both days included)

⁹⁸ The actual SLD is provided as a supportive document since SLD was too big to fit into the PDD

C.2.2 Total length of crediting period

7 years

SECTION D. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT

D.1 Safeguarding Principles that will be monitored

A completed Safeguarding Principles Assessment is in [Appendix 1](#), ongoing monitoring is summarised below.

PRINCIPLES	MITIGATION MEASURES ADDED TO THE MONITORING PLAN
Principle 1- Human Rights	Not Required
Principle 2- Gender Equality And Women's Empowerment	Not Required
Principle 3-Community Health, Safety	All the employees will be trained about health and safety issues during operation phase of the project.
Principle 4- Cultural Heritage, Indigenous People, Displacement And Resettlement	Not Required
Principle 4.1 Sites Of Cultural And Historical Heritage	Not Required
Principle 4.2 Sites Of Cultural And Historical Heritage	Not Required
Principle 4.3 Land Tenure And Other Rights	Not Required
Principle 4.4 Indigenous Peoples	Not Required
Principle 5-Corruption	Not Required
Principle 6-Economic Impacts	Not Required
Principle 6.1 Labour Rights And Working Conditions	Not Required
Principle 6.2 Negative Economic Consequences	Not Required

Principle 7- Climate And Energy	Not Required
Principle 7.1 GHG Emissions	Not Required
Principle 7.2 Energy Supply	Not Required
Principle 8-Water	Not Required
Principle 8.1 Impact On Natural Water Patterns/Flows	Not Required
Principle 8.2 Erosion And/Or Water Body Instability	Not Required
Principle 9- Environment, Ecology And Land Use	Not Required
Principle 9.1 Landscape Modification And Soil	Not Required
Principle 9.2 Vulnerability To Natural Disaster	Not Required
Principle 9.3 Biosafety And Genetic Resources	Not Required
Principle 9.4 Release Of Pollutants	Not Required
Principle 9.5 Hazardous And Non-Hazardous Waste	Not Required
Principle 9.6 Pesticides & Fertilisers	Not Required
Principle 9.7 Harvesting Of Forests	Not Required
Principle 9.8 Food Security	Not Required
Principle 9.9 Animal Welfare	Not Required
Principle 9.10 High Conservation Value (HCV) Areas And Critical Habitats	Not Required
Principle 9.11 Endangered Species	Not Required
Principle 9.12 Invasive Alien Species	Not Required

D.2. Assessment that project complies with GS4GG Gender Sensitive requirements

Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?	In accordance with Gold Standard Gender Policy, paragraph 4.2, which emphasizes a foundational gender-sensitive requirement, the project aligns with Gold Standard's 'do no harm' approach. This entails implementing safeguards to prevent or mitigate adverse impacts on both women and men, as well as girls and boys. Compliance with gender 'do no harm' safeguards, gender gap analysis, and gender-sensitive stakeholder consultations is mandatory for all projects seeking Gold Standard certification. The landfill waste management project, integrated with power generation, is not considered a gender-sensitive project as it does not negatively affect either women or men. The Project Proponent has operational policies and guidelines that treat women and men equally. Additionally, the Project Proponent organized a stakeholder meeting open to both men and women, affirming the absence of gender discrimination by the project proponent.
Question 2 - Explain how the project aligns with existing country policies, strategies and best practices	The project neither engages in nor supports any form of discrimination based on gender, race, religion, sexual orientation, or any other criteria. Türkiye has been a signatory to the Convention on Discrimination since 1972, aiming to prevent all forms of discriminatory practices.
Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	No. The Project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis.

Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?

An expert was not deemed necessary to address gender issues during the stakeholder consultation. According to paragraph 4.4 of the Gender Policy, the Project Proponent (PP) organized a stakeholder consultation meeting, inviting local residents regardless of gender. The invitation to the stakeholder meeting was disseminated through public notices accessible to both genders. To ensure continuous feedback from local stakeholders, the PP installed a grievance register at the site, open to all, regardless of gender, for recording any grievances or feedback about the project. The comments registered in the grievance register were scheduled to be promptly addressed by the PP team. Consequently, based on the provided justifications, it can be concluded that expert opinion is unnecessary to validate gender requirements for the project activity.

SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

E.1 Summary of stakeholder mitigation measures

Local Stakeholder Consultation (LSC)

The Local Stakeholders Consultation Meeting was held on 30th of May 2009 at a restaurant close to the landfill. The stakeholders were invited by means of email, public announcements by the Muhtar (local chief), newspaper announcements, telephone and email. In order to ensure that all the invitations were received and responded upon, follow up calls were made. In all 40 attended the meeting, among them local people, the village headmans, scavengers, ITC employees and regional administrators.

The meeting was opened by Tuğba Kirer from ITC, with an introduction on the purpose of the consultation and a presentation of the project. The non-technical summary was distributed to the participants, as well as the participant list. Throughout the meeting,

the participants were allowed to raise any questions, concerns or recommendations. The Blind Sustainable Development Matrix exercise was performed with the stakeholders, enabling a discussion on relevant indicators and their impacts. Finally, the participants filled out evaluation forms, in which they were encouraged to express their opinion on the monitoring of the parameters, since there was no interest to do so under the Blind SD Matrix exercise. The meeting was held in Turkish, the local language.

Stakeholder Feedback Round (SFR)

The stakeholders feedback round is a two month period, where all necessary documents are made publically available. On 11st of May 2011, the translation of the LSC report and the GS Passport have been provided as hard copies to the locals through the muchtars and were invited to provide comments on the documents. ITC has also announced the SFR inside the company for employees feedback with making available documents at the secretary.⁹⁹

Furthermore the documents were made available on the webpage of ITC www.itcturkiye.com as well for feedback. The documents were also submitted to the stakeholders invited to the Local Stakeholders Consultation Meeting and were asked kindly to provide a feedback on the project. The feedback round has ended on 11st of July 2011 with no negative comments from the stakeholders.

Summary of the comments received:

Local Stakeholder Consultation:

The general outcome of the Local Stakeholders Consultation was positive. There was a widespread opinion that the project is favourable and a major improvement to the prevailing conditions of the local area.

Details on the outcome of the Local Stakeholders Consultation Meeting could be found under the LSC report.

Stakeholder Feedback Round:

The stakeholders feedback round is a two month period, where all necessary documents are made publically available. On 11st of May 2011, the translation of the LSC report and the GS Passport have been provided as hard copies to the locals through the

⁹⁹ Please refer to the GS Passport of the Project since it includes the announcements, minutes of the meeting, comments from stakeholders.

mukhtars and were invited to provide comments on the documents. ITC has also announced the SFR inside the company for employees feedback with making available documents at the secretary.

Furthermore the documents were made available on the webpage of ITC www.itcturkiye.com as well for feedback. The documents were also submitted to the stakeholders invited to the Local Stakeholders Consultation Meeting and were asked kindly to provide a feedback on the project. The feedback round has ended on 11st of July 2011 with no negative comments from the stakeholders.

Report on how due account was taken of any comments received:

Local Stakeholder Consultation:

Details on the outcome of the Local Stakeholders Consultation Meeting could be found under the LSC report.

Stakeholder Feedback Round:

The stakeholders feedback round is a two month period, where all necessary documents are made publically available. On 11st of May 2011, the translation of the LSC report and the GS Passport have been provided as hard copies to the locals through the mukhtars and were invited to provide comments on the documents. ITC has also announced the SFR inside the company for employees feedback with making available documents at the secretary.

Furthermore the documents were made available on the webpage of ITC www.itcturkiye.com as well for feedback. The documents were also submitted to the stakeholders invited to the Local Stakeholders Consultation Meeting and were asked kindly to provide a feedback on the project. The feedback round has ended on 11st of July 2011 with no negative comments from the stakeholders.

E.2 Final continuous input / grievance mechanism

METHOD	INCLUDE ALL DETAILS OF CHOSEN METHOD (S) SO THAT THEY MAY BE UNDERSTOOD AND, WHERE RELEVANT, USED BY READERS.
Continuous Input / Grievance Expression Process Book (mandatory)	Continuous Input & Grievance Expression Process Book is provided to Mukhtar for local stakeholders to log their grievances on 21 st May 2024. Moreover, this logbook will be checked in the next verifications to see the whether there have been any feedback.

GS	Contact	help@goldstandard.org
(mandatory)		
Other		

APPENDIX 1 - SAFEGUARDING PRINCIPLES ASSESSMENT

Complete the Assessment below and copy all Mitigation Measures for each Principle into [SECTION D](#) above. Please refer to the instructions in the [Guide to Completing](#) this Form.

SOCIAL SAFEGUARDING PRINCIPLES		
Reference requirement	Question	Response
P.1 Human Rights		
P.1.1.1 	Does the project developer, its representatives and the Project disrespect internationally proclaimed human rights?	☐ YES ☒ NO
P.1.1.1 	Is the project involved or complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights?	☐ YES ☒ NO
P.1.1.2 	Have local communities or individuals raised human rights concerns regarding the project (e.g., during the stakeholder engagement process, grievance processes, public statements)?	☐ YES ☒ NO
P.1.1.3 	Is there a risk that rights-holders (e.g., Project-affected stakeholders) do not have the capacity to claim their rights?	☐ YES ☒ NO
P.1.1.3 	Does this project undermine national or regional measures for the realisation of the right to development?	☐ YES ☒ NO
If the answer to any of the questions above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.		
N/A		
Would the project potentially involve or lead to:		
P.1.1.1 	adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalised groups?	☐ YES ☐ POTENTIALLY ☒ NO
P.1.1.2 	inequitable or discriminatory impacts on affected populations, particularly people living in poverty or marginalised or excluded individuals or groups, including persons with disabilities?	☐ YES ☐ POTENTIALLY ☒ NO
P.1.1.3 	restrictions in availability, quality of and/or access to resources or basic services, in particular to marginalised individuals or groups, including persons with disabilities?	☐ YES ☐ POTENTIALLY ☒ NO
P.1.1.3 	exacerbation of conflicts among and/or the risk of violence to project-affected communities and individuals?	☐ YES ☐ POTENTIALLY ☒ NO

Briefly describe below how the project incorporates a human rights-based approach.

For example, by describing how the project design:

- is informed by human rights analysis, including from UN human rights mechanisms (human rights treaty bodies, universal periodic review, special procedures)
- includes measures to assist the government to realise (respect, protect and fulfil) human rights under international law and to implement human rights-related standards in national law (whichever is higher)
- enhances the availability, accessibility and quality of benefits and services for potentially marginalised individuals and groups, and to increase their inclusion in decision-making processes that may impact them (consistent with the non-discrimination and equality human rights principle)
- provides reasonable accommodations to strengthen inclusivity and accessibility of project benefits and services to persons with disabilities.

The Project aligns with globally recognized human rights standards and is devoid of any involvement in violence or human rights violations, as outlined in the Universal Declaration of Human Rights. There is no contradiction with the economic well-being or other concerns of the local community, ensuring that the Project does not contribute to any human rights abuses and upholds internationally proclaimed human rights principles.

The Project is supported by a Human Rights policy from the Project Participant (PP) that is in accordance with human rights issues. Additionally, the Project complies with local labor laws, ensuring it does not lead to any human rights violations.

Türkiye is a party to Universal Declaration of Human Rights¹⁰⁰, therefore does not violate these rights.

The Project will ensure equal participation and inclusion, without any form of discrimination. The project activity is in harmony with internationally recognized human rights, including the dignity, cultural heritage, and unique identity of indigenous peoples.

P.2 | GENDER EQUALITY AND WOMEN'S EMPOWERMENT

P.2.1.1	Have women's groups/leaders raised gender equality concerns regarding the project, (e.g., during the stakeholder engagement process, grievance processes, public statements)?	☐ YES ☒ NO
P.2.1.2	Does the project undermine the principles of non-discrimination, equal treatment, and equal pay for equal work?	☐ YES ☒ NO

¹⁰⁰ <http://ua.mfa.gov.tr/detay.aspx?2634>

P.2.1.2	Does the project prevent men and women from having equal opportunities to participate in identified tasks and activities, whether through paid work, volunteer work, or community contributions, as appropriate?	☐ YES ☒ NO
P.2.1.2	Does the project limit the participation of women or men based on pregnancy, maternity/paternity leave, or marital status?	☐ YES ☒ NO
P.2.1.2	Is information about project objectives being communicated in a way that is inappropriate for the local context and not tailored to the methods of understanding of both women and men, which could hinder their participation?	☐ YES ☒ NO
P.2.1.3	Has the project assessed gender risks without referencing the country's gender strategy or equivalent national commitment?	☐ YES ☒ NO
P.2.1.4	Has expert stakeholder(s) been involved, and has their input been requested for the project design on gender equality and women's empowerment?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

N/A

Would the project potentially involve or lead to:

P.2.1.1	adverse impacts on gender equality and/or the situation of women and girls?	☐ YES ☐ POTENTIALLY ☒ NO
P.2.1.1	exacerbation of risks of gender-based violence? For example, through the influx of workers to a community, changes in community and household power dynamics, increased exposure to unsafe public places and/or transport, etc.	☐ YES ☐ POTENTIALLY ☒ NO
P.2.1.2	reproducing discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	☐ YES ☐ POTENTIALLY ☒ NO
P.2.1.2	limitations on women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services? For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well-being.	☐ YES ☐ POTENTIALLY ☒ NO

Briefly describe below how the project is addressing any identified risk to gender equality and women's empowerment.

The Project does not adversely affect the economic well-being of the local community and does not impede women's access to or control of resources. Türkiye, as a member state of the Council of Europe, is committed to implementing the Council of Europe Gender Equality Strategy 2018-2023. This strategy emphasizes that achieving gender equality is fundamental to the Council of Europe's mission of safeguarding human rights, upholding democracy, and preserving the rule of law. Gender equality encompasses equal rights for women and men,

ensuring equal visibility, empowerment, responsibility, and participation in all aspects of public and private life. It also involves promoting equal access to and distribution of resources between women and men."

The project actively avoids and condemns any participation in discriminatory practices related to gender, race, religion, sexual orientation, or any other basis. It actively supports gender equality and the empowerment of women. Türkiye, as a signatory to the Convention on Discrimination since 1972, is committed to preventing all forms of discrimination. In addition, project adheres to relevant conventions, laws, commitments, and strategies, ensuring its alignment with principles such as non-discrimination, equal treatment, and equal pay for equal work. It is designed in accordance with these principles and strictly avoids any form of discrimination.

Türkiye has ratified ILO convention 100, 111, 122 and 142, which provides gender equality and promotes women's employment.¹⁰¹ Additionally, as one of the 57 participating states in the Organization for Security and Cooperation in Europe (OSCE),¹⁰² Türkiye is committed to various OSCE agreements, including Ministerial Council Decision No. 14/04 - 2004 OSCE Action Plan for the Promotion of Gender Equality.

P.3 | COMMUNITY HEALTH AND SAFETY

P.3.1.1 	Does the project involve potential risks to the health and safety of affected communities during its life cycle?	☐ YES ☒ NO
P.3.1.2 	Does the project involve any potential risks to the workers' safety and health?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

N/A

Would the project potentially involve or lead to:

P.3.1.1 	construction and/or infrastructure development (e.g., roads, buildings, dams)?	☐ YES ☒ NO
P.3.1.2 	air pollution, noise, vibration, traffic, injuries, physical hazards, poor surface water quality due to runoff, erosion, sanitation?	☐ YES ☐ POTENTIALLY ☒ NO
P.3.1.2 	harm or losses due to failure of structural elements of the project (e.g., collapse of buildings or infrastructure)?	☐ YES ☐ POTENTIALLY ☒ NO
P.3.1.2 	risks of water-borne or other vector-borne diseases (e.g., temporary breeding habitats), communicable and	☐ YES ☐ POTENTIALLY

¹⁰¹ <http://www.ilo.org/ankara/areas-of-work/equality-discrimination/lang--tr/index.htm>

¹⁰² <https://www.osce.org/files/f/documents/7/d/23295.pdf>

	noncommunicable diseases, nutritional disorders, mental health?	☒ NO
P.3.1.2 	transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g., explosives, fuel and other chemicals during construction and operation)?	☐ YES ☐ POTENTIALLY ☒ NO
P.3.1.2 	adverse impacts on ecosystems and ecosystem services relevant to communities' health (e.g., food, surface water purification, natural buffers from flooding)?	☐ YES ☐ POTENTIALLY ☒ NO

Briefly describe below how the project is addressing any identified risk related to community health and safety.

The project owner prioritizes safe and healthy working conditions throughout all project stages. All employees have received health and safety training, in accordance with labor laws, regulations, and the UN Agreement on Human Rights.¹⁰³ The project aims to minimize health risks for workers and the local community. Additionally, all employees undergo health and safety training during the operational phase of the project.

P.4 | CULTURAL HERITAGE, INDIGENOUS PEOPLE, DISPLACEMENT AND RESETTLEMENT

P.4.1 | Sites of Cultural and Historical Heritage

P.4.1.1 	Does the project involve altering, damaging, or removing sites, objects, or structures of significant cultural heritage?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

N/A

Would the project potentially involve or lead to:

P.4.1.1 	activities adjacent to or within a cultural heritage site?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.1.1 	significant excavations, demolitions, movement of earth, flooding or other environmental changes?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.1.1 	alterations to landscapes and natural features with cultural significance?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.1.1 	adverse impacts to sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations,	☐ YES ☐ POTENTIALLY

¹⁰³ <https://www.ohchr.org/en/countries/turkiye>

	practices)? (Note: projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	☒ NO
P.4.1.2	utilisation of tangible and/or intangible forms (e.g., practices, traditional knowledge) of Cultural Heritage for commercial or other purposes?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.1.2	If answer to question above is "YES" or "POTENTIALLY" - are the communities made aware of their right under the law, scope and nature of proposed development and its potential consequences?	☐ YES ☐ NO ☒ NA
P.4.1.3	If answer to question above is "YES" - does the project provide equitable sharing of benefits from commercialisation of such knowledge, innovation, or practice, consistent with their customs and traditions?	☐ YES ☐ NO ☒ NA
P.4.1.4	If answer to question above is "YES" - are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA
P.4.1.4	If answer to question above is "YES", has project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

No cultural heritage exists on the project site, thus no harm observed. The project area does not fall under UNESCO Cultural heritage sites. Cultural and environmental heritage is protected against alteration, damage or removal by the law.

[P.4.2 | Forced Eviction and Displacement](#)

P.4.2.1	Does the project involve any risks related to involuntary relocation of people?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

N/A

Would the project potentially involve or lead to:

P.4.2.1	risk of forced evictions or involuntary relocation of people?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.2.2	temporary or permanent and full or partial physical displacement (including people without legally recognisable claims to land)?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.2.2	economic displacement (e.g., loss of assets or access to resources due to land acquisition or access restrictions - even in the absence of physical relocation)?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.2.2	If answer to question above is "YES" or "POTENTIALLY",	☐ YES

	- has the project developed Resettlement Action Plan or Livelihood Action Plan in consultation and agreement with affected individual, group or community? - has the project integrated Resettlement Action Plan or Livelihood Action Plan into the Project design?	☐ NO ☒ NA
P.4.2.3	If answer to question above is "YES" - are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA
P.4.2.3	If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

N/A

[P.4.3 | LAND TENURE AND OTHER RIGHTS](#)

P.4.3.1	Does the project involve any risks related to identifying and managing legitimate tenure rights that may be affected by the project?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

N/A

Would the project potentially involve or lead to:

P.4.3.1	impacts on or changes to land tenure arrangements and/or community-based property rights/customary rights to land, territories and/or resources?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.3.1	uncertainties with regards to land tenure, access rights, usage rights or land ownership? Examples include, but are not limited to water access rights, community-based property rights and customary rights.	☐ YES ☐ POTENTIALLY ☒ NO
P.4.3.2	Changes in legal arrangements, if yes, are the changes done in line with relevant laws and regulations?	☐ YES ☐ NO ☒ NA
P.4.3.2	Changes in legal arrangements, if yes, are these changes agree with free, prior and informed consent of the involved stakeholders?	☐ YES ☐ NO ☒ NA
P.4.3.3	Does some other entity (other than the project developer) hold uncontested land title for the entire Project Boundary?	☐ YES ☒ NO ☐ NA
P.4.3.4	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA

P.4.3.4	If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA
P.4.3.5	Have project developer in consultation with stakeholders established a functioning mechanism to receive, process, resolve, communicate and record grievances?	☒ YES ☐ NO ☐ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project does not involve any change in land tenure arrangements. Thus, this project does not cause the physical or economic relocation of peoples.

There are no any uncertainties with regards land tenure, access rights, usage rights or land ownership. Thus, land tenure and other rights are with Project proponent.

[P.4.4 | INDIGENOUS PEOPLES](#)

P.4.4.1	Does the project involve Indigenous People within the Project area of influence who may be affected directly or indirectly by the Project?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project potentially involve or lead to:

P.4.4.1	affect areas where indigenous peoples are present (including project area of influence)	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.1	affect areas, land and territory claimed by indigenous peoples?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.1	impacts (positive or negative) to the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.7	If answer to above questions is "YES" or "POTENTIALLY", - Is it determined that the proposed project may affect the rights, lands, resources, or territories of indigenous people? - Has an "Indigenous People Plan" (IPP) or "Indigenous People Plan Framework" been elaborated and included in the project documentation? - Was the plan developed in accordance with the effective and meaningful participation of indigenous peoples and in accordance with UNDP Guidelines?	☐ YES ☐ NO ☒ NA
P.4.4.3	risk of forcibly removing indigenous people from their lands and territories?	☐ YES ☐ POTENTIALLY

		☒ NO
P.4.4.4	utilisation and/or commercial development of natural resources on lands and territories claimed by indigenous peoples? Consider, and where appropriate ensure, consistency with the answers under Principle 4.1 above	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.5 P.4.4.6	If answer to question above is "YES" or "POTENTIALLY" - Did the project obtain free, prior and informed consent from indigenous people before taking their cultural, intellectual, religious, and/or spiritual property? - Does the project ensure that the indigenous people receive an equitable sharing of benefits resulting from the use of their traditional knowledge and practices? - Does the project ensure that the sharing of benefits resulting from the use of indigenous peoples' traditional knowledge and practices is culturally appropriate and inclusive? - Does the project ensure that the provision of equitable sharing of benefits does not impede land rights or equal access to basic services including health services, clean water, energy, education, safe and decent working conditions, and housing?	☐ YES ☐ NO ☒ NA
P.4.4.8	Does the project lack appropriate feedback and grievance channels for Indigenous Peoples and their representatives?	☐ YES ☐ NO ☒ NA
P.4.4.8	Has a grievance mechanism not been established at the beginning of programme or project implementation with due consideration given to customary dispute settlement mechanisms among the Indigenous Peoples concerned and will it remain operational throughout the project cycle?	☐ YES ☐ NO ☒ NA
P.4.4.9	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA
P.4.4.9	If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project does not involve indigenous people within the project area of influence who may be affected directly or indirectly by the project.

P.5 | CORRUPTION

P.5.1.1 	Does the project involve, or is it complicit in, contributing to or reinforcing corruption or corrupt projects?	☐ YES ☒ NO
P.5.1.1 	Does the project have a risk of encouraging bribery, kickbacks, or other unethical behavior?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

The project is landfill management and power generation activity and does not contribute to or reinforce corruption of any kind.

Türkiye is a party to United Nation Convention against Corruption since 2006;¹⁰⁴

Moreover, Türkiye has ratified several conventions on bribery and corruption including OECD and UN conventions.¹⁰⁵

The Project owner has not any negative track record related to corruption or any such activity whatsoever.

ECONOMIC SAFEGUARDING PRINCIPLES

P.6 | ECONOMIC IMPACTS

P.6.1 | LABOUR RIGHTS AND WORKING CONDITIONS

P.6.1.1 	Does the project involve, facilitate, or condone forced labor, or pose a potential risk of forced labor?	☐ YES ☒ NO
P.6.1.1 	Does the project violate any labor or health and safety laws, international obligations, or ILO conventions?	☐ YES ☒ NO
P.6.1.2 	Does the project violate the principles of equal opportunity and fair treatment in its employment decisions?	☐ YES ☒ NO
P.6.1.3 	Does the project violate national laws, if available regarding non-discrimination in employment?	☐ YES ☒ NO
P.6.1.4 P.6.1.5 	Does the project allow child labor?	☐ YES ☒ NO
P.6.1.7 P.6.1.8 	Does the project have insufficient processes and measures in place to ensure the safety and health of project workers?	☐ YES ☒ NO
P.6.1.9 	Does the project have insufficient measures to safeguard and support vulnerable project workers, such as women, people with disabilities, migrant workers, and young workers, and to prevent any kind of harassment, abuse, bullying, or exploitation, including gender-based violence (GBV)?	☐ YES ☒ NO

¹⁰⁴ <http://ua.mfa.gov.tr/detay.aspx?15042>

¹⁰⁵ <http://www.masak.gov.tr/en/LaunderingProceedsofCrime/Chronology.htm>

P.6.1.10	Does the project have no grievance mechanism available for workers to voice workplace concerns? Is information about this mechanism not provided to workers at the time of recruitment, or is it not easily accessible?	☐ YES ☒ NO
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If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project potentially involve or lead to:
 (NOTE: APPLIES TO BOTH PROJECT AND CONTRACTOR WORKERS)

P.6.1.1	use of forced labour?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1	working conditions that do not meet national labour laws and international commitments?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1	working conditions that may deny freedom of association and collective bargaining?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1	absence of documented working agreements with all individual workers <i>if such agreements do not exist, or do not address working conditions and terms of employment, the project developer shall provide reasonable working conditions and terms of employment.</i>	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1	use of migrant workers? <i>if engaged, the developer shall ensure that they are engaged substantially equivalent terms and conditions to non-migrant workers carrying out similar work.</i>	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1	having no arrangements for basic services ¹⁰⁶ for workers? <i>the project developer shall put in place and implement policies on the quality and management of the accommodation and provision of basic services in a manner consistent with the principles of non-discrimination and equal opportunity. Workers' accommodation arrangements should not restrict workers' freedom of movement or of association</i>	☐ YES ☐ POTENTIALLY ☒ NO

¹⁰⁶ Basic services requirements refer to minimum space, supply of water, adequate sewage and garbage disposal system, appropriate protection against heat, cold, damp, noise, fire, and disease-carrying animals, adequate sanitary and washing facilities, ventilation, cooking and storage facilities and natural and artificial lighting, and in some cases basic medical services.

P.6.1.2	any form of discrimination or harassment based on factors unrelated to job requirements, such as gender, race, nationality, ethnicity, social or indigenous origin, religion or belief, disability, age, or sexual orientation?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.2	any form of discrimination in any aspect of employment, such as recruitment, compensation, working conditions, training, job assignment, promotion, termination, or discipline?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.2	harassment, intimidation, and/or exploitation, especially in regard to women?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.3	discriminatory working conditions and/or lack of equal opportunity where national law provides provision to address non-discrimination in employment?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.4	use of child labour? (including third-party engaged workers)	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.4	inadequate and verifiable mechanisms for age verification?	☐ YES ☒ NO
P.6.1.7	no processes and measures in place for the safety and health of project workers?	☐ YES ☒ NO
P.6.1.7	No provision of safety and health training provisions, including on the proper use and maintenance of personal protective equipment conducted by competent persons and the maintenance of training records?	☐ YES ☒ NO
P.6.1.7	No provision to record and document accidents, diseases, incidents, and any resulting injuries, illnesses, or deaths?	☐ YES ☒ NO
P.6.1.8	occupational health and safety risks due to physical, chemical, biological and psychosocial hazards (including violence and harassment) throughout the project life-cycle?	☐ YES ☒ NO
P.6.1.9	No measures to protect vulnerable project workers from harassment, exploitation, and gender-based violence (GBV)? This includes women, people with disabilities, migrant workers, and young workers.	☐ YES ☒ NO
P.6.1.10	No grievance mechanism available for workers to voice workplace concerns.	☐ YES ☒ NO
P.6.1.11	No measures for due diligence and the establishment of policies and procedures to manage and monitor the performance of third-party employees in the project?	☐ YES ☒ NO

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project owner is dedicated to ensuring safe and healthy working conditions throughout every project phase. All employees are required to participate in health and safety training,

a practice safeguarded by labor laws, regulations, and human rights principles. Workers have the right to form and join labor organizations.

Comprehensive working agreements are documented and enforced with each individual worker, incorporating provisions outlined in the Regulation on Working Times under Business Law¹⁰⁷, including:

- (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.

The project owner and subcontractors strictly adhere to all relevant national laws, ensuring no employment of children in any capacity. Türkiye, as a signatory to the ILO 138 Minimum Age Convention and 182 Worst Forms of Child Labour Convention¹⁰⁸, upholds these standards. Project proponents are committed to ensuring the use of suitable equipment, providing worker training, documenting and reporting accidents and incidents, and implementing emergency preparedness and response measures.¹⁰⁹

P.6.2 | NEGATIVE ECONOMIC CONSEQUENCES

P.6.2.1 	Is there a risk of project failure during implementation or after project certification due to a lack of financial resources?	☐ YES ☒ NO
P.6.2.2 	Does the project have potential negative impacts or pose a risk to the local economy?	☐ YES ☒ NO
P.6.2.2 	Are there any potential risks or negative impacts this project may have on vulnerable or marginalised social groups, despite the benefits it may bring?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.6.2.2 	economic impacts (negative/detrimental) to the local economy?	☐ YES ☐ POTENTIALLY
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¹⁰⁷ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=5447&MevzuatTur=7&MevzuatTertip=5>

¹⁰⁸ http://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO::P11200_COUNTRY_ID:102893

¹⁰⁹ <https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6331.pdf>

		☒ NO
P.6.2.2 	negative economic consequences during and after project implementation, e.g., for vulnerable and marginalised social groups in targeted communities?	☐ YES ☐ POTENTIALLY ☐ NO

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project doesn't cause negative economic consequences during and after project implementation or during the operation. The goal of the project is to contribute to the economic and sustainable development of the country and the region.

[P.7 | CLIMATE AND ENERGY](#)

[P.7.1 | GHG EMISSIONS](#)

P.7.1.1 	Does the project have a risk of increasing greenhouse gas emissions over the Baseline Scenario?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.7.1.1 	increase greenhouse gas emissions over the Baseline Scenario?	☐ YES ☐ POTENTIALLY ☒ NO
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If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project activity will result in decrease of greenhouse gas emissions over the baseline scenario.

[P.7.2 | ENERGY SUPPLY](#)

P.7.2.1 	Does the project pose a risk to the availability and reliability of energy supply to other users?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.7.2.1 	negative impact on the availability and reliability of energy supply to other users?	☐ YES ☐ POTENTIALLY ☒ NO
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If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

N/A

P.8 | WATER

P.8.1 | IMPACT ON NATURAL WATER PATTERNS/FLOWS

P.8.1.1 	Does the project increase water usage to a level that will not allow for the maintenance of environmental flows?	☐ YES ☒ NO
P.8.1.1 	Does the project result in the discharge of wastewater that does not meet the required standard for beneficial reuse and could therefore negatively impact the environmental flow?	☐ YES ☒ NO
P.8.1.1 	Does the project have the potential risk to exceed the rate of recharge for the groundwater source?	☐ YES ☒ NO
P.8.1.1 	Does the project involve any processes or activities that could contaminate the groundwater and render it unsuitable for use?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.8.1.1 	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?	☐ YES ☐ POTENTIALLY ☒ NO
P.8.1.1 	Wastewater discharge of quality that does not meet the required standard for beneficial reuse?	☐ YES ☐ POTENTIALLY ☒ NO
P.8.1.1 	significant extraction, diversion of ground water? For example, construction of dams, reservoirs, river basin developments, groundwater extraction	☐ YES ☐ POTENTIALLY ☒ NO
P.8.1.2 	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project will collect waste via closed trucks and there is no damage to ground-water. In the absence of this landfill gas to energy project, waste stored or buried may cause formation of bacteria, which would reach underground water.

The Project is not expected to result in a significant change of water consumption. The Project has no activity related to water contamination or waste covering. The leachate is collected in a pool. The collected water is disposed of by the Municipality. During the operation phases, domestic wastewater produced by workers collected in impermeable septic tanks.

P.8.2 | EROSION AND/OR WATER BODY INSTABILITY

P.8.2.1 	Does the project have a risk of negatively impacting the catchment and has it been assessed and addressed?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.8.2.2	negatively impact on the catchment area?	
P.8.2.5	<i>If yes, Erosion prevention measures, including soil and slope protection measures, must be implemented before project commencement. These measures should involve natural terracing, infiltration strips, permanent ground cover, hedge and tree rows, and effective slope length assessment. Regular reassessment of these measures is necessary.</i>	☐ YES ☐ POTENTIALLY ☒ NO
P.8.2.6	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Project activity will not result in erosion or water instability. The project is being implemented in a proper way (by considering the concerns indicated via the entire principle 8.2 erosion and/or water body instability)

P.9 | ENVIRONMENT, ECOLOGY AND LAND USE

P.9.1 | LANDSCAPE MODIFICATION AND SOIL

P.9.1.1	Is there any risk of soil resource degradation or loss of ecosystem services provided by soils in the project?	
P.9.1.3	<i>If yes, the project shall maintain healthy soils by minimising negative impacts on soil health, productivity, structure, and water retention. Steps to minimise soil degradation include crop rotation, composting, using N-fixing plants, and reducing tillage and ecologically harmful substances.</i>	☐ YES ☒ NO

If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.9.1.4	production, harvesting, and/or management of living natural resources by small-scale landholders and/or local communities?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.1.4	if answer to above question "yes" or "potentially", does project adopt appropriate and culturally sensitive sustainable resource management practices?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project does not involve the use of land and soil for production of crops or other products.

P.9.2 | VULNERABILITY TO NATURAL DISASTER

P.9.2.1	Does the project have any risks associated with natural or man-made hazards that could result from land use changes due to the project?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.9.2.2	any potential risks that require emergency preparedness and response planning?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.2.2	if answer to above question "yes" or "potentially", did the project developer disclose appropriate information about emergency preparedness and response to affected communities?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project is neither susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions.

P.9.3 | BIOSAFETY AND GENETIC RESOURCES

P.9.3.1	Does the project involve the transfer, handling, and use of genetically modified organisms/living modified organisms that may result in adverse effects on biological diversity?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.9.3.1	the transfer, handling and use of genetically modified organisms/living modified organisms (GMOs/LMOs) that result from modern biotechnology	☐ YES ☐ POTENTIALLY ☒ NO
P.9.3.1	If answer to above question is "yes" has a risk assessment by a competent Expert stakeholder been carried out in accordance with Annex iii of the Cartagena protocol on biosafety to the convention on biological diversity?	☐ YES ☐ NO ☒ NA
P.9.3.2	If answer to above question is "yes" has any risks identified in the risk assessment?	☐ YES ☐ NO ☒ NA
P.9.3.3	Forestry (for example Afforestation/Reforestation) involving GMO planting?	☐ YES ☐ NO ☒ NA

	<i>Note - Forestry projects (for example Afforestation/ Reforestation) involving GMO planting are not eligible for Certification under Gold Standard for the Global Goals.</i>	
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If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project is not likely to be negatively impacted by or involve genetically modified organisms or GMOs.

P.9.4 | RELEASE OF POLLUTANTS

P.9.4.1 	Does the project have a risk of releasing pollutants to air, water, and land in routine, non-routine, or accidental circumstances?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.9.4.1 	any potential risk of pollutant release that cannot be avoided?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.4.3 	If answer to above question is "Yes" or "potentially", has the project identified all potential pollution sources that may degrade the quality of soil, air, surface, and groundwater in the project area?	☐ YES ☐ NO ☒ NA
P.9.4.2 	If answer to above question is "Yes" or "potentially", do the pollution prevention and control technologies and practices applied during the project life cycle align with national regulations or international best practices?	☐ YES ☐ NO ☒ NA
P.9.4.3 	If answer to above question is "Yes", is there a monitoring plan to ensure that mitigation measures are implemented, and resources are protected?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project activity is based on the process of capturing the methane under control and produce clean energy. The project activity does not use pollutants which has the potential of being released. Waste transportation is allowed if it's executed by only authorized Transportation establishments according to environmental law. Waste transportation must be conducted with covered trucks. Release of pollutants to the environment and odor spread is prevented by strict regulations for transportation of all types of wastes. Odor quality will be improved after biogas plant since all excrements will be used in biogas Plant, reducing odor problem.

Prior to the proposed project activity, the wastes are left to decay within landfill site and methane were emitted to the atmosphere without any control or utilization. Thus, the project contributes to the social welfare of these region.

P.9.5 | HAZARDOUS AND NON-HAZARDOUS WASTE

P.9.5.1	Does the project involve the generation of waste materials (both hazardous and non-hazardous)?	☐ YES ☒ NO
P.9.5.3	Does the project involve risk of release of hazardous materials resulting from their production, transportation, handling, storage, or use?	☐ YES ☒ NO
P.9.5.5	Does the project involve the use of any chemicals or materials subject to international bans or phase-outs?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.9.5.1	the generation and management of waste materials?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.5.1	treatment, destruction, or disposal of waste material?	☐ YES ☐ NO ☒ NA
P.9.5.1	If answer to above question is "Yes", does the project involve an environmentally friendly method that includes appropriate control of emissions and residues resulting from the handling and processing of waste material?	☐ YES ☐ NO ☒ NA
P.9.5.3	risk of release of hazardous materials resulting from their production, transportation, handling, storage, or use?	☐ YES ☐ NO ☒ NA
P.9.5.3	If answer to above question is "yes", does project has measures in place to address health risks?	☐ YES ☐ NO ☒ NA
P.9.5.4	Involve manufacture, trade, and use of chemicals and hazardous materials subject to international bans or phase-outs due to their high toxicity to living organisms, environmental persistence, potential for bioaccumulation, or potential for depletion of the ozone layer	☐ YES ☐ POTENTIALLY ☒ NO

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project activity prohibits the acceptance of hazardous wastes. Initial separation occurs at the first storage point, and domestic waste is appropriately directed to the site. All wastes will be disposed of in accordance with relevant regulations. Different methods are assigned for various materials, eliminating the necessity for monitoring this impact or implementing additional mitigation measures.

[P.9.6 | PESTICIDES & FERTILISERS](#)

P.9.6.1	Does the project involve the use of chemical pesticides?	☐ YES ☒ NO
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P.9.6.5	Does the project involve purchase, store, manufacture, trade or use products that fall in Classes IA (extremely hazardous) and IB (highly hazardous)	☐ YES ☒ NO
P.9.6.6	Does the project use fertilisers, and if so, are measures being taken to minimise their use and nutrient losses to the environment?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.9.6.1	chemical pesticides use for pest management?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.6.4	If answer to question above is "yes" or "potentially", does project has documented Chemical Pesticides Policy in place?	☐ YES ☐ NO ☒ NA
P.9.6.5	purchase, store, use, manufacture, or trade in Class II (moderately hazardous) pesticides?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.6.5	If answer to question above is "yes" or "potentially", does project has appropriate controls on manufacture, procurement, or distribution and/or use of these chemicals?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project activity does not involve pesticides & fertilisers.

[P.9.7 | HARVESTING OF FORESTS](#)

P.9.7.1	Does the project have a risk of unsustainable forest management, including timber harvesting?	☐ YES ☒ NO
P.9.7.1	Does the project pose a risk of depleting biodiversity and ecosystem functionality in areas where improved forest management is undertaken?	☐ YES ☒ NO
P.9.7.1	Does the project risk not meeting requirements for environment-friendly, socially beneficial, and economically viable plantations using native species whenever possible?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

The project activity does not involve harvesting forests.

[P.9.8 | FOOD SECURITY](#)

P.9.8.1	Does the project involve the risk of negatively influencing access to and availability of food for people affected?	☐ YES ☒ NO
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If the answer to the question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.9.8.1	modification of the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	☐ YES ☐ POTENTIALLY ☒ NO
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If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project area does not involve agricultural land, so the Project activity does not have any negative impact to access and availability of food for people.

[P.9.9 | ANIMAL WELFARE](#)

P.9.9.1	Does the project involve any risks to animal welfare? Animal welfare shall be ensured by providing access to water and food, appropriate environment, humane treatment, and staff training. Evidence of mistreatment will be treated as an immediate non-conformity.	☐ YES ☒ NO
P.9.9.2	Does the project involve any potential risk of excessive or inadequate use of veterinary medicines?	☐ YES ☒ NO
P.9.9.4	Does the project involve the risk of administering synthetic growth promoters, including hormones?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.9.9.1	animal husbandry or harvesting of fish populations or other aquatic species? ¹¹⁰	☐ YES ☐ NO ☒ NA
P.9.9.1	limiting access for animals to basic needs like drinking water, adequate food, daylight, appropriate shelter etc.?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.9.3	inadequate measures to isolate sick animals and control the spread of disease, especially zoonotic diseases?	☐ YES ☐ NO ☒ NA
P.9.9.5	inadequate low-stress methods, equipment, and facilities that facilitate calm animal movement.	☐ YES ☐ NO ☒ NA

¹¹⁰ 'Involve' means if the project mechanism and/or impact(s) are achieved via changing animal husbandry practices in some way.

P.9.9.6	inadequate measures to ensure that animals are exposed to the least stress possible during transportation and slaughtering?	☐ YES ☐ NO ☒ NA
P.9.9.7	inappropriate spacing per animal and stocking rates per land unit?	☐ YES ☐ NO ☒ NA
P.9.9.8	inadequate measures to address the specific needs of aquatic animals?	☐ YES ☐ NO ☒ NA
P.9.9.9 P.9.9.10	primary production of living natural resources such as animal husbandry, aquaculture, and fisheries? If the answer is yes, implement industry-standard sustainable management practices in line with to one or more relevant and credible standards and utilise available technologies.	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project is a Landfill Gas power project does not involve any animal husbandry and is in line with principle 9.9.

[P.9.10](#) | HIGH CONSERVATION VALUE AREAS AND CRITICAL HABITATS

P.9.10.1	Does the project have the risk of negatively impacting HCV areas and/or critical habitats?	☐ YES ☒ NO
P.9.10.2	Does the project in the project area or area of downstream impacts have risks to the following: native tree patches, individual native trees, freshwater resources (including rivers, lakes, swamps, temporary water bodies, and wells), habitats of rare, threatened, and endangered species, and biodiversity-enhancing areas?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.9.10.1	identified habitats as HCV areas and or Critical habitats?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.10.1	If answer to above question is "yes", does the project have any risks that could negatively impact the catchment, project success, and surrounding HCV and ecological assets, as well as any measurable adverse impacts on the criteria or biodiversity values for which the critical habitat was designated, and on the ecological processes supporting that biodiversity?	☐ YES ☐ NO ☒ NA
P.9.10.1	If answer to above question is "yes", is a robust, appropriately designed, and long-term Habitats and Biodiversity Action Plan absent which will make the project	☐ YES ☐ NO

	unable to achieve net gains of those biodiversity values for which the critical habitat was designated?	☒ N/A
P.9.10.2 	Does the project area or area of downstream impacts have native tree patches, individual native trees, freshwater resources (including rivers, lakes, swamps, temporary water bodies, and wells), habitats of rare, threatened, and endangered species, and biodiversity-enhancing areas?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.10.2 	If the answer to the above question is "yes", will the project have any adverse effects on these areas?	☐ YES ☐ No ☒ NA
P.9.10.3 	If the answer to above question is "yes", does the project has opportunities to minimise unwarranted conversion or degradation of the habitat and to enhance the habitat as part of its development?	☐ YES ☐ No ☒ NA
P.9.10.4 	Is the project applying Land Use & Forest Activity Requirements and managing a minimum 10% of the project area to protect or enhance the biological diversity of native ecosystems following HCV approach as per the given requirements?	☐ YES ☐ No ☒ NA
P.9.10.5 	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project does not affect or alter High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or cultural sites.

[P.9.11 | ENDANGERED SPECIES](#)

P.9.11.1 	Does the project lead to the reduction or negative impact on any recognised Endangered, Vulnerable or Critically Endangered species?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

P.9.11.2 	distortion of habitats of endangered species?	☐ YES ☐ POTENTIALLY ☒ NA
P.9.11.2 	If answer to the above question is "yes", does the project plan to protect and enhance them?	☐ YES ☐ POTENTIALLY ☐ NO ☒ N/A
P.9.11.2 	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

There are no endangered species identified as potentially being present within the Project boundary (including those that may route through the area). The project is not within the vicinity of area that contains endangered species.

IUCN Red List Category; the IUCN is the "Red List of Endangered Species" ("IUCN Red List") and the most comprehensive Global Conservation status inventory of specimens of plant and animal species. The IUCN Red List is maintained by the International Union for Conservation of Wildlife and Natural Resources.

P.9.12 | INVASIVE ALIEN SPECIES

<u>P.9.12.1 </u>	Does project introduce any alien species (not currently established in the country or region of the project) into new environments?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

N/A

Would the project involve or lead to:

<u>P.9.12.1 </u>	risk of introducing any alien species with a high risk of invasive behaviour regardless of whether such introductions are permitted under the existing regulatory framework?	☐ YES ☐ POTENTIALLY ☒ NO
<u>P.9.12.1 </u>	risk of potential accidental or unintended introductions including the transportation of substrates and vectors (such as soil, ballast, and plant materials) that may harbour alien species.	☐ YES ☐ POTENTIALLY ☒ NO
<u>P.9.12.2 </u>	risk of spreading alien species into areas in which they have not already been established?	☐ YES ☐ POTENTIALLY ☒ NO

If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

N/A

APPENDIX 2 - CONTACT INFORMATION OF PROJECT DEVELOPER(S)

Organization name	ITC Invest Trading & Consulting A.G. Turkish Ankara Branch
Registration number with relevant authority	-
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APPENDIX 3 - LUF ADDITIONAL INFORMATION

Not applicable

APPENDIX 4 - DESIGN CHANGES

Not applicable

DOCUMENT HISTORY

Version	Date	Remarks
1.5	29 June 2023	Editorial changes to match V2.1 of the Safeguarding Principles Requirements
1.4	21 June 2023	Editorial changes to match V2.0 of the Safeguarding Principles Requirements
1.3	14 April 2023	Integrated the design change memo as annex of the document. Editorial changes
1.2	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Inclusion criteria table added Gender sensitive requirements added Prior consideration (1 yr rule) and Ongoing Financial Need added Safeguard Principles Assessment as annex and a new section to include applicable safeguards for clarity Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on Stakeholder Consultation information required Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.1	24 August 2017	Updated to include section A.8 on 'gender sensitive' requirements
1.0	10 July 2017	Initial adoption