Gold Standard for the Global Goals

TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

RELATED SUPPORT **- TEMPLATE GUIDE Monitoring Report v. 1.1**

This document contains the following Sections

KEY PROJECT INFORMATION

Key Project Information

GS ID (s) of Project (s)	GS5920
Title of the project (s) covered by monitoring report	ALTACA MERAM BIOGAS PLANT
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	09
Version number of the monitoring report	06
Completion date of the monitoring report	15/04/2025
Date of project design certification	07/02/2023
Date of Last Annual Report	02/01/2025
Monitoring period number	1st Monitoring Period of 1st Crediting Period
Duration of this monitoring period	01/07/2022 – 30/06/2024
Project Representative	TOROS MERAM YENİLENEBİLİR ENERJİ ÜRETIM A.Ş. (Project Owner) GTE KARBON SUSTAINABLE ENERJI EGITIM DANISMANLIK VE TICARET A.S. (Project Developer)
Host Country	Türkiye
Activity Requirements applied	☐ Community Services Activities ☒ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	The Gold Standard Revised Consolidated Baseline Methodology for GHG Emission Reduction from Manure Management Systems and Municipal Solid Waste[1]

[1] https://globalgoals.goldstandard.org/421-wm-ghg-emission-reductions-from-manure-management-systems-and-municipal-solid-waste/

Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
SDG 7	Production of Clean Energy	47,253.4	MWh
SDG 8	Creating Employment Opportunities	84 (2024)	People
SDG 12	Ensure Sustainable Consumption and Production Patterns	174,890.62	tonnes/year
SDG 13	CO_2 Emission Reductions	144,349	tCO_2

Table 2 – Product Vintages

		Amount Achieved
Start Dates	End Dates	VER
01/07/2022	31/12/2022	45,751
01/01/2023	31/12/2023	68,932
01/01/2024	30/06/2024	29,666

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

Meram Biogas Plant was constructed by Toros Meram Yenilenebilir Enerji Üretim A.Ş. in Konya, Turkey. The main feedstock for the BPP (Biogas Power Plant) is manure in Meram and nearest regions. The digesters and equipment are also designed to utilize other wastes in the region causing by agricultural or industrial activities which are also renewable biomass resources such as potatoes or sugar beet wastes. The plant uses 6.176 MWm / 6.004 MWe (with four gas engines, 4 x 1.544 MWm / 4 x 1.501 MWe) with an expected output of 42.028 GWh of electricity (as per generation license).

Main goals of the project are:

- Waste collected from the animal shelters has been decomposed and turned into more stable state fertilizer, which is environmentally favorable and odorless,

- Heat demand of the facility met

- Biogas from cattle excrement will be used to produce clean electrical energy,

- The obtained fertilizer will have less odor compared to present fertilizers and will contain more free nitrogen (N)

The proposed project activity is a biogas-to-energy and generates renewable energy by capturing biogas from cattle manure, chicken manure and agricultural wastes -via anaerobic digestion- and utilising it to produce electricity. Prior to the project activity, baseline situation, cattle, chicken manure generated at farms managed by lagoons and agricultural wastes left in agricultural lands. Hence:

- The situation of cattle and chicken manure is simply with the applied methodology which states "This methodology is applicable to manure management on one or multiple livestock farms where the existing anaerobic manure treatment system, within the project boundary, is replaced by one or a combination of more than one animal waste management systems (AWMSs) that result in less GHG emissions compared to the existing system"

- The situation of agricultural waste is complied with the applied methodology which states "In case of co-digestion, for one or more sources of substrates, it cannot be demonstrated that the organic matter would otherwise have been left to decay anaerobically, baseline emissions related to such organic matter shall be accounted for as zero,"

In addition, there was not any biogas plant in the region before this project and there was no anaerobic biogas generation activity too. Hence the project became a Greenfield Project activity in terms of biogas generation within the region. In terms of quantum of waste handled within project activity, the actual wastes are 174,890.62 tonne/year (cattle manure + poultry manure + agricultural waste) for this monitoring period in the Meram Biogas Power Plant project.[2]

In addition, in the baseline situation, there is no renewable electricity generation and export to national grid via a biogas plant in the city, Konya, Turkey. In relation to this, project increase the renewable capacity of Turkey as host party via electricity generation using biogas produced by using wastes indicated above. This renewable electricity generation strongly related with Sustainable Development Goal 7 which is mentioned on renewable energy generation and increasing capacity on that manner. Electricity generated by the project increased the renewable energy generation of Turkey. Moreover, project owner employed 119 employees for whole monitoring period which contributes to the SDG 8 "Decent Work and Economic Growth"since project creates job opportunities.

Technology applied involves use of cattle manure, chicken manure and agricultural wastes. "Mesophilic" technology is applied according to the operating temperature in the planned biogas plant. The optimal operating temperatures of these bacteria are 37ºC. Manure is mixed and hydrolyzed here to break the bonds and generate biogas. Biogas obtained is fed to the cogeneration unit to generate heat and electricity whereas final product is stored and used as fertilizer. Electricity generated is fed to the national grid.

The system consists of following units:

Waste collection unit: Weigh bridge and data control/storage system

Waste preparation / feed unit: Equalization tank, vegetative waste stock area, central pumping system

Anaerobic Digestion Unit: Digestors, gas storage unit, desulfurization unit, early warning system, temperature control system

[2] Waste Information Excel Sheet

Cogeneration Unit: Cogeneration, gas treatment system, flare

Fertilizer Dewatering / Hygenization Unit: Post-digestion tanks, hygenization unit, separator

Automation system

Product Storage Area: Liquid fermented storage area, solid fermented storage area

Thanks to the project, an annual emission reduction of 72,175 tonnes of CO_2e and a total of 47,253.4 MWh of electricity generation was achieved. The total emission reduction for this monitoring period is 144,349 tonnes of CO_2e. Also, the project is expected to reduce 204.0 tons of SO_2 and 43.9 tons of NO_x emissions (based on 2020 national gross electricity generation statistics[3] and 2020 national greenhouse gas emission inventory submission to UNFCCC[4] which is the latest published national inventory data consisting SO_2 and NO_x emissions). The actual SO_2 reduction is calculated as 229.2 tonnes for whole monitoring period while NO_x reduction is calculated as 49.6 tonnes for whole monitoring period.

In the absence of the project activity, the waste materials used as energy sources would have been disposed but not been utilised and the energy demand would be met using fossil fuels.

The milestones of the project are presented in Table 1 below.

Table 2 Milestones of Meram Biogas Power Plant Project

Milestone	Date
Approval of The Feasibility Report	05/08/2016
EIA Approval	13/12/2016
LSC Meeting	02/08/2017
Generation License	04/10/2018
EPC Agreement (Construction Agreement)	01/12/2019
Site Delivery Protocol	02/12/2019
The Distribution System Agreement	13/05/2020
Gas Engine Commissioning	27/11/2020
Start Date of First Crediting Period	01/07/2022
1st Crediting Period	01/07/2022 – 30/06/2027
Certificate of permission for use of building	13/08/2021
1st Monitoring Period	01/07/2022 – 30/06/2024

[3] https://webim.teias.gov.tr/file/8e92ef4c-48c6-410e-8852-dd4865cc816c?download
[4] https://unfccc.int/documents/461898

This is the first monitoring period of the first crediting period.

The project boundary includes the physical, geographical sites of:

(a) The livestock (farms where the cattle and poultry manure gathered);
(b) Animal manure management system (This project site)
(c) Facilities which recover and combust or use methane.

As it could be seen in the figure below, project has three main components of emission reduction;

- manure management
- electricity generation

(d) All power plants connected physically to the electricity system (grid) that the project plant is connected to.

e) Farms and facilities where the solid and liquid fraction(slurry) of the organic fertilizers transferred

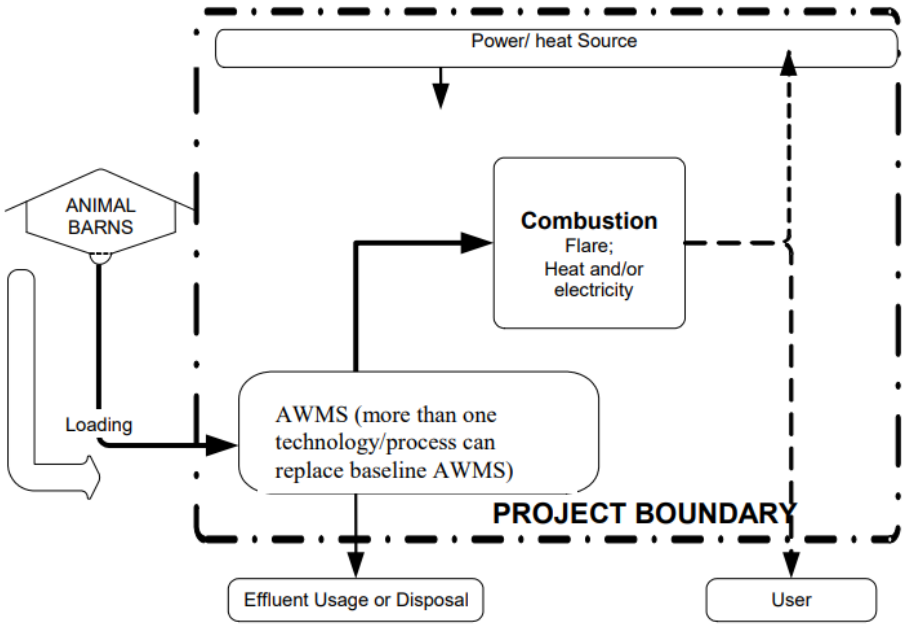


Figure 1. Project Boundary

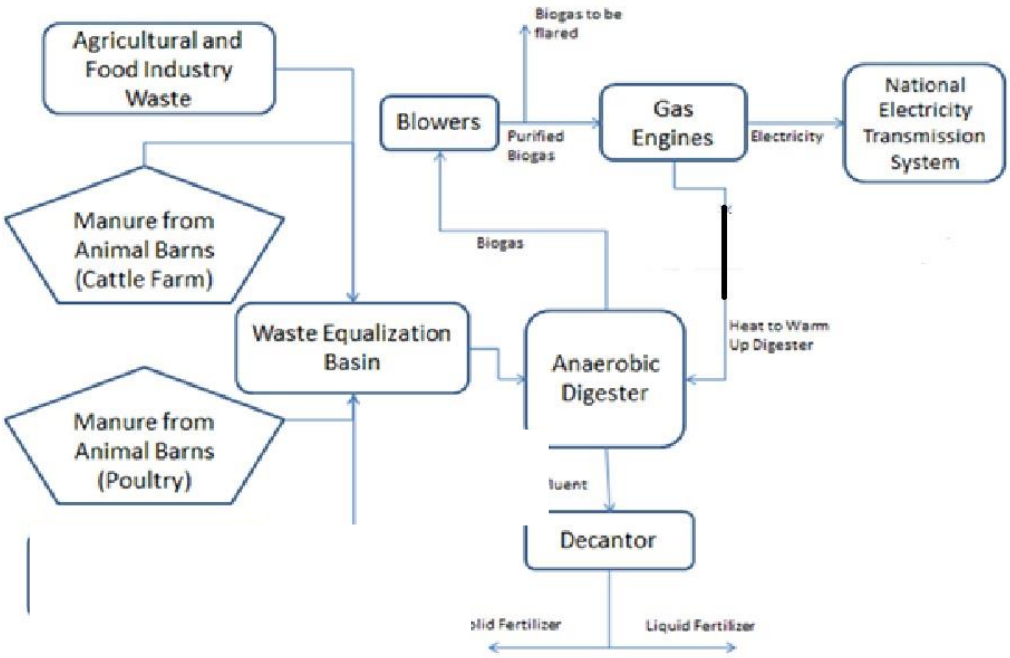


Figure 2. Physical diagram of project activity

Description of Baseline Scenario for the New Farms:

As indicated in the registered PDD version 9, in the baseline scenario, manure (both chicken and cattle) from the farms were being left to decay in anaerobic lagoons. Also, the agricultural waste was burnt before the project activity. In the absence of the project activity, the waste materials used as energy sources would have been disposed but not been utilized and the energy demand would be met using fossil fuels.

New Added Farms after the registered PDD version 9	Type of Farm	Latitude	Longitude	Distance of the Farm from the Plant
Es-tav	Chicken	37,821,301	32,587,258	35 KM
Dursunoğlu	Cattle			
Duranlar	Cattle	37,797,824	32,506,814	10 KM
Yaşar Tekin	Cattle			
Eggline	Chicken	37,766,411	32,415,073	25 KM
Oytun	Chicken	37,579,900	32,656,797	23 KM
Celalettin Hakan Katırcı	Cattle	37,766,411	32,415,073	35 KM

Çiftçioğlu	Cattle			

Applicability conditions of the baseline scenario for these new added farms will be explained in the table below. The Gold Standard Revised Consolidated Baseline Methodology for GHG Emission Reductions from Manure Management Systems and Municipal Solid Waste is chosen for this project.

This consolidated baseline methodology[5] is based on elements from the following methodologies:

- AM0006: "GHG emission reductions from manure management systems";
- AM0016: "Greenhouse gas mitigation from approved Animal Waste Management Systems in confined animal feeding operations";
- ACM0022: "Alternative waste treatment processes";
- AM0073: "GHG emission reductions through multi-site manure collection and treatment in a central plant".

The justification of the choice of this methodology is presented in the Table below. In addition, the methodology is also applicable to the activities that involve co-digestion and/or co-composting of multiple organic matters that would have otherwise been left to decay anaerobically-.

[5] https://globalgoals.goldstandard.org/wp-content/uploads/2017/06/401.13-ER-MMS.pdf

The methodology criteria	Applicability justification of the proposed project activity
This methodology is applicable to manure management on one or multiple livestock farms where the existing anaerobic manure treatment system, within the project boundary, is replaced by one or a combination of more than one animal waste management systems (AWMSs) that result in less GHG emissions compared to the existing system. The project activities where manure is collected by tank trucks, canalized and/or pumped from multiple livestock farms and the collected material is subsequently treated in a single central treatment plant may also claim emission reductions … The methodology is applicable to both Greenfield and existing facilities.	The proposed project activity provided a centralized anaerobic treatment plant which replaced the lagoons of nearby farms to manage animal manure (cattle and poultry manure) by collecting these waste with confined truck to achieve biogas and so methane which is used to gainfully generate electricity, as noted in the Section A.1. of the PDD also. Therefore, this consolidated baseline methodology shall be applied to the proposed project activity.
Farms where livestock populations, comprising of cattle, buffalo, swine, sheep, goats, and/or poultry, is managed under confined conditions	The Project's primary feedstock, cattle-manure, is supplied mainly by farms of members of the Cooperative. The Cooperative, along with its members' farms, functions under the control of the Ministry of Agriculture and Forestry. The Cooperative's members manage the livestock population in their farms in accordance with the relevant Turkish laws and regulations confining conditions, especially regarding animal health, such

	as Law No. 5996[6], Law No. 3285[7] and Regulation on Livestock Farms[8].
Manure or the streams obtained after treatment are not discharged into natural water resources (e.g. river or estuaries) & Farms where manure is not discharged into natural water resources (e.g. rivers or estuaries)	As shown in the Section A.3. of the PDD (flow scheme), the waste streams after the treatment will not be discharged into natural water resources. The refined and processed fermented product will be sent to the separator and decanter (dehydration unit) to be separated (please see the Section A.5. of the PDD). Both the liquid and solid parts of the residual waste from the digestion will be further used as organic fertilizers. In the baseline scenario, as noted above, the farms where manure is collected for the Project are managed in accordance with the relevant laws and regulations which prohibit manure to directly discharge into natural water resources. Hence, the proposed project activity complies with this criteria/condition.
In case of anaerobic lagoons treatments systems, the depth of the lagoons used for manure management under the baseline scenario should be at least 1 m	In the baseline scenario, cattle manure generated at farms is stored generally in tanks in anaerobic conditions. Tanks' depths, when applicable, are more than 1 m. Therefore, this criteria/condition is complied by the proposed project activity.

6 https://www.tarimorman.gov.tr/Belgeler/ENG/Legislation/law_veterinary_services.pdf

7 http://www.zmo.org.tr/mevzuat/mevzuat_detay.php?kod=55

8 http://www.resmigazete.gov.tr/eskiler/2006/08/20060809-4.htm

The annual average ambient temperature at the site where the anaerobic manure treatment facility in the baseline existed is higher than 5°C	The annual average temperature of baseline site where manure is collected from multiple farms, as members of the Cooperative, is 11.7°C[9]. Hence, the proposed project activity complies with this criteria/condition.
In the baseline case, the minimum retention time of manure waste in the anaerobic treatment system is greater than 1 month	The retention time of manure waste is greater than one month in the baseline scenario. Therefore, this criteria/condition is compiled by the proposed project activity.
The AWMS(s) in the project case results in no leakage of manure waste into ground water, e.g. the lagoon should have a non-permeable layer at the lagoon bottom	No leakage of manure waste into ground water occurs in the project case, since the lagoons have a non-permeable layer at the lagoon bottom. Hence, the proposed project activity complies with this criteria/condition.
If residues are stored in between collection activities, storage tanks shall comprise outdoor open equipments	Not applicable. Since residues collected from the farms are immediately fed into the digesters, this criteria/condition is not applicable to the proposed project activity.
If the manure/treated residue is used as fertilizer in the baseline, project proponents must ensure that this end use remains the same throughout the project activity	Liquid and solid fertilizers gathered after the anaerobic digestion are provided to all the farmers around who is willing to use. This issue is also covered during the remote site visit under validation progress

[9] https://www.mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?k=undefined&m=KONYA

	and local stakeholders clearly stated that the solid and liquid fertilizers provided by this facility (the Project) contributed significantly to the production in their agricultural activities. At this point, the project owner only demands that the fertilizer receiving farms bear the cost of carrying the fertilizer, but does not earn any other financial income in this process.
In case residual waste from the digestion is handled aerobically and/or submitted to soil application, the proper conditions and procedures (not resulting in methane emissions) for storage and transportation and soil application must be ensured	Not applicable. Both the liquid and solid parts of the residual waste from the digestion will be further used as organic fertilizers. Residual wastes from biological treatment are separated into liquid and solid phases with separator unit. Then both solid phase and liquid phase are shared with farmers near to project site to be used as fertilizer. As discussed in remote site visit with local stakeholder, these fertilizers provided efficiency in agricultural activities in the region and farmers are satisfied with this situation.
In the case of co-digestion, for one or more sources of substrates, it cannot be demonstrated that the organic matter would otherwise have been left to decay anaerobically, baseline emissions related to such organic matter shall be accounted for as zero, whereas project emissions shall be calculated according to the procedures presented in this methodology for all co-digested substrates	Proposed project activity involves co-digestion of multiple source of biomass substrates, mainly cattle manure and plantal waste. Since it cannot be demonstrated that these feedstocks would otherwise been left to decay anaerobically, no emission reduction will be claimed for digestion of these secondary substrates. Under the baseline emission calculations agricultural wastes is not taken into account as per methodological criteria; however, project

	emissions due to these wastes are taken into consideration for the project such as emissions caused due transportation of these wastes to the project site. Additionally, MSW is not used as co-substrate in this project and as understood from the methodological statements, The project has an option to not use MSW in the operation of the project and so there is no need to apply ACM022 for applicability condition of MSW perspective.
CERs shall be claimed by the Central Treatment Plant managing person/entity, only. Other parties involved must sign a legally binding declaration that they will not claim CERs from the improved animal waste treatment practices. The DOE shall check such declaration during the validation (during verification if new parties added after project registration) and these documents shall be valid throughout the whole crediting period	Declaration is shared with DOE declaration which mentions the VERs shall be claimed by ENFAŞ (project owner) only.

A.2. Location of project

The project is located in 38900 block, plot 4 in Çomaklı Village of Meram District of Konya Province in Turkey. The coordinates are given in table below as per license of the project;

Point	East (Degree)	North (Degree)
1	454402.24	4172864.04
2	454450.22	4172864.04
3	454402.24	4172852.05

4	454450.22	4172852.05

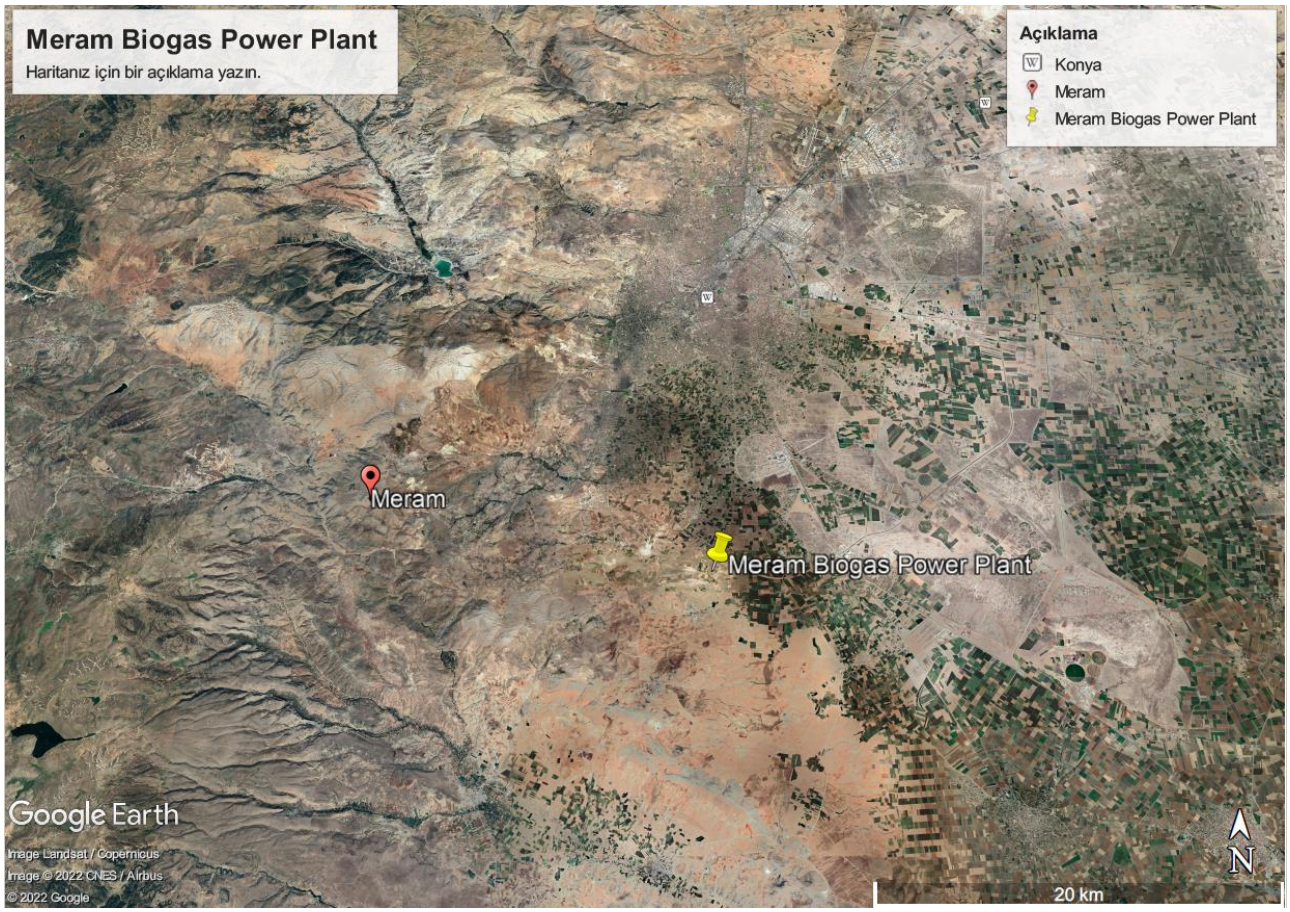


Figure 3. Location of the project

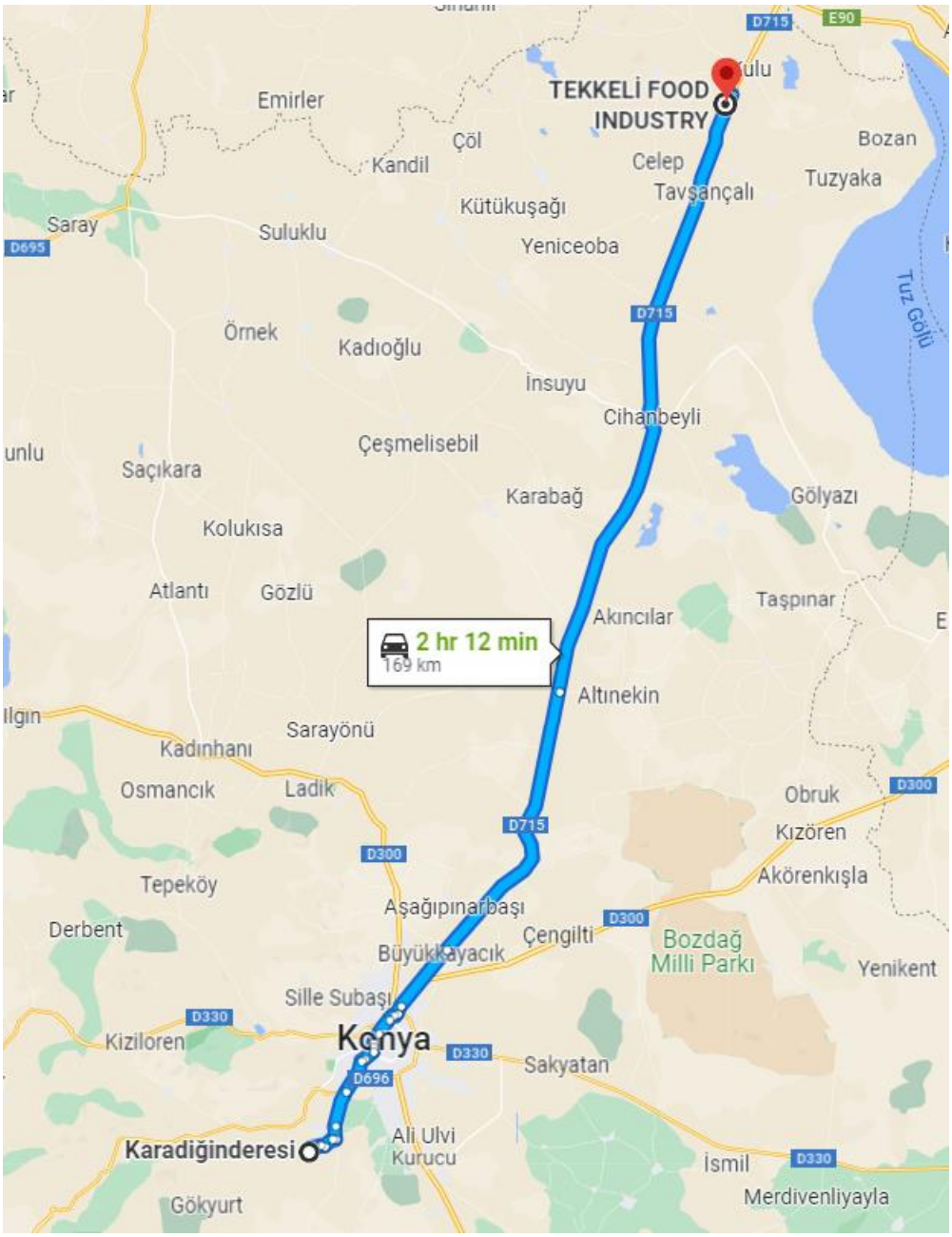
Coordinates of Manure Supplier Farms Which Have Agreements Between Project With Annual Animal Number Details

Name of the Farm	Type of the Farm	Final Contract Year	Latitude	Longitude	Distance to project site
Sibel Mest	Cattle	2023	37.805449°	32.447042°	13.5 km
İlyas Şeker Hayvancılık ve Nakliyat	Cattle	2022	37.807214°	32.446743°	13.6 km

İsmail Ördek Yemcilik ve Nakliyat	Cattle	2022	37.811927°	32.456047°	14.2 km
Hüsamettin Şekerci Hayvancılık	Cattle	2022	37.798585°	32.643548°	33.6 km
Mustafa Eroğlu Yemcilik	Cattle	2022	37.798862°	32.469019°	15.2 km
Tekkeli Gıda	Chicken	2022	39.047492°	33.041289°	169 km
Dervet Hayvancılık	Chicken	2024	37.923704°	32.549826°	32.6 km
Seltav Tavukçuluk	Chicken	2022	37.799118°	32.429682°	11 km
Ceren Hayvancılık	Chicken	2022	37.893047°	32.545137°	28.8 km
Azim Tavukçuluk	Chicken	2024	37.796974°	32.657322°	34.6 km
Yenibahçe Region in Meram District of Konya Province (Agricultural Wastes)	Agriculture	2022	37.732262609912 54	32.474843312765 63	4.6 km

Çomaklı Region in Meram District of Konya Province (Agricultural Wastes)	Agriculture	2022	37.72968323368631	32.52640355908915	5.6 km
Es-tav	Chicken	2024	37.821301	32.587258	35 KM
Dursunoğlu	Cattle	2023	37.781	32.5184	12 KM
Duranlar	Cattle	2023	37.797824	32.506814	10 KM
Yaşar Tekin	Cattle	2024	37.7006	32.5768	15 KM
Eggline	Chicken	2024	37.766411	32.415073	25 KM
Oytun	Chicken	2024	37.579900	32.656797	23 KM
Celalettin Hakan Katırcı	Cattle	2024	37.766411	32.415073	35 KM
Çiftçioğlu	Cattle	2024	37.7608	32.4156	23 KM

The furthest farm to the project site is as it could be checked from the coordinates given above. To be on the safe side the longest distance used for the project emissions due to transportation of all wastes. Details could be checked via excel document of the project. As it could be checked the furthest points that waste gathered to project site is Kulu District and the distance to the project site is 169 km (to be on the safe side taken as 169 km in excel calc. doc. Also please check the figure below). Moreover, the distances of each farm to project site are given in table above. To be conservative the farthest point of each district is chosen on map to the project site for each farm where located in.



A.3. Reference of applied methodology

The Gold Standard Revised Consolidated Baseline Methodology for GHG Emission Reductions from Manure Management Systems and Municipal Solid Waste[10] (v1.0).

obalgoals.goldstandard.org/421-wm-ghg-emission-reductions-from-manure-management-systems-and-municipal-solid-waste/

Referred tools

"Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion", Version 03.0[11]

"Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation", Version 03.0[12]

"Project emissions from flaring", Version 03.0[13]

"Project and leakage emissions from anaerobic digesters", Version 02.0[14]

"Project and leakage emissions from biomass", Version 04.0[15]

"Tool to calculate the emission factor for an electricity system", Version 07.0[16]

"Tool to determine the remaining lifetime of equipment", Version 01[17]

'Project and leakage emissions from road transportation of freight', Version 01.1.0[18]

Tool to determine the mass flow of a greenhouse gas in a gaseous stream Version 03.0[19]

"Combined tool to identify the baseline scenario and demonstrate additionality", Version 07.0[20],

"Emissions from solid waste disposal sites", Version 08.0[21]

A.4. Crediting period of project

Start date of the crediting period of 5 years is 01/07/2022 and the crediting period ends on30/06/2027. 5 years for the first crediting period, 15 years for total.

[11] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v3.pdf

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

[13] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-06-v3.0.pdf

[14] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-14-v2.pdf

[15] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-16-v4.pdf

[16] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

[17] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-10-v1.pdf

[18]https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-12-v1.1.0.pdf

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

[20] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-02-v7.0.pdf

[21] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.0.pdf

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

In terms of quantum of waste handled within project activity, Meram Biogas Plant project operates with a yearly organic flow of 245,645 tonne and 47.5 % of this amount is belonged to cattle manure (116,800 tonne/year), 50.9% of this amount is belonged to chicken manure (125,195 tonne/year) and rest of it belonged to agricultural wastes (3,650 tonne/year) as per the information given in EIA report of the project (page 5).

However, the actual wastes are 174,890.62 tonne/year for this monitoring period in the Meram Biogas Power Plant project.[22]

Organic waste mentioned above is fed to anaerobic digestor. The biogas released during the biodegradation of organic wastes is used for electricity and heat production in cogeneration units. Installed capacity of the project is 6.004 MWe and 23,626.2 MWh/year actual electricity generation. Electricity generated is directly fed to the national grid.

Technology applied involves use of cattle manure, chicken manure and agricultural wastes. "Mesophilic" technology is applied according to the operating temperature in the planned biogas plant. The optimal operating temperatures of these bacteria are 37ºC. Manure is mixed and hydrolysed here to break the bonds and generate biogas. Biogas obtained is fed to the cogeneration unit to generate electricity whereas final product is stored and used as fertilizer. Electricity generated is fed to the national grid.

The transport of the collected manure from the farms is achieved by totally confined trucks. The transported manure is directly transferred to the raw material pond without any storage time. Collected manure then fed to the fermenters via leakage proof pipes and biogas capture in the fermenters. Captured biogas is sent to the cogeneration units where it was utilized to generate electricity. Generated electricity is fed to the national grid. Remaining sludge after the biogas extraction is sent to the separator and drier units to produce biologically enriched fertilizer.

The system consists of following units:

- Waste collection unit: Weigh bridge and data control/storage system

[22] Waste Information Excel Sheet

- Waste preparation / feed unit: Equalization tank, vegetative waste stock area, central pumping system
- Anaerobic Digestion Unit: Digestors, gas storage unit, desulfurization unit, early warning system, temperature control system
- Cogeneration Unit: Cogeneration, gas treatment system, flare
- Fertilizer Dewatering / Hygenization Unit: Post-digestion tanks, hygenization unit, separator
- Automation system
- Product Storage Area: Liquid fermented storage area, solid fermented storage area
- Hydrogen sulfide (H_2S) in biogas was reduced to 150 ppm and lower by biological internal desulfurization. In addition, the condensate path in the biogas line and condensate collection systems removed saturated gas from the coarse water through a cooling unit and remove it from the moisture up to the saturation point. In this way, the moisture in the biogas reduced to the desired level.

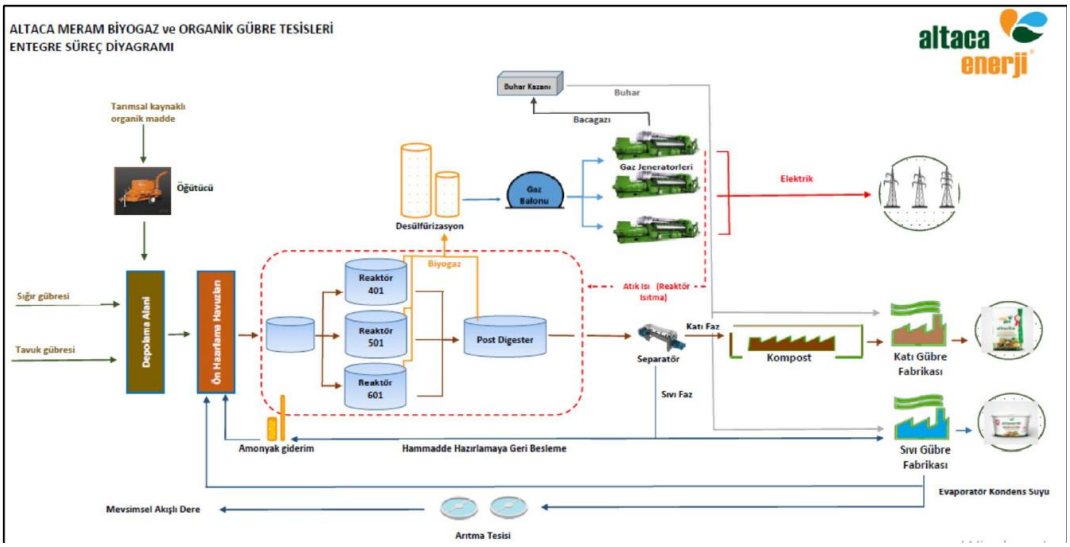


Figure 4. Schematic View of the Process

Technical details of the equipment are presented below,

1. Gas engines

• Brand: Jenbacher

• Model: 4.20

• Electrical Power: 1.501 MWe

• Quantity: 4

2. Digesters

There are 2 main fermenters and 1 post digester in the plant. All fermenters are built from reinforced concrete. The main fermenters are cylindrical and each of them have a section at the top with the volume of ¼ of the total containing the lighter portion of the raw material and thus, preventing gas escape from the fermenter. In the post digestor, besides the section preventing the gas escape, there are 2 more chambers for the liquid and solid phase after the separator sieve. Fermenter volumes are presented below.
R-201: 12,000 m3
R-202: 11,000 m3
R-203: 11,000 m3
R-204: 11,800 m3
R-205: 12,200 m3
Reinforced concrete fermenters are made of C30 class concrete. The inner surfaces of the fermenter walls are waterproof. For the safety belt of the system process of the fermenters, there are serpentines, which are the jacket water of the gas engines, on the outer walls of the fermenters. In addition, the fermenter facades are filled with healthy rockwool panels to minimize their heat. In each fermenter, there are 4 pedal tips in small cycle. In the overflow eyes, there are 1 propeller ends.

3. Feed pump
• Brand: Netzsch
• Model: NM125BY02S12V
• Capacity: 60 m3/hour
• Quantity: 2 (with spare)

4. Electricity meters
main meter
• Brand: Landis
• Model: GYR E550
backup meter
• Brand: Makel
• Model: C 520

5. Weighbridge
• Brand: Tunaylar
• Model: Pi-Bridge
• Capacity: 60 tons

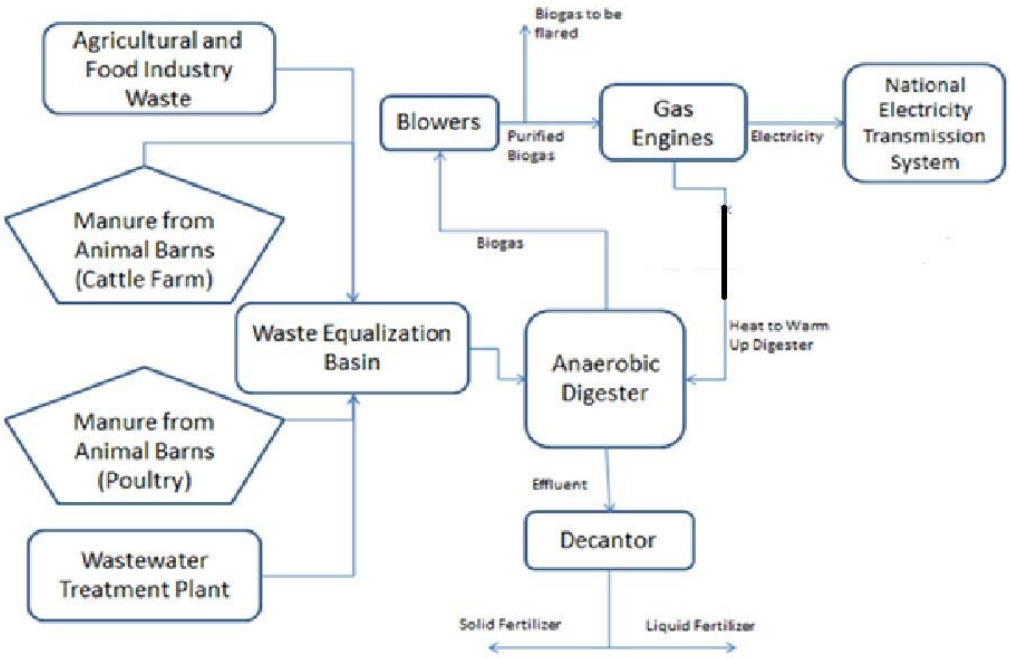


Figure 5. Physical diagram of project activity

B.1.1 Forward Action Requests

A FAR was raised in the Design Review document, The start date of Crediting Period is the date of start of operation or a maximum of two years prior to the date of Project Design Certification, whichever occurs later. The design certification date is 7th Feb 2023. VVB shall verify the start date of the crediting period in line with the requirement.

The registered crediting period of the project has been postponed 18 months (total 540 days) (Between 1-2 year, as per Table 1 – Requirements for change from design certified crediting period (CP) start date) than that indicated in the design certified PDD, according to Design Change Requirements, V2.0.

B.2. Post-Design Certification changes

B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

No temporary deviations from registered monitoring plan or applied methodology is reported during the monitoring period.

B.2.2. Corrections

N/A

B.2.3. Changes to start date of crediting period

The start date of the first crediting period is 01/07/2022 and the end date is 30/06/2027. The registered crediting period of the project has been postponed 18 months (total540 days) (Between 1-2 year, as per Table 1 – Requirements for change from design certified crediting period (CP) start date) than that indicated in the design certified PDD, according to Design Change Requirements, V2.0.

There had been no impacts on the baseline scenario of the project. Also, substantive progress has been made by the project developer to start the project activity, which are represented in Table 1 of this MR and the table below. During this time, Gold Standard was also contacted many times to assure continuance of the project.

Milestone	Date
Approval of The Feasibility Report	05/08/2016
EIA Approval	13/12/2016
LSC Meeting	02/08/2017
Generation License	04/10/2018
EPC Agreement (Construction Agreement)	01/12/2019
Site Delivery Protocol	02/12/2019
The Distribution System Agreement	13/05/2020
Gas Engine Commissioning	27/11/2020
Start Date of First Crediting Period	01/07/2022
1st Crediting Period	01/07/2022 – 30/06/2027
Certificate of permission for use of building	13/08/2021
1st Monitoring Period	01/07/2022 – 30/06/2024

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

N/A

B.2.5. Changes to project design of approved project

N/A

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

Net electricity generation is being measured and recorded by both TEIAS and project owners for billing purposes for monitoring emission reduction. Plant Manager, is responsible for the electricity generated, gathering all relevant data and keeping the records. Calibration of the electricity metering devices are made by TEIAS and sealed before the commissioning of the power plant. As per the local regulations, meters should not require calibration at least ten years[23]. The meters were calibrated by TEIAS when there is an inconsistency between two devices.

Manure transported to project site arrived at the point of waste equalization basin. However, just before the equalization basin there is a weightbridge to measure the weight of the manure. Dry matter content of the manure is analyzed periodically to monitor the efficiency of digesters by plant personnel.

Biogas produced via anaerobic reactors recorded (by volume) continuously with digital biogas meters. Records of biogas meters could be monitored from control room where operational personnel monitoring all the process. Biogas meters are calibrated meters and calibration is valid for ten years as per related regulation. Recorded and saved biogas volume data saved more than two years. In addition, site personnel have portable gas analyser to measure the gas content of biogas also. However, in this study the default methane ratio was used as mentioned in fix-ante parameters section above. Related data recorded more than two years.

Moreover, the solid and liquid digestate used as fertilizer in nearby agricultural land and these materials are not used/stored in any other conditions on land. Digestate not kept in anaerobic conditions after anaerobic digester operations. It is stored under aerobic conditions and impermeable floor. The amount of liquid and solid digestate which was used as fertilizer also was recorded in volume/mass by site personnel. Related data stored more than two years.

[23] https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5

VER Team Members is expected to include the following staff of the plant:

Plant Manager: Responsibility for running the plant and compliance with VER monitoring plan
Environmental engineer: Responsible for keeping data about generation and consumption.
GTE: Responsible for emission reduction calculations, preparing monitoring report and periodical verification process.

Installation of electricity meters and data monitoring are carried out according to the regulations by TEIAS. Two metering devices (one of them used as spare) are used for monitoring the electricity generated by the power plant. Readings are done using main metering devices and spare metering device are used for comparison only. Data from metering devices is recorded by TEIAS monthly. In addition to the two metering devices, generation of the plant can be cross checked from EPIAS web site (https://www.epias.com.tr/_) which is accessible using a password provided to electricity generation companies. Net electricity fed to the grid is calculated as the difference between consumption from the grid and net electricity fed to the grid. Consumption from the grid occurs only when there is no electricity generated by the proposed project activity and is met by the plant's own generation when electricity is generated by the project activity.
The net electricity fed to the grid is measured continuously and recorded monthly by the TEIAS and plant staff. All data is kept for at least two years after the crediting period for QA/QC purposes.
Calibration of the electricity metering devices is made by TEIAS and sealed before the commissioning of the power plant. As per the local regulations, meters should not require calibration for at least ten years. The meters are calibrated by TEIAS when there is an inconsistency between two devices. All other measuring equipment are calibrated at least once in ten years as per the related regulation on measurement and inspection of measurement devices[24].

[24] https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5

SECTION D. DATA AND PARAMETERS

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Data/parameter	EF_{grid}
Unit	ton CO_2/MWh
Description	Grid emission factor
Source of data	Country specific data
Value(s) applied	0.5552
Choice of data or Measurement methods and procedures	
Purpose of data	Used in emission reduction calculations
Additional comment	Official emission factor of Turkey used in the projects depending on the project type published by the Ministry of Energy and Natural Resources. As per this reference; OM is 0.7424 and BM is 0.3680 tCO2/MWh for Turkey National Grid. During CM calculation as per related tool, these values were taken into considedration. Details are present in "CM" tab of project excel ER calculation file. 0.7424 x 0.5 + 0.3680 x 0.5 = 0.5552

Data/parameter	VS_{LT}
Unit	kg dm/animal/year
Description	Density of CH_4
Source of data	IPCC 2006 vol.4, chapter 10, Table10A-4(Dairy Cows eastern Europe) (4.5 kg/hd/day)
Value(s) applied	1,642.5 (for cattle manure)
Choice of data or Measurement methods and procedures	-
Purpose of data	Used in baseline calculations.
Additional comment	For the calculation of $VS_{LT,y}$ Option 4 is chosen and default and regional IPCC data is used.

Data/parameter	VS_{LT}
Unit	kg dm/animal/year
Description	Density of CH_4

Source of data	IPCC 2006 vol.4, chapter 10, Table10A-9(Chicken-layer) (0.02 kg/hd/day)
Value(s) applied	7.30 (for chicken manure)
Choice of data or Measurement methods and procedures	
Purpose of data	Used in baseline calculations.
Additional comment	For the calculation of $VS_{LT,y}$ Option 4 is chosen and default and regional IPCC data is used.

Data/parameter	D_{CH4}
Unit	t/m^3
Description	Density of CH_4
Source of data	The Gold Standard Revised Consolidated Baseline Methodology for GHG Emission Reductions from Manure Management Systems and Municipal Solid Waste25, pg. 25.
Value(s) applied	0.00067
Choice of data or Measurement methods and procedures	0.00067 t/m^3 at room temperature (20 °C) and 1 atm pressure
Purpose of data	Used in project emission/baseline calculations.
Additional comment	-

Data/parameter	$EF_{CH4,default}$
Unit	Fraction
Description	Default emission factor for the fraction of CH_4 produced that leaks from the anaerobic digester.

25 https://globalgoals.goldstandard.org/wp-content/uploads/2017/06/401.13-ER-MMS.pdf

Source of data	Project and leakage emissions from anaerobic digesters", Version 02.0[26], pg. 11-12
Value(s) applied	0.028
Choice of data or Measurement methods and procedures	Digesters with steel or lined concrete or fiberglass digesters and a gas holding system and monolithic construction.
Purpose of data	Used in project emission calculation.
Additional comment	-

Data/parameter	GWP_{CH4}
Unit	t CO_2e/t CH_4
Description	Global Warming Potential for CH_4
Source of data	IPCC
Value(s) applied	28
Choice of data or Measurement methods and procedures	Default value from IPCC is used as per the applied methodology.
Purpose of data	Used in project emission/baseline calculations.
Additional comment	-

Data/parameter	fCH4,default
Unit	m^3CH_4/m^3
Description	Default value for the fraction of methane in the biogas (m3 CH4 / m3 biogas)
Source of data	Project and leakage emissions from anaerobic digesters https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-14-v2.pdf
Value(s) applied	0.6

[26] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-14-v2.pdf

Measurement methods (if any)	Default value
Purpose of data	To calculate project and leakage emissions
Additional comment	-

Data/parameter	$\eta_{flare,m}$
Unit	%
Description	Flare efficiency
Source of data	Tool to determine project emissions from flaring gases containing methane
Value(s) applied	50%
Choice of data or Measurement methods and procedures	Used in project emission calculations
Purpose of data	Default value for open flare provided that it can be demonstrated that the flare is operational.
Additional comment	

Data/parameter	EF_SO2
Unit	Kg/MWh
Description	SO2 emission factor
Source of data	Turkey 2022 National Inventory Submission to UNFCCC[27] (2020 data covered) and TEIAS National 2020 Statistics[28]

[27] https://unfccc.int/documents/461898

[28] https://webim.teias.gov.tr/file/8e92ef4c-48c6-410e-8852-dd4865cc816c?download

Value(s) applied	4.85
Choice of data or Measurement methods and procedures	-
Purpose of data	Contribution to air quality calculations
Additional comment	-

Data/parameter	EF_NOx
Unit	Kg/MWh
Description	NOx emission factor
Source of data	Turkey 2022 National Inventory Submission to UNFCCC[29] (2020 data covered) and TEIAS National 2020 Statistics[30]
Value(s) applied	1.05
Choice of data or Measurement methods and procedures	-
Purpose of data	Contribution to air quality calculations
Additional comment	-

[29] https://unfccc.int/documents/461898

[30] https://webim.teias.gov.tr/file/8e92ef4c-48c6-410e-8852-dd4865cc816c?download

D.2 Data and parameters monitored

Data / Parameter	$EG_{d,y}$
Unit	MWh
Description	Electricity generated using biogas in year y
Source of data	Project proponent
Value(s) applied	9,816.1 (2022) 26,215.2 (2023) 11,222 (2024)
Measurement procedures (if any):	Archive electronically during project plus five years
Monitoring frequency	Annual
QA/QC procedures	Two calibrated meters backup each other. Maintenance and calibration of the metering devices are made by TEIAS. If there is a significant difference between the readings of two devices, maintenance and tests of the metering devices and the associated equipment are done before waiting for the periodical maintenance. The meters should comply with EPDK regulations which define the accuracy class of the meters as 0.2 or 0.5 depending on the capacity of the circuit as given in document in link (https://www.epdk.gov.tr/Detay/Icerik/3-1521/epias). Generation of the plant is cross checked from TEIAS – EPIAS web site which is accessible using a password provided to electricity generation companies. EPIAS records were taken in consideration while calculating EGfacility, y.

	"ÖLÇÜ VE ÖLÇÜ ALETLERİ MUAYENE YÖNETMELİĞİ" / Article 9[31] Information about the meter devices has been given in the table below.[32]

	Main Meter	Back-up Meter
Brand	Landis	Makel
Model	GYR E550	C 520 AMT.2556X/5
Accuracy Class	1S	
Serial Number	40304895	75002145

Purpose of Data	Used in project emission/baseline calculations.
Additional comment	Estimated annual generation forming the basis for emission reduction calculation is 42,028 MWh as indicated in electricity generation licence.

Data / Parameter	$B_{0,LT}$ for Poultry manure
Unit	m^3CH_4/kg_dm
Description	Maximum methane producing potential of the volatile solid generated by animal type LT
Source of data	IPCC 2019 Refinement, Chapter 10, Volume 4 Table 10.16, Eastern Europe Data is taken
Value(s) applied	0.39
Measurement procedures (if any):	-
Monitoring frequency	Annually.

[31] https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5

[32] Registered PDD & Photographs of the Meters & Provisional acceptance page 15

QA/QC procedures	-
Purpose of Data	Used in baseline calculations.
Any comment	The value is taken from published sources. The parameter value should be updated on latest available public data source

Data / Parameter	$B_{0,LT}$ for Dairy Cow Manure
Unit	m^3CH_4/kg_dm
Description	Maximum methane producing potential of the volatile solid generated by animal type LT
Source of data	IPCC 2019 Refinement, Chapter 10, Volume 4 Table 10.16, Eastern Europe Data is taken
Value(s) applied	0.24
Measurement procedures (if any):	-
Monitoring frequency	The value is taken from published sources. The parameter value should be updated on latest available public data source
QA/QC procedures	-
Purpose of Data	Used in baseline calculations.
Any comment	The value is taken from published sources.

Data / Parameter	T
Unit	Celcius
Description	Annual Average ambient temperature at project site
Source of data	Turkish State Meteorological Service. The value "11.7[33] Celcius" is taken for this project estimated emission reduction calculations.
Value(s) applied	11.7
Measurement procedures (if any):	-
Monitoring frequency	Annually.
QA/QC procedures	-
Purpose of Data	Used in project emission/baseline calculations.
Any comment	The value I taken from published official governmental sources

Data / Parameter	MCF_j
Unit	N/A
Description	Methane conversion factor
Source of data	2019 IPCC Refinement, Table 10.17, page 10.68 referred[34] 67% (the uncovered anaerobic lagoon for 11.7 °C, Konya Province conditions, cool temp. dry)
Value(s) applied	0.67
Measurement procedures (if any):	Uncovered anaerobic lagoon, Value for 11.7 °C.
Monitoring frequency	Annually
QA/QC procedures	-

[33] https://www.mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?k=undefined&m=KONYA
[34] https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/4_Volume4/19R_V4_Ch10_Livestock.pdf

Purpose of Data	Used in baseline calculations.
Any comment	Baseline emission calculations

Data / Parameter	Air Quality
Unit	tons
Description	Reduction of SO2 and NOx emissions due to implementation of project activity that would otherwise be emitted by thermal power plants
Source of data	Project proponent.
Value(s) applied	Annual actual SO_2 emission reduction is 229.2 tonnes Annual actual NO_x emission reduction is 49.6 tonnes
Measurement procedures (if any):	-
Monitoring frequency	Annually.
QA/QC procedures	-
Purpose of Data	Used in SDG calculations.
Any comment	Total SO2 emission related to electricity generation is about 1488.80 Gg for 2020 according to National Inventory of Turkey. Considering that electricity generation in 2020 is 306,703.1 GWh, SO2 emission per MWh is calculated as 4.85 kg/MWh. Considering the annual expected electricity generation of this project as stated in licence (42.028 GWh) annual expected SO2 emission reduction is 204 tonnes. Total NOx emission related to electricity generation is about 320.68 Gg for 2020 according to National Inventory of Turkey. Considering that electricity generation in 2020 is 306,703.1 GWh NOx emission per MWh is calculated as 1.05 kg/MWh. Considering the annual expected electricity generation of this project as stated in licence (42.028 GWh) annual expected NOx emission reduction is 43.9 tonnes.

	The actual SO_2 reduction is calculated as 229.2 tonnes for whole monitoring period while NO_x reduction is calculated as 49.6 tonnes for whole monitoring period.

Data / Parameter	Vf
Unit	m3
Description	Biogas (total biogas goes to gas engines)
Source of data	Project proponent.
Value(s) Applied	Project owner provided an Excel sheet to show the values for this parameter As an example: Reactor 1 - January 2023: 280,886 m3 Biogas generation For all reactors 1-2-3-4-5) from 01/07/2022 to 28/02/2024, total biogas generation is 22,663,794 m3.[35]
Measurement procedures (if any):	
Monitoring frequency	Continuously by flow meter and reported cumulatively on weekly basis

[35] Biogas Generation Excel Sheet

QA/QC procedures

The system should be built and operated to ensure that there is no air ingress into the biogas pipeline. Data were archived electronically during the crediting period plus 2 years. Computerized monitoring for the whole system is available in order to keep track of pressure and temperature of the gas, gas meters were calibrated as per the relevant industry standard. Equipment was subject to regular maintenance. After the first calibration of meters , calibration of meters are valid for ten years due to related legislation. Link of related regulation given below.

"ÖLÇÜ VE ÖLÇÜ ALETLERİ MUAYENE YÖNETMELİĞİ" / Article 9

https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5

Accuracy class of meters is class C (0.5)

	Gas Engine Flow Meter - 1	Gas Engine Flow Meter - 2	Gas Engine Flow Meter - 3	Gas Engine Flow Meter - 4
Brand	Innio Jenbacher GmbH	Innio Jenbacher GmbH	Innio Jenbacher GmbH	Innio Jenbacher GmbH
Type	J 420 GS B25	J 420 GS B25	J 420 GS B25	J 420 GS B25
Serial Number	1424883	1424894	1424852	1424702
Nominal Power	1544 kW	1544 kW	1544 kW	1544 kW
Speed	1500 d/d	1500 d/d	1500 d/d	1500 d/d

Purpose of Data	Used in baseline calculations.
Any comment	Flow meters located at the exit of the digesters. Calibrated flow meters were used during operation phase. For this stage, the estimated value could be given by regarding waste handled for anaerobic digesters.

	8.657.937 m3/year (site records) biogas value is that estimated value stated in plant capacity report.

Data / Parameter	$F_{RG,m}$
Unit	m^3
Description	the flow rate of the residual gas to the flare
Source of data	Project owner
Value(s) Applied	Flare has not been used
Measurement procedures (if any):	Calibrated meter of flare equipment
Monitoring frequency	Continuously
QA/QC procedures	After the first calibration of meters , calibration of meters are valid for ten years due to related legislation. Link of related regulation given below. "ÖLÇÜ VE ÖLÇÜ ALETLERİ MUAYENE YÖNETMELİĞİ" / Article 9 https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5 Technical specifications of the flare unit has been indicated in the table below.[36]
Purpose of Data	Used in project emission.

Code	FL - 601
Capacity	2500 Nm^3/h
Type	Elevated Flare
Size	11 meter
Minimum Burning Pressure	20 mBar
Minimum Methane Ratio	35%
Combustion Temperature	800 ^oC

[36] Flare Technical Data Sheet

Any comment	Option A is selected via Methodological tool "Project emissions from flaring Version 03.0"

Data / Parameter	Status of biogas destruction device
Unit	-
Description	Operational status of biogas destruction devices
Source of data	Project owner
Value(s) Applied	0 (Off) or 1 (On)
Measurement procedures (if any):	Monitoring and documenting is to be undertaken by recording the energy production from methane captured by gas engines on project site
Monitoring frequency	Continuous
QA/QC procedures	-
Purpose of Data	-
Any comment	Project owner is to be report if there is any operational period the gas engines is not under operation for biogas/methane destruction for electricity generation. As per, Methodological tool Tool to determine the mass flow of a greenhouse gas in a gaseous stream Version 03.0

Data / Parameter	Vi, t, db
Unit	m^3 gas i/m^3 dry gas
Description	Volumetric fraction of greenhouse gas i in a time interval t on a dry basis
Source of data	Project and leakage emissions from anaerobic digesters https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-14-v2.pdf

Value(s) Applied	60%
Measurement procedures (if any):	-
Monitoring frequency	Continuously
QA/QC procedures	After the first calibration of meters , calibration of meters are valid for ten years due to related legislation. Link of related regulation given below. "ÖLÇÜ VE ÖLÇÜ ALETLERİ MUAYENE YÖNETMELİĞİ" / Article 9 https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5 .
Purpose of Data	Used in baseline calculations.
Any comment	Details are present in "baseline emission" tab of ER excel calculation document

Data / Parameter	SPECflare
Unit	Temperature - °C Flow rate or heat flux - kg/h or m3 /h Maintenance schedule - number of days
Description	Manufacturer's flare specifications for temperature, flow rate and maintenance schedule
Source of data	Flare manufacturer
Value(s) Applied	Project proponent provided during monitoring if the flare unit is used Min Methane percentage: 35 % Min burning pressure: 20 mbar Burning temperature: 800 °C

Values to be applied	Document in the registered 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 (c) Maximum duration in days between maintenance events
Monitoring frequency	Continuously by flow meter and reported cumulatively on weekly basis
Purpose of Data	-
Any comment	Option A is selected via Methodological tool Project emissions from flaring Version 03.0

SDG 8

Data / Parameter	Quality of Employment
Unit	Number of personnel certified/trained during operation phase
Description	Contribution to quality of employment by ensuring that the staff is trained and certified for the required positions
Source of data	Training Records (including H&S) & Other Certificates required by certain professions, if necessary
Value(s) applied	2537
Measurement methods and procedures	All employees attended trainings on first aid and health & safety. For positions that require specific skills (such as high voltage equipment) staff was either trained or certified staff was recruited.
Monitoring frequency	Annually
QA/QC procedures	The training programmes help increase the efficiency of the workforce and provides employees skilled at their job. This not only helps the company but to self-improvement of individual employees.
Purpose of data	To monitor the contribution to SDG 8 and Principle 3.6.1.
Additional comment	-

Data / Parameter	T
Unit	Celcius
Description	Annual Average ambient temperature at project site

[37] MERAM 2024 Teknik Eğitim

Source of data	Turkish State Meteorological Service[38]
Value(s) applied	11.7
Measurement procedures (if any):	-
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of Data	-
Any comment	-

Data/parameter	$Q_{biogas,y}$
Unit	m^3 biogas
Description	Amount of biogas collected at the digester outlet in year y
Source of data	Flow meter
Value(s) Applied	5,629,623 Year 2022 14,663,657 Year 2023 2,370,514 Year 2024
Measurement procedures (if any):	The volumetric flow measurement should always refer to the actual pressure and temperature. Instruments with recordable electronic signal (analogical or digital) are required
Monitoring frequency	Continuously measurement by the flow meter. Data to be aggregated monthly and yearly
QA/QC procedures	-
Purpose of Data	Used in project emission calculation.
Any comment	-

Data/parameter	$TDL_{j,y}$ and $TDL_{k,y}$ and $TDL_{l,y}$
Unit	-

[38] https://mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?k=undefined&m=KONYA

Description	Average technical transmission and distribution losses for providing electricity to source j, k or l in year y
Source of data	Electricity Market Sector Report 2023[39]
Value(s) Applied	6.2% (Year 2022) 5.7% (Year 2023) 5.7 % (Year 2024)
Measurement procedures (if any):	TDLj/k/l,y should be estimated for the distribution and transmission networks of the electricity grid of the same voltage as the connection where the proposed CDM project activity is connected to. The technical distribution losses should not contain other types of grid losses (e.g. commercial losses/theft). The distribution losses can either be calculated by the project participants or be based on references from utilities, network operators or other official documentation
Monitoring frequency	Annually. In the absence of data from the relevant year, most recent figures should be used, but not older than 5 years
QA/QC procedures	-
Purpose of Data	Used in project emission/baseline calculations.
Any comment	-

SDG 12 and Principle 4.3.5 Hazardous and Non-Hazardous Waste

Data/parameter	FRf,m
Unit	tonnes
Description	Total mass of freight transported in freight transportation activity f in monitoring period m
Source of data	Project owner
Value(s) Applied	174,890.62 tonne/year
Measurement procedures (if any):	Calibrated weighbridge
Monitoring frequency	Continuously

[39] https://www.epdk.gov.tr/Detay/Icerik/3-0-0-102/yillik-rapor-elektrik-piyasasi-gelisim-raporlari

<table>
<tr><td>QA/QC procedures</td><td>After the first calibration of meters , calibration of meters are valid for ten years due to related legislation. Link of related regulation given below.

“ÖLÇÜ VE ÖLÇÜ ALETLERİ MUAYENE YÖNETMELİĞİ” / Article 9
https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5
Technical information of the weighbridge is given in the table below.[40]
<table>
<tr><td></td><td>Weighbridge</td></tr>
<tr><td>Brand</td><td>Tunaylar</td></tr>
<tr><td>Model</td><td>Pi-Bridge</td></tr>
<tr><td>Capacity</td><td>60 tons</td></tr>
</table>
</td></tr>
<tr><td>Purpose of Data</td><td>-</td></tr>
<tr><td>Any comment</td><td></td></tr>
</table>

Data / Parameter	NAA,LT
Unit	number
Description	Daily stock of animals in the farm, discounting dead and discarded animals
Source of data	Project owner (signed agreements/declaration of animal farms)
Value(s) applied	3,600 (cattle) 2022 – 5 cattle farm 2,150 (cattle) 2023 – 4 cattle farm 2,050 (cattle) 2024 – 3 cattle farm
Measurement methods and procedures	Manual numbering of animals
Monitoring frequency	daily
QA/QC procedures	-
Purpose of data	To calculate baseline emissions

[40] Registered PDD

Additional comment	-

Data / Parameter	NAA,LT
Unit	number
Description	Daily stock of animals in the farm, discounting dead and discarded animals
Source of data	Project owner (signed agreements/declaration of animal farms)
Value(s) applied	1,994,000 (2022) (poultry) – 9 chicken farm 1,491,600 (2023) (poultry) – 6 chicken farm 1,222,000 (2024) (poultry) – 6 chicken farm
Measurement methods and procedures	Manual numbering of animals
Monitoring frequency	daily
QA/QC procedures	-
Purpose of data	To calculate baseline emissions
Additional comment	-

Data / Parameter	ndy
Unit	number
Description	Number of days treatment plant was operational in year y
Source of data	Project owner
Value(s) applied	365
Measurement methods and procedures	-
Monitoring frequency	daily
QA/QC procedures	-
Purpose of data	To calculate baseline emissions
Additional comment	-

Data / Parameter	MS%j
Unit	%
Description	Fraction of manure handled in system j in the project activity
Source of data	Project proponent. %100 is taken for estimated emission reduction calculations
Value(s) applied	100%

Measurement methods and procedures	-
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	To calculate baseline emissions
Additional comment	-

Data/parameter	N
Unit	-
Description	Total number of farms
Source of data	Project proponent
Value(s) Applied	14 (5 cattle farm and 9 chicken farm) (2022) 10 (4 cattle farm and 6 chicken farm) (2023) 9 (3 cattle farm and 6 chicken farm) (2024)
Measurement procedures (if any):	-
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of Data	-
Any comment	-

Principle 9.5 Hazardous and Non-Hazardous Waste

Data/parameter	Qdm
Unit	kg
Description	Mass of manure (manure taken from animal farms to fed-up the anaerobic digesters) disposed outside project boundary
Source of data	Project proponent.
Value(s) applied	
Measurement procedures (if any):	-
Monitoring frequency	Annually

QA/QC procedures	-
Purpose of Data	-
Any comment	No manure disposal to outside the project boundary.

Data / Parameter	Other Pollutants
Unit	-
Description	Proper management of waste oil
Source of data	Assessing disposal methods during site visits and checking waste oil disposal records.
Value(s) applied	Amount of waste oil generated and disposed during operation
Measurement methods and procedures	Waste oil from equipment was collected properly in line with the relevant regulation and disposed via accredited abatement companies.
Monitoring frequency	Annually
QA/QC procedures	Waste oil was disposed in line with regulation # 26952 on control of waste oils.
Purpose of data	
Additional comment	-

D.3. Comparison of monitored parameters with last monitoring period

This is not a community service project; therefore, this section is N/A.

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period

D.4. Implementation of sampling plan

No sampling has been applied.

SECTION E. CALCULATION OF SDG IMPACTS

E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

Baseline Emissions:

The baseline emissions are the amount of methane emitted from the decay of the degradable organic carbon in the biomass i.e., organic fraction of MSW including animal manure.

$$BEy = BE_{MSW,y} + BE_{manure,y}$$

Where;

$BE_{MSW,y}$ = Where applicable, yearly baseline emission from the solid waste co-digested by the project activity shall be calculated following procedures provided in the ACM 0022. Please note that the BEMSW,y represents the Baseline emissions in year y (t CO2e), i.e., (BEy) for the ACM0022. $BE_{MSW,y} = 0$

$BE_{manure,y}$ = Where applicable, baseline emissions from the manure co-digested by the project activities, calculated as per the relevant procedures provided below

Sample calculations for the year 2023 are presented below.

Baseline emissions from animal waste treatment

The baseline is the AWMSs identified through the baseline selection procedure, as well as, when relevant, the baseline for the use of gas generated from the anaerobic digester.

$$BE_{Manure,y} = BE_{CH4,y} + BE_{N2O,y} + BE_{elec,y}$$

Where:

$BE_{N2O,y}$ = Baseline N_2O emissions in year y (tCO2/yr)

$BE_{Manure,y}$ = Baseline emissions in year *y* (tCO_2/yr)

$BE_{CH4,y}$ = Baseline CH_4 emissions in year *y* (tCO_2/yr)

BE_{elec} = Baseline CO_2 emissions from electricity used in the baseline (tCO_2/yr)

BE_{2023} = 64,029 + 14,958 = 78,987 tCO2e/yr.

NOTE: EN2O,D,y and EN2O,ID,y emissions equations for the baseline emissions (BEN2O,y page 11 of The Gold Standard Revised Consolidated Baseline Methodology for GHG Emission Reductions from Manure Management Systems and Municipal Solid Waste, December 2013) and project emissions (PEN2O,y page 15 of The Gold Standard Revised Consolidated Baseline Methodology for GHG Emission Reductions from Manure Management Systems and Municipal Solid Waste, December 2013) calculation equations are given same in the Gold Standard's consolidated baseline methodology. Same situation is present in CDM Methodology ACM0010 (ver.08) that consolidated GS Methodology is based on. This would lead emission calculations as zero since baseline and project emissions become equal within this calculation pathway. Therefore, the equation becomes as follow:

$$BE_{Manure,y} = BE_{CH4,y} + BE_{elec,y}$$

Detail calculations of each component are given below.

A. Baseline CH_4 emissions ($BE_{CH4,y}$) from manure treatment

$$BE_{CH4,y} = GWP_{CH4} \times D_{CH4} \times \sum_{j,LT} \left(MCF_j \times B_{0,LT} \times N_{LT} \times VS_{LT,y} \times MS\%_{Bl,j} \right)$$

Where:

$BE_{CH4,y}$ = Baseline CH_4 emissions (tCO_2/yr)

GWP_{CH4} = Global Warming Potential (GWP) of CH_4 (tCO_2e/tCH_4)

D_{CH4} = Density of CH_4 (t/m^3)

MCF_j = Annual methane conversion factor (MCF) for the baseline $AWMS_j$

$B_{0,LT}$ = Maximum methane producing potential of the volatile solid generated by animal type LT (m^3CH_4/kg -dm)

N_{LT} = Annual average number of animals of type LT for the year *y* (number)

$VS_{LT,y}$ = Annual volatile solid excretions for livestock LT entering all AWMS on a dry matter weight basis (kg -dm/animal/yr)

$MS\%_{Bl,j}$ = Fraction of manure handled in system *j* in the baseline

LT = Type of livestock

j = Type of treatment system

For the calculation of $N_{LT,y}$ Option 2 is chosen from applied methodology. Project has signed agreements with annual average live animal number with farms. Hence these data are used for $N_{LT,y}$ calculation. Details of animal numbers are given in Section B.3 and emission reduction calculation excel document.

For the calculation of $VS_{LT,y}$ Option 4 is chosen and default and regional IPCC data is used.

As a result of explained calculation pathway (details given in ER calculation sheet):

$BE_{CH4,y}$ = 64,029 tonnes CO_2/year

$BE_{CH4,2023}$ = 28 x 0.00067 x 0.67 x (0.24 x 2,150 x 1,643 x 1) + (28 * 0.00067 x 0.67 x (0.39 x 1,491,600 x 7.3 x 1) = 64,029 tCO2e/yr.

B. Baseline CO_2 emission from electricity and/or heat used in the baseline

Baseline emissions associated with electricity generation ($BE_{EC,y}$)

The baseline emissions associated with electricity generation in year *y* (*BEEC,y*) shall be calculated using the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption". When applying the tool:

$$BE_{EG} = EG_{BL,y} * EF_{CO_2,grid,y}$$

Where:

BE_{EG} = Baseline emissions associated with electricity generation in year *y* (t CO_2)

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

$EF_{CO2,grid,y}$ = CO_2 emission factor of the grid in year *y* (t CO_2/MWh)

$$BE_{EG,2023} = 26{,}215 \text{ MWh x } 0.5706 \text{ tons } CO_2/MWh$$

$$BE_{EG} = 14{,}958 \text{ tCO}_2 \text{ e}$$

Baseline emissions associated with heat generation ($BE_{HG,y}$)

The baseline emissions associated with heat generation are not considered within the scope of this project. The project does not seek emission reduction credits from the heat component.

Total of Baseline Emissions

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

$$BE_{Manure} = 64{,}029 + 14{,}958 = \mathbf{78{,}987\ tonnes\ CO2/year}$$

E.2. Calculation of project value or estimation of project situation of each SDG Impact

The Gold Standard Revised Consolidated Baseline Methodology for GHG Emission Reductions from Manure Management Systems and Municipal Solid Waste[41] states that project emissions in year y are calculated for alternative waste treatment option implemented in the project activity as follows:

$$PE_y = PE_{AD,y} + PE_{Aer,y} + PE_{Comp,y} + PE_{N2O,y} + PE_{EC/FC,y} + PE_{Tran,y} + PE_{Storage,y}$$

Where:

PE_y = Project emission in year y (t CO_2)

$PE_{AD,y}$ = Project emissions associated with the anaerobic digester / co-digestion in year t (tCO_2e/yr)

$PE_{Aer,y}$ = Project CH_4 emissions from aerobic AWMS treatment (tCO_2e/yr)

$PE_{Comp,y}$ = Project CH_4 emissions from composting/ co-composting (tCO_2e/yr)

[41] https://globalgoals.goldstandard.org/wp-content/uploads/2017/06/401.13-ER-MMS.pdf

$PE_{N2O,y}$ = Project N_2O emissions in year y (tCO_2/yr)

$PE_{EC/FC,y}$ = Project emissions from electricity consumption and fossil fuel combustion (tCO_2/yr)

$PE_{Tran,y}$ = Project emissions from manure transportation in the year y (tCO_2/yr)

$PE_{Storage,\ y}$ = Project emissions from manure storage (tCO_2e/yr)

Since the proposed project activity does not consist of aerobic AWMS treatment, $PE_{Aer,y}$ shall be accounted as zero. In addition, for the Project does not involve composting, $PE_{Comp,y}$ shall be accounted as zero too. Moreover, the proposed project activity does not consume fossil fuel for heat purposes, since the heat power generated as a by-product is used within the Project site. Thus, $PE_{FC,y}$ shall be accounted as zero. Furthermore, since the manure is not stored in outdoor open storage tanks more than 24 hours, $PE_{Storage,y}$ shall be accounted as zero. Moreover, since $E_{N2O,D,y}$ and $E_{N2O,ID,y}$ emissions equations for the baseline emissions ($BE_{N2O,y}$ page 11 of The Gold Standard Revised Consolidated Baseline Methodology for GHG Emission Reductions from Manure Management Systems and Municipal Solid Waste, December 2013) and project emissions ($PE_{N2O,y}$ page 15 of The Gold Standard Revised Consolidated Baseline Methodology for GHG Emission Reductions from Manure Management Systems and Municipal Solid Waste, December 2013) calculation equations are given same in the Gold Standard's consolidated baseline methodology, this would led emission calculations net emissions based on N2O as zero as also explained in baseline emissions calculation part of this document. Hence, the project emission equation could be simplified as;

$$PE_y = PE_{AD,y} + PE_{EC,y} + PE_{Tran,y}$$

A. Project emissions associated with the anaerobic digester in year y ($PE_{AD,y}$)

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

Where:

$PE_{AD,y}$ = Project emissions associated with the anaerobic digester in year y (tCO_2e/yr)

$PE_{EC,y}$ = Project emissions from electricity consumption associated with the anaerobic digester in year y (t CO2e)

$PE_{FC,y}$ = Project emissions from fossil fuel consumption associated with the anaerobic digester in year y (t CO2e)

$PE_{CH4,y}$ = Project emissions of methane from the anaerobic digester in year y (t CO2e)

$PE_{Flare,y}$ = Project emissions from flaring of biogas in year y (t CO2e)

$$PE_{CH4,y} = Q_{CH4,y} \times EF_{CH4,default} \times GWP_{CH4}$$

$$PE_{CH4,2023} = 5{,}895 \times 0.028 \times 28 = 4{,}622\ tCO_2e/yr.$$

Calculations of each component are given as follow:

i. Project emissions from electricity consumption ($PE_{EC,y}$)

In accordance with the Gold Standard's consolidated baseline methodology, the project emissions from electricity consumption will be calculated following the latest version of 'Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation ver.03.0[42]' (pg. 17). Accordingly, the methodological tool 'Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity'[43], Version 03.0, is applied to the proposed project activity to calculate $PE_{elec,y}$.

$$PE_{EC,y} = \sum EC_{PJ,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y})$$

Where:

$EC_{PJ,j,y}$	=	Quantity of electricity consumed by the project electricity consumption source j in year y (MWh/yr)
$EF_{EL,j,y}$	=	Emission factor for electricity generation for source j in year y (tCO_2/MWh)
$TDL_{j,y}$	=	Average technical transmission and distribution losses for providing electricity to source j in year y

$$PE_{EC,2023} = 2{,}621.5*0.5706*(1+0.057) = 1{,}581\ tCO_2e/yr.$$

ii. Project emissions from fossil fuel consumption ($PE_{FC,y}$)

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

Anaerobic digester does not use fossil fuel; therefore $PE_{FC,y}$ parameter has been omitted.

iii. Project emissions of methane from AD ($PE_{CH4,y}$)

$$PE_{CH4,y} = Q_{CH4,y} \times EF_{CH4,default} \times GWP_{CH4}$$

Where:

$Q_{CH4,y}$	=	Quantity of methane produced in the anaerobic digester in year y (t_{CH4})
$EF_{CH4,default}$	=	Default emission factor for the fraction of CH_4 produced that leak from the anaerobic digester (fraction)
GWP_{CH4}	=	Global warming potential of CH_4 (tCO_2 / tCH_4)

Project emissions from waste transportation ($PE_{Tran,y}$)

The Gold Standard consolidated baseline methodology states that the project emissions from manure transportation from collection points to the central treatment plant shall be calculated according to the Methodological tool "Project and leakage emissions from transportation of freight" Accordingly the methodological tool 'Project and leakage emissions from road transportation of freight', Version 01.1.0[44], is applied to the proposed project activity.

As per the paragraph 20 of the Tool, $PE_{Tran,y}$,

[44] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-12-v1.1.0.pdf

$$\left.\begin{matrix} PE_{TR,m} \\ LE_{TR,m} \end{matrix}\right\} = \sum_f D_{f,m} \times FR_{f,m} \times EF_{CO2,f} \times 10^{-6} \qquad \text{Equation (1)}$$

Where:

$PE_{TR,m}$ = Project emissions from transportation of freight monitoring period *m* (t CO_2)

$LE_{TR,m}$ = Leakage emissions from transportation of freight monitoring period *m* (t CO_2)

$D_{f,m}$ = Return trip distance between the origin and destination of freight transportation activity *f* in monitoring period *m* (km)

$FR_{f,m}$ = Total mass of freight transported in freight transportation activity *f* in monitoring period *m* (t)

$EF_{CO2,f}$ = Default CO_2 emission factor for freight transportation activity *f* (g CO_2/t km)

f = Freight transportation activities conducted in the project activity in monitoring period *m*

For this project, average return distance between the origin and the destination is taken as 169 km which is the distance to farthest farm to project site. By taking this distance the most conservative approach is taken for the emission due to transportation of wastes. Annual waste amount taken by project is 245,645 tonne/year according to finalized EIA (Total waste amount consisting of cattle manure, chicken manure and agricultural wastes. Breakdown amounts of wastes given in Section A1 and A3 and Table 1 above).

Default CO_2 emission factor for freight transportation is chosen as 129 g CO2/t.km

Hence;

$PE_{Tran,2023}$ = 3,492 tCO_2/year (details are given in ER calculation sheet)

Accordingly, the Total of Project Emissions

$$PE_y = PE_{AD,y} + PE_{EC/FC,y} + PE_{Tran,y}$$

PE_{2023} = 4,622 tCO_2/yr + 1,581 tCO_2/yr + 3,492 tCO_2/yr = 9,694 tonnes CO2/year

E.3. Calculation of leakage

$$LE_y = \left(LE_{PJ,N2O,y} - LE_{BL,N2O,y}\right) + \left(LE_{PJ,CH4,y} - LE_{BL,CH4,y}\right) + LE_{Comp,y} + LE_{AD,y} + LE_{Trans,y}$$

Where:

$LE_{PJ,N2O,y}$ = Leakage N_2O emissions released during project activity from land application of the treated manure in year y (tCO_2e/yr)

$LE_{BL,N2O,y}$ = Leakage N_2O emissions released during baseline scenario from land application of the treated manure in year y (tCO_2e/yr)

$LE_{PJ,CH4,y}$ = Leakage CH_4 emissions released during project activity from land application of the treated manure in year y (tCO_2e/yr)

$LE_{BL,CH4,y}$ = Leakage CH_4 emissions released during baseline scenario from land application of the treated manure in year y (tCO_2e/yr)

$LE_{Comp,y}$ = Leakage emissions associated with the storage and disposal of compost in year y (tCO_2e)

$LE_{AD,y}$ = Leakage emissions associated with the anaerobic digester in year y (tCO_2e)

$LE_{Trans,y}$ = Emissions from incremental distance travelled for waste/final compost/residue transportation in tCO_2e/yr

As noted earlier, since the proposed project activity does not involve composting, $LE_{Comp,y}$ shall be accounted as zero. Moreover, the solid and liquid digestate used as fertilizer in nearby agricultural land as free and this materials are not used/stored in any other conditions on land. Hence, $LE_{PJ,N2O,y}$, $LE_{PJ,CH4,y}$ shall be zero. Before the project activity farm owners bought the inorganic fertilizer from related market which is costly.

In addition, as per the statement made by the Gold Standard consolidated baseline methodology as "leakage covers the emissions from land application of treated manure as well as the emissions related to anaerobic digestion in a digester, occurring outside the project boundary" (pg. 18), leakage emissions associated with the anaerobic digester ($LE_{AD,y}$) and emissions from incremental distance travelled for waste/final compost/residue transportation ($LE_{Trans,y}$) shall also be accounted as zero since these emissions are occurring within the project boundary and already accounted as project emissions.

Accordingly, net leakage shall be negative. As per the statement made by the Gold Standard consolidated baseline methodology as "net leakage is only considered if they are positive" (pg. 18), LE_y shall be accounted as zero.

$$LE_y = 0\ tCO_2/yr$$

E.4. Calculation of net benefits or direct calculation for each SDG Impact

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
SDG 7	Production of Clean Energy	-	47,253.4	47.253.4
SDG 8	Creating Employment Opportunities	-	84	84
SDG 12	Ensure Sustainable Consumption and Production Patterns		92,883.23 (chicken manure)	92,883.23 (chicken manure)

		-	59,610 (cattle manure) 22,397.39 (agricultural)	59,610 (cattle manure) 22,397.39 (agricultural)
SDG 13	CO_2 Emission Reductions	158, 037	13,182	144,855

E.5. Comparison of actual SDG Impacts with estimates in approved PDD

Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values[45] achieved during this monitoring period
84,056 MWh	47,253.4 MWh
55 People	119 people
125,195 tonne/year (chicken manure) 116,800 tonne/year (cattle manure) 3,650 tonne/year (agricultural waste)	92,883.23 (chicken manure) 59,610 (cattle manure) 22,397.39 (agricultural)
220,554 tCO_2 / year	144,855 tCO_2

E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

[45] Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

The actual emission reduction value (SDG 13) is lower than the estimated value as is indicated in the section E.5. The reason could be the changes in number of animals and using actual electricity generation values (EPİAŞ).

E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

The project has been expected to generate 84,056 MWh for the whole monitoring period as indicated in the table in Section E.5. For actual values, the project generated 23,626.7 MWh/year of clean energy per annum and 47,253.4 MWh for the whole monitoring period.

SDG 7:

% difference in EG: [(84,056– 47,253.4) / 84,056] x 100 = 43.8% which means the project generated 43.8% more electricity than expected.

SDG-8:

The project has been expected to employ 55 people. In 2024, 84 people were employed.

SDG-12:

The project expected better management option for wastes as around 245,645 tonne/year. The project actually provided better management options for annual 174,890.62 tonne/year.

% difference in Chicken Manure: [(245,645 –174,890) /245,645] x 100 = 28.8% which means the project got by 28.8 % less chicken manure than expected.

SDG 13:

% difference in ER: [(220,554 – 144,855) / 220,554] x 100 = 34.5% which means the project decreased $C0_2$ by 34.5% less than expected.

SECTION F. SAFEGUARDS REPORTING

Data / Parameter	**Quality of Employment**
Unit	Number of personnel certified/trained during operation phase
Description	Contribution to quality of employment by ensuring that the staff is trained and certified for the required positions
Source of data	Training Records (including H&S) & Other Certificates required by certain professions, if necessary
Value(s) applied	25 people (2024)
Measurement methods and procedures	All employees attended trainings on first aid and health & safety. For positions that require specific skills (such as high voltage equipment) staff was either trained or certified staff was recruited.
Monitoring frequency	Annually
QA/QC procedures	The training programmes help increase the efficiency of the workforce and provides employees skilled at their job. This not only helps the company but to self-improvement of individual employees.
Purpose of data	To monitor the contribution to SDG 8 and Principle 3.6.1.
Additional comment	-

Data / Parameter	**Quantity of Employment**
Unit	-
Description	Number of personnel
Source of data	Social security records of employees
Value(s) applied	84 (2024 June)
Measurement methods and procedures	Social security records of employees

Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	To monitor the contribution to SDG 8 and Principle 3.6.1.
Additional comment	-

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses/mitigations.

No inputs or grievance received during this monitoring period. Grievance logbooks have been provided to the nearest Mukhtars of the Meram Biogas Power Plant.

Figure 5. Logbook of the Meram Biogas Power Plant

Figure 6. Logbooks of the Mukhtars of Boyalı, Çomaklı, Borutoklu Neighborhoods

G.2. Report on any stakeholder mitigations that were agreed to be monitored.

No such demand was made in this monitoring period.

G.3. Provide details of any legal contest that has arisen with the project during the monitoring period

No legal contest had arisen with the project in this monitoring period.

Revision History

Version	Date	Remarks
1.1	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Section for POA monitoring Forward action request section Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on safeguard reporting Clarity on design changes Leakage section added for VER/CER projects Addition of Comparison of monitored parameters with last monitoring period Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption