Gold Standard for the Global Goals

TEMPLATE

KEY PROJECT INFORMATION & PROJECT DESIGN DOCUMENT (PDD)

PUBLICATION DATE **29.06.2023**

VERSION **v.1.5**

RELATED SUPPORT

- TEMPLATE GUIDE Key Project Information & Project Design Document

This document contains the following sections

KEY PROJECT INFORMATION

GS ID of Project	GS935
Title of Project	Samsun Landfill Gas to Energy Project, Turkey
Time of First Submission Date	28/05/2024
Date of Design Certification	13/04/2012 CP1 (v04) 21/01/2020 CP2(v09)
Version number of the PDD	v04
Completion date of version	22/01/2025
Project Developer	Samsun Avdan Enerji Üretim ve Tic. A.Ş.
Project Representative	Rüzgar Karbon ve Enerji Danışmanlık San.Tic.Ltd.Şti.
Project Participants and any communities involved	Samsun Avdan Enerji Üretim ve Tic. A.Ş.
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	
Methodology (ies) applied and version number	ACM0001 v.19.0 (Flaring or use of landfill gas) ACM0002 v.22.0 (Grid-connected electricity generation from renewable sources
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A
Project Cycle:	☒ Regular ☐ Retroactive

Table 1 – Estimated Sustainable Development Contributions

SUSTAINABLE DEVELOPMENT GOALS TARGETED	SDG IMPACT (DEFINED IN B.6)	ESTIMATED ANNUAL AVERAGE	UNITS OR PRODUCTS
13 Climate Action	Emission Reduction	276,967	tCO_2/year GSVERs
7 Affordable and Clean Energy	Generating Clean Energy	54,600	MWh
8 Decent Work and Economic Growth	Employment	Between 20 and 25 One Health and Safety Training per year	People Number

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and general description of project

Samsun Landfill Gas project is developed by "Samsun Avdan Enerji Üretim ve Tic. A.Ş". The landfill site of Samsun is situated on a hill 4 km north-east of the city center of Samsun with about 450,000 population. The landfill is owned and operated by the Greater Municipality of Samsun. The old landfill was closed in 2008 and the new landfill site, where the Project is situated, is in use since 2008. The first lot of the disposal area is about 37,000m^2 . The waste was deposited up to 6 meters in north west and south east sides of the landfill. In the center - direction north east - it is increasing to a level of about 18m and in the south west around 12-15m. A main gas pipe is laid surrounding the landfill body and then it crosses the road underneath to reach the prepared area for the gensets and booster station which is about 300m^2. In 2009, the expected disposed waste amount was 182,000 tonnes, corresponding to an average of 500 t/day. The capacity of energy generatation also increased in paralell to 8.4 MWe on 24/03/2016.

The capacity increased to 8.4 MWe on dd. 24/03/2016. After the capacity increase amount of the waste is 432,935 t/y as an average of all operation period (21 years), corresponding to approximately 1200t/day. Gas efficiency estimated as 70%or the methane capture efficiency. The capacity increase estimated as 0.5% per year and in

2032 amount of waste is planned to be 689,158 tonnes.[1] Landfill gas collection efficiency estimated as 70% for the methane capture .

The starting date of the project activity shall be considered as 13/09/2010 whilst the project was registered on 01/06/2011. The beginning of the first crediting period was on 09/02/2011 because the project had started to operate on 09/02/2011. Commissioning of the additional capacity to produce electricty was on 22/05/2018.

The project also has Biogas application but it is not added to project boundary. The Biogas and LFG Gas is monitored and related calculation is done separately . Both LFG and Biogas productions have their own flowmeters. The electricity energy produced from LFG is calculated based on conservative assumptions and measurements. The technical lifetime of the project is 28 years according to generation license.[2]

Prior to the proposed project activity, the wastes were left to decay at Samsun landfill site and methane was emitted to the atmosphere without any control or utilization. The baseline scenario is the same as the existing scenario, i.e. atmospheric release of the landfill gas and power supply by the grid. With the proposed project, LFG generated at the landfill site has been captured by newly constructed LFG collection and utilization system. All of the captured LFG has been combusted to produce electricity for export to the grid. A flare device installed to destroy excess LFG when the LFG generation amount exceeds the utilization capacity of the LFG power generators.

Exact timing and installed power of this expansion work depends on the actual LFG generation on site, the Project design as of commissioning phases;

Phase 1: Capacity 2.4 MWe – 09/03/2012

Phase 2: Capacity 3.6 MWe – 27/09/2013

Phase 3: Capacity 6.0 MWe – 27/09/2014

Phase 4: Capacity 8.4 MWe – 22/05/2018

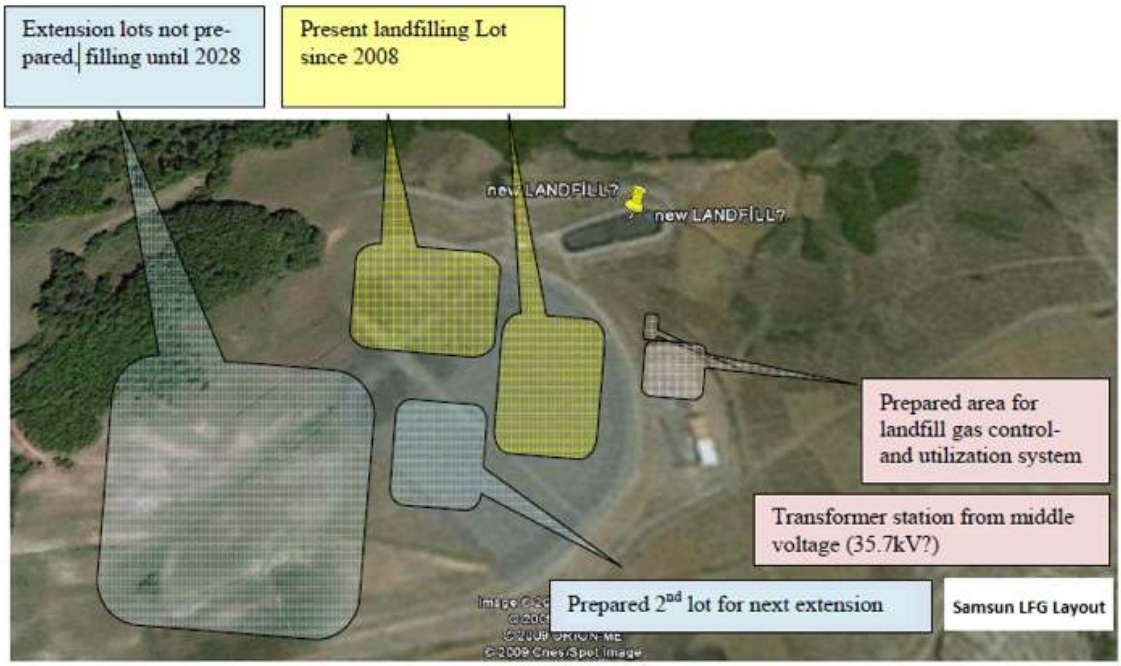
The Project activity has been located within the already existing landfill site, where the waste is transported from the city and the leachate is collected and stored. The Municipality has leased the building plot within the landfill site to the Project owner, on which the Project owner can build and operate.

[1] Samsun Avdan LFG_Summary Waste flow analysis and technical survey of MSP

[2] Generation License

The proposed Project does not involve any operations on site, it solely installed the vertical and horizontal pipes to collect the LFG efficiently and generate power from collected LFG.

Figure 1 The Project Site Layout



The extraction system shall include a network of vertical gas extraction wells, de-watering units for lechaete water and gas transport pipelines connected to a main collector system. The gas has been cariried to gas engines and the flarewith the help of the underpressure created by the booster unit. "Samsun Avdan Enerji Üretim ve Tic. A.Ş" also has Biogas utilization application but this part has not been included in the project boundary. The Biogas production is estimated to reach around 180,000-181,000 m3 per year . Estimated biogas amount in 2032 is 296,303 m3. Biogas and LFG blends in same pipe and goes to the electricity generators. Both LFG and Biogas production have their own flowmeters. The electricity energy produced from LFG is calculated based on conservative assumptions and measurements.The generation depends on the quantity of the LFG.

The estimated electricity and heat generation is 54,600 MWh[3] per year by the project activity.

The project has supply electrical energy to the Turkish National Grid (hereafter referred to as „the Grid“) with zero emission energy, generated by the LFG . Electricity currently generated by the grid is relatively carbon intensive, with a combined margin emission factor of 0.5415 tCO_2/MWh[4]. The connection point of the project activity is Samsun 1 31,5 KV TM-39 TRA-DM. Thorugh the estimated electricity generation and methane capture total emission reduction is 276,967 tCO_2e per year in average and 1,938,770 tCO2e in total for the third crediting period. The project operational lifetime is 28 years.

This electricity amount have contributed to the following goals:

- Reduction in fossil fuel use (imported or local) by using renewable energy resources.
- Displacement of ecologically unsound and climate unfriendly power generation
- Extension of nationally sourced power generation.
- Improvement of environmental conditions (GHG and odour) and safety in the landfill area
- Reduce the greenhouse gas emissions

Milestones of the project activity is listed as below;

Date	Action
02/11/2009	Feasibility study is submitted to the project owner.
04/01/2010	First talks with the carbon consultant about carbon finance
01/06/2010	Publication of the tender by Samsun Metropolitan Municipality
18/06/2010	Tender organisation by Samsun Metropolitan Municipality
28/07/2010	Contract signature date with the Municipality
02/08/2010	Carbon development contract signature date
21/08/2010	First equipment order date

[3] Samsun Avdan LFG_Summary Waste flow analysis and technical survey of MSP

[4]https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Sebeke_EF_Bilgi_Formu_2022.pdf

13/09/2010	Mobilization on site
24/09/2010	Energy Market Regulatory Authority (EMRA) License application
06/09/2011	First loan agreement - 9207368
09/02/2011-08/02/2018	First Crediting Period
18/05/2011	License awarded for 2.4 MWe
09/03/2012	Commissioning of the power plant
06/12/2012	Amendment to the municipality law 6360
04/06/2013	Capacity increase to 3,6 MWe - License upgrade
27/09/2013	Commissioning of the additional capacity
04/06/2013	Capacity increase to 3,6 MWe - License upgrade
27/09/2013	Commissioning of the additional capacity
07.05.2014	Capacity increase to 6,0 MWe - License upgrade
27/09/2014	Commissioning of the additional capacity
2015	Amount of waste deposited increased
24/03/2016	Capacity increase to 8,4 MWe - License upgrade
22/05/2018	Commissioning of the additional capacity
09/02/2018-08/02/2025	Second Crediting Period
09/07/2019	Approved Design Change PDD_Samsun LFG_v07
29/07/2019	Review for Approval of Design Change under Gold Standard for the Global Goals
20/01/2020	Approved Crediting Period Renewal PDD Ver09 – 21/01/2020
05/02/2020	Design Renewal Review under Gold Standard for the Global Goals
15/06/2020	3rd Monitoring Report (16/04/2016-08/02/2018)
08/07/2020	3-week Issuance Review Period under GS Version 2.1 VER
18/04/2022	4th Monitoring Report(05/09/2019 -30/04/2021) GS final review date
21/05/2024	5th Monitoring Report(01/05/2021-31/05/2023)
09/02/2025-08/02/2032	Third Crediting Period

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 as described below.

- The project applies methodologies ACM0001 v.19.0 and ACM0002 v.22., which is an approved methodology under Gold Standard.

- The project type is Waste Handling and Disposal which is an eligible project type as it is in accordance with 1.2.2 c) of the Eligible Project Types & Scope under Gold Standard For The Global Goals Community Services Activity Requirements.
- The project activity results in displacement of electricity from thermal power stations while contributing to sustainable development of Türkiye. Hence, the project contributes to the Gold Standard Vision and Mission.
- Waste Handling and Disposal is an approved project type and does not require approval from Gold Standard.
- This project activity is not associated with geo-engineering or energy generated from fossil fuel or nuclear, fossil fuel switch, nor does it enhances or prolongs such energy generation

General Eligibility Criteria under Renewable Energy Activity Requirements

Project Type: As discussed above, the project type is eligible.

The Samsun LFF project also does not claim certificates from another Certification Scheme other than GS or not register for energy labels (such as RECs), therefore no double counting occurs and thus it is eligible under the Gold Standard.

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 participant Samsun Avdan Enerji Üretim ve Tic. A.Ş. is the legal owner of the project and has the legal rights for the credits. Rüzgar Karbon ve Enerji Danışmanlık Sanayi Ticaret Ltd.Şti. act as carbon consultants for the Project. Contact details are provided in Annex 1.

A.2 Location of project

The Project is located south-west of Samsun city centre, at an air distance of ca. 8 km. The closest neighbourhoods are Gurgendag and Asagiavdan villages, both having an air distance of 1 km.

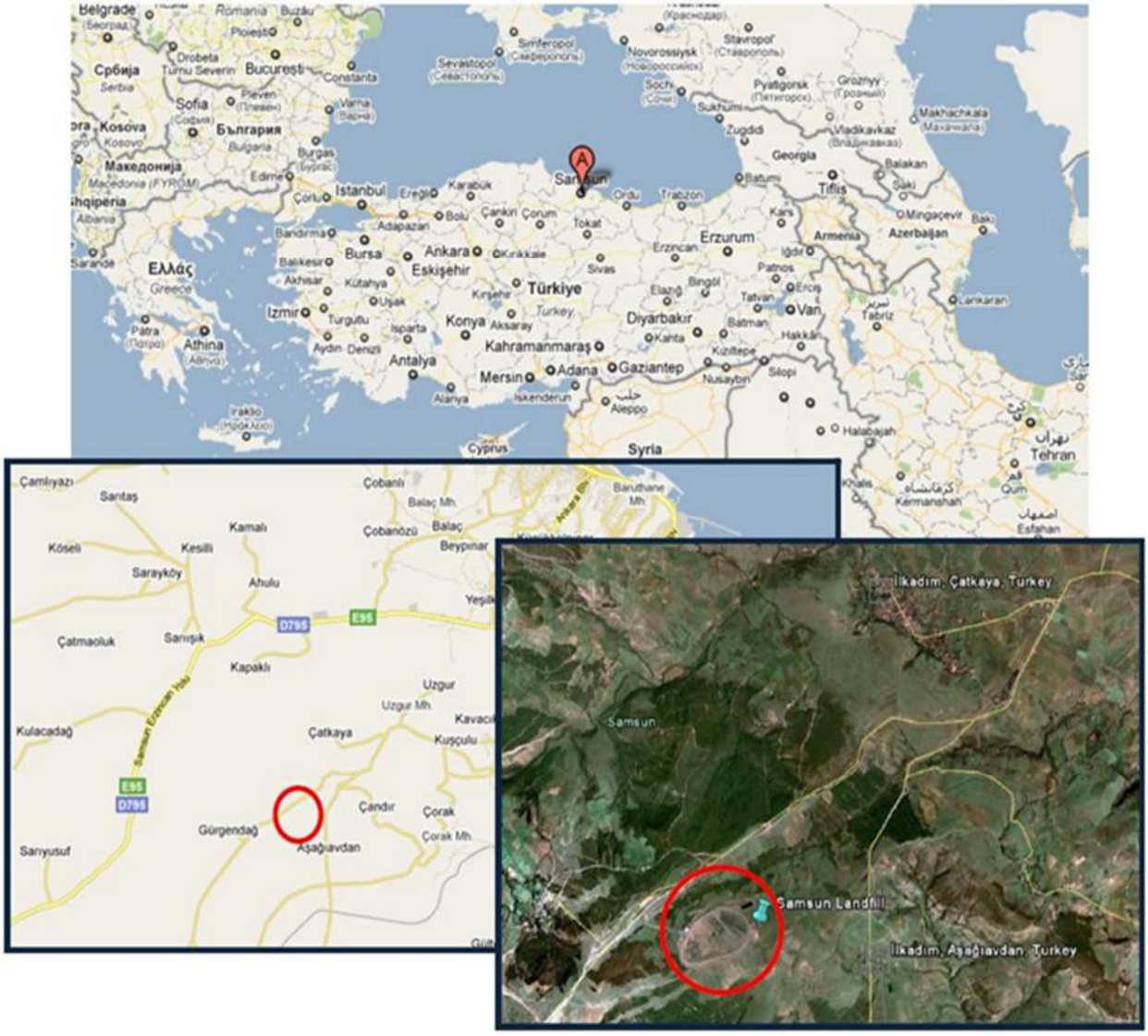
The GPS coordinates of the Project activity are as the following:

- Latitude: 41°14'45"N
- Longitude: 36°13'16"E[5]

[5] Registered first CP's PDD

Please see below the maps showing the location of the project activity in Türkiye and the locations of the project area:

Figure 2 The location of the project activity



A.3 Technologies and/or measures

The proposed activity involves the collection and utilization of the LFG with an electricity component with an installed capacity 8.4 MWe. During the first crediting period expected disposed waste amount was 182,500 tonnes, corresponding to an average of 500 t/day as in registered CP1 PDD. For the second crediting period expected disposed waste amount was 304,466 tonnes, corresponding to an average of 800 t/day as in the registered CP2 PDD. For the third crediting period expected waste amount is 572,719 tonnes corresponding to average of 1,569 t/day.[6]

The Project mainly consists of the following components:

- LFG collection system
- Flaring unit
- Electricity generation unit (GENSET)
- Medium voltage switchyard
- Controlling / measurement equipment

Table 2 Technical specifications of the typical modules are as follows[7]

Equipment	Specifications
Gas Engine	Manufacturer: MWM Deutz
Number of Units	7
Blower	Capacity: 1.23 MWm, 1.2 MWe Efficiency at full capacity: 40.4% Type: Packaged in container
Flare	Manufacturer: Conveco Combustion temperature between 900 and 1200 ^{0}C Stainless steel AISI 310

[6] Samsun Avdan LFG_Summary Waste flow analysis and technical survey of MSP Baseline study ER excel sheet-Parameters D44-45

[7] Technical Data Sheets of Gas Engines

The waste is covered with soil to block methane emissions to the atmosphere to provide sufficient containment and prevent air or rainwater to get into the waste. The Project aims at efficiently collecting LFG generated at the landfill site by using wells. The construction was carried out with a slight slope such that the condensate building up in the pipes would flow to the collecting points easily .

The Samsun Project generates electricity from LFG to cover its own electricity consumption and to feed the rest to the national power grid. The Project employ a gradual extension of the landfill gas collecting and utilisation system on the basis of the gas generation. Electricity is generated and transmitted to national grid. Each engine/alternator unit contain a transformer, medium voltage switch gear station, synchronization system and system protection device.

Project owner also has installed a flare. This ensure that the LFG, which could not be combusted in the power generation units, is destroyed. The flare unit provides conditions for high temperature combustion to effectively destroy methane with other combustible LFG components and end up with low GHG emissions.

The Project includea monitoring instrumentation that allow for the accurate measurement of captured and destroyed LFG, including the following components:

- Flow meters have installed to measure and monitor accurately the flow of the LFG through the system. The measurement points are the main delivery pipe, the pipe going to the flare and the pipes going to each of the generation units. These flow meters are able to accurately measure various parameters such as pressure, temperature and the gas contents (e.g. methane) at normal conditions (0°, 1 Atm). The measurement sampling intervals of the flow meters are convenient in agreement with the UNFCCC requirements.

- The measurement system is able to store the measured data electronically. The control and monitoring system allows these readings to be obtained remotely.

Project technical lifetime is determined through " Tool to determine the remaining lifetime of equipment" (Version 01). The project option is selected as (a) as below;

(a) Use manufacturer's information on the technical lifetime of equipment and compare to the date of first commissioning;

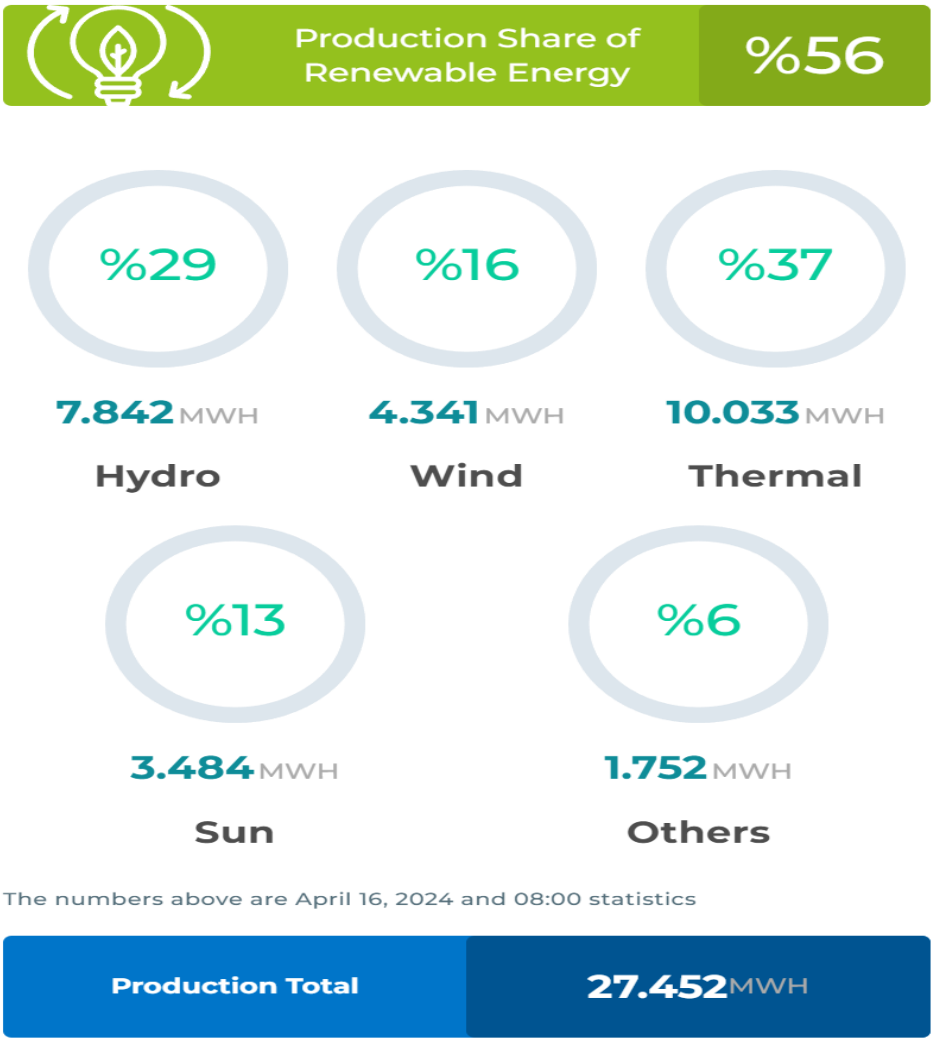
The Project is designed for an operation lifetime of 28 years, according to the contract with the Samsun Municipality and Generation License[8].This is plausible, considering the estimated 8,000 hours/year operating hours of the Project and the suggested equipment lifetime of 150,000 operating hours given in the "Tool to determine the remaining lifetime of equipment", v.1.

The amount of annual production is 54,600 MWh. The project is connected to Samsun 1 TM that has 31,5 kV medium voltage. Latest building technologies is used in the project. National and international standard values are based in used materials. The annual average over the third crediting period of estimated emission reductions result 276,967 tonnes of CO2e/year. Total emission reduction will be 1,938,770 tonnes of CO_2e for the third crediting period.

The Project prevents methane emissions to the atmosphere and produce electricity which reduces fossil fuel consumption and associated CO2 emissions. "Samsun Avdan Enerji Üretim ve Tic. A.Ş" also has Biogas utilization application but this part has not been included to project boundary. The Biogas yearly produce estimated as 180,000-181,010 m3 gas. Estimated biogas amount in 2032 is 296,303 m3. Biogas and LFG blends in same pipe and goes to the electricity generators. Both LFG and Biogas sides have their own flowmeters. The electricity energy produced from LFG is calculated based on conservative assumptions and measurements The generation depends on the quantity of the LFG.The Project is expected to generate 54,600 MWh of electricity per year without emitting GHGs. The electricity generation is mainly done by fossil fuel fired power plants in Türkiye. The share of resources in the electricity generation in Türkiye has been shown in the Figure as below;

[8] The agreement with Samsun Municapality or Generation License have been provided to the VVB.

Figure 3 Türkiye Total Capacity (2024)



Total capacity is 103,809 MW in Türkiye and Renewable + Waste+Waste Heat Power projects 1,920 MW capacities. [9]

Generation of emission reduction and crediting period starts with the first day of the documented electricity supply to the national grid. The 7 years are for the third crediting period of the project activity as between 09/02/2025 and 08/02/2032. Applying the approved methodology to the project annual avarege emission reduction is 276,967 tCO2e by electricity generation and methane capture. Totally 1,938,770 tCO_2e emission reduction is expected over the period of 7 years.

[9] https://www.teias.gov.tr/en-US

A.4 Scale of the project

Emission reduction is more than 60 kt CO_2 equivalent annually. Therefore the large scale methodology is used according to Activity Requirements of GS4GG requirement. The Samsun Landfill Gas to Energy project's capacity is 8.4 MWe.

A.5 Funding sources of project

The project activity does not have any public funding or Official Development Assistance (ODA) funding.[10]

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

B.1. Reference of approved methodology (ies)

According to the Appendix B to the simplified modalities and procedures for small-scale CDM project activities, the proposed project activity falls under the following type and category:

Methodology: ACM0001 Version 19.0 Flaring or use of landfill gas[11]

Sectoral Scope: 1 Energy industries (renewable - / non-renewable sources) as per 'Sectoral scopes related approved methodologies and VVBs and 13 Waste handling and disposal

Project type: Waste Handling and disposal

Methodology: ACM0002: Grid-connected electricity generation from renewable sources Version 22.0[12]

[10] ODA Declaration Form is provided to the VVB
[11] https://cdm.unfccc.int/methodologies/DB/JPYB4DYQUXQPZLBDVPHA87479EMY9M
[12] https://cdm.unfccc.int/UserManagement/FileStorage/R0IJ1X9LQ7W2GOYHSMBFCPE3VKZ685

Sectoral Scope: 01 Energy industries (renewable - / non-renewable sources) as per 'Sectoral scopes related approved methodologies and VVBs.
Project type: Type I – Renewable Energy Projects
Category: Electricity generation for a system
The methodology refers to :

•Tool 02 Combined tool to identify the baseline scenario and demonstrate additionality Version 07.0.[13] This tool is not used because the project is corresponse to Article 5.1.1 option a of TOOL32: Positive lists of technologies.

•Tool 03 Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion Version 03.0.[14] This tool is applicable but the diesel generator is used in case of emergency and so this amount is negligible.

•Tool 04 Emissions from solid waste disposal sites Version 08.1[15]
•Tool 05 Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation Version 03.0[16]
•Tool 06 Project emissions from flaring Version 04.0[17]
•Tool 08 Tool to determine the mass flow of a greenhouse gas in a gaseous stream Version 03.0[18]
•Tool 09 Determining the baseline efficiency of thermal or electric energy generation Systems Version 03.0[19]
•Tool 11 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[20]
•Tool 07 Tool to calculate the emission factor for an electricity system, Version 07.0[21]
•Tool 10 Tool to determine the remaining lifetime of equipment", Version 01[22]

[13] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-02-v7.0.pdf
[14] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v3.pdf
[15] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.1.pdf
[16] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-05-v3.0.pdf
[17] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-06-v4.0.pdf
[18] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-08-v3.0.pdf
[19] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-09-v3.0.pdf
[20] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf
[21] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf
[22] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-10-v1.pdf

B.2. Applicability of methodology (ies)

ACM0001 Applicability

It has been assessed as below:

Table 3 Applicability of ACM0001 version 19.0

Methodology applicability	**The proposed project activity**
ACM0001, version 19.0	
1. This methodology is applicable to project activities which (a) Install a new LFG capture system in a new or existing SWDS; 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 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: (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.	This methodology is applicable to Samsun landfill gas project activities, where the baseline scenario is the partial or total atmospheric release of the gas and the project activities include situations such as: (a) Install a new LFG capture system in an existing SWDS; or (b) Make an investment into an existing LFG capture system to increase the recovery rate or change the use of the captured LFG In Türkiye; generally SWDS still do not have LFG recovery and resulting methane emissions. [23] (c) Flare the LFG and/or use the captured LFG in any (combination) of the following ways. The proposed project activity is designed in a way to make use of the LFG recovered for the delivery of electricity. There is no heat generation or supply of LFG to consumers.

[23] Municipal Waste Statistics – Turkish GHG Inventory 1990 - 2016

	d) Do not reduce the amount of organic waste that would be recycled in the absence of the project activity. Samsun LFG is a LFG system in a new SWDS.[24] Before the Samsun LFG there was not any LFG system and SWDS. In Turkish waste management inventory there is no organic waste recycle facility at the reasonable proximity of the project with the sectoral knowledge of project owner. The project activity generates electricity through LFG and do not reduce the amount of organic waste that would be recycled.[25]
2.The methodology is only applicable if the application of the procedure to identify the baseline scenario confirms that the most plausible baseline scenario is: (a) Atmospheric release of the LFG or capture of LFG and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons; 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;	a) The most plausible baseline scenario is atmospheric release of the LFG. b)The proposed project activity utilizes the recovered LFG to produce electrical energy directly, i.e. 2 (i)[26] c-d) Samsun LFG is a LFG system in a new SWDS.[27] Before the Samsun LFG there was not any LFG system and SWDS. In Turkish waste management inventory there is no organic waste recycle facility at the

[24] Samsun LFG Generation License

[25] Samsun LFG Generation License Electricity Market Regulation Authority(EMRA)

[26] Samsun LFG Generation License Electricity Market Regulation Authority(EMRA)

[27] Samsun LFG Generation License

(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.	reasonable proximity of the project.
3) This methodology is not applicable: (a) In combination with other approved methodologies. For instance, ACM0001 cannot be used to claim emission reductions for the displacement of fossil fuels in a kiln or glass melting furnace, where the purpose of the CDM project activity is to implement energy efficiency measures at a kiln or glass melting furnace; (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.	a) The methodology is not applied combination of other approved methodologies. b) The management of the SWDS before the implementation of the project is handled by the the Samsun Municipality. The project proponent does not have any control over SWDS management which is under management of Samsun Municipality. Thus the SWDS management is not delibaretely worsened to increase methane generation prior to the project implementation. The para 5.b of the ACM0001, "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", is not valid so the project is applicable to ACM0001. No changes or intervene has been made deliberately to increase methane generation compared to situation prior to the implementation of the project activity.

Applicability of Tools	The proposed project activity
Project emissions from flaring (Tool 06 version 04.0.)[28]	
2) 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. 3)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). 4) The tool is not applicable to the use of auxiliary fuels and therefore the residual gas must have sufficient flammable gas present to sustain combustion. In the case of an enclosed flare, there shall be operating specifications provided by the manufacturer of the flare and these shall be followed by the project participant.	This project has enclosed flare and the details of the flare can be find in the Section B.6.1 of the PDD. LFG does not contain any combustible gases other than methane, carbon monoxide and hydrogen. LFG is obtained from the decomposition of organic material in landfills. The project does not use auxiliary fuels and therefore the residual gas must have sufficient flammable gas present to sustain combustion. And the details can be seen in the section A.3 of the PDD.
Methodological Tool-Emissions from solid waste disposal sites. (Tool 04 version 08.1)[29]	
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	It is easily identified that the project activity meets the tool's applicability conditions Application A.

[28] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-06-v4.0.pdf
[29] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.1.pdf

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. 4.These two types of applications are referred to in the tool for determining parameters. 5.In the case that: (a) different types of residual waste are disposed or prevented from disposal; or that (b) both MSW and residual waste(s) are prevented from disposal, then the tool should be applied separately to each residual waste and to the MSW.	The proposed activity involves the collection and utilization of the LFG with an electricity component with an installed capacity 8.4 MWe. During the first crediting period expected disposed waste amount was 182,500 tonnes, corresponding to an average of 500 t/day. For the second crediting period expected disposed waste was amount is 304,466 tonnes, corresponding to an average of 800 t/day. For the third crediting period expected waste amount is 572,719 tonnes corresponding to average of 1,569 t/day.[30] In this project Application A is implenmented in line with the methodology. The project includes only municipal solid waste.So this condition is not applicable.
Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation (Tool 05 Version 03.0)[31]	
5)The tool is only applicable if one out of the following three scenarios applies to the sources of electricity consumption: Scenario A: Electricity consumption from the grid. The electricity is purchased from the grid only, and either no captive power plant(s) is/are installed at the site of electricity consumption or, if any captive power plant exists on site, it is either not operating or it is not physically able to provide electricity to the electricity consumer;	The project activity is expected not to consume electricity from grid. However, when electricity generators are under regular maintenance and sometimes shut down, the electricity is imported from the Power Grid during this period of time.Therefore

[30] Baseline study v.0.2 Methane Production –X2-X3

[31] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-05-v3.0.pdf

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 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 tool is not applicable in cases where captive renewable power generation technologies are installed to provide electricity in the project activity, in the baseline scenario or to sources of Leakage. The tool only accounts for CO2 emissions. 6)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. 7)This tool is not applicable in cases where captive renewable power generation technologies are installed to provide electricity in the project activity, in the baseline scenario or to sources of leakage. The tool only accounts for CO_2 emissions.	Scenario A is applicable for this project. This tool is applicable according to article (a) Scenario I which is electricity is supplied to the grid. The project does not include captive renewable power generation in the project activity, in the baseline scenario or to sources of leakage. The project only accounts for CO_2 emissions for the electricity generation part.
Tool to determine the mass flow of a greenhouse gas in a gaseous stream (Tool 08 version 03.0)[32]	
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. 6) Methodologies where CO2 is the particular and only gas of interest should continue to adopt material balances as the means of flow determination and may	The composition and flow of the LFG are measured to determine baseline emissions in the context of the project activity. However, CO_2 is not a gas of interest in the project activity.

[32] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-08-v3.0.pdf

not adopt this tool as material balances are the cost effective way of monitoring flow of CO2. 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 N2).	The gaseous stream is the methane flared or used and so this is applicable methodology. The methane has been calculated hourly measured. Simplification offered for calculating the molecular mass of the gaseous stream (equations (3) or (17)) is valid.
"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)[33]	
Evaluate whether the conditions used to determine the baseline emissions in the previous crediting period are still valid. Assess the availability of new fuels or raw materials and the impact of electricity or fuel prices in the identification of the current practice for the baseline emissions;	Only the project capacity is increased but the conditions used to determine baseline emissions in the previous crediting period are still valid.

Step 1: Assess the validity of the current baseline for the next crediting period. The validity of the current baseline is assessed using the following Sub-steps:

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 Section B.5 Demonstration of Additionality. 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.5.From the beginning of the first crediting period to current date (beginning of the third crediting period), there has been no

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

changes related with given laws and regulations and also there has been change to the project concerning the compliance status of the project.

Result of Substep 1.1: No change regarding the compliance to laws and regulation is determined. So we follow to Step 1.2.

Step 1.2: Assess the impact of circumstances

The conditions used to determine the baseline emissions in the previous crediting period are still valid. The baseline scenario, identified at the third crediting period, was the continuation of the current practice without any investment. The baseline scenario was the release of methane gaseous (resulting from the wastes) to the atmosphere and supply of electicity to the grid by grid connected power plants. The availability of fuels or raw materials and the impact of electricity or fuel prices in the identification of the current practice for the baseline emissions are same when you compared with the previous crediting periods. So, there is no need to update to baseline for the subsequent this third crediting period.

There is no significant change to the investment environment and to the electricity tariff had happened during third rediting period to the current date. The fuel types, the distribution of power plants according to their fuel sources have not been significantly changed.

The number of SWDS with methane recovery and the amount of recovered methane also did not significantly change when compared to total SWDS and amount of methane released to the atmosphere.

The change of SWDS in Türkiye has not been significantly changed after the first crediting period.

Result of Substep 1.2: The conditions used to determine the baseline emissions in the previous crediting period are evaluated as still valid.

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

The equipments lifetime exceeds the crediting period for which renewal is requested. Equipment only requires regular maintenance. The landfill site also does not require any investments.

Result of Substep 1.3 Current baseline equipment is still in use and expected to be use in for the next crediting period.

Step 1.4 Assessment of the validity of the data and parameters

The data and parameters regarding the emission reduction benefited from substitution of electricity generated by grid connected power plant do change annually. The data that has changed can be found in Combined Margin Calculation. GWP has been revised through UNFCCC accepted value as 28. New power plants have been added to the grid, the annual production of power plants have been changed so OM and BM values have changed and they are needed to be updated.

Result of Substep 1.4. The data and parameters are not valid for the next crediting period.

Result of Step 1: The result of Substep 1.4 states that the data and parameters are not valid for the subsequent crediting period so we proceed to the Step 2.

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

Substep 2:1 Update the current baseline

The former tools were:

For the emission reductions stemming from LFG capture, the ACM0001 v.19.0 "Consolidated baseline and monitoring methodology for landfill gas project activities", hereinafter referred to as the methodology, is used. The methodology refers to the following tools:

•Tool for the demonstration and assessment of additionality; v.7.0.0 ("Additionality Tool") [34]

•Tool 04 Emissions from solid waste disposal site"; v.8.1[35]

• Tool 06 Project emissions from flaring v4.0[36]

[34] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf
[35] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.1.pdf
[36] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-06-v4.0.pdf

For the emission reductions stemming from electricity generation, the ACM0002 v.22 Consolidated baseline methodology for grid-connected electricity generation from renewable sources is used. This methodology refers to the following tool:
"Tool to calculate the emission factor for an electricity system", v.7.0[37].
The current tools are:

- The project applies methodologies ACM0001 v.19.0 and ACM0002 v22.0 which is an approved methodologies under Gold Standard.
- "Tool for the demonstration and assessment of additionality" v.07.0.0[38]

For the emission reductions stemming from electricity generation, the ACM0002 v.22 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" is used. This methodology refers to the following tool:

- "Tool to calculate the emission factor for an electricity system", v.7.0[39].

Substep 2.2 Update the data and parameters

The application of Step 1.4 showed that the data and/or parameter(s) that were only determined at the start of the crediting period and not monitored during the crediting period are not valid anymore. The data and parameters are updated. The Methane is the largest constituent of LFG and its global warming potential (GWP) is 28 times than CO2. And this GWP is changed 28 from to 25 according to UNFCCC accepted value). The data used for calculation of OM and BM is changed and the updated data is given section B.6.4. The parameters of WOM and WBM are also changed and CM is also calculated according to the new parameters.

ACM0002 Applicability

Methodology "ACM0002 "Grid-connected electricity generation from renewable sources, version 22", is applicable to the proposed project activity because it fulfils the required criteria. It has been assessed as below:

Table 4 Applicability of ACM0002 version 22.0[40]

Applicability Condition	Justification

[37] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf
[38] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf
[39] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf
[40] https://cdm.unfccc.int/UserManagement/FileStorage/R0IJ1X9LQ7W2GOYHSMBFCPE3VKZ685

This methodology is applicable to project activities that: a) Install a Greenfield power plant; b) Involve a capacity addition to (an) existing plant(s); c) Involve a retrofit of (an) existing operating plants/units; d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or e) Involve a replacement of (an) existing plant(s)/unit(s). f) Install a Greenfield power plant together with a grid-connected Greenfield pumped storage power plant. The greenfield power plant may be directly connected to the PSP or connected to the PSP through the grid	The project activity involves installation of a power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity. The proposed project activity is a greenfield project activity.[41]
In case the project activity involves the integration of a BESS, the methodology is applicable to grid-connected renewable energy power generation project activities that: a) Integrate BESS with a Greenfield power plant; b) Integrate a BESS together with implementing a capacity addition to (an) existing solar photovoltaic[42] or wind power plant(s)/unit(s); c) Integrate a BESS to (an) existing solar photovoltaic or wind power plant(s)/unit(s) without implementing	a) The proposed project activity is a greenfield project activity without BESS. b-c-d-e) This condition is not applicable to the project activity since the project activity is a Greenfield grid connected LFG project without BESS.[43]

[41] Samsun LFG Generation License Electricity Market Regulation Authority(EMRA)

[42] In case of retrofit or capacity addition for concentrated solar power projects, stakeholders may submit a request for revision to this methodology, providing an apportioning approach to calculate the project emissions due to any fossil fuel consumption attributed to the increased electricity generation from the BESS.

[43] Samsun LFG Generation License Electricity Market Regulation Authority(EMRA)

any other changes to the existing plant(s); d) Integrate a BESS together with implementing a retrofit of (an) existing solar photovoltaic or wind power plant(s)/unit(s). e) Integrate a BESS together with a Greenfield power plant that is operating in coordination with a PSP. The BESS is located at site of the greenfield renewable power plant.	
The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, wind power plant/unit, wave power plant/unit or tidal power plant/unit.	This project activity is a Greenfield grid connected LFG project.
In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, wind, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	The project activity is a Greenfield grid connected LFG plant. No retrofit or replacement exists in the project activity.[44]
In case of Greenfield project activities applicable under paragraph 7(a) of Section 2 Scope, applicability, and entry into force of the Methodology,the project participants shall demonstrate that the BESS was an integral part of the design of the renewable energy project activity.	The project activity is a Greenfield grid connected LFG plant. So there is no BESS part available in this project activity.
The BESS should be charged with electricity generated from the associated renewable energy power plant(s). Only during exigencies may the BESS be charged with electricity from the grid or a	The project activity is a Greenfield grid connected LFG plant. So there is no BESS part available in this project activity

[44] Samsun LFG Generation License-Electricity Market Regulation Authority(EMRA)

fossil fuel electricity generator. In such cases, the corresponding GHG emissions shall be accounted for as project emissions following the requirements under section 5.4.4 of methodology.The charging using the grid or using fossil fuel electricity generator should not amount to more than 2 per cent of the electricity generated by the project renewable energy plant during a monitoring period. During the time periods (e.g., week(s), months(s)) when the BESS consumes more than 2 per cent of the electricity for charging, the project participant shall not be entitled to issuance of the certified emission reductions for the concerned periods of the monitoring period.	
In case the project activity involves PSP, the PSP shall utilize the electricity generated from the renewable energy power plant(s) that is operating in coordination with the PSP during pumping mode.	The project activity is a Greenfield grid connected LFG plant. So there is no PSP and dumping mode.
In case of hydro power plants, one of the following conditions shall apply: a)The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (7), is greater than 4 W/m2; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m2; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m2, all of the following conditions shall apply:	This condition is not applicable to the project activity as it does not involve the installation of a hydro power plant.[45] The proposed activity involves the collection and utilization of the LFG with an electricity component with an installed capacity 8.4 MWe. During the first crediting period expected disposed waste amount was 182,500 tonnes, corresponding to an average of 500 t/day. For the second crediting period expected disposed waste amount was 304,466 tonnes, corresponding to an average of 800 t/day. For the third crediting period expected waste amount is 572,719 tonnes corresponding to average of 1,569 t/day.

[45] Samsun LFG Generation License-Electricity Market Regulation Authority (EMRA)

(i) The power density calculated using the total installed capacity of the integrated project, as per equation (8),is greater than 4 W/m2; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m2 shall be: a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project.	
In the case of integrated hydro power projects, project proponent shall: (a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or (b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	The project activity is not a hydro power plant. Hence this applicability criterion is not relevant to the project activity.
In the case of PSP, the project participants shall demonstrate in the PDD that the project is not using water which would have been used to generate electricity in the baseline.	The project activity is not included PSP.
The methodology is not applicable to: (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity,	The proposed project activity involves the installation of a LFG project with a total capacity of 8.4 MWel and there is no non-renewable component to the

since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units	proposed project activity. This condition is not applicable to the project activity since the project activity is a Greenfield grid connected LFG project.[46]
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, i.e. to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance."	The project is not a retrofit, rehabilitations, replacements or capacity addition; hence this applicability criterion is not relevant.
In addition, the applicability conditions included in the tools referred to above apply.	Applicability conditions of the applied tool are justified.

The Project have a total capacity up to 8.4 MWe and emission reduction is more than 60 kt CO2 equivalent annually, for the sake of conservative approach, the large scale methodology ACM0002 version 22 is preferred to used.Therefore the large scale methodology is used.

B.3. Project boundary

According to the ACM0001 methodology, the project boundary is the site of the project activity where the gas is captured and destroyed/used. The project boundary include the power generator, which is connected to the grid. For the proposed project activity, electricity is sourced and transmitted to the grid. The difference is the net generation of the project activity. Outside of the project boundary there exists biogas collection and the collected biogas is also fed to the electricity generation engine. Both LFG and Biogas sides have their own flowmeters. The electricity energy produced from LFG is calculated based on conservative assumptions and measurements. Furthermore, it does not be sourced from a captive generation source or power plant. The project boundary for the project activity is as demonstrated in the figure below:

[46] Samsun LFG Generation License-EMRA(Electricity Market Regulation Authority)

Figure 4: Project Boundary

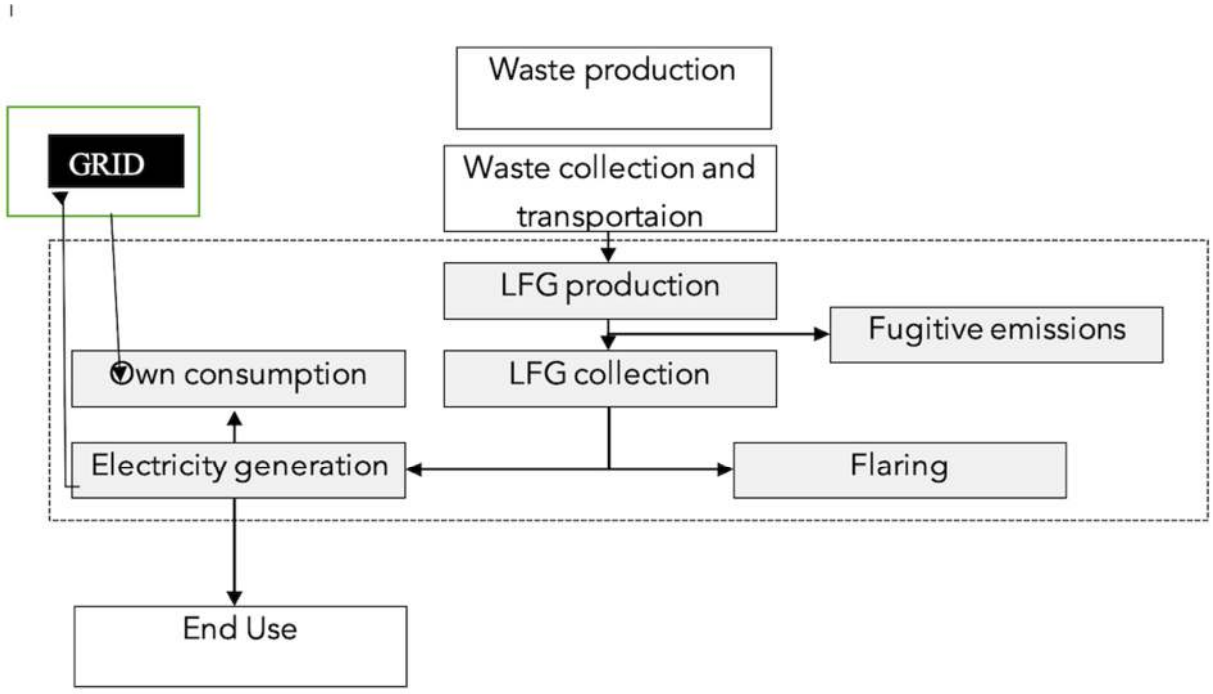


Table 5 The greenhouse gases and emission sources

ACM0001 Version 19.0

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Emissions from decomposition of waste at the SWDS site	CO_2	No	CO2 emissions from decomposition of organic waste are not accounted since the CO2 is also released under the project activity
		CH_4	Yes	The major source of emissions in the baseline
		N_2O	No	N_2O emissions are small compared to CH_4 emissions from SWDS. This is conservative
	Emissions from electricity generation	CO_2	Yes	Major emission source if power generation is included in the project activity
		CH_4	No	Excluded for simplification. This is conservative
		N_2O	No	Excluded for simplification. This is conservative
Project	Emissions from fossil fuel consumption for purposes other than electricity generation	CO_2	Yes	May be an important emission source
		CH_4	No	Excluded for simplification. This emission source is assumed to be very small

		N_20	No	Excluded for simplification. This emission source is assumed to be very small
	Emissions from electricity consumption due to the project activity	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_20	No	Excluded for simplification. This emission source is assumed to be very small
	Emissions from flaring	CO_2	No	Emissions are considered negligible
		CH_4	Yes	May be an important emission source
		N_20	No	Emissions are considered negligible

ACM0002 Version 22

According to the methodology, the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system.

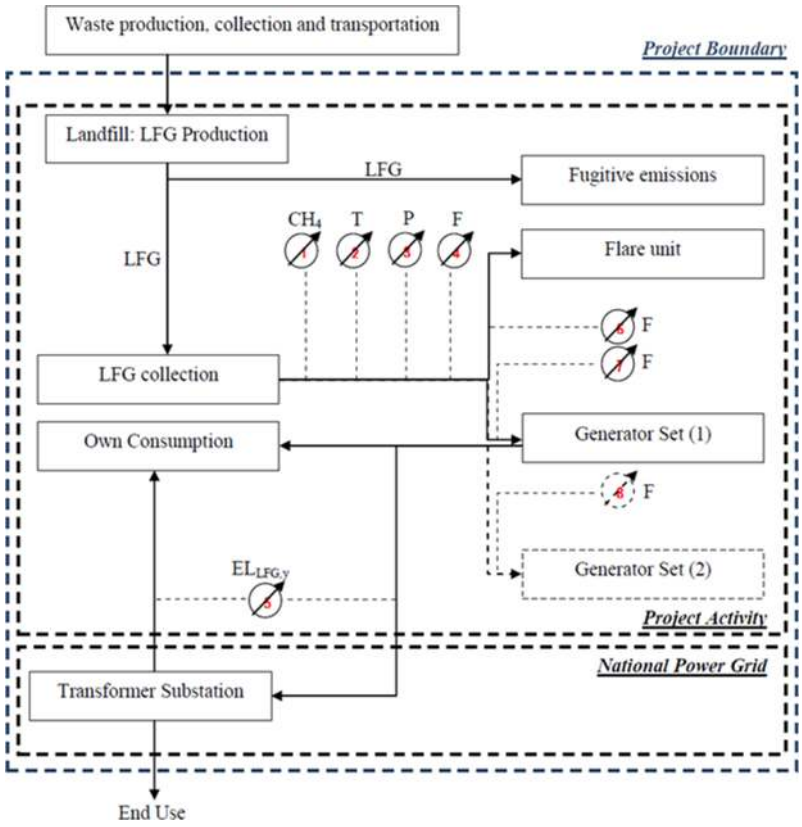
The greenhouse gases and emission sources included in or excluded from the project boundary are shown in the table below:

Source		Gas	Included	Justification/Explanation
Baseline	CO2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N20	No	Minor emission source

In context of the ACM0002 version 22 the project emission is described for renewable power plant, geothermal or hydro power plant. For most renewable power plant project activity emissions are neglected.

The following figure represents the line diagram of the project activity, including metering points:

Figure 5 Single Line Diagram



The scheme shows the connection points of Samsun LFG Project with the national grid. The Samsun LFG has to be connected to the national grid via 31.5 kV Medium Voltage overhead transmission line. Two electricity meters have been installed at Samsun LFG Project. These meters are working in parallel. System has been connected to the meters through a step-up transformer 154/31.5 kV.

B.4. Establishment and description of baseline scenario

As the ACM0001 suggests, the baseline scenarios shall be identified and assessed according to the Additionality Tool. The ACM0001 further requires certain scenarios to be included among alternatives. These default scenarios are included in Section B.5.

There is no incentive to utilise the LFG to produce thermal energy, since there is no demand for thermal energy in the surroundings of the Project site. The Project is a green field investment, which does not modify or retrofit any existing facility. There is no national regulation which would require the recovery or flaring of the LFG emitted from landfill sites. The relevant environmental legislation does not force municipalities to effectively control LFG emissions from landfills. The tender opened by the Samsun Municipality does not force the Project owner to effectively collect and destroy LFG emissions, it is rather a tender for the rights to use the site for power generation purposes.

The active collection and flaring of LFG is not mandatory at the Project site, however there already is a limited amount of piping for LFG venting to the atmosphere. Piping is not available at the whole site and the main purpose of the installed pipes is to reduce explosion risks. The LFG is not being flared.

As a result, the baseline scenario for the project, LFG is assumed to be the atmospheric release of the LFG or capture of LFG and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons as defined in the ACM0001 version 19.0.

According to the "Baseline Methodology Procedure" in "Tool to calculate the emission factor for an electricity system, Version 07.0.0" baseline emissions are calculated under Section B.6.3.

In respect of large scale consolidated methodology ACM0002: Grid-connected electricity generation from renewable sources, version 22.0, "The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid".

Since the proposed project activity is "The installation of a new grid-connected renewable power plant", the baseline scenario is defined as the consolidation of electricity delivered to the grid by the project activity and electricity generated by the operation of grid-connected power plants in Türkiye and electricity produced by the new generation sources.

The Project owner does not have control over the emissions stemming from the baseline scenario. In this framework, the baseline scenario can be defined as the reduction of LFG emissions from the landfill by methane destruction and substitution of the electricity generated by grid-connected power plants, thereby reducing the overall greenhouse gas emissions.

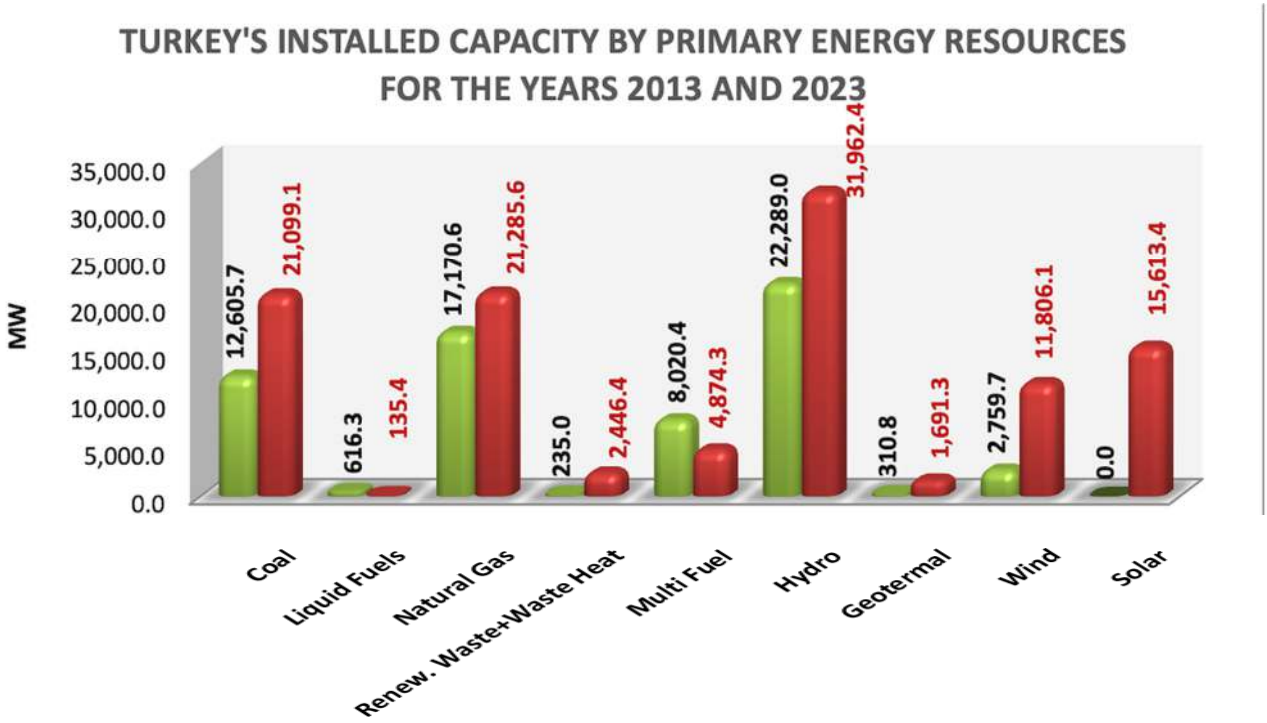
Since the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of grid-connected power plants and by the

addition of new generation sources, as reflected in the combined margin (CM) calculations described in TOOL07 (Tool to calculate the emission factor for an electricity system v0.7) as defined in the ACM0002 v22.0.

Installed electricity generation capacity in Türkiye has reached 103,809 MW as of 2022.[47] Renewable + Waste+Waste Heat Power projects have totally have above the 500 MW.

The electricity generation is predominantly composed by fossil fuel fired power plants in Türkiye. The share of resources in the electricity generation in Türkiye may be seen in Figure 6 The contribution to annual electricity generation from waste energy was very small volume.

Figure 6 Projected Electricity Generation Mix[48]



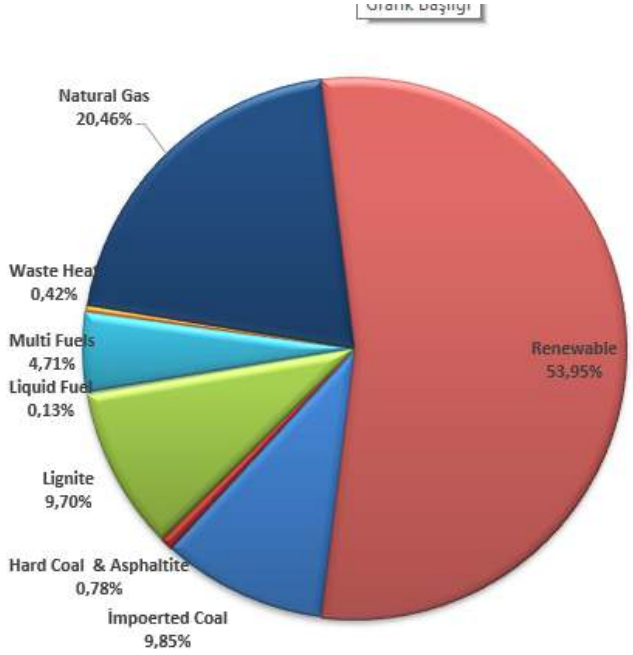
According to the 5-year projection it is clear that fossil fuels is remain the main sources for electricity generation (53.95 % from renewable sources and 46.05% from fossil

[47] https://www.teias.gov.tr/kurulu-guc-raporlari (It should be installed from "Aralık 2022 Kurulu Guc Raporu")
[48] https://www.teias.gov.tr/turkiye-elektrik-uretim-iletim-istatistikleri

fuels sources in 2023. Natural gas is continue to dominate the market. Hydro accounts for 28.81% of the mix whereas all non-hydro renewable combined (geothermal/biogas/waste/wind/solar) account for 25.14% of all electricity generation.

This projection is consistent with continuing fossil fuel dependent characteristics of Turkish electricity sector.

Figure 7 Fossil Fuels and Renewable in Turkish Electricity Mix(2023)[49]



"Simplified procedures to identify the baseline scenario and demonstrate additionality" are followed. Since they are valid from the date of entry into force of Version 19.0 of ACM0001; and any update of the simplified procedures does not affect the projects that request registration as a CDM project activity or a programme of activities by 4 May 2020 and apply the simplified procedures contained in Version 19.0 of ACM0001.

Samsun LFG project is 8.4 MWe capacity and fulfills the condition of (a) from the conditions given below para 5.3.1 of Large-scale Consolidated Methodology Flaring or use of landfill gas Version 19.0.

"The following types of project activities at new or existing landfills (greenfield or brownfield) are deemed automatically additional, if prior to the implementation of the

[49] https://www.teias.gov.tr/turkiye-elektrik-uretim-iletim-istatistikleri

project activity the LFG was or would have been only vented and/or flared but not utilized for energy generation:
(a) The LFG is used to generate electricity in one or several power plants with a total nameplate capacity that equals or is below 10 MW;
(b) The LFG is used to generate heat for internal or external consumption;
(c) The LFG is flared."
The project baseline scenario for LFG is " the atmospheric release of the LFG". The baseline scenario for electricity generation is "electricity generation in existing and/or new grid-connected power plants".

Simplified procedures to identify the baseline scenario and demonstrate additionality" are followed as in the Section 5.3.1 of the version 19.0 of ACM0001. Since they are valid for from the date of entry into force of Version 19.0 of ACM0001. Samsun LFG project is eligible for the above condition.

B.5. Demonstration of additionality

This is CP3 renewal design certification process. So PP shall not assessed the additionality.

This section utilizes the Additionality Tool, as required by the methodology. In agreement with the ACM0001, when defining alternative scenarios, relevant policies and regulations related to the management of landfill sites are taken into account.

Step 0: Demonstration whether the proposed project activity is the first-of-its-kind

The project is not first one of its-kind. So Step-1 is followed.

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

Realistic and credible alternatives to the project activity(s) are defined through the following Sub-steps;

In applying Step 1 of the tool, baseline alternatives for the destruction of LFG, shall take into consideration, inter alia, the following alternatives:

(a) LFG1: The project activity implemented without being registered as a CDM project activity (i.e. capture and flaring or use of LFG);

(b) LFG2: Atmospheric release of the LFG or capture of LFG in a managed SWDS and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons;

(c) LFG3: 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;

(d) LFG4: LFG generation is partially avoided because part of the organic fraction of the solid waste is recycled and not disposed in the SWDS;

(e) LFG5: LFG generation is partially avoided because part of the organic fraction of the solid waste is treated aerobically and not disposed in the SWDS;

(f) LFG6: LFG generation is partially avoided because part of the organic fraction of the solid waste is incinerated and not disposed in the SWDS.

In addition to the alternative baseline scenarios identified for the destruction of LFG, alternative scenarios for the use of LFG shall also be identified (if this is an aspect of the project activity):

(a) For electricity generation, alternative(s) shall include, inter alia:

(i) E1: Electricity generation from LFG, undertaken without being registered as CDM project activity;

(ii) E2: Electricity generation in existing or new renewable or fossil fuel based captive power plant(s);

(iii) E3: Electricity generation in existing and/or new grid-connected power plants;

Sub-step 1a: Define alternatives to the project activity:

The Project includes the LFG and electricity generation components; therefore different alternatives to these two components have been described;

Alternatives to Landfill Gas Component	Alternatives to Power Generation Component
LFG1: The project activity implemented without being registered	E1: Electricity generation from LFG, undertaken without being registered as CDM project activity

as a CDM project activity (i.e.capture and flaring or use of LFG).	
LFG2: 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.	E3: Electricity generation in existing and/or new grid-connected power plants .

Based on the barrier and investment analyses, it is clear that the E1 and LFG1 scenarios are not feasible for the Project owner and are therefore not applicable.
The Project being a voluntary initiative, the only plausible baseline scenario is the combination of:
E3: Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"; and,
LFG2: Maintaining the status quo, where LFG is emitted into the atmosphere without conducting any management, destruction or utilization on the landfill site.
The alternative scenario is defined as the combination of both Landfill Gas and Power Generation components, since the Project has both components.

Outcome of Sub-step 1a: Realistic and credible alternative scenarios to the Project activity are identified.

Sub-step 1b: Consistency with mandatory laws and regulations:

For the electricity generation component, the following laws and regulations apply;

Laws and Regulations Applicable in the Electricity Market

Legal Framework Concerning Electricity Generation
Electricity Market Balancing and Settlement Regulation

- The repealed Electricity Market Balancing And Settlement Regulation published in the Official Gazette No. 25632 dated 03/11/2004

- Regulation Concerning Electricity Demand Forecast

- Communiqué Regarding Connection to and Use of Transmission and Distribution Systems in the Electricity Market
- Communiqué Regarding Preparation of Retail Contract in The Electricity Market
- Communiqué Concerning Principles and Procedures for Selection in the Existence of More Than One
- Application for Generation of Electricity from the Same Source and on the Same Region
- Communiqué Regarding Regulation of Market Management Revenue
- Regulation on Principles and Procedures for Granting Guarantee of Origin
- Electricity Transmission System Supply Reliablity and Quality Regulation
- Electricity Market Grid Regulation
- Communiqué Regarding The Principles and Procedures of Financial Settlement In The Electricity Market
- Electricity Market Import and Export Regulation
- Communiqué Regarding Regulatory Accounting Guidelines
- Electricity Market Distribution Regulation
- Communiqué Regarding the Meters to be used in the Electricity Market
- Electricity Market Customer Services Regulation
- Electricity Market Eligible Consumer Regulation
- Electricity Market License Fees
- Electricity Market Tariffs Regulation
- Electricity Market Licensing Regulation
- Electricity Market Law

Other relevant laws:

- Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy (Nr.5346)
- Energy Efficiency Law (Nr. 5627)
- Forest Law (Nr. 6831)

Table 6 Laws and Regulations governing the landfill gas component

Legal Framework Concerning the Environment	
The Environment Law	Packaging Waste Control Regulation
Air Quality Control Regulation	Soil Protection Law
Noise Control Regulation	Air Pollution from Heating Regulation
Water Pollution Control Regulation	Hazardous Chemicals Regulation

Control of Solid Waste Regulation	Waste Batteries Regulation
Environmental Impact Assessment Regulation	Soil Pollution Control Regulation
Medical Waste Regulation	Air Pollution from Vehicles Regulation
Toxic Chemical Substance and Prod Regulation	Medical Waste Control Regulation
Hazardous Waste Regulation	Water Resources Protection from Hazardous Materials Regulation
Waste Oils Control Regulation	Urban Waste Water Treatment Regulation
Industrial Air Pollution Control Regulation	Drinking Water Quality Regulation

The Environment Law[50] does not require a tipping fee for accepting municipal solid waste at the sanitary solid waste disposal sites. There is an "environment tax" and another "waste water surcharge" collected by municipalities from households for waste management activities. There exists no controlling system for monitoring how and for what purposes these taxes and surcharges are used by municipalities. Municipalities in the host country tend to subsidize waste collection and dumping activities from the municipal budgets. Under these circumstances, municipalities or households are not familiar with additional costs of proper waste management. Therefore, waste management is one of the everlasting problems of municipalities and is an unattractive field for private companies.

The "Metropolitan Municipalities Law[51]" sets out the legal framework of solid waste management in metropoles. Being subject to this law, the Samsun Metropolitan Municipality is responsible for the collection, management and proper disposal of municipal waste. Accordingly, it is supposed to build and operate the necessary facilities or let 3rd parties do so. In agreement with this law, a tender can be organized for certain types of goods and services the municipalities purchase. Based on this law, the Municipality has organized a tender and the Project owner has been awarded, at no cost to the Municipality.

[50] http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod=1.5.2872&MevzuatIliski=0&sourceXmlSearch=)
[51] The Metropolitan Municipalities Law (Nr: 5216), Article 7

The Project is a voluntary investment managed by a special contract between the Samsun Greater Municipality and the Project owner. Therefore the Project has to be in compliance with all relevant legislation. The Project is licensed and permitted by public authorities. All scenarios identified in Sub- step 1a are also valid according to national laws, regulations and communiqués.

For scenario LFG2, the most relevant regulation governing landfill sites is the "Control of Solid Waste Regulation". According to its Article 27, landfill sites are not enforced to capture and/or to destroy LFG emissions. This regulation does not set any obligations or penalties but only suggests the reduction of GHG emissions. Therefore, this alternative reflects current practice and is in agreement with current laws and regulations.

For scenario E3, maintaining the status quo, without the realization of the Project activity, is in agreement with the relevant legislation by definition.

Outcome of Sub-step 1b: Realistic and credible alternative scenarios to the Project activity and the Project activity itself are in compliance with mandatory legislation and regulations

Step 2: Investment analysis

According to the Additionality Tool, this step involves the determination whether the proposed Project activity is not:

(a) The most economically or financially attractive; or

(b) Economically or financially feasible, without the revenue from the sale of emission reductions.

Sub-step 2a: Determine appropriate analysis method

The "Combined tool to identify the baseline scenario and demonstrate additionality,Version 07.0.0", lists three possible analysis methods:

- Option I: Simple cost analysis;
- Option II: Investment comparison analysis; and
- Option III: Benchmark analysis.

Since the proposed project generates financial and economic benefits via the sales of electricity other than carbon revenues, Option I cannot be used.

Option II is only applicable to projects where alternatives should be similar investment projects in terms of generation capacity. Between Option II and Option III, benchmark financial analysis (Option III) is selected as the analysis method.

As a result Option III: Benchmark Analysis is selected as the analysis method and the Project IRR is selected as the financial indicator for the demonstration of the additionality of the project.

Outcome of Sub-step 2a:

Option III: Benchmark Analysis is selected as the analysis method and the Project IRR is selected as the financial indicator for the demonstration of the additionality of the project.

Sub-step 2b: Option III. Apply benchmark analysis

Given that power generation based on LFG is not a common practice in the host country and different unpredictable risks are involved, this benchmark rate of return should be considered conservatively by taking project risk premium into account. The likelihood of the development of this Project is determined by analyzing its Project IRR based on the scenarios with and without the sales of carbon credits.

IRR is a measure of investment profitability. According to the Additionality Tool, the assessment of the financial performance of the Project with and without carbon revenues shall be carried out according to benchmarks. The chosen benchmark for the Project is the discount rate. The "Guidelines on the Assessment of Investment Analysis" suggest that the IRR shall be calculated without considering financial expenses such as principal and interest payments. This means that the "Project IRR" shall be calculated. This means that the Project would be attractive only if the IRR exceeds the discount rate.

Outcome of Sub-step 2b: Apply Benchmark Analysis: The benchmark analysis is applied.

Sub-step 2c: Calculation and comparison of financial indicators

The following parameters are used for calculations;

Table 7 Parameters used for Investment Analysis

Parameter	Unit	Figure	Source	Justification
Investment Horizon	years	27	Actual	The aggrement with Samsun municipality is valid for 27 years.
Corporate Tax	%	20%	www.invest.gov.tr	This is the official corporate tax rate in the host country.

Interest Rate	%	5.50	Assumption	This figure is in agreement with commercial market conditions.
Discount Rate (Benchmark)	%	13.30%	WACC calculations	Pre-tax WACC is suggested by the Guidelines.
Electricity Price	EUR/kWh	6.6	Project Owner's own feasibility	This figure is used in the investment decision.
Initial Investment	tEUR	20,80.5	Project Owner's own feasibility	This figure is used in the investment decision.
Operation & Maintenance Costs	tEUR	2,223.661	Project Owner's own feasibility	This figure is used in the investment decision.

According to the agreement between the Municipality and the Project owner, the Project owner does not receive any revenues from the Municipality. The Project owner has paid a certain share of the Project's proceeds to the municipality, in return of the landfill site usage rights. This share is also included in the feasibility calculations.

Financial Performance of the Project

Indicator	Unit	Source	IRR	Benchmark	Result
Results:	%	Calculations	7.2%	13.30 %	Unfeasible

Outcome of Sub-step 2c: Financial indicators are calculated and compared.The project is not financially attractive.

Sub-step 2d: Sensitivity Analysis

The purpose of the sensitivity analysis is to check how much the Project's financial performance depends on main variables of the investment analysis. The Additionality Tool requires including those financial parameters in the analysis, that have 20% or more impact on the results. Four parameters are identified which satisfy this condition;

i. Electricity prices (impact on revenues)
ii. Capital expenditures (impact on costs)
iii. Operation and maintenance expenses (impact on costs)
iv. LFG Collection ratio (impact on revenues)

All four parameters are changed +/- 10% to check how far they affect the Project profitability. The results are as the following;

Table 8 Sensitivity Analysis of the Project IRR with changes in investment cost, production expenses and revenue

Parameter	Value Applied	Project IRR	Value Applied	Project IRR
Electricity Prices	(-10 %) 0.060 euro per KWh	-0.7 %	(+10%) 0.072 euro per KWh	12.9 %
Capital expenses	(-10 %)	9.0 %	(+10%)	5.7 %
Operation and Maintenance Expenses	(-10 %)	13.4 %*	(+10%)	-1.8 %
LFG Collection Ratio	(-10 %)	1.7 %	(+10%)	11.6 %

The Internal Rate of Return (IRR) is calculated as 7.2. %. This is obviously below the financial benchmark of 13.3 % and the project activity cannot be considered to be a financially attractive alternative.

*The 10% decrease of Operation and Maintenance Expenses is not possible. Because the The Turkish annual inflation rate fell to 19.50 percent in April 2019 from 19.71 percent in the previous month and below market expectations of 19.57 percent. This is the lowest inflation rate since August last year, as prices slowed mostly for housing & utilities and transport. However, cost continued to rise. Inflation Rate in Türkiye averaged 34.93 percent from 1965 until 2019, reaching an all time high of 138.71 percent in May of 1980 and a record low of -4.01 percent in June of 1968.[52]

[52] https://tradingeconomics.com/turkey/inflation-cpi?continent=g20

Outcome of Step 2

The sensitivity analysis shows that the Project IRR of the proposed project does not overcome the financial benchmark despite favourable conditions.

The sensitivity analysis further substantiates that the project activity is not a feasible alternative and so additional.

Step 3: Barrier Analysis

The analysis is not applied.

Step 4: Common Practice Analysis

According to "Tool for the demonstration and assessment of additionality" version 07.0.0, the proposed project activity applies the measures listed in the definitions section of the tool. So, Sub-step 4a is applied.

Sub-step 4a Analyze other activities similar to the proposed project activity:

The proposed VER project activity(ies) applies measure(s) that are listed in the definitions section "Methodological Tool Common Practise " version 03.1 is applied for the proposed project activity.

Step 1: Calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity.

The installed capacity of the proposed project activity is 8.4 MW. Therefore, the lower limit of the applicable output range is 4.2 MW and upper limit is 12.6 MW.

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

(a) The projects are located in the applicable geographical area;

(b) The projects apply the same measure as the proposed project activity;

(c) The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity;

(d) The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant;

(e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1;

(f) The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

The projects within the host country and the output range that have started commercial operation and are connected to the national grid system are shown in the excile file Named Samsun LFG_Common Practice_.xlsx.

Step 3: Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number Nall.

Nall is 0.

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

According to the guidance on common practice, classification of different technologies has been realised taking into account the main criteria "energy source/fuel", "size of installation (power capacity)" and "Investment oclimate in the date of investment decision (subsidies or other financial flows, promotional policies and legal regulations)". The power plants which have different fuel types such as hydro, lignite, natural gas, fuel oil, coal etc., are accepted as different technologies. In addition, the company types of the power plants are considered while defining the different power plants because different company types have different promotional policies, legal regulations, subsidies and other financial flows. As a result, when both the fuel types of the power plants and the company types are taken into account, the number of companies that apply technologies different that the technology applied in the proposed project activity, Ndiff, is 0.

Step 5: Calculate factor F=1-Ndiff/Nall representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to

the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

The factor F defined in the guideline is calculated with the formula below:

F = 1 – 0/0

F = 1 – Undefined

= 0 .0

Nall-Ndiff is 0 and the factor F is "Undefined ,so the proposed project activity is not a "Common Practice".

Outcome of Step4

The project activity is not regarded as "common practice", then the proposed project activity is additional. Milestones of the project activity is listed as below;

Table 9 Milestones of the project activity

Date	Action
02/11/2009	Feasibility study is submitted to the project owner.
04/01/2010	First talks with the carbon consultant about carbon finance
01/06/2010	Publication of the tender by Samsun Metropolitan Municipality
18/06/2010	Tender organisation by Samsun Metropolitan Municipality
28/07/2010	Contract signature date with the Municipality
02/08/2010	Carbon development contract signature date
21/08/2010	First equipment order date
13/09/2010	Mobilization on site
24/09/2010	Energy Market Regulatory Authority (EMRA) License application
06/09/2011	First loan agreement - 9207368
09/02/2011-08/02/2018	First Crediting Period
18/05/2011	License awarded for 2.4 MWe
09/03/2012	Commissioning of the power plant
06/12/2012	Amendment to the municipality law 6360
04/06/2013	Capacity increase to 3,6 MWe - License upgrade
27/09/2013	Commissioning of the additional capacity
04/06/2013	Capacity increase to 3,6 MWe - License upgrade
27/09/2013	Commissioning of the additional capacity

07.05.2014	Capacity increase to 6,0 MWe - License upgrade
27/09/2014	Commissioning of the additional capacity
2015	Amount of waste deposited increased
24/03/2016	Capacity increase to 8,4 MWe - License upgrade
22/05/2018	Commissioning of the additional capacity
09/02/2018-08/02/2025	Second Crediting Period
09/07/2019	Approved Design Change PDD_Samsun LFG_v07
29/07/2019	Review for Approval of Design Change under Gold Standard for the Global Goals
20/01/2020	Approved Crediting Period Renewal PDD Ver09 – 21/01/2020
05/02/2020	Design Renewal Review under Gold Standard for the Global Goals
16/04/2016-08/02/2018	3rd Monitoring Report
08/07/2020	3-week Issuance Review Period under GS Version 2.1 VER
05/09/2019 30/04/2021	4th Monitoring Report
01/05/2021-31/05/2023	5th Monitoring Report
09/02/2025-08/02/2032	Third Crediting Period

B.5.1 Prior Consideration

Prior consideration is not required.

This is regular project and the Local Stakeholder Consultation meeting has made on 01/09/2010. And PP had provided to Board Decision before the project start during the CP1.

B.5.2 Ongoing Financial Need

Samsun Avdan Üretim ve Enerli A.Ş. has received income the sale of carbon credits. Samsun Avdan Energy has realized a total revenue of 9,554,338 Turkish Lira (TL) through the sale of carbon credits and the annualized value of this is 2,388,584 TL/yr. This revenue generated by GS carbon credit sales were utilized to cover the operating costs of our company 17% and 26% for years 2022 and 2021 respectively[53].Carbon

[53] The official signed letter by PP has been provided to the VVB.

Credit Revenues are very critical to our operation as they compensate a significant amount of their operating cost.

Briefly, the income from GS certification is used for operation cost. Therefore, carbon revenues derived from Gold Standard certification have been playing a very important role in helping PO to their OPEX. The declaration about the details of the ongoing financial need provided by the PO have been provided to VVB.

Conclusion: The project activity satisfies all the criteria of "Tool for the demonstration and assessment of additionality"[25]. Therefore, the project is additional, it has still ongoing financial need.

The income of the GS VER is very important for the financial performance of the project. So, the results of the financial analysis still same for the project, with the decision to go ahead was made 14 years ago, both with and without VER financing. This therefore indicates that in comparison to alternative investments, the Project was still financially unattractive in the absence of VER financing.
*01/05/2021 to 30/04/2023 5th performance review is not finished. And 6th performance review will start after this one for between 01/05/2023 and 09/02/2025.

B.6. Sustainable Development Goals (SDG) outcomes

Relevant Target/Indicator for each of the three SDGs

SUSTAINABLE DEVELOPMENT GOALS TARGETED	MOST RELEVANT SDG TARGET	SDG IMPACT INDICATOR (PROPOSED OR SDG INDICATOR)
13 Climate Action (mandatory)	T:13.3. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	I:13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions

7 Affordable and Clean Energy	T:7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	I: 7.2.1 "Renewable energy share in the total final energy consumption
8 Decent Work and Economic Growth	T: 8.5 By 2030 achieve full and productive employment and decent work for all women and men	I: 8.5.2 Unemployment rate, by sex, age and persons with disabilities
8 Decent work and economic growth	T: 8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment	I: 8.8.2 Increase in national compliance of labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status.

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

SDG 7: Affordable and Clean Energy

The baseline for the project is no project, thus leading to generation in the relevant grid which is dominated by fossil fuel. The clean energy generated by the project is calculated based on the amount of electricity generated by the project per annum. The project is expected to generate 54,600 MWh[54] of clean energy per annum.Net generation is calculated as below.

Net Generation (MWh) = Electricity Supplied to the Grid (MWh)– Electricity Consumption from the Grid (MWh)
The net generation and internal consumption identified and approved by authorized EPIAS.
The project contributes to the following indicators 7.2.1 "Renewable energy share in the total final energy consumption" and following target: 7.2 ''By 2030, increase substantially the share of renewable energy in the global energy mix."

[54] Samsun Avdan_Environmental and Technical Report_v2

SDG 8: Decent Work and Economic Growth

The project leads to employment opportunities which would not have been possible in the baseline scenario. The project provides employment to between 20 and 25 people during the operation phase.
The project contributes to the following indicators 8.5.2 "Unemployment rate, by sex, age and persons with disabilities" and following target: "8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value"

The target is monitored by the number of full-time employees with the Social Security Agency Records during the verification process. Because of the social conditions of the project area, employment of woman and persons with disabilities is not possible.
Furthermore, number of people are trained on health and safety issues during per each monitoring period. This helps to achieve "the project labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment." Training records or certificates have been provided during each monitoring period.

SDG13: Climate Action:

The project leads to mitigation of 276,967 tCO_2 per annum.

The project contributes to the following indicators 13.3.2 "Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions" and following target 13.3 "Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning"
The project's contribution is done through training and awareness raising of local people and setting good example by investing to the climate friendly technology.
The project collects the wastes regularly. During the first crediting period waste amount was 182,500 tonnes, corresponding to an average of 500 t/day. Waste amount estimated to be 304,466 tonnes, corresponding to an average of 800 t/day was during the second crediting period. For the third crediting period expected waste amount is 572,719 tonnes corresponding to average of 1,569 t/day.
The project leads to mitigation of 276,967 tCO2 per annum.
The project contributes to the following indicators 13.3.2 "Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-

building to implement adaptation, mitigation and technology transfer, and development actions" and following target 13.3 "Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning"
The project's contribution is done through training and awareness raising of local people and setting good example by investing to the climate friendly technology.
As developing the baseline and calculation of the emission reductions for the proposed project activity are calculated according to "Tool to calculate the emission factor of an electricity system" version 07.0.

Emission Reductions

The emission reductions are calculated based on the below formula:

$ER_y = BE_y - PE_y - LE_y$ (1)

Where:

ER_y = Emission reductions in year y (tCO_2e/yr)

BE_y = Baseline emissions in year y (tCO_2/yr)

PE_y = Project emissions in year y (tCO_2e/yr)

LE_y = Leakage emissions in year y ($t\ CO_2/y$)

Project Emissions

As the proposed project activity is a new grid-connected power plant. For this reason, PEy is considered as "0" in line with ACM0002 Version 22.

$PE_y = 0$

Leakage Emission

Leakage emission (LEy) is considered as "0" as suggested in ACM0002 Version 22.

Baseline Emissions

Step (A): Baseline emissions of methane from the SWDS ($BECH_4,y$)

Baseline emissions of methane from the SWDS are determined as follows, based on the amount of methane that is captured under the project activity and the amount that would be captured and destroyed in the baseline (such as due to regulations). In addition, the effect of methane oxidation that is present in the baseline and absent in the project is taken into account:

$$BE_{CH4,y} = (1 - OX_{top-layer})(F_{CH4,PJ,y} - F_{CH4,BL,y})GWP_{CH4} \quad (2)$$

Where:

$BE_{CH4,y}$	Baseline emissions of LFG from the SWDS in year *y* (t CO_2e/yr)
$OX_{top-layer}$	Fraction of methane in the LFG that would be oxidized in the top layer of the SWDS in the baseline (dimensionless)
$F_{CH4,PJ,Y}$	Amount of methane in the LFG which is flared and/or used in the project activity in year *y* (t CH_4/yr)
$F_{CH4, BL,y}$	Amount of methane in the LFG that would be flared in the baseline in year *y*(t CH4/yr)
GWP_{CH4}	Global warming potential of CH_4 (t CO_2e/t CH_4)

There is neither regulatory nor contractual requirements for methane destruction/combustion. There is also no LFG flared without the project activity, therefore $F_{CH4,BL,y}$ is equal zero.

Step A.1: Ex post determination of $F_{CH4, PJ,y}$

During the crediting period, **$F_{CH4, PJ,y}$** is determined as the sum of the quantities of methane flared and used in power plant(s), boiler(s), air heater(s), kiln(s) and natural gas distribution network, as follows:

$$F_{CH4,PJ,y} = F_{CH4\,flared,y} + F_{CH4,EL,y} + F_{CH4,HG,y} + F_{CH4,NG,y} \quad (3)$$

Where:

$F_{CH4,PJ,y}$	Amount of methane in the LFG which is flared and/or used in the project activity in year *y* (t CH_4/yr)
$F_{CH4,flared,y}$	Amount of methane in the LFG which is destroyed by flaring in year *y* (t CH_4/yr)
$F_{CH4,EL,y}$	Amount of methane in the LFG which is used for electricity generation in year *y* (t CH_4/yr)
$F_{CH4,HG,y}$	Amount of methane in the LFG which is used for heat generation in year *y* (t CH_4/yr)
$F_{CH4,NG,y}$	Amount of methane in the LFG which is sent to the natural gas distribution network in year *y* (t CH_4/yr)

The amount of methane that is destroyed/ combusted in project scenario during year y is determined by monitoring the quantity of methane actually flared and by monitoring the gas used to generate electricity, and the total quantity of methane captured. There is neither methane used for generation of thermal energy (HG) nor sent to the pipeline for feeding to the natural gas (NG) distribution network or flared.

Thus, $F_{CH4,PJ,y}$ has been calculated as follow:

$$F_{CH4,PJ,y} = F_{CH4\,flared,y} + F_{CH4,EL,y} \quad \textbf{(4)}$$

Determination of $F_{CH4,flared,y}$ and $F_{CH4,EL,y}$

The sum of the quantities fed to the flares ($F_{CH4,flared,y}$) and to the power plant ($F_{CH4,EL,y}$) have been summed up annually be adopted as $F_{CH4,PJ,y}$

- $F_{CH4,PJ,y}$ is determined using the "Methodological Tool to determine the mass flow of a greenhouse gas in a gaseous stream" Version 03.0.0. The following requirements apply:The gaseous stream the tool shall be applied to is the LFG delivery pipeline to electricity.
- $F_{CH4,PJ,y}$ is then calculated as the sum of mass flows to electricity generation.
- CH4 is the greenhouse gases for which the mass flow should be determined;
- The flow of the gaseous stream should be measured on continuous basis;
- The simplification offered for calculating the molecular mass of the gaseous stream is valid (equations 3 or 17 in the tool); and
- The mass flow should be summed to a yearly unit basis (t CH_4/yr).

$F_{CH4,\,sent\_flare,n}$ and $F_{CH4,EL,y}$ are determined directly using the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", applying the requirements described above where the gaseous stream the tool have been applied to is the LFG delivery pipeline to the flares.

According to the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Tool 8,Version 03.0.) the mass flow of greenhouse gas *I (CH_4)* in the gaseous stream in time interval *t* (F_{CH4}, t) is calculated based on measurements of

a)the total volume flow or mass flow of the gas stream and
b) the volumetric fraction of the gas in the gaseous stream and
c) the water content and gas composition.

Option C:

The tool covers possible measurement options, providing six different calculation options to determine the volume or mass flow of a particular greenhouse gas (A-F). Furthermore, the tool provides several options for the determination of the moisture content of the gaseous stream. Option C is applied for determination of mass flow of the gas stream.

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

$$F_{CH4,t} = V_{t,db} * v_{CH4,wb,t} * \rho_{CH4,n} \quad \textbf{(5)}$$

With

$$\rho_{CH4,n} = \frac{P_n * MM_{CH4}}{Ru * T_n} \quad \textbf{(6)}$$

Where:

$F_{CH4,t}$	Mass flow of greenhouse gas (*CH4)* in the gaseous stream in time interval *t* (kg gas/h)
$V_{t,wb}$	Volumetric flow of the gaseous stream in time interval *t* on a wet basis (m³ dry gas/h)
$v_{CH4,t,wb}$	Volumetric fraction of greenhouse gas *CH4* in the gaseous stream in a time interval *t* on a wet basis (m³ gas *i*/m³ dry gas)
$\rho_{CH4,n}$	Density of greenhouse gas CH4 in the gaseous stream at normal conditions *t* (kg gas *i*/m³ gas *i*)
P_n	Absolute pressure of the gaseous stream at normal conditions (Pa)
MM_i	Molecular mass of greenhouse gas *i* (kg/kmol)
R_u	Universal ideal gases constant (Pa.m3/kmol.K)
T_n	Temperature of the gaseous stream at normal conditions (K)

The hourly values are then aggregated for the duration of the monitoring period n, as follows:

$$F_{CH4,n} = \sum_{h=1}^{h=hn} F_{CH4,t} \quad \textbf{(7)}$$

Amount of methane destroyed by flaring (FCH4,flared,y)

$F_{CH4,\ flared,\ y}$ is determined as the difference between the amount of methane supplied to the flare(s) and any methane emissions from the flare(s), as follows:

$$F_{CH4,flared,y} = F_{CH4,sent\_flare,y} - (PE_{flare,y} / GWP_{CH4}) \quad \textbf{(8)}$$

Where:

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

$F_{CH4,\ sent\_flare,y}$ Amount of methane in the LFG which is sent to the flare in year *y* (t CH4/yr)

$PE_{flare,y}$ Project emissions from flaring of the residual gas stream in year *y* (t CO2e/yr)

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

$F_{CH4,\ sent\_flare,n}$ is determined directly using the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", applying the requirements described above

where the gaseous stream the tool has been applied to is the LFG delivery pipeline to the flares. Thus as in formula below.
$PE_{flare,n}$ has been determined using the "Tool to determine project emissions from flaring gases containing methane".

Application of "Tool 06 Tool to determine project emissions from flaring"

According to "Project emission from flaring" Version 04.0", 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

The calculation procedure in this tool determines the flow rate of methane before and after the destruction in the flare, taking into account the amount of air supplied to the combustion reaction and the exhaust gas composition (oxygen and methane).
The calculation procedure in this tool determines the project emissions from flaring the residual gas ($PE_{flare,y}$) based on the flare efficiency ($\eta_{flare,m}$) and the mass flow of methane to the flare ($F_{CH4,RG,m}$). The flare efficiency is determined for each minute m of year y based either on monitored data or default values.
The project activity applies an enclosed flare. The temperature in the exhaust gas of the flare is measured to determine whether the flare is operating or not.

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

This step calculates the residual gas mass flow rate in each hour h, based on the volumetric flow rate and the density of the residual gas. The density of the residual gas is determined based on the volumetric fraction of all components in the gas.
The following requirements apply:
• The gaseous stream tool shall be applied to the residual gas;
• The flow of the gaseous stream shall be measured continuously;
• CH4 is the greenhouse gas i for which the mass flow should be determined;
• The simplification offered for calculating the molecular mass of the gaseous stream is valid (equation 3 and 17 in the tool); and

• The time interval t for which mass flow should be calculated is every minute m $F_{CH4,m}$ which is measured as the mass flow during minute m,shall then be used to determine the mass of methane in kilograms fed to the flare in minute m ($F_{CH4, RG, m}$). $F_{CH4, m}$ is determined on wet basis due to difficulties to demonstrate that the temperature is above 60 Celcius.

The calculation follows the procedure as described by the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream". Option C is applied: Same basis (wet basis) is considered for the measurement of the volumetric flow rate of the residual gas and the measurement of the volumetric fraction of methane in the residual gas.

In order to determine the mass flow of CH4, the equations (5) to (6) mentioned above in the present document shall be used.

The mass flow of greenhouse gas i (FCH4,t) is determined as follows:

$$F_{CH4,RG,t} = V_{t,db} * v_{CH4,wb,t} * \rho_{CH4,n}$$

With

$$\rho_{CH4,n} = \frac{P_n * MM_{CH4}}{Ru * T_n}$$

Where:

$F_{CH4,t}$	Mass flow of greenhouse gas (*CH4)* in the gaseous stream in time interval *t* (kg gas/h)
$V_{t,wb}$	Volumetric flow of the gaseous stream in time interval *t* on a wet basis (m³ dry gas/h)
$v_{CH4,t,wb}$	Volumetric fraction of greenhouse gas *CH4* in the gaseous stream in a time interval *t* on a wet basis (m³ gas *i*/m³ dry gas)
$\rho_{CH4,n}$	Density of greenhouse gas CH4 in the gaseous stream at normal conditions *t* (kg gas *i*/m³ gas *i*)
P_n	Absolute pressure of the gaseous stream at normal conditions (Pa)
MM_i	Molecular mass of greenhouse gas *i* (kg/kmol)
R_u	Universal ideal gases constant (Pa.m3/kmol.K)
T_n	Temperature of the gaseous stream at normal conditions (K)

STEP 2. Determination of flare efficiency

The determination of the hourly flare efficiency depends on the operation of flare (e.g. temperature), the type of flare used (open or enclosed) and, in case of enclosed flares,

the approach selected by project participants to determine the flare efficiency (default value or continuous monitoring).

In the case of Samsun Landfill Project, an enclosed flare is used and the flare efficiency is determined by default value, **thus Option A**. For enclosed flares that are defined as low height flares, the flare efficiency in the minute m ($\eta_{flare,m}$) shall be adjusted, as a conservative approach, by subtracting 0.1 from the efficiency as determined in Options A or B.

Option A: Default value

In case of enclosed flares and use of the default value for the flare efficiency, the flare efficiency in the minute m ($\eta_{flare,m}$) is 90% when the following two conditions are met to demonstrate that the flare is operating:

- the temperature of the flare ($T_{EG,\ m}$) and the flow rate of the residual gas to the flare ($F_{RG,m}$) is with in the manufacturer's specifications fort he flare ($SPEC_{flare}$) in minute m; and
- the flame is detected in minute m ($Flame_m$)

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

STEP 3. Calculation of project emissions from flaring

Project emission from flaring are calculated as the sum of emission from each minute m, based on the methane mass flow in the residual gas (F CH4,RG,m) and the flare efficiency (ηflare,m), as follows:

$$PE_{flare,y} = GWP_{CH4} x \sum_{m=1}^{525600} F_{CH4,RG,m} \times \left(1 - \eta_{flare,m}\right) \times 10^{-3} \qquad (9)$$

Where:

$PE_{flare,y}$	Project emissions from flaring of the residual gas in year y (tCO_2 e)
$F_{CH4,RG,m}$	Mass flow of methane in the residual gas in the minute m (kg)
$\eta_{flare,m}$	Flare efficiency in minute m

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

An *ex ante* estimate of $F_{CH4,PJ,y}$ is required to estimate baseline emission of methane from the SWDS (according to equation 2) in order to estimate the emission reductions of the proposed project activity in the PDD. It is determined as follows:

$$F_{CH4,PJ,y} = \eta_{PJ} * BE_{CH4,SWDS,y} / GWP_{CH4} \qquad (10)$$

Where:

$F_{CH4,PJ,y}$	Amount of methane in the LFG which is flared and/or used in the project activity in year *y* (t CH_4/yr)
$BE_{CH4,SWDS,y}$	Amount of methane in the LFG that is generated from the SWDS in the baseline scenario in year *y* (t CO2e/yr)
η_{PJ}	Efficiency of the LFG capture system that has been installed in the project activity (%)
GWP_{CH4}	Global warming potential of CH_4 (t CO2e/t CH_4)

$BE_{CH4,SWDS,y}$ is determined using the methodological tool "Emissions from solid waste disposal sites". The following guidance has been taken into account when applying the tool:

• *fy* in the tool shall be assigned a value of 0 because the amount of LFG that would have been captured and destroyed is already accounted for in equation 2 of this methodology;

• In the tool, x begins with the year that the SWDS started receiving wastes (e.g. the first year of SWDS operation); and

• Sampling to determine the fractions of different waste types is not necessary because the waste composition can be obtained from previous studies.

The project captures only a fraction of the whole LFG due to following reasons:

- The degassing system has its own efficiency
- The enclosed flares have their destruction efficiency

Samsun Landfill project has a 70% efficiency of gas collection system according to the feasibility.

According the methodological tool 04 "Emissions from solid waste disposal sites" version 08.1, ex-ante calculation of $BE_{CH4,SWDS,y}$ based on the formulation below:

$$BE_{CH4,SWDS,y} = \varphi \cdot (1-f) \cdot GWP_{CH4} \cdot (1-OX) \cdot \frac{16}{12} \cdot F \cdot DOC_f \cdot MCF \sum_{x=1}^{y} \sum_{j} W_{j,x} \cdot DOC_f \cdot e^{-k_j (y-x)} \cdot \left(1-e^{-k_j}\right) \quad \textbf{(11)}$$

where

φ	model correction factor to account for model uncertainties (0.75)
f	fraction of methane captured at SWDS and flared, combusted or used in another manner (default value as per ACM 0001 is zero)
OX	oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or another material covering waste)
F	fraction of methane in the SWDS gas (volume fraction (0.1))
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 [t]
DOC_j	fraction of degradable organic carbon (by weight) in the waste type j
k_j	decay rate for waste type j
j	waste type category (index)
x	year of receiving wastes at the landfill site: x runs from the first year of landfill operation x=1 to the year for which avoided emissions are calculated (x = y)
y	year for which methane emissions are calculated

In application of the Tool "Emissions from solid waste disposal sites" version 08.1, option A is applied. The calculation is provided for validation as Samsun_Landfill_calculation file.

Step A.2: Determination of $F_{CH4,BL,y}$

This steps provides a procedure to determine the amount of methane that would have been captured and destroyed (by flaring) in the baseline due to regulatory or contractual requirements, or to address safety and odour concerns (collectively referred to as *requirement* in this step). The motholdogy ACM0001 version 19.0 provide for cases to determine the amount, while there is "*no requirement to destroy methane exists and no existing LFG capture system" for Samsun Landfill,* as in the case 1,

$F_{CH4,BL,y} = 0$

Baseline emissions due to electricity generation are calculated using the ACM0002 methodology as follows:

$$BE_y = EGBL,y * EF_{CO2,grid,y} \quad \textbf{(12)}$$

Where:

BE_y = Baseline emissions in year *y* (tCO_2/yr)

EG_{BLy} = Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year *y* (MWh)

$EF_{CO2grid\ y}$ = CO2 emission factor of the grid in year *y* (t CO2/MWh)

Calculation of $EG_{PJ,y}$

The calculation of $EG_{PJ,y}$ is different for (a) greenfield plants; (b) retrofits and replacements and; (c) capacity additions. Since the proposed project activity falls under the description greenfield plants, the following method has been adopted:

Greenfield renewable energy power plants

$EG_{PJ,y} = EG_{facility,y}$ **(13)**

Where:

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

$EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y* (MWh/yr)

Calculation of $EF_{grid,CM}$

According the Tool 07"Tool to Calculate the Emission Factor for an Electricity System v 07.0.". **Option 1** has been selected.

Option 1

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

Operating, Build and Combined Margin Emission Factors have been published by the Ministry of Energy and Natural resources. The Ministry has calculated the factors as using the "Tool to calculate the emission factor for an electricity system". Since it's the latest available data, published by the ministry, these factors have been considered.

Calculation of the Operating Margin Emission Factor

It's been published as 0.7108 tCO2/MWh by the Ministry of Energy and Natural Resources.

Calculation of the Build Margin Emission Factor

It's been published as 0.3721 tCO2/MWh by the Ministry of Energy and Natural Resources.

Calculating of the Combined Margin Emission Factor

It's been published as 0.5415 tCO_2/MWh by the Ministry of Energy and Natural Resources. The combined margin is calculated ex-post and has been fixed for the crediting period. And this calculated CM= 0.75xOM+0.25x BM. This national EF

published by Turkish Republic Ministry of energy for the second and third crediting period.The national EF published by Turkish Republic Ministry of energy.[55]

The combined margin emission factor $EF_{grid,CM,y}$

$EF_{grid, CM, y}$ = 0.5415 tCO2/MWh

Baseline emissions

According to ACM0001 Version 19.0

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

(a) Methane emissions from the SWDS in the absence of the project activity;
(b) Electricity generation using fossil fuels or supplied by the grid in the absence of the project activity;
(c) Heat generation using fossil fuels in the absence of the project activity; and
(d) Natural gas used from the natural gas network in the absence of the project activity.

$$BEy = BEC_{H4,y} + BE_{EC,y} + BE_{HG,y} + BE_{NG,y}$$

Where:

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

$BE_{CH4,y}$ = Baseline emissions of methane from the SWDS in year y (t CO2e/yr)

$BE_{EC,y}$ = Baseline emissions associated with electricity generation in year y(t CO2/yr)

$BE_{HG,y}$ = Baseline emissions associated with heat generation in year y (t CO2/yr)

$BE_{NG,y}$ = Baseline emissions associated with natural gas use in year y (t CO2/yr)

According the methodological tool "Emissions from solid waste disposal sites" version 08.1 , ex-ante calculation of BECH4,SWDS,y based on the formulation below:

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

Where, for the yearly model:

[55]https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Sebeke_EF_Bilgi_Formu_2022.pdf

$BECH_4,SWDS,y$
$PECH_4,SWDS,y$
$LECH_4,SWDS,y$

Baseline, project or leakage methane emissions occurring in year y generated from waste disposal at a SWDS during a ..

x = Years in the time period in which waste is disposed at the SWDS, extending from the first year in the time period (x = 1) to year y
(x = y)
y = Year of the crediting period for which methane emissions are calculated (y is a consecutive period of 12 months)
$DOCf,y$ = Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y (weight fraction)
Wj,x = Amount of solid waste type j disposed or prevented from disposal in the SWDS in the year x (t)
Where, for the monthly model:

$BECH4,SWDS,m$
$PECH4,SWDS,m$
$LECH4,SWDS,$m

Baseline, project or leakage methane emissions occurring in month m generated from waste disposal at a SWDS during a

m = Month of the crediting period for which methane emissions are calculated
i = Months in the time period in which waste is disposed at the SWDS, extending from the first month in the time period (i = 1) to month m (i = m)
$DOCf,m$ = Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for month m (weight fraction)
Wj,i = Amount of organic waste type j disposed/prevented from disposal in the SWDS in the month i (t)
Where, for both the yearly and monthly model:
φy = Model correction factor to account for model uncertainties for year y
fy = Fraction of methane captured at the SWDS and flared, combusted for used in another manner that prevents the emissions of methane to the atmosphere in year y
$GWPCH4$ = Global Warming Potential of methane
OX = Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)
F = Fraction of methane in the SWDS gas (volume fraction)
$MCFy$ = Methane correction factor for year y
$DOCj$ = Fraction of degradable organic carbon in the waste type j (weight fraction)

k = Decay rate for the waste type j (1 / yr)

j = Type of residual waste or types of waste in the MSW

As per ACM0002 version 22 , the baseline emissions are calculated as the net electricity generated by the project activity, multiplied with the baseline emission factor for the project grid. Baseline emissions calculated as explained in section B.6.1 above are summarized as below.

BEy = EGy * EFy

Where,

EGy = the net electricity exported to the grid system during the year y (54,600 MWh/annum)

EFy = the emission factor of the grid to which the project exports electricity (0.5415 tCO_2 tCO2/MWh)

Hence,

BEy = 54,600 MWh/annum * 0.5415 tCO_2/MWh

BEy = 29,565 tCO_2 per annum

Project emissions

According to ACM0001 Version 19.0 project emissions are calculated as follows;

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

Where:

PEy = Project emissions in year y (t CO2/yr)

$PE_{EC,y}$ = Emissions from consumption of electricity due to the project activity in year y (t CO2/yr)

$PE_{FC,y}$ = Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (t CO2/yr)

$PE_{DT,y}$ = Emissions from the distribution of compressed/liquefied LFG using trucks, in year y (t CO2/yr)

$PE_{SP,y}$ = Emissions from the supply of LFG to consumers through a dedicated pipeline, in year y (t CO2/yr)

$$PE_y = PE_{EC,y} + PE_{FC,y} \quad (14)$$

Where:

PE_y Project emissions in year y (t CO2/yr)

$PE_{EC,y}$ Emissions from consumption of electricity due to the project activity in year y (t CO2/yr)

$PE_{FC,y}$ Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (t CO2/yr)

The project emissions from consumption of electricity by the project activity ($PE_{EC,y}$) is calculated using the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption". When applying the tool:

- Electricity sources j in the tool corresponds to the sources of electricity consumed due to the project activity. This includes, where applicable, electricity consumed for the operation of the LFG capture system,

$$PE_{EC,y} = \sum_{k} EC_{PJ,j,y} x EF_{EL,j,y} x \left(1 + TDL_{j,y}\right) \quad (21)$$

Where:

$PE_{EC,y}$ Project emissions for electricity consumption in year y (tCO2/yr)

$EC_{PJ,j,y}$ Quantity of electricity consumed by the project electricity consumption sources j in y (MWh/yr)

$FE_{EL,j,,y}$ Emission factor for electricity generation for source j in year y (tCO2/MWh)

$TDL_{k,y}$ Average technical transmission and distribution losses for providing electricity to source j in year y

j Sources of electricity consumption in the project

For the simplicity of emission reduction calculation, project emission from electricity consumption is assumed to be "0". For ex-post calculation, this emission source, if any, will be taken into account.

The project emissions from fossil fuel combustion ($PE_{FC,j,y}$) has been calculated following the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion". For this purpose, the processes j in the tool corresponds to all fossil fuel combustion in the landfill, as well as any other on-site fuel combustion needed for the project activity.

$$PE_{FC,j,y} = \sum_{i} FC_{i,j,y} \times COEF_{i,y} \quad (15)$$

Where

$FC_{i,j,y}$ quantity of fuel type i combusted in process j during the year y

$COEF_{i,y}$ CO_2 emission coefficient of fuel type i in year y

The CO_2 emission coefficient is calculated following Option B as fuel combust chemical composition of the fuel.

The CO_2 emission coefficient is calculated following Option B based on net calorific value and CO_2 emission factor of the fuel type I as follows:

$$COEF_{i,y} = NCV_{i,y} \times EF_{CO2,i,y} \quad (16)$$

where

$COEF_{i,y}$	CO_2 emission coefficient of fuel type i in year y
$NCV_{i,y}$	the weighted average net calorific value of the fuel type I in year y
$EF_{CO2,y}$	the weighted average CO_2 emission factor of fuel type I in year y
i	are the fuel types combusted in process j during the year y

For the simplicity of emission reduction calculation, project emission from fossil fuel combustion is assumed to be "0". For ex-post calculation, this emission source, if any, will be taken into account.

Calculation of project emissions from flaring

Project emissions from flaring are calculated as the sum of emissions for each minute m in year y, based on the methane mass flow in the residual gas (FCH4,RG,m) and the flare efficiency (ηflare,m), as follows:

$$PEflare,y = GWPCH4 \times \sum_{m=1}^{525600} FCH4,RG,m \times (1 - \eta flare,m) \times 10^{-3}$$

Where:

$PEflare,y$ = Project emissions from flaring of the residual gas in year y (tCO2e)

$GWPCH4$ = Global warming potential of methane valid for the commitment period (tCO2e/tCH4)

$FCH4,RG,m$ = Mass flow of methane in the residual gas in the minute m (kg)

$\eta flare,m$ = Flare efficiency in minute m

The estimated Project emissions from flaring is 0 tCOe.

PEy = 0 tCO_2/year

Leakage

No leakage effects need to be accounted under the approved consolidated methodology ACM0001, version 19.0.

LEy = 0 tCO_2/year

Emission reductions

ERy = BEy – Pey-ERy = 276,967– 0

ERy = 276,967 tCO_2 (ERy = BEy)

According the "Tool to Calculate the Emission Factor for an Electricity System v 07.0.0". Option 1 has been selected.

Option 1

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

Operating, Build and Combined Margin Emission Factors have been published by the Ministry of Energy and Natural resources. The Ministry has calculated the factors as using the "Tool to calculate the emission factor for an electricity system". Since it's the latest available data, published by the ministry, these factors have been considered.

Calculation of the Operating Margin Emission Factor

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for the second and third crediting period.

The national EF published by Turkish Republic Ministry of energy.[56]

The combined margin emission factor EFgrid,CM,y

EFgrid, CM, y = 0.5415 tCO_2/MWh

[56]https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Sebeke_EF_Bilgi_Formu_2022.pdf

Baseline emissions

According to ACM0001 Version 19.0

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

(a) Methane emissions from the SWDS in the absence of the project activity;

(b) Electricity generation using fossil fuels or supplied by the grid in the absence of the

project activitI(c) Heat generation using fossil fuels in the absence of the project activity; and

(d) Natural gas used from the natural gas network in the absence of the project activity.

$BEy = BECH4,y + BEEC,y + BEHG,y + BENG$,y

Where:

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

$BECH4,y$ = Baseline emissions of methane from the SWDS in year y (t CO2e/yr)

$BEEC,y$ = Baseline emissions associated with electricity generation in year y (t CO2/yr)

$BEHG,y$ = Baseline emissions associated with heat generation in year y (t CO2/yr)

$BENG,y$ = Baseline emissions associated with natural gas use in year y (t CO2/yr)

According the methodological tool "Emissions from solid waste disposal sites" version 08.1 , ex-ante calculation of $BE_{CH4,SWDS,y}$ based on the formulation below:

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

Where, for the yearly model:

$BECH4,SWDS,y$
$PECH4,SWDS,y$
$LECH4,SWDS,y$

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

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

(x = y)

y = Year of the crediting period for which methane emissions are calculated (y is a consecutive period of 12 months)
$DOCf,y$ = Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y (weight fraction)
Wj,x = Amount of solid waste type j disposed or prevented from disposal in the SWDS in the year x (t)

Where, for the monthly model:

$BECH4,SWDS,m$
$PECH4,SWDS,m$
$LECH4,SWDS,$m
} Baseline, project or leakage methane emissions occurring in month m generated from waste disposal at a SWDS during a time period ending in month m (t CO2e/m)

m = Month of the crediting period for which methane emissions are calcuIated
i = Months in the time period in which waste is disposed at the SWDS, extending from the first month in the time pIriod (i = 1) to mInth m (i = m)
$DOCf,m$ = Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for month m (weight fraction)
Wj,i = Amount of organic waste type j disposed/prevented from disposal in the SWDS in tIe month i (t)
Where, for both the yearly and monthly model:
φy = Model correction factor to account for model uncertainties for year y
fy = Fraction of methane captured at the SWDS and flared, combusted for used in another manner that prevents the emissions of methane to the atmosphere in year y
$GWPCH4$ = Global Warming Potential of methane
OX = Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)
F = Fraction of methane in the SWDS gas (volume fraction)
$MCFy$ = Methane correction factor for year y
$DOCj$ = Fraction of degradable organic carbon in the waste type j (weight fraction)
k = Decay rate for the waste type j (1 / yr)
j = Type of residual waste or types of waste in the MSW

As per ACM0002 version 22 , the baseline emissions are calculated as the net electricity generated by the project activity, multiplied with the baseline emission factor for the project grid.

Baseline emissions calculated as explained in section B.6.1 above are summarized as below.

BEy = EGy * EFy

Where,

EGy = the net electricity exported to the grid system during the year y (54,600 MWh/annum)

EFy = the emission factor of the grid to which the project exports electricity (0.5415 tCO_2 tCO2/MWh)

hence,

BEy = 54,600 MWh/annum * 0.5415 tcO_2/MWh

BEy = 29,565 tCO_2 per annum

Project emissions

According to ACM0001 Version 19.0 project emissions are calculated as follows;

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

Where:

PEy = Project emissions in year y (t CO2/yr)

$PE_{EC,y}$ = Emissions from consumption of electricity due to the project activity in year y (t CO2/yr)

$PE_{FC,y}$ = Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (t CO2/yr)

$PE_{DT,y}$ = Emissions from the distribution of compressed/liquefied LFG using trucks, in year y (t CO2/yr)

$PE_{SP,y}$ = Emissions from the supply of LFG to consumers through a dedicated pipeline, in year y (t CO2/yr)

$$PE_y = PE_{EC,y} + PE_{FC,y} \qquad (14)$$

Where:

PE_y Project emissions in year y (t CO2/yr)

$PE_{EC,y}$ Emissions from consumption of electricity due to the project activity in year y (t CO2/yr)

$PE_{FC,y}$ Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (t CO2/yr)

The project emissions from consumption of electricity by the project activity ($PE_{EC,y}$) is calculated using the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption". When applying the tool:

- Electricity sources j in the tool corresponds to the sources of electricity consumed due to the project activity. This includes, where applicable, electricity consumed for the operation of the LFG capture system,

$$PE_{EC,y} = \sum_{k} EC_{PJ,j,y} xEF_{EL,j,y} x\left(1 + TDL_{j,y}\right) \quad (21)$$

Where:

$PE_{EC,y}$ Project emissions for electricity consumption in year y (tCO2/yr)

$EC_{PJ,j,y}$ Quantity of electricity consumed by the project electricity consumption sources j in y (MWh/yr)

$FE_{EL,j,,y}$ Emission factor for electricity generation for source j in year y (tCO2/MWh)

$TDL_{k,y}$ Average technical transmission and distribution losses for providing electricity to source j in year y

j Sources of electricity consumption in the project

For the simplicity of emission reduction calculation, project emission from electricity consumption is assumed to be "0". For ex-post calculation, this emission source, if any, will be taken into account.

The project emissions from fossil fuel combustion ($PE_{FC,j,y}$) has been calculated following the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion". For this purpose, the processes j in the tool corresponds to all fossil fuel combustion in the landfill, as well as any other on-site fuel combustion needed for the project activity.

$$PE_{FC,j,y} = \sum_{i} FC_{i,j,y} \times COEF_{i,y} \quad (15)$$

Where

$FC_{i,j,y}$ quantity of Iuel type i combusted in process j during the yIar y

$COEF_{i,y}$ CO_2 emission coefficient oI fuel type i in year y

The CO_2 emission coefficient is calculated following Option B as fuel combust chemical composition of the fuel.

The CO_2 emission coefficient is calculated following Option B based on net calorific value and CO_2 emission factor of the fuel type I as follows:

$$COEF_{i,y} = NCV_{i,y} \times EF_{CO2,i,y} \quad (16)$$

where

$COEF_{i,y}$	CO_2 emission coefficient If fuel type i in year y
$NCV_{i,y}$	the weighted average net calorific value of the fuel type I in year y
$EF_{CO2,y}$	the weighted average CO_2 emission factor of fuel typI I in year y
i	are the fuel types combusted in process j during the year y

For the simplicity of emission reduction calculation, project emission from fossil fuel combustion is assumed to be "0". For ex-post calculation, this emission source, if any, will be taken into account.

Calculation of project emissions from flaring

For the simplicity of emission reduction calculation, project emission from flaring is assumed to be "0". For ex-post calculation, this emission sources, if any, will be taken into account and as detailed in below:

Project emissions from flaring are calculated as the sum of emissions for each minute m in year y, based on the methane mass flow in the residual gas (FCH4,RG,m) and the flare efficiency (ηflare,m), as follows:

$$PEflare,y = GWPCH4 \times \sum_{m=1}^{525600} FC\text{–}4,RG,m \times (1 - \eta flare,m) \times 10^{-3}$$

Where:

$PEflare,y$ = Project emissions from flaring of the residual gas in year y (tCO2e)

$GWPCH4$ = Global warming potential of methane valid for the commitment period (tCO2e/tCH4)

$FCH4,RG,m$ = Mass flow of methane in the residual gas in the minute m (kg)

$\eta flare,m$ = Flare efficiency in minute m

The estimated Project emissions from flaring is 0 tCOe.

PEy = 0 tCO_2/year

Leakage

No leakage effects need to be accounted under the approved consolidated methodology ACM0001, version 19.0.

LEy = 0 tCO_2/year

Emission reductions

ERy = BEy – PEy-ERy = 276,967– 0

ERy = 276,967 tCO_2 (ERy = BEy)

Data/parameter	$EF_{CO2,grid,y}$
Unit	tCO_2/MWh
Description	Combined margin CO2 emission factor for the project electricity system in year y
Source of data	Republic of Türkiye Ministry of Energy in Emission Factor 2021
Value(s) applied	0.5415
Choice of data or Measurement methods and procedures	TEIAS, the Turkish Electricity Transmission Company is the official source for the related data, thus providing the most up-to-date and accurate information available.
Purpose of data	Calculation of baseline emissions – to demonstrate contribution to SDG7- 7.2.1 Renewable energy share in the total final energy consumption

B.6.2 Data and parameters fixed ex ante

SDG 7 : Affordable and Clean Energy : The project is expected to generate MWh of clean energy per annum. The project contributes to the following indicators 7.2.1 "Renewable energy share in the total final energy consumption" and following target: 7.2 ''By 2030, increase substantially the share of renewable energy in the global energy mix."

SDG 8 : Decent Work and Economic Growth : The project provides employment to between 20 and 25 people. The project contributes to the following indicators 8.5.2 Unemployment rate, by sex, age and persons with disabilities and following target 8.5 'By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value'.

This also helps to achieve "the project labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women

migrants, and those in precarious employment." Training records or certificates have been provided during each monitoring period.

SDG13 : Climate Action : Prior to the proposed project activity, the wastes are left to decay within Samsun landfill site and methane is emitted to the atmosphere without any control or utilization. The baseline scenario is the same as the existing scenario, i.e. atmospheric release of the landfill gas and power supply by the grid. With the proposed project, LFG generated in the involved landfill site has been captured by newly constructed LFG collection and utilization system.

The project contributes to the following indicators 13.3.2 Number of countries that have communicated the strengtheningof institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions" and following target 13.3.Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

The project collects the wastes regularly. During the first crediting period waste amount was 182,500 tonnes, corresponding to an average of 500 t/day. Waste amount estimated to be 304,466 tonnes, corresponding to an average of 800 t/day was during the second crediting period. For the third crediting period expected waste amount is approximately 572,719 tonnes corresponding to average of 1,569 t/day

SDG13

Data/parameter	GWP_{CH4}
Unit	tCO2e/tCH4
Description	Global warming potential of CH4
Source of data	IPCC 5th Assestment Report
Value(s) applied	28[57]

[57] https://ghgprotocol.org/sites/default/files/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_0.pdf

Choice of data or Measurement methods and procedures	Please see the below footnote 57 and default value accepted by IPCC 5th Assestment Report
Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	-

Data/parameter	D_{CH4}
Unit	t_{CH4}/ m^3t_{CH4}
Description	Methane Density
Source of data	Tool 14 v3.0[58]
Value(s) applied	0.00067 t_{CH4}/ m^3t_{CH4}
Choice of data or Measurement methods and procedures	At standard temperature and pressure, the density of methane is 0.00067 t_{CH4}/m^3_{CH4}
Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	-

Data/parameter	Φ
Unit	-
Description	Default value for the model correction factor to account for model uncertainties
Source of data	"Methodological Tool: Emissions from solid waste disposal sites" (Version 08.1)

[58] PP will not use this tool except of reference of this value.

<table>
<tr><td>Value(s) applied</td><td>0.75 (Application A and humid/wet conditions are applicable for this project) as in with below table as per refer Tool04 version 08.1 tool (A or B) and the climate where the SWDS is located
<table>
<tr><td>Default values for the model correction factor</td><td>Humid/wet conditions</td><td>Dry conditions</td></tr>
<tr><td>Application A</td><td>0.75</td><td>0.75</td></tr>
<tr><td>Application B</td><td>0.85</td><td>0.80</td></tr>
</table></td></tr>
<tr><td>Choice of data or Measurement methods and procedures</td><td>Oonk et el. (1994) have validated several landfill gas models based on 17 realized landfill gas projects. The mean relative error of multi-phase models was assessed to be 18%. 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 the model results.</td></tr>
<tr><td>Purpose of data</td><td>Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</td></tr>
<tr><td>Additional comment</td><td>-</td></tr>
</table>

Data/parameter	OX
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, Vol. 5 Waste, Table 3.2.
Value(s) applied	0.1
Choice of data or Measurement methods and procedures	As the landfill was covered by soil, the default value for oxidation could be applied.

Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	-

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, Vol. 5 Waste,
Value(s) applied	0.5
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	-

Data/parameter	$DOC_{f,default}$
Unit	-
Description	Default value for the fraction of degradable organic carbon (DOC) in MSW that decomposes in the SWDS. (Weight fraction)
Source of data	2019 Refinement to the IPCC 2006 Guidelines for National Greenhouse Gas Inventories,
Value(s) applied	0.5
Choice of data or Measurement methods and procedures	The PP is applied in Application A and DOCf,y is given as a default value (DOCf,y = DOCf,default).
Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional

	capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	-

Data/parameter	MCF
Unit	-
Description	Methane correction factor
Source of data	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Table 3.1
Value(s) applied	1
Choice of data or Measurement methods and procedures	The methane correction factor (MCF) accounts for the fact that managed SWDS produces more methane than unmanaged SWDS. Based on the "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site", IPPC default value for anaerobic managed SWDS is applied.
Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	The value of 1 applicable for anaerobic managed solid waste disposal sites. These must have controlled placement of waste (i.e. waste directed to specific deposition areas, a degree of control of scavenging and a degree of control of fires which is the case of the project activity) and will include at least one of the following: (i) cover material; (ii) mechanical compacting; or (iii) leveling of the waste.). The project activity has covered material and levelling of the waste.

Data/parameter	DOC_j
Unit	-
Description	Fraction of degradable organic carbon (by weight) in the waste type j

Source of data	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Tables 2.4 and 2.5.
Value(s) applied	
Choice of data or Measurement methods and procedures	Medium Average temperature MAT [°C]: 14.6 Medium Average Precipitation MAP [mm]: 723.2 PET – potential evapotranspiration: 240 mm (max-July and August) Source : https://www.mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?k=A&m=SAMSUN https://www.mgm.gov.tr/arastirma/buharlasma.aspx?s=2023 The selection of appropriate kj values are made according to a "boreal and temperate" and "wet" climate, thus values are used in accordance to "Emissions from solid waste disposal sites" version 8 and 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Tables 2.4 and 2.5. The temperatures are below 60 C
Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	-

Waste type j	DOC_j (% wet waste)
Wood and wood products	43
Pulp, paper and cardboard (other than sludge)	40
Food, food waste, bevarages and tobacco (other than sludge)	15
Textiles	24
Garden, yard and park waste	20
Glass, plastic, metal, other inert waste	0

Data/parameter	k_j
Unit	1/yr

Description	Decay rate for the waste type j
Source of data	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Table 3.3.
Value(s) applied	Wet :Wood, wood products and straw (0.03), Pulp, paper and cardboard (other than sludge (0.06), Food, food waste, sewage sludge, beverages and tobacco (0.185), Textiles (0.06), Other (non-food) organic putrescible garden and park waste (0.10)

Waste type j		Boreal and Temperate (MAT ≤ 20 °C)		Tropical (MAT ≥ 20 °C)	
		Dry ☐MAP/PET < 1)	Wet(MAP/PET > 1)	Dry(MAP < 1000 mm)	WetMAP > 1000)
Slowly Degrading	Pulp, paper, cardboard (other than sludge, textiles)	0.04	0.06	0.045	0.07
	Wood, wood products and straw	0.02	0.03	0.025	0.035
Moderately Degrading	Other (non-food) organic putrescible garden and park waste	0.05	0.10	0.065	0.17
Rapidly Degrading	Food, food waste, sewage sludge, beverages and tobacco	0.06	0.185	0.085	0.40

Choice of data or Measurement methods and procedures	Medium Average temperature MAT [°C]: 14.6 Medium Average Precipitation MAP [mm]: 723.2 PET – potential evapotranspiration: 240 mm (max-July and August) Therefore, Boreal (MAT≤20°C) and wet (MAP/PET >1) conditions are observed in the project site. Source : https://www.mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?k=A&m=SAMSUN https://www.mgm.gov.tr/arastirma/buharlasma.aspx?s=2023 Therefore, Boreal (MAT≤20°C) and wet (MAP/PET >1) conditions are observed in the project site. The selection of appropriate kj values are made according to a "boreal and temperate" and "wet" climate.
Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	-

Data/parameter	η_{PJ}
Unit	Dimensionless
Description	Efficiency of the LFG capture system that has been installed in the project activity
Source of data	Feasiblity study
Value(s) applied	70%[59]
Choice of data or Measurement methods and procedures	The collection system which has been installed on the Project site is able to collect a certain fraction of the total LFG generation. This collection ratio is affected principally by the Project's technical design, therefore the value suggested in the feasibility study is used.

[59] Samsun Avdan LFG Summary Waste flow analysis and technical survey of MSP

Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	-

Data/parameter	R_u
Unit	Pa.m3/kmol.K
Description	Universal ideal gas constant
Source of data	Methodological Tool "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" Version 03.0
Value(s) applied	8,314
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	-

Data/parameter	MMCH4
Unit	kg/kmol
Description	Molecular mass of greenhouse gas (CH4)
Source of data	Methodological Tool "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" Version 03.0
Value(s) applied	16.04
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

Additional comment	
Data/parameter	P_n
Unit	Pa
Description	Total pressure at normal conditions
Source of data	Methodological Tool "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" Version 03.0
Value(s) applied	101,325 Pa
Choice of data or Measurement methods and procedures	
Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	-

Data/parameter	T_n
Unit	K
Description	Tempearture at normal conditions
Source of data	Methodological Tool "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" Version 02.0.0
Value(s) applied	273.15 K
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	-

Data/parameter	$SPEC_{flare}$

<table>
<tr><td>Unit</td><td>Temperature -°C
Flow rate or heat flux -kg/h or m3/h
Maintenance schedule -number of days</td></tr>
<tr><td>Description</td><td>Manufacturer’s flare specifications for temperature, flow rate and maintenance schedule. Specflare has been monitored through Flow Meter 2. Temperature, flow rate or heat flux and maintenance schedule has been monitored.</td></tr>
<tr><td>Source of data</td><td>Flow meter 2</td></tr>
<tr><td>Value(s) applied</td><td>-</td></tr>
<tr><td>Choice of data or Measurement methods and procedures</td><td>Equipment Specification
<table>
<tr><th>Type</th><th>Accuracy</th><th>Serial Nr.</th><th>Cal. Frequency</th><th>Dates of relevant calibrations</th><th>Cal. Validity</th></tr>
<tr><td>Flow meter</td><td>2%</td><td>AAL3829F</td><td>No periodic calibration required by manufacturer and recalibrated in case of any drift/deviation</td><td>24.04.2022</td><td>N/A</td></tr>
</table></td></tr>
<tr><td>Purpose of data</td><td>Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</td></tr>
<tr><td>Additional comment</td><td>Document in the CDM-PDD the flare specifications set by the manufacturer for the correct operation of the flare for the following parameters:
(a) Minimum and maximum inlet flow rate, if necessary converted to flow
rate at reference conditions or heat flux;
(b) Minimum and maximum operating temperature; and
IMaximum duration in days between maintenance events</td></tr>
</table>

B.6.3 Ex ante estimation of SDG Impact

The ex-ante emission reductions are calculated using the formulas as described under section B.6.1. In the following section, the assumptions made and the results from the calculations are presented.

SDG13

For the third crediting period expected waste amount is 572,719 tonnes corresponding to average of 1,569 t/day. The expected waste amount and LFG generation as below

according to "Samsun Avdan LFG_Summary Waste flow analysis and technical survey of MSP" document.

YEAR	BASELINE ESTIMATE	PROJECT ESTIMATE WASTE DUMPED (t/y)	NET WASTE (t)
09/02/2025-31/12/2025	0	437,440[60]	437,440
2026	0	514,260	514,260
2027	0	539,973	539,973
2028	0	566,972	566,972
2029	0	595,321	595,321
2030	0	625,087	625,087
2031	0	656,341	656,341
01/01/2032-08/02/2032	0	73,636[61]	73,636

Year	Baseline (LFG Generation)	Total LFG generation on site, as m3 LFG[62]
09/02/2025-31/12/2025	0	20,080,877
2026	0	23,607,351
2027	0	24,787,718
2028	0	26,027,104
2029	0	27,328,459
2030	0	28,694,882
2031	0	30,129,626
01/01/2032-08/02/2032	0	3,380,296

The project leads to mitigation of 276,967 tCO_2 per annum as an average

Year	Baseline estimate A= b + c	MDproject,y (b)	BEelectricity (c)	Project estimate (d)	Net benefit (tCO2) E= b + c - d

[60]Excel Baseline Study_Samsun Avdan LFG_CP3 renewal_v0.3 Methane Production page Q18
[61] Excel Baseline Study_Samsun Avdan LFG_CP3 renewal_v0.3 Methane Production page X18
[62] Excel Baseline Study_Samsun Avdan LFG_CP3 renewal_v0.3 Methane Production page between J18 and J25 cells. 2025 and 2029 values have been calculated according to reference document"Samsun Avdan LFG_Summary Waste flow analysis and technical survey of MSP"

09/02/2025-31/12/2025	207,599	181,194	26,406	0	207,599
2026	246,193	216,629	29,565	0	246,193
2027	260,375	230,811	29,565	0	260,375
2028	275,028	245,464	29,565	0	275,028
2029	290,200	260,635	29,565	0	290,200
2030	305,937	276,373	29,565	0	305,937
2031	322,286	292,721	29,565	0	322,286
01/01/2032-08/02/2032	31,152	27,994	3,159	0	31,152
Total	1,938,770	1,731,820	206,955	0	1,938,770
Total number of crediting years	**7**				
Annual average over the crediting period	**276,967**	**247,403**	**29,565**	**0**	**276,967**

SDG 7 : Affordable and Clean Energy

The baseline for the project is no project, thus leading to generation in the relevant grid which is dominated by fossil fuel. The clean energy generated by the project is calculated based on the amount of electricity generated by the project per annum. The project is expected to generate 54,600 MWh of clean energy per annum.

YEAR	BASELINE ESTIMATE	PROJECT ESTIMATE	NET BENEFIT
09/02/2025-31/12/2025	0	48,766	48,766
2026	0	54,600	54,600
2027	0	54,600	54,600
2028	0	54,600	54,600
2029	0	54,600	54,600
2030	0	54,600	54,600
2031	0	54,600	54,600
01/01/2032-08/02/2032	0	5,834	5,834

Total	0	382,200	382,200
Total number of crediting years	7 years		
Annual average over the crediting period	0	54,600	54,600

SDG 8 : Decent Work and Economic Growth

The project leads to employment opportunities which would not have been possible in the baseline scenario. The project have been provided employment to between 20 and 25 people.

This helps to achieve SDG 8 with indicators 8.5.2 "Unemployment rate, by sex, age and persons with disabilities" and following target: 8.5 "By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value" There is no opportunity to employ woman. So "equal pay for work of equal value" does not apply.

This also helps to achieve "the project labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment." Training records or certificates have been provided during each monitoring period.

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

SDG13

YEAR	PROJECT ESTIMATE (tCO_2e)	BASELINE ESTIMATE (tCO_2e)	NET BENEFIT (tCO_2e)
09/02/2025-31/12/2025	0	207,599	207,599
2026	0	246,193	246,193
2027	0	260,375	260,375
2028	0	275,028	275,028
2029	0	290,200	290,200
2030	0	305,937	305,937
2031	0	322,286	322,286
01/01/2032-08/02/2032	0	31,152	31,152
Total	0	1,938,770	1,938,770

Total number of crediting years	7 years		
Annual average over the crediting period	0	276,967	276,967

SDG 7 : Affordable and Clean Energy

YEAR	BASELINE ESTIMATE (MWh)	PROJECT ESTIMATE (MWh)	NET BENEFIT (MWh)
09/02/2025-31/12/2025	0	48,766	48,766
2026	0	54,600	54,600
2027	0	54,600	54,600
2028	0	54,600	54,600
2029	0	54,600	54,600
2030	0	54,600	54,600
2031	0	54,600	54,600
01/01/2032-08/02/2032	0	5,834	5,834
Total	0	382,200	382,200
Total number of crediting years	7 years		
Annual average over the crediting period	0	54,600	54,600

SDG 8 : Decent Work and Economic Growth

The project leads to employment opportunities which would not have been possible in the baseline scenario. The project have been provided employment to between 20 and 25 people.

This helps to achieve SDG 8 with indicators 8.5.2 “Unemployment rate, by sex, age and persons with disabilities” and following target: 8.5 “By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value” There is no opportunity to employ woman. So "equal pay for work of equal value" does not apply.

This also helps to achieve “the project labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.” Training records or certificates have been provided during each monitoring period.

B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

SDG 7

7.2.1 "Renewable energy share in the total final energy consumption"

<table>
<tr><td>Data / Parameter</td><td>$EG_{pj,y}$</td></tr>
<tr><td>Unit</td><td>MWh/yr</td></tr>
<tr><td>Description</td><td>Quantity of net electricity supplied to the grid in year y</td></tr>
<tr><td>Source of data</td><td>EPIAS records</td></tr>
<tr><td>Value(s) applied</td><td>54,600 MWh</td></tr>
<tr><td>Measurement methods and procedures</td><td>The net electricity generation supplied to the grid has been measured continuously by YEDAŞ meters (both main and spare) and recorded monthly.
Please see B.7.3. for more detailed description of the monitoring plan.</td></tr>
<tr><td>Monitoring frequency</td><td>Continuous measurement and at least monthly recording. (Remote automatic meter reading system-OSOS)
Information of the meters are listed as followed:
<table><tr><td></td><td>Main Meter</td></tr><tr><td>Manufacturer</td><td>MAKEL</td></tr><tr><td>Product</td><td>C510.AMT.5851.RS485</td></tr><tr><td>Serial number</td><td>65001340</td></tr></table>
<table><tr><td></td><td>Backup Meter</td></tr><tr><td>Manufacturer</td><td>ELSTER</td></tr><tr><td>Type</td><td>A1500</td></tr><tr><td>Serial number</td><td>00436730</td></tr></table>The accuracy of meters is given as 0.5s class</td></tr>
<tr><td>QA/QC procedures</td><td>• Measurements are undertaken using energy meters.
• Concerning metering system accuracy, project participants have to comply with relevant national</td></tr>
</table>

	legislation. The project must ensure that the metering devices are in line with the technical requirements which are set out by the Communiqué for Metering Devices to be used in the Electricity Market, which describes the minimum accuracy requirement the metering devices have to fulfil, which are categorized according to the installed capacity. Maintenance and calibration of YEDAŞ meters have been carried out according to the System Usage Agreement. The periodical calibration or maintenance is under the responsibility of YEDAŞ and has been fixed as once in 10 years. Since YEDAŞ meters are sealed by YEDAŞ, the project proponent cannot intervene with the devices. Calibration period in accordance with the manufacturer's specifications and national regulations. The net electricity export/supplied to a grid is the difference between the measured quantities of the grid electricity export and the import. Data measured by meters have been crosschecked with the YEDAŞ notice via e-mail or fax mail or signed Meterr Reading Records-OSOS protocol
Purpose of data	Calculation of baseline emissions
Additional comment	-

SDG8

8.5.2. Unemployment rate, by sex, age and persons with disabilities

Data / Parameter	Number of employment generation
Unit	Number
Description	Number of people employed directly due to the project activity
Source of data	SGK Records
Value(s) applied	The project provides between 20 and 25 employment
Measurement methods and procedures	The total number of persons working in the plant would be calculated based on the SGK Records
Monitoring frequency	Once for each monitoring period

QA/QC procedures	Social insurance registries of employees have been provided annually. After first verification, only changes in employees have been reported.
Purpose of data	-
Additional comment	-

8.8.2 Increase in national compliance of labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status.

Data / Parameter	Health and Safety Trainings
Unit	Number of people per monitoring period
Description	Number of people trained on health and safety issues during per monitoring period
Source of data	Training Records or Certificates
Value(s) applied	One health and safety training per year The project has been provided health and safety training to all staff at each monitoring period
Measurement methods and procedures	The total number of Health and Safety training based on Training Records or Certificastes
Monitoring frequency	Once for period each monitoring
QA/QC procedures	Training records or certificates have been provided
Purpose of data	Monitoring the health and safety trainings of employees to demonstrate contribution to SDG8-8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment
Additional comment	n.a

SDG 13

13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions" and following target

Data/parameter	Wx
Unit	Ton
Description	Quantity of MSW land filled during 2011~2035
Source of data	Summary Waste flow analysis and technical survey of MSP
Value(s) applied	See section B.6.4 and Samsun Landfill Calculation sheet
Choice of data or Measurement methods and procedures	The data is provided in the report of landfill gas power generation report and this data is used to for calculation of energy generation. The date of waste is also confirmed by representative of waste department in Municipality.
Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	Wx parameter values has been taken from "Summary Waste flow analysis and technical survey of MSP" document. And this has been crosschecked with the information by the project site' employees. Therefore the condition in the Article 6.3.2.1 of the Tool 04 v.08.1 has been satisfied.

Data/parameter	f_y
Unit	-
Description	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.
Source of data	Historical data average of Samsun LFG
Value(s) applied	0
Choice of data or Measurement methods and procedures	Once for the crediting period (fy = f) (For application A)

Purpose of data	Calculation of baseline emissions-to demonstrate contribution to SDG13- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	-

Data / Parameter	$F_{CH4,RG,m}$
Unit	kg
Description	Mass flow of methane in the residual gas stream in the minute m
Source of data	Flow Meter Nr.2
Value(s) applied	-
Measurement methods and procedures	The flow rate of the residual landfill gas is automatically converted to dry basis and normal conditions by the PLC system without any intervention by the Project owner. This parameter is calculated by multiplying LFG_{flare}, density of methane and W_{CH4} (percentage of methane measured by the gas analyzer). This is in compliance with the " Methodological tool: Project emissions from flaring ", For conversion, volumetric flow rate data has been collected from the flow meter Nr.2 (FM 2). Equipment Specification;

Type	Accuracy	Serial Nr.	Calibration Frequency	Dates of relevant calibrations	Cal. validity
Static orifice + Differential pressure type flow meter	+/- 0,065%	AAL3829F	No periodic calibration required by manufacturer and recalibrated in case of any drift/deviation	24.04.2022	N/A

Monitoring frequency	Measured continuously in real-time and recorded every 60 minutes.
QA/QC procedures	A separate flow meter is installed for the flare unit. Data is measured continuously with a flow meter by the Project owner. Flow meters have been subject to a regular maintenance and testing regime to ensure accuracy. This ensures that the accuracy of the measurement

	instrument is maintained. The measurement frequency is equal to or more than one sampling each hour.
Purpose of data	This parameter has been used to check with the $SPEC_{flare}$ parameter. This parameter has been used to calculate $PE_{flare,y}$.
Additional comment	Operational principal of orifice plate and differential pressure type flow meters is flow is restricted by a fixed static orifice plate. Differantial pressure between two sides of the orifice plate is measured and flow is autmaticly calculated by system. After the first calibration of the DP Transmitter there are no drift and are not necessary to recalibrate on the time the DP Trasmitter . The micro capacitor sensor is in silicon . The silicon guarantee high accuracy +/- 0,065% with no drift.

Data / Parameter	T_t
Unit	K
Description	Temperature of the gaseous stream in time interval t
Source of data	MRU SWG100 gas analyser
Value(s) applied	
Measurement methods and procedures	Equipment Specifications <table><tr><th>Type</th><th>Accuracy</th><th>Serial Nr.</th><th>Cal. Frequency</th><th>Dates of relevant calibrations</th><th>Cal. Validity</th></tr><tr><td>Integrated KT-35 Thermistor type</td><td>±%1</td><td>80695</td><td>No periodic calibration required by manufacturer ue to auto calibration function of the gas analyzer</td><td>19.09.2019</td><td>N/A</td></tr></table>Calibration results: Uncertainty 1.05°C, standard deviation < 1°C.
Monitoring frequency	Automatic reading and recording
QA/QC procedures	The data is measured and recorded automatically.

	The temperature measurement device is a KT 35 thermistor type integrated circuit member of MRU gas analyser system. (TOOL08 Methodological tool: Tool to determine the mass flow of a greenhouse gas in a gaseous stream Version 03.0)
Purpose of data	$F_{CH4,RG,m}$ mass flow of methane in the residual gas in the minute m, is calculated based on the dry basis assumption, which requires the temperature of the landfill gas to be below 60 °C. This data is used to verify that this requirement is fulfilled. It should also be noted that the landfill gas is dehumidified before the booster intake.
Additional comment	MRU gas analyser also functions as a trigger for high gas temperature alarm if it reaches to over 45°C. Purpose of the alarm is to protect the gas sensors and gas engine gensets from high temperature inlet gas. Operators also monitor temperature with Gentek 12-1900 manual temperature gauge to cross check alarms and deviations.

Data / Parameter	$LFG_{electricity,y,biogas}$
Unit	m^3
Description	The electricity energy produced from burning biogas is calculated by using the measurements of flowmeter and the metan gas analyser and the calculated amount have been reduced from the total electricity generation.**
Source of data	Flow Meter Nr.3
Value(s) applied	
Measurement methods and procedures	Equipment Specifications <table><tr><th>Type</th><th>Accuracy</th><th>Serial Nr.</th><th>Cal. Frequency</th><th>Dates of relevant calibrations</th><th>Cal. validity</th></tr><tr><td>Atex thermal mass flow meter</td><td>1,5 %</td><td>44182175</td><td>Factory calibrated. (no periodic calibration required by manufacturer)</td><td>02.11.2018</td><td>N/A</td></tr></table>Measurement Range: 0-2200 Nm3/h.
Monitoring frequency	Measured continuously in real-time and recorded every 60 minutes.

QA/QC procedures	Data is measured continuously with a flow meter by the Project owner. Flow meters have been subject to a regular maintenance and testing regime to ensure accuracy. This ensures that the accuracy of the measurement instrument is maintained. The measurement frequency is equal to or more than one sampling each hour.
Purpose of data	Calculation of baseline emissions
Additional comment	Thermal mass flow meter is calibrated at factory.

**

$$E_{LFG} = E_G \times \frac{\sum_i [FL_i \times ML_i]}{\sum_i [FL_i \times ML_i] + \sum_i [FB_i \times MB_i]}$$

Where

- E_G = Total Electricity Generated
- E_{LFG} = Electricity Generated from burning Land Fill Gas
- FL_i = Flow from Land Fill Pipe at hour i
- FB_i = Flow from Biogas at hour i
- ML_i = Methane ratio in Land Fill pipe at hour i
- MB_i = Methane ratio in biogas pipe at hour i
- $\sum_i$ denotes the sum over all hours

Data / Parameter	$LFG_{flare,y}$
Unit	Nm^3
Description	Total amount of landfill gas (under normal conditions of 0° and 1 Atm) flared in year y
Source of data	Flow meter Nr.2 (FM 2)
Value(s) applied	
Measurement methods and procedures	Please see details of the parameter FCH4,RG,m.
Monitoring frequency	Measured continuously in real-time and recorded every 30 minutes.
QA/QC procedures	"Project emissions from flaring", v.04.0 does not include this parameter, it is only used for double checking purposes by comparing it with LFGelectricity,y and LFGtotal,y.
Purpose of data	Calculation of baseline emissions

Additional comment	-

Data / Parameter	$LFG_{total,y}$
Unit	Nm^3
Description	Total amount of landfill gas and biogas (under normal pressure and temperature) captured in year y
Source of data	Flow meter Nr.1
Value(s) applied	
Measurement methods and procedures	Equipment Specifications <table><tr><th>Type</th><th>Accuracy</th><th>Serial Nr.</th><th>Calibration Frequency</th><th>Dates of relevant calibrations</th><th>Cal. validity</th></tr><tr><td>Static orifice + Differential pressure type flow meter</td><td>+/- 0,065%</td><td>AAL3824F</td><td>No periodic calibration required by manufacturer and recalibrated in case of any drift/deviation</td><td>24.04.2022</td><td>N/A</td></tr></table> Measurement Range: 0-2200 Nm3/h
Monitoring frequency	Measured continuously in real-time and recorded every 30 minutes.
QA/QC procedures	Data is measured continuously with a flow meter by the Project owner. Flow meters have been subject to a regular maintenance and testing regime to ensure accuracy. This ensures that the accuracy of the measurement instrument is maintained. The measurement frequency is equal to or more than one sampling each hour.
Purpose of data	This parameter is used for double checking purposes for comparing it with the sum of LFGelectricity,y and LFGflare,y.
Additional comment	Operational principal of orifice plate and differential pressure type flow meters is flow is restricted by a fixed static orifice plate. Differantial pressure between two sides of the orifice plate is measured and flow is autmaticly calculated by system. After the first calibration of the DP Transmitter there are no drift and are not necessary to recalibrate on the time the DP Trasmitter . The micro capacitor sensor is in silicon . The silicon guarantee high accuracy +/- 0,065% with no drift.

Data / Parameter	$LFG_{electricity,y,landfill}$
Unit	Nm^3
Description	Total amount of landfill gas and biogas (under normal conditions of 0° and 1 Atm) combusted in the generator unit in year y
Source of data	Flow Meter Nr.1, Flow Meter Nr.2, Flow Meter Nr.3
Value(s) applied	
Measurement methods and procedures	-
Monitoring frequency	Measured continuously in real-time and recorded every 30 minutes.
QA/QC procedures	Data is measured continuously with a flow meter by the Project owner. Flow meters have been subject to a regular maintenance and testing regime to ensure accuracy. This ensures that the accuracy of the measurement instrument is maintained. The measurement frequency is equal to or more than one sampling each hour.
Purpose of data	Calculation of baseline emissions
Additional comment	n.a

Data / Parameter	w_{CH4}
Unit	%
Description	Methane fraction in the landfill gas
Source of data	Gas analyzer (at the main booster pipe)
Value(s) applied	-
Measurement methods and procedures	Equipment Specifications

	Type	Accuracy	Serial Nr.	Calibration Frequency	Dates of relevant calibrations	Cal. Validity
	MRU SWG 100- BIO compact	%2	80695	No periodic calibration required by manufacturer due to auto calibration function of the gas analyzer	19.07.2019	N/A
Monitoring frequency	Measured continuously in real-time and recorded every 30 minutes.					
QA/QC procedures	Methane content is measured directly and continuously with a gas analyzer. The gas analyzer have been maintained and calibrated regularly according to the manufacturer's requirements in order to ensure that required level of accuracy is maintained. The gas analyzer is subject to a regular maintenance and testing regime to ensure accuracy, therefore the analyzer has been calibrated according to the manufacturer's recommendations. The measurement interval is equal to or more than one sampling each hour.					
Purpose of data	The percentage of methane in the landfill gas is used to calculated the amount of methane destroyed in the gas engine and flare units. It is also used to check whether it satisfies the minimum methane content threshold for the flare unit to ensure the gas is flared efficiently.					
Additional comment	n.a					

Data / Parameter	$PE_{flare,y}$
Unit	$^{t}CO2\text{-}eq$
Description	Project emissions from flaring of the residual gas in year y
Source of data	N/A
Value(s) applied	N/A
Measurement methods and procedures	$PE_{flare,y} = \sum_{m=1} F_{CH4,RG,m}*(1-\eta_{flare,m})*GWP_{CH4}*10^{-3}$

	$F_{CH4,RG,m}$ and $\eta_{flare,m}$ parameters are read continuously but recorded at regular intervals. Therefore, the formula above has been applied to 10- minutes and 30-minutes data, instead of 1-minute data. GWP_{CH4} is a fixed ex ante parameter.
Monitoring frequency	N/A
QA/QC procedures	Calculations are carried out with a spreadsheet to minimize the risk errors.
Purpose of data	Calculation of baseline emissions
Additional comment	n.a

Data / Parameter	Operation of the power plant
Unit	h
Description	Operational hours of the power plant
Source of data	Power generation of engines
Value(s) applied	-
Measurement methods and procedures	Equipment Specifications

Type	Accuracy	Serial Nr.	Cal. Frequency	Dates of relevant calibrations	Cal. Validity
MWM TEM SYSTEM LOG	100%	GENSET-1 2209051	N/A	N/A	N/A
MWM TEM SYSTEM LOG	100%	GENSET-2 2209398	N/A	N/A	N/A
MWM TEM SYSTEM LOG	100%	GENSET-3 2210872	N/A	N/A	N/A
MWM TEM SYSTEM LOG	100%	GENSET-4 2211580	N/A	N/A	N/A
MWM TEM SYSTEM LOG	100%	GENSET-5 2211579	N/A	N/A	N/A
MWM TEM SYSTEM LOG	100%	GENSET-6 2212959	N/A	N/A	N/A
MWM TEM SYSTEM LOG	100%	GENSET-7 2213990	N/A	N/A	N/A

Monitoring frequency	Continous
QA/QC procedures	The provides data on engines' supplied amount of power (kW). Operational hours are calculated based on engine operation
Purpose of data	Calculation of baseline emissions
Additional comment	Gas engines control system is closed automation system which is delivered by equipment supplier and it is defined as Total Electronic Management-TEM System. TEM combines important functions of the gas engine, the heat distribution system, and the auxiliary gas engine circuits in a single electronic unit. The states of the main components are measured with analog sensors and compared with the threshold values stored. The measurements are visualized on the system's own monitor and can be printed out.

Data / Parameter	$T_{EG,m}$
Unit	°C
Description	Temperature in the exhaust gas of the enclosed flare in minute m
Source of data	Thermocouple
Value(s) applied	-
Measurement methods and procedures	Equipment Specifications Brand-Type: Brand:Ordel OTO3-K12L15-20HTT temperature transmitter Accuracy: %1 Serial Nr.: 2304-13785 Dates of relevant calibrations: April 2024 Cal. Validity: N/A
Monitoring frequency	Measured continuously in real-time and recorded every 30 minutes.
QA/QC procedures	If more than one temperature port is fitted to the flare, the flare manufacturer must provide written instructions detailing the conditions under which each location shall be used and the port most suitable for monitoring the operation

	of the flare according to manufacturer's specifications for temperature. Temperature measurement equipment should be replaced or calibrated in accordance with their maintenance schedule. Unexpected changes such as a sudden increase/drop in temperature can occur for different reasons. These events should be noted in the site records along with any corrective action that was implemented to correct the issue.
Purpose of data	-
Additional comment	Due to high temperture working conditions temperature element checked and changed annually.

Data / Parameter	$\eta_{flare,m}$
Unit	%
Description	Flare efficiency in minute m
Source of data	$T_{EG,m}$, $F_{CH4,RG,m}$ and $SPEC_{flare}$
Value(s) applied	-
Measurement methods and procedures	A calculation spreadsheet is used to check the requirements defined above, which minimizes the risk of manual errors. The flare efficiency for the minute m ($\eta_{flare,m}$) is 90% when the following conditions are met to demonstrate that the flare is operating: The temperature of the flare ($T_{EG.m}$), minimum methane content and the flow rate of the residual gas to the flare ($F_{RG,m}$) is within the manufacturer's specification for the flare ($SPEC_{flare}$) in minute m; and Otherwise ηflare,m is 0%.
Monitoring frequency	-
QA/QC procedures	-

Purpose of data	-
Additional comment	-

Data / Parameter	$Flame_m$
Unit	N/A
Description	Flame detection of flare in the minute m
Source of data	Flame detector unit
Value(s) applied	-
Measurement methods and procedures	Equipment Specifications

Brand-Type	Accuracy	Serial Nr.	Cal. Frequency	Dates of relevant calibrations	Cal. Validity
ERIS-3 UV flame detector	%100	2111-0306	N/A	APRIL 2024	N/A

Monitoring frequency	Once per minute and the detection of flame recorded as a minute that the flame was on, otherwise recorded as a minute that the flame was off
QA/QC procedures	The flare unit installed for the project activity includes the flame detector as an integral safety component. This detector coupled with the electronic module installed in the control panel continuously detect flame presence by UV sensor. If the detector cannot see the flame (and cogeneration engine are in OFF), the main valve automatically closes and a flame is tried to be created with only pilot line. If this operation fails, the system automatically shuts down and an alarm appears on the system. Therefore, the data availability also implies flame detection.

Purpose of data	This parameter is added to comply with the methodological tool "Project emissions from flaring", v.04.0 and there is no direct use for these data in calculations.
Additional comment	Ultraviolet light is emitted as a result of the combustion process. The radiation of the ultraviolet light is at higher frequencies than that of visible light. It has wavelengths of between 200 and 400 nm. The amount of ultraviolet light emitted is related to the temperature of the flame. The highest radiation occurs near the base of the flame, and decreases toward the end of the flame. If the flame quality in the burner falls below the spectrum that can be determined by the UV lamp (190 nm), the UV detector will acknowledge that no flame is present and warn operators.

Data / Parameter	ER_y
Unit	tCO_2/y
Description	Emission Reductions in year y (t CO_2/yr) As per ACM0002 Version 22 and ACM0001 Version 19.0, the baseline emissions (emission reductions) are calculated as the net electricity generated by the project activity and Methane destroye. For electricity, generation multiplied with the baseline emission factor for the project grid.
Source of data	Measured and Calculated. (The emission reduction value the emission factor of the grid to which the project exports electricity (0.5415 tCO_2 tCO2/MWh)[63]
Value(s) applied	276,967 tCO_2[64]
Measurement methods and procedures	Please see B.6.2-B.6.4 and B.7.3 for more detailed description of the monitoring plan.

[63]https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Sebeke_EF_Bilgi_Formu_2022.pdf

[64] This value will be changed accordig to net electicity generation value and methane production.

Monitoring frequency	Once for each monitoring period
QA/QC procedures	Please see B.7.3. for more detailed description of the monitoring plan.
Purpose of data	Calculation of baseline emissions (Baseline emissions calculated as explained in section B.6.2-B.6.4)
Additional comment	-

Data / Parameter	SDG Principle 9.4 – Release of Pollutants
Unit	n.a.
Description	Reduction of odour: By effectively collecting LFG that would otherwise be emitted freely, the Project reduces H2S (a foul smelling gas) emissions.
Source of data	Interview with stakeholders
Value(s) applied	There is no negative feedback received from local stakeholders.
Measurement methods and procedures	n.a
Monitoring frequency	Once for each monitoring period
QA/QC procedures	n.a.
Purpose of data	Odour and health improvment
Additional comment	-

Data / Parameter	Soil Condition (SDG Principle 9.4 – Release of Pollutants)
Unit	n.a.
Description	Waste terracing is properly done with capping layers
Source of data	Visual inspection Waste terracing: Setting up capping layers in terraces
Value(s) applied	Waste terracing is properly done with capping layers.
Measurement methods and procedures	Visual inspection
Monitoring frequency	Once for each monitoring period
QA/QC procedures	n.a.

Purpose of data	Waste terracing will be properly done with capping layers
Additional comment	-

Data / Parameter	Leachate management (SDG Principle 9.4 – Release of Pollutants)
Unit	n.a.
Description	Leachate is successfully collected and treated. The Municipality has assigned a third party on site, who is responsible of treating leachate properly. The Municipality has provided a letter confirming that the leachate quality has improved after the Project start.
Source of data	Interview with the stakeholder and Municipality Letter has been provided to the VVB.
Value(s) applied	The Municipality has assigned a third party on site, who is responsible of treating leachate properly. The leachate quality is good during this monitoring period.
Measurement methods and procedures	n.a
Monitoring frequency	Once for each monitoring period
QA/QC procedures	n.a.
Purpose of data	Leachate is successfully collected and treated.
Additional comment	-

B.7.2 Sampling plan

Not applicable

There are no data or parameter monitored to be determined by a sampling approach.

B.7.3 Other elements of monitoring plan

The monitoring instruments to be installed include LFG flow meters, methane meters, pressure and temperature gauges and electricity measurement devices. All the monitoring instruments have been meet the relevant accuracy requirements and data

substitution for methane content or LFG flow as provided in Appendix of TOOL08. (Tool to determine the mass flow of a greenhouse gas in a gaseous stream Version 03.0) Methane content is measured continuously through Gas Anaylser, Flow Meter Nr.1 and Flow Meter Nr. 2.

Parameter	Explanation	Measurement Device
$w_{CH4,y}$	Methane fraction in the landfill gas	Gas Analyser
T	Temperature	Temperature Gauge
P	Pressure	Flow Meter 1-2-3
$T_{EG,m}$	Temperature in the exhaust gas	Thermocouple
$LFG_{total,y}$	Total amount of landfill gas captured at normal temperature and pressure	Flow meter Nr.1
$EL_{LFG,y}$	Net amount of electricity supplied to the grid by the Project	Electricity Meter
$LFG_{flare,y}$	Amount of landfill gas flared at normal temperature and pressure	Flow meter Nr.2
$LFG_{electricity,y,landfill}$	Amount of landfill gas combusted in the power plant at normal temperature and pressure	Flow Meter Nr.3
$LFG_{electricity,y,biogas}$	Amount of biogas combusted in the power plant at normal temperature and pressure	Flow Meter Nr.3
$Flame_m$	Flame detection of flare in the minute m	UV flame detector
Operation of the power plant	Annual operational hours	GENSET CONTROL EASYGEN-3200-5

The monitoring plan mainly involves proper preparation of a spreadsheet and reporting of it. Monitoring has been carried out with the help of a spreadsheet and supporting documentation. All data used for the monitoring plan have been archived electronically and backed up regularly. These data kept for the full crediting period and a further two years after the end of the crediting period or the last issuance of carbon credits, whichever occurs later.

According to the Turkish Law and Regulations, the methods of monitoring the net electricity fed to the grid and quality control and assures are explained below:
Monitoring data is collected in accordance with the agreement done between the project owner and Turkish Electricity Distribution Company (YEDAS) which provides the

infrastructure for the connection to the national grid. Connection Agreement has signed on 05/04/2017 with YEDAŞ Electricity Authorised Distribution Company. The metering system is defined in the agreement as two groups: main meter and spare meter. The design of the metering system is checked and approved by YEDAS before commissioning of the plant. The technical specifications of the power meters should be in line with Measure and Metering Devices Regulation by Ministry of Industry and Trade. In addition, the Communiqué for Power Meters announced by Energy Market Regulations Authority (EMRA) requires all meters to be in line with either Turkish Standards Institution or International Electrotechnical Commissions Standards. The meters are placed at the point the electricity is fed to the grid and sealed on behalf of the both parties. This prevents any intervention and assures the accuracy and quality of the measurements. All requirements and specifications of the meters have been done according to Communique on the counter to be used in the Electricity Market by Energy Market Regulatory Authority on 22.04.2011.

Each project activity has a certain amount of self electricity consumption. Similar to energy generation, energy consumption is also recorded and accounted for the invoicing. The electricity consumption of the project mostly be covered by the Project's own electricity generation and the remaining power is the one which is measured and fed to the transmission line. In cases when the Project's own power generation is not high enough to cover its own consumption, electricity from the grid is used. This usage is measured also by the two measurement devices.

Data is stored electronically, during the crediting period and at least two years after the last issuance of credits for the project activity in the concerning crediting period. The Project Participant is responsible for storage of data received from the measuring devices.
Furthermore, the general manager implements a manual data recording system to act as a back-up for the on-line monitoring system. This basic back-up system consists of regular updating of a spreadsheet manually that includes the main key parameters.
The amount of LFG combusted in the gas engines is monitored by effectively and conservatively monitoring the methane amount supplied into each of the engine units. The actual emission reductions from the destruction of methane in the combustion units has been calculated such that the risk of overestimation is minimized. The readings are

taken and recorded internally by compatible and proper measurement devices automatically with high data quality.
The O2, CH4 and CO2 levels are measured regularly at Intervals of couple of hours. If the O2 level is found lower than 1% and CH4 is found higher than 55%, the gas flow is increased by 10%. If the CO_2 level is measured lower than 1% the gas flow is decreased by 10 percent.

The main and spare meter readings are recorded monthly and cross-checked whether calibration is required. The capacity of the transmission line connected is 31.5 kVA, the accuracy class for power meters have been defined in the Communiqué for Power Meters as 0.5S class. The calibration has been implemented in accordance with the related standard procedures. The periodical maintenance is under the responsibility of YEDAŞ and has been fixed as once in 10 years. [65]

The Project aims to create local employment opportunities in the project region in a sustainable way. The Project proponent prefers to prioritize personnel from the project region, which is defined as a Gold Standard indicator to be verified each year. The proposed project provides local employment both during the construction and operational phases. It is 20 to 25 employees' permanent during the operation of the plant.

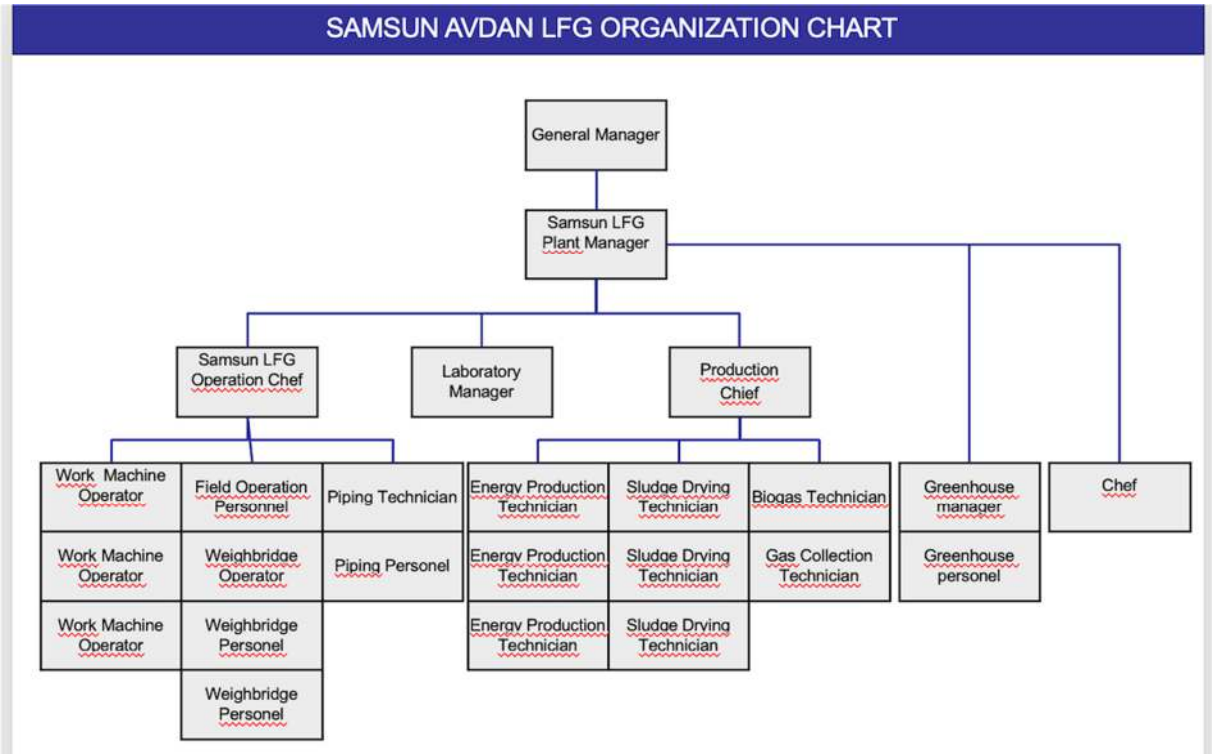
The responsible person for the monitoring of the Project is the general manager of the Project owner. The Project owner appoints a project manager who collects the data. The data is processed and reported in agreement with the monitoring plan by the general manager. The general manager can assign a carbon consultant for these tasks. The general manager of the Project owner is responsible for overseeing the implementation of the monitoring procedure. Competency requirements for these tasks are applied to ensure that the general manager is able to implement and/or supervise this procedure. The general manager is responsible of the emission reduction calculations and the preparation of necessary documents for verification.

[65] https://www.resmigazete.gov.tr/eskiler/2016/06/20160629-22.htm

The general manager is appoint the power plant manager for data collection, checking instrumentation, record keeping, data handling and data processing, filing, reporting, Organized repair and maintenance of monitoring equipment and ensuring the monitoring plan is adhered to as indicated in the approved PDD. The general111rganizl ensures that the personnel of the Project owner acquires the skills to carry out these tasks properly through capacity building practices and trainings.

The all staff receives health and safety trainings to minimise exposure to workplace hazards. At every shift, at least one trained technical personnel is present. All relevant information such as data files, maintenance and defect records and other monitoring related records is kept at a designated location in a transparent and organized manner.

Roles and responsibilities have been summarized in the following chart:



SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1 Start date of project

The starting date of a project activity is the earliest date at which either the implementation or construction or real action of a project activity begins. The construction start date of the Project is 13/09/2010.[66]

C.1.2 Expected operational lifetime of project
28 years and 0 months[67]

C.2. Crediting period of project

Renewable crediting period has been used.

C.2.1 Start date of crediting period
Starting date of the first crediting period: 09/02/2011- 08/02/2018
Starting date of the second crediting period: 09/02/2018- 08/02/2025
Starting date of third crediting period: 09/02/2025 – 08/02/2032

C.2.2 Total length of crediting period
7 years and 0 months, which is planned to be renewed twice, totally 21 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.

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?	As per Gold Standard Gender Policy (https://globalgoals.goldstandard.org/101-1-g-gold-standard-gender-policy/), p. 10 "Foundational gender sensitive requirement. This strengthens Gold Standard's 'do no harm' approach and addresses safeguards to prevent or mitigate adverse impacts on

[66] Construction start date of the project according to registered PDD.

[67] Generation License

	women or men and girls and boys. Such action is mandatory for all projects seeking Gold Standard certification and includes compliance with the gender 'do no harm' safeguards, gender gap analysis and gender sensitive stakeholder consultations." The project being a LFG project is not gender sensitive project. The project does not adversely impact women or men.
Question 2 - Explain how the project aligns with existing country policies, strategies and best practices	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. Türkiye is party to Convention on Discrimination since 1972 to prevent any form of discrimination. https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-2&chapter=4&clang=_en

Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	The Project shall complete the following gender assessment questions (https://globalgoals.goldstandard.org/101-4-gold-standard-for-the-global-goals-safeguarding-principles-requirements/) below: 1. Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits? No, the Project being a LFG project does not reduce access to or control of resources for women. 2. Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men)? No, the project beneficiaries in terms of employment and social upliftment of the area are common for both the gender. The project does not involve in any form discrimination in any kind of form. 3. Is there a possibility that the Project might not take into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities (such as lack of time, childcare duties, low literacy or educational levels, or societal discrimination)? No, this project does not involve in any form discrimination in any kind of form. 4. Does the Project take into account gender roles and the abilities of women or men to benefit from the Project's activities (e.g., Does the project criteria ensure that it includes minority groups or landless peoples)? Yes the project takes into account gender roles and abilities of women/men. Job profile is allocated based on the type of work to be carried out. 5. Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities? No, on the contrary the project leads to increased availability of electricity in the regional grid thereby uplifting the living standards. 6. Would the Project potentially reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits? No, since the project is

	a renewable electricity generation project, thus it does not have discriminated against women. 7. Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services? No, in fact, the project leads to improved electricity in the regional grid.
Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	The project is applying for regular GS registration and the Stakeholder Consultation & Engagement Procedure Requirements has been done as explained below. The project owner has organized the complimentary stakeholder consultation meeting according to related requirements of GS4GG for Samsun Landfill Gas to Energy Project,Turkey. In developing a Project, "taking gender issues into account would require that local stakeholder consultation processes reach a wide range of community representatives in ways that ensure equal and effective participation of women and men in consultation, and that gender issues are fully factored into comprehensive social and environmental impact assessments. The general outcome of the stakeholder consultation interview was positive verbally and mukhtar of the Aşağıavdan village has given their comment with a letter. (This letter has been provided to the VVB for CP renewal crediting (re-validation) process.) That's why there is no need to make physical local stakeholder consultation meeting for renewal crediting period. The stakeholders stated that they are in favour of the project and underlined the significant contribution of the project to regions sustainable image and stressed the importance of renewable and clean energy every time.

SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

E.1 Summary of stakeholder mitigation measures

The stakeholders to the project activity was defined jointly by the project owner and Rüzgar Karbon ve Enerji Danışmanlık Sanayi Ticaret Limited Şirketi, who is the consultant to the GS project cycle, taking into account the characteristics and possible impacts of the project activity.

Complementary Stakeholder Consultation for Renewal Crediting Period:

The general outcome of the stakeholder consultation interview was positive verbally. That’s why there is no need to make physical another local stakeholder consultation meeting. Furthermore, everything is similar related with the sustainable development indicators (SD assestment) of Samsun Landfill Gas to Energy Plant as first and second crediting period.

The stakeholders stated that they are in favour of the project and underlined the significant contribution of the project to regions sustainable image and stressed the importance of renewable and clean energy everytime.

The documents including the non-technical project summary for renewal crediting period and the Environmental and Social Impact questionnaire related with the Sustainable Development Indicators (SD Assessment) (according to GS4GG requirements) have been delivered to the stakeholders who have been selected as stakeholders to the project activity. The main communication method has been through e-mails and delivery of hard copies of the mentioned documents for those who don’t have an email address (specifically the locals) to the mukhtar of Aşağıavdan village.

The feedback request for renewal crediting period has started on 22/05/2024 with sending out the documents to the stakeholders officially, and verbally on the 22/05/2024 and 22/06/2024 the mukhtar of Aşağıavdan village and no feedback has been received until now. The beginning of Complemantary Stakeholder Feedback Round has be announced from the muckhtar’s offices, and coffe houses of the Alaçam and Özlü villages. This public leaflet announcement, emails and documents contain information such as location of available these documents, the procedure to commit comments, timing (until 22/06/2024) and the contact's details.

During the Complementary Stakeholder Consultation process for Renewal Crediting Period no negative comments have been received regarding Samsun Landfill Gas to Energy Plant.

List of stakeholders invited to the Complementary stakeholder consultation for the renewal of crediting period:

Category code	Organisation (if relevant)	Name of invitee	Way of invitation	Date of invitation	Confirmation received ? Y/N
C	Ministry of Environment and Urbanization	Mehrali Ecer	Via E-mail and phone mecer@cob.gov.tr 0 312 5863052	22/05/2024	Y
C	Ministry of Environment and Urbanization	General	Via E-mail and phone iklim@csb.gov.tr 0 312 5863167	22/05/2024	Y
B	Samsun Regional Directorates of Forestry	General	Via E-mail samsunisl@ogm.gov.tr	22/05/2024	Y
B	Samsun District Governor	General	Via E-mail lkadim@icisleri.gov.tr	22/05/2024	Y
A	Mayor of Samsun (Head of Environmental Protection and Control Department)	Figen Akın	Via E-mail figen_akin@mynet.com	22/05/2024	Y
C	Mayor of Samsun (Waste Management Branch Manager)	Fatih Kutbay	Via E-mail fatihkutbay@hotmail.com	22/05/2024	Y
D	REC Regional Environmental Centre	Rıfat Unal Sayman	Via E-mail info@rec.org.tr	22/05/2024	Y
B	Samsun Province Environment and Urban Director	Haluk Kartal	Via E-mail haluk.kartal@csb.gov.tr	22/05/2024	Y
A	Headman of Aşağıavdan Village	Kamuran Genç	Via face to face and phone	22/05/2024	Y
D	Samsun TEMA	General	Via E-mail samsuntema55@hotmail.com	22/05/2024	Y
F	Greenpeace	Hilal Atıcı	Via E-mail hatici@greenpeace.org	22/05/2024	Y

F	WWF	Güniz Bursali	Via E-mail gbursali@wwf.org.tr info@wwf.org.tr	22/05/2024	Y
E	Gold Standard Foundation	Neha Rao	Via E-mail neha.rao@goldstandard.org	22/05/2024	N
F	REEP	Info	Via E-mail info@reeep.org	22/05/2024	N
F	Mercy Crops	Bria Justus	Via E-Mail bjustus@mercycorps.org	22/05/2024	Y
F	Global Offset Researh	Siddarth Yadav	Via E-Mail syadav@globaloffsetresearch.com	22/05/2024	Y
F	Concern Health Education Project	Isaac Ampomah	Via E-mail isaac.ampomah34@gmail.com	22/05/2024	Y
F	My Climate	Thomas Finsterwald	Via E-Mail thomas.finsterwald@myclimate.org	22/05/2024	Y

E.2 Final continuous input / grievance mechanism

The general outcome of the complemantary stakeholder consultation interview was positive verbally with the mukhtar of the Aşağıavdan village and they have given their comment with a letter. (These letter has been provided to the GS and VVB.) That's why there is no need to make physical local stakeholder consultation meeting. The stakeholders stated that they are in favour of the project and underlined the significant contribution of the project to regions sustainable image and stressed the importance of renewable and clean energy.

During the Complementary Stakeholder Consultation process for Crediting Period Renewal (CP3) no negative comments have been received regarding the Samsun Avdan Landfill Gas to Energy Power Plant and no indicator in the sustainability matrix was scored negative, and no significant environmental impacts were identified. Briefly, the Samsun Landfill Gas to Energy Project, Turkey has started to generate electricity

and there are no comments and grievances by the local stakeholders have been received, neither by phone calls, by e-mail, by post nor by fax during these 14 operational years.

Furthermore, the GS continuous input mechanism was explained and discussed that whenever they have a complaint or a request, they can be able to fill in the grievance book which can be located at headman of Aşağıavdan village or call phone or talk face to face. The project owner has also explained that would be regularly checked by the project manager. The local stakeholders agreed on this mechanism and the book was given to the mukhtar of Aşağıavdan with a protocol.

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)	The process book has been located at local market of AşağıAvdan village because of the stakeholders' chosen place and person. Justification: Project Participant is checking the comments in the book on a regular basis, and record responses. They are respectful to the views of stakeholders and suggest alternative solutions or compromises wherever possible. It is chosen as main mechanism.
GS Contact (mandatory)	help@sustain-cert.com
Other	Project Owner (Samsun Avdan Enerji Üretim ve Tic. A.Ş.) Address: Süleyman Seba Cad. BJK Plaza, A Blok, No:77 Beşiktaş İSTANBUL Tel: +90 (212) 258 18 20 E-Mail: erol@samsunavdan.com.tr Project Representative: Rüzgar Karbon ve Enerji Danışmanlık San.Tic. Ltd.Şti. Tel: +90 216 355 09 68 E-Mail: cagla@ruzgardanismanlik.net Justification: This information has been explained to the local people and provided in the Continuous Input / Grievance Expression Process Book

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.		
The Project is not in conflict with the economic livelihood or other issue of the local community. Thus, the Project does not cause any human rights abuse and respects internationally proclaimed human rights issue.Project activities are not expected to cause any human rights abuse. As a member of United Nations and part of UN Agreement on Human Rights, it is ensured by law in Türkiye that no action can be taken against human rights.		
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.

As explained above.

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
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.

The Project does not diconsider gender roles and in fact actively engages both women and men. Community meetings are scheduled considering participation by both Men and Women. The project does not adversely affect men and women in marginalized or vulnerable communities because it creates stable jobs and incomes for local men and women. The project does not reduce or put at risk women's access to or control of resources, entitlements. Samsun Landfill Gas to Energy Project, Turkey does not involve in any form discrimination in any kind of form. Turkey ratified ILO 100 Equal Remuneration

Convention and 111 Discrimination (Employment and Occupation) Convention.[68] Therefore, the safeguarding principle related to Gender Equality and Women's Rights is not triggered during the project design and implementation. The project does not have any scope to apply gender strategy.		
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.		
There is no possibility of adverse effect because of this project. The project does not decrease women´s access to or control of resources. The project does not discriminate on basis of gender, caste or religion.		
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.		

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

The project owner is committed to the safe and healthy working conditions during all phases of the project. All employees will attend trainings health & safety. This issue is protected by Labor Law and regulations[69] and UN Agreement on Human Rights[70] .

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 noncommunicable diseases, nutritional disorders, mental health?	☐ YES ☐ POTENTIALLY ☒ 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.

All the employees have been trained about health and safety issues during operation 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

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

[69] https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6331.pdf

[70] https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6701.pdf

During the operation of the Samsun Landfill Gas to Energy Project, Turkey has not be any damage, alteration or removal to the critical cultural heritage. Cultural and environmental heritage is protected against alteration, damage or removal by the law.[71]		
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, practices)? (Note: projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	☐ YES ☐ POTENTIALLY ☒ 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

[71] https://teftis.ktb.gov.tr/TR-263665/dunya-kulturel-ve-dogal-mirasin-korunmasi-sozlesmesi.html

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.
Please add text here….

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

If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.
No the project is not involve any risks related to involuntary relocation of people.
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", - 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?	☐ YES ☐ 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.
NA

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

If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.
This Samsun Landfill Gas to Energy Project, Turkey is not involving land-use tenure and does not require any changes to land tenure arrangements or other rights. Furthermore, there is not any uncertainties with regards land tenure, access rights, usage rights or land ownership.

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.
As explained above

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

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

No cultural heritage/ indigenous people are displaced due to the project		
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	☐ YES ☐ NO ☒ NA

	health services, clean water, energy, education, safe and decent working conditions, and housing?	
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.

NA

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.

Samsun Landfill Gas to Energy Project, Turkey does not involve and is not complicit in any kind of corruption Turkey has ratified UN Convention against Corruption and the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions.

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
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
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.		
Samsun Avdan company and their subcontractors complying with all relevant national laws. Also this companyt does not employ children in any shape or form for their works. Turkey has ratified ILO 138 Minumum Age Conventions and 182 Worst Forms of Child Labour Convention.[72]		
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 *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.*	☐ YES ☐ POTENTIALLY ☒ NO

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

P.6.1.1 |	use of migrant workers? *if engaged, the developer shall ensure that they are engaged substantially equivalent terms and conditions to non-migrant workers carrying out similar work.*	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1 |	having no arrangements for basic services[73] for workers? *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*	☐ YES ☐ POTENTIALLY ☒ NO
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

[73] 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.

		☒ 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.

All the employees have been trained about health and safety issues during operation phase of the project. The project owner is committed to the safe and healthy working conditions all phases of the project. This issue is protected by Labor Law and regulations and UN Agreement on Human Rights
Samsun Avdan company and appointed subcontractors have not involved in any form forced or compulsory labour Turkiye has ratified ILO 29 Forced Labour Convention
Furthermore, tis Samsun Landfill gas to energy projevt has a positive impact on the social and economic benefits.

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.

The project has only one activity and it is producing electricity using waste. It provides the produced energy to the national grid. Other than providing clean energy to the nation, it has no negative impact on local economy during and after project implementation. Furthermore, it has positive impact by providing employment, to local people.

Would the project involve or lead to:

P.6.2.2 |	economic impacts (negative/detrimental) to the local economy?	☐ YES ☐ POTENTIALLY ☒ 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.

NA

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

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

The Project reduce the emission compared to the Baseline Scenario as it replaces electricity generated from fossil fuel fired power plants with zero emissions electricity from the waste.

Would the project involve or lead to:

P.7.1.1 |	increase greenhouse gas emissions over the Baseline Scenario?	☐ YES ☐ POTENTIALLY ☒ NO

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.

NA

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

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

The Project's purpose is to supply clean energy from the waste to the national grid. It does not use energy from a local grid or power supply or fuel resource that provides for other local users.

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

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.

NA

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.

The project is wind power project thus there is no impact of water resources, natural or pre-existing pattern of watercourses, groundwater and/or the watershed due to the project. This Samsun Ladnfill Gas to Energy project does not impact of water resources due to the project.

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.

NA

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

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

The Project directly or indirectly does not cause additional erosion and/or water body instability or disrupt the natural pattern of erosion. The project is susceptible to decreased vulnerability to erosion, flooding, drought or water body instability.		
Would the project involve or lead to:		
P.8.2.2 | - P.8.2.5 |	negatively impact on the catchment area? *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.*	☐ 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.		
NA		

P.9 |ENVIRONMENT, ECOLOGY AND LAND USE

P.9.1 |LANDSCAPE MODIFICATION AND SOIL

P.9.1.1 | - P.9.1.3 |	Is there any risk of soil resource degradation or loss of ecosystem services provided by soils in the project? *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.*	☐ YES ☒ NO
If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.		
This project activity is to generate electricity from waste It does not involve the use of land and soil for production of crops or other products. The project area has been rented from the Municipality.		
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.		
NA		
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
If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.		
The project is not susceptible to decreased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme conditions.		
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.		
NA		
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
If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.		
NA		
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

	Note - Forestry projects (for example Afforestation/ Reforestation) involving GMO planting are not eligible for Certification under Gold Standard for the Global Goals.	

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.

NA

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

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

The solid waste was being dumped to the landfill site without a soil capping layer before this project. Now, with soil capping layers, the landfill site is more robust, with a reduced risk of erosion and landslidThe project is susceptible to decreased vulnerability to wind, earthquakes, subsidence, land slides, erosion, flooding, drought or other extreme conditions. The Project is not function as a hazardous waste disposal or processing facility (i.e. as a hazardous waste gasification or incineration facility). Furthermore, there is not effect negatively organism, flora, fauna or GMOs. The project takes a precautionary approach in regard to environmental challenges and is not complicit in practices contrary to the precautionary principle. The environment is protected by several Laws and Regulations in Turkey. The purpose of the "Law on Environmental Protection" is to protect the environment with principles of sustainable development and environment. The project owner also follows necessary procedures for environmental safety at the project site at international standard (such as Bern Convention).The all wastes have been disposed of according to related regulations.[74]

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

[74] Samsun Avdan_Environmental and Technical Summary Report

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 management of all fractions of waste should be carried out in accordance with the legislation on waste and individual waste types.		
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.		
The Project producing electricity from the waste to the national grid. Therefore, this project does not produce any chemicals or hazardous waste (NOx, SOx, VOC, mercury) quantity		
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.		
NA		
P.9.6 |PESTICIDES & FERTILISERS		

P.9.6.1 |	Does the project involve the use of chemical pesticides?	☐ YES ☒ NO
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.

NA

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.

NA

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.

This is waste project, so the project does not involve the harvesting of 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

If the answer to the question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.		
The Project is generating electricity fom waste to the national grid. Therefore, the Project does not modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives.		
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
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.		
NA		
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.		
The Project does not modify the involve animal husbandry.		
Would the project involve or lead to:		
P.9.9.1 |	animal husbandry or harvesting of fish populations or other aquatic species?[75]	☐ 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

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

		☐ NO ☒ NA
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.

NA

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.

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

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 unable to achieve net gains of those biodiversity values for which the critical habitat was designated?	☐ YES ☐ NO ☒ 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.

NA

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

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

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.

NA

P.9.12 |INVASIVE ALIEN SPECIES

P.9.12.1 |	Does project introduce any alien species (not currently established in the country or region of the project) into new environments?	☐ YES ☒ NO

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

NA

Would the project involve or lead to:

P.9.12.1 |	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
P.9.12.1 |	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
P.9.12.2 |	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.

NA

APPENDIX 2 - CONTACT INFORMATION OF PROJECT DEVELOPER(S)

Organization name	Samsun Avdan Enerji Üretim ve Tic. A.Ş.
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APPENDIX 3 - LUF ADDITIONAL INFORMATION

NA

APPENDIX 4 - DESIGN CHANGES

NA

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