

TEMPLATE

KEY PROJECT INFORMATION & PROJECT DESIGN DOCUMENT (PDD)

PUBLICATION DATE **29.06.2023**

VERSION **v.1.5**

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KEY PROJECT INFORMATION

GS ID of Project	GS11662
Title of Project	Gazişehir LFG Utilization Project
Time of First Submission Date	09/05/2022
Date of Design Certification	xxx
Version number of the PDD	7.0
Completion date of version	04/07/2024
Project Developer	Gazişehir Enerji Üretim Sanayi Ticaret A.S.
Project Representative	OakDanismanlik – Omer Akyurek
Project Participants and any communities involved	n.a.
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	n.a.
Methodology (ies) applied and version number	Approved consolidated baseline methodology ACM0001 “Flaring or Use of Landfill Gas” version 19.0.0
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	Reduction of CO ₂ emissions	293,576	tCO ₂ /y
1 No Poverty	Number of employments with social security	25	Employees
3 Good Health and Well Being	LFG destroyed	25,661,969	m3LFG/y
7 Access to affordable, reliable, sustainable and modern energy for all	Renewable energy generated	85.17	GWh/y
8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work	Number of jobs created	25	Job created
11 Make cities and human settlements inclusive, safe, resilient and sustainable	Air Quality	128,309	m3 Sulfide

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and general description of project

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The Gazişehir Utilization Project (hereafter referred as project activity) developed and operated by Gazişehir Enerji Üretim Sanayi Ticaret A.S. (hereafter referred to as the “project participant”). The proposed activity involves the collection and utilization of the LFG with an electricity component with a maximum installed capacity reaching 13.520 MWe¹. The location of the proposed activity is the Gaziantep landfill site, Turkey. The Gaziantep landfill is the main landfill of the Gaziantep city, which is the 6th largest city in Turkey with its 1.2 million inhabitants. It started operations in

¹ Energy Generation License obtained from EMRA (Energy Market Regulatory Authority) is available to the VVB.

1996² and receives close to 2000 t/day on average³. The baseline is a managed landfill with no landfill gas utilization.

The proposed project activity involves the covering of the landfill and the installation of a gas extraction system, capturing the landfill gas and feeding it to gas engines for electricity generation. Total capacity of the proposed project is projected to reach 13.520 MWe once full capacity. The generated electricity will be delivered to the national grid.

Once working with full capacity the project will reach a total of 11 engines. The activity generates approximately 85.17 GWh/year of energy and delivered to the national grid. The Project is estimated to reduce 293,576 tCO₂eq emission reductions per year with a total of 1,467,881 tCO₂eq over the 5 year first crediting period.

Table 2 Important milestones to the project activity

Date	Event
14.02.2021	Prior Consideration ⁴
11.05.2021	Start of project activity (as defined under the GS Principles and Requirements) ⁵
27.05.2021	License Date
21.06.2021	System connection permit ⁶
29.06.2021	Commissioning of GM1 (1X1.413 MWe)
01.01.2022	Start of first crediting period
13.01.2022	Commissioning of GM2-GM3-GM4 (3X1.413 MWe)
11.03.2022	Commissioning of GM7-GM8-GM9-GM10-GM11 engines (5X1.131 MWe)
30.11.2022	Commissioning of GM5-GM6 (1X1.413 Mwe + 1X0.800 MWe)
16.04.2022	LSC Meeting
08/11/2022	Project listing under GS
31.12.2026	End of 1 st crediting period

² Ref: https://webdosya.csb.gov.tr/db/ced/icerikler/gaz-antep_cdr2018-20200210112211.pdf

³ This is an approximate estimation based on TUIK database: <https://biruni.tuik.gov.tr/medas/?kn=119&locale=tr>

⁴ Board of Directors resolution on carbon credit revenues and impact on feasibility is available to the VVB

⁵ Purchase of gas engine is considered as the start of project activity which marks a commitment to expenditures related to the implementation of the Project, in line with the definitions and requirements of GS. Document is available to the VVB.

⁶ Document is available to the VVB

In the baseline situation, the organic waste would be collected and landfilled serving the area of influence of the project's new organic waste treatment plant and related emissions of methane into the atmosphere would occur due to anaerobic decomposition of organic waste that would otherwise be disposed in landfill sites.

The proposed project will reduce GHG emissions in several ways:

- by collecting methane from the landfill and utilizing it for electricity generation.
- by displacing electricity which otherwise would have been generated by power plants connected to the Turkish grid.

The proposed project contributes significantly to the region's sustainable development:

- The project activity will have considerable positive impact on mitigating the threat to public health compared to the baseline situation.
- The project will result in the creation of local employment both during the construction and operational phase.
- Uncontrolled landfill areas cause odor nuisance and have a high risk of explosion and fire. By covering the landfill and extracting the landfill gas the odor nuisance and risk of explosion and fire will be significantly reduced.
- Landfill gas is a waste product, the utilization of it results not only in the destruction of methane, a potent greenhouse gas, but utilization for the production of electricity also results in less emission of the power generation sector in Turkey and reduces the dependency of Turkey on imported electricity.
- It will promote integration of environmental infrastructure (e.g. after-care for landfill sites, etc.)
- The active LFG collection and destruction will minimize off-site LFG migration and thus prevent potential explosions resulting from subsurface gas migration
- LFG combusting will dispose of the hazardous constituents safely. At the same time, it will reduce odor nuisance and health risks
- It will promote sustainable development by reducing greenhouse gas emissions and their impact on climate change

A.1.1. Eligibility of the project under Gold Standard

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The proposed project activity is eligible as Renewable Energy Activity under Gold Standard as it meets the eligibility criteria as per GS4GG clarified.

Project type: The proposed project activity comprises of renewable energy generation from waste to energy involving landfill gas utilization to generate and deliver electricity to the national grid without thermal energy production.

Location of the project: The project is located in Turkiye.

Project area, boundary, and scale: The proposed project activity is a renewable energy project, which involves LFG coverage and utilization of the LFG for electricity generation. The total capacity of the proposed project activity is planned to reach 13.520 MWe. Although this capacity is below the small-scale threshold for Gold Standard, the expected emission reductions exceed 60,000 tCO₂ which is the upper limit for applicability of small-scale methodology AMS-III-G "Landfill methane recovery". Therefore, ACM0001 approved consolidated methodology "Flaring or Use of Landfill Gas" is considered applicable to the project activity, and the scale is defined as large scale.

The project area and boundary is defined in line with the large-scale Consolidated Methodology "Flaring or use of landfill gas", ACM0001.

Stacking: The project is not registered with any other voluntary or compliance schemes and Turkey does not have an emission reduction cap enforced nor the possibility to trade emissions.

Double counting: There is no risk of double counting of impacts as the Project Area does not overlap with that of another active Gold Standard or other voluntary or compliance standard program of a similar nature.

Compliance with regulations: The project activity is in compliance with all applicable legal, environmental, ecological and social regulations.

Further note on Gold Standard Preliminary Review Form and Outcome:

PP has applied for preliminary review on 27 May 2022 and approved on 08 November 2022, with the following FARs from GS and how they have been addressed.

FAR1: VVB shall check the effectiveness of the grievance mechanism including the availability of the grievance logbook.

Grievance log book have been provided to the Muchtar on 16/04/2022 as part of the grievance mechanism. Proof of evidence have been shared with the VVB. No comments have been received through the log book so far. This will continue to be part of the grievance mechanism.

FAR2: VVB shall validate the relevant evidence with regards to the project start date on 11 May 2021.

Evidence on project start date has been shared with the VVB.

FAR3: VVB shall validate the activity is not located in a host country, region, locality, or state that has an emission reduction cap enforced or has the possibility to trade emissions that include the scope of the proposed project.

The project activity is located in Turkey, where no emission reduction cap enforced or has the possibility to trade emissions that include the scope of the proposed project.

FAR4: VVB shall validate how the PP conduct stakeholder feedback round in line with GS4GG STAKEHOLDER CONSULTATION AND ENGAGEMENT REQUIREMENTS. The process on SFR shall be reported in LSC report.

The SFR has been conducted in line with the requirements of GS4GG and documentation has been revised. No feedback have been received during the consultation process.

Further, GS has approved a deviation request on 26/10/2022.

GS11662 Gazişehir LFG Utilization Project is a retroactive project activity since the Stakeholder Consultation is conducted after the start of project activity as defined under par 4.1.42 of Principles and Requirements.

The starting date of the project activity is determined as 11.05.2021 in line with the definitions and requirements of GS. PP has submitted key project information (as per par. 5.1.4) on 09.05.2022 in line with the 1 year rule (as per par. 4.1.49.(b)) however

uploaded signed Terms and Conditions on 25.05.2022 and paid the fee for the preliminary review on 16.06.2022. GS have approved project compliance with the rules and requirements.

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

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"Gazişehir Enerji Üretim Sanayi Ticaret A.S." holds the ownership of all VERs generated.

A.2 Location of project

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Company HQ: Kızılırmak Mah. Dumlupınar Bulvarı No: 9A/151 Çankaya / ANKARA

Facility: Bağlarbaşı Mah. 105200 Nolu Küme Evler No:104 Şahinbey / GAZİANTEP

Latitude: 36,983642

Longitude: 37,3989812



Figure 1 Location of the project activity

A.3 Technologies and/or measures

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Landfill gas (LFG) is a natural byproduct of the decomposition of organic material in landfills. LFG is composed of roughly 50 percent methane (the primary component of natural gas), 50 percent carbon dioxide (CO₂) and a small amount of non-methane organic compounds. Methane is also a potent greenhouse gas.

When MSW(Municipal Waste) is first deposited in a landfill, it undergoes an aerobic (with oxygen) decomposition stage when a little methane is generated. Then, typically anaerobic conditions are established, and methane-producing bacteria begin to decompose the waste and generate methane.

Instead of escaping into the air, LFG can be captured, converted, and used as a renewable energy resource. Using LFG helps to reduce odors and other hazards associated with LFG emissions and prevents methane from migrating into the atmosphere and contributing to local smog and global climate change. In addition, LFG energy projects create jobs in the community and beyond.

LFG is extracted from landfills using a series of wells and a blower/flare (or vacuum) system. This system directs the collected gas to a central point where it is utilized in engines to generate electricity for the grid.

11 sets of gas engines will be installed within the scope of the project activity. The Project Activity Jenbacher Type 4 j420 Model⁷. Are robust and efficient power generation solution. Designed to accommodate a variety of gases including LFG, it stands out for their adaptability to different fuel sources. With a focus on high electrical efficiency, the engine is well-suited for power applications, maximizing energy utilization.

An enclosed flare system will be installed to burn the excess LFG in a controlled environment and disposal of it safely to the atmosphere.

The generation license obtained from EMRA grants the activities to be carried out till 02.09.2038.

⁷ For more technical details please refer to <https://www.jenbacher.com/en/gas-engines/type-4/j420>

A.4 Scale of the project

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The total capacity of the proposed project activity is planned to reach 13.520 MWe, which is below 15 MW threshold for small scale project activities under GS and estimated emission reductions will exceed 60,000 tCO₂/year, which is the maximum threshold for small scale methodology applicability. The project activity is defined as a small scale project activity but will be developed against a large scale methodology.

A.5 Funding sources of project

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No public funding is obtained for the project⁸.

⁸ Official Development Assistance Declaration Form is available to the VVB

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

B.1. Reference of approved methodology (ies)

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Latest version of methodologies and applicable tools have been applied at the time of first submission of the Project to Gold Standard.

Applied approved baseline and monitoring methodologies:

- Approved consolidated baseline methodology ACM0001 "Flaring or Use of Landfill Gas" version 19.0.0;

Used tools:

- "Combined tool to identify the baseline scenario and demonstrate the additionality" version 07.0.0;
- "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 03.0.0
- "Emissions from solid waste disposal sites" version 08.1;
- "Tool to calculate the emission factor for an electricity system" Version 03.0.0,
- 'Tool to calculate baseline, project and/or leakage emissions from electricity consumption' version 03.

For more information regarding the methodology please refer to

<https://cdm.unfccc.int/methodologies/DB/JPYB4DYQUXQPZLBDVPHA87479EMY9M>

B.2. Applicability of methodology (ies)

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Applicability of ACM0001 v19.0.0:

The emission reductions resulting from the capture and utilization of landfill gas are calculated using ACM0001 "Flaring or Use of Landfill Gas". The applicability is discussed as follows:

Ref.	Applicability Criteria	Justification
The methodology is applicable to project activities which:		
a	Install a new LFG capture system in an existing or new (Greenfield) SWDS where no LFG capture system was or would have been installed prior to the	The proposed project activity involves installation of a new LFG capture system.

	implementation of the project activity	
b	Make an investment into an existing LFG capture system to increase the recovery rate or change the use of captured LFG, providing that; (i) The captured LFG was vented or flared and not used prior to the implementation of the project activity; and (ii) In the case of an existing active LFG capture system for which the amount of LFG cannot be collected separately from the project system after the implementation of the project activity and its efficiency is not impacted on by the project system: historical data on the amount of LFG capture and flare is available.	Not applicable
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	The proposed project activity is designed in a way to make use of the LFG recovered for the delivery of electricity, there will be no heat generation or supply of LFG to consumers.

	(iv) Supplying compressed/liquefied LFG to consumers using trucks (v) Supplying the LFG to consumers through a natural gas distribution network.	
d	Do not reduce the amount of organic waste that would be recycled in the absence of the project activity.	There are no recycling activity of organic waste within the project activity.
The methodology is only applicable if the application of the procedure to identify the baseline scenario confirms that the most plausible baseline scenario is		
a	Atmospheric release of the LFG or capture of LFG and destruction through flaring to comply with regulations or contractual requirements, to address safety and odor concerns, or for other reasons	The most plausible baseline scenario is atmospheric release of the LFG.
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 on-site equipment.	The most plausible baseline scenario for electricity generation is that electricity would be generated in the grid.
The 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;	This methodology is not used in a combination of other approved methodologies.
b	If the management of the SWDS in the project activity is deliberately changed in order to increase methane generation compared to the situation prior to the implementation of the project activity.	No changes or intervene has been made deliberately to increase methane generation compared to situation prior to the implementation of the project activity.

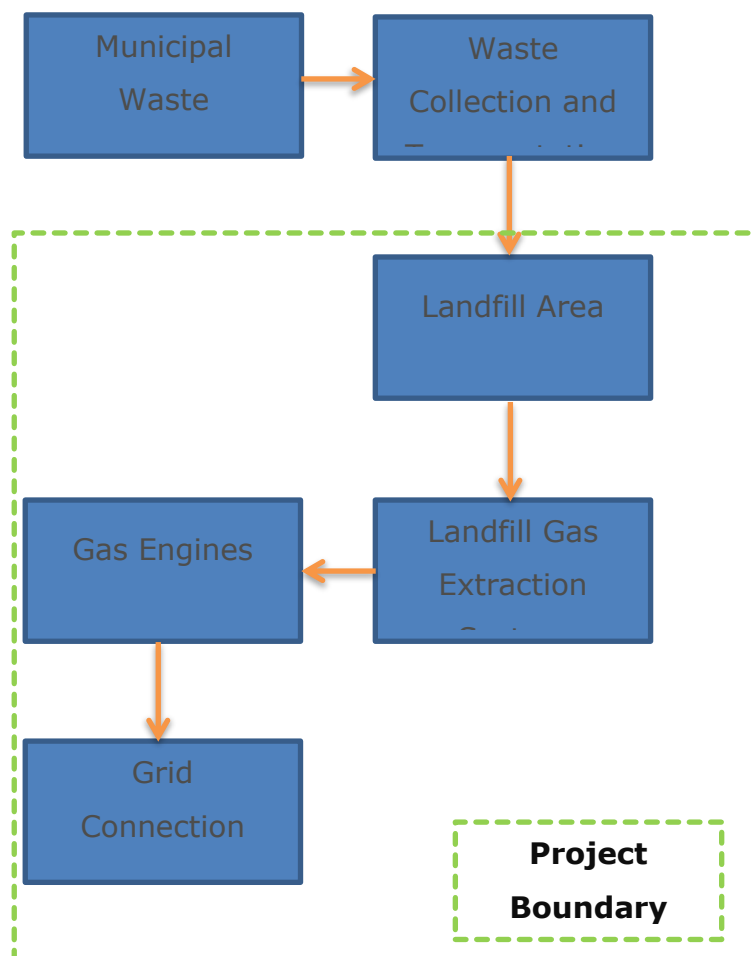
B.3. Project boundary

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	Source	GHGs	Included?	Justification/Explanation
Baseline scenario	Emissions from decomposition of waste at the SWDS site	CO ₂	No	Minor emission source. Excluded for simplification
		CH ₄	Yes	The major source of emissions in the baseline
		N ₂ O	No	Minor Emission source. Excluded for simplification
	Emissions from electricity generation	CO ₂	Yes	Major emission source
		CH ₄	No	Minor emission source. Excluded for simplification.
		N ₂ O	No	Minor emission source. Excluded for simplification.
Project	Emissions from electricity consumption due to the project activity	CO ₂	Yes	May be an important emission source
		CH ₄	No	Minor Emission source. Excluded for simplification

	N ₂ O	No	Minor Emission source. Excluded for simplification
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As presented by the below figure, the physical boundary of the proposed project are the components of the proposed project activity in which the gas will be captured and utilized/destroyed (including gas collection system, electric generators and flaring system) and their connection to the Turkish National Grid.



B.4. Establishment and description of baseline scenario

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According to ACM0001 "Flaring or Use of Landfill Gas" version 19.0.0, the baseline scenario is identified using the "Combined tool to identify the baseline scenario and demonstrate additionality".

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

This step is not applied.

Step 1: Identification of alternative scenarios

This step serves to identify all alternative scenarios to the proposed project activity which can be the baseline scenario following the sub-steps:

Step 1a: Define alternative scenarios to the proposed project activity:

In line with ACM0001 “Flaring or Use of Landfill Gas” version 19.0.0 and applicable tool(s), alternative scenarios are identified as follows:

- LFG1* The proposed project activity undertaken without being registered as GS VER project activity
- 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
- 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
- LFG4* LFG generation is partially avoided because part of the organic fraction of the solid waste is recycled and not disposed in the SWDS
- LFG5* LFG generation is partially avoided because part of the organic fraction of the solid waste is treated aerobically and not disposed in the SWDS
- LFG6* LFG generation is partially avoided because part of the organic fraction of the solid waste is incinerated and not disposed in the SWDS

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

- E1 Electricity generated from LFG undertaken without being registered as a VER project activity
- E2 Electricity generation in existing or new renewable or fossil fuel based captive power plant
- E3 Electricity generation in existing and/or new grid connected power plants

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

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

Assessment of alternative scenarios and its applicability to the proposed project activity

<i>Alternative scenario</i>	<i>Assessment of the alternative scenario</i>	<i>Considered as a viable alternative to the project activity</i>
<i>LFG 1</i>	This scenario is a considered as a viable alternative to the proposed project activity.	Yes
<i>LFG 2</i>	This scenario is a considered as a viable alternative to the proposed project activity.	Yes
<i>LFG 3</i>	According to the most up to date official statistics, almost 70% of the collected MSW is sent to a managed landfill site in Turkey, hence this alternative is not considered as a viable alternative to the proposed project activity ⁹ .	No
<i>LFG 4</i>	This scenario is not considered as a viable alternative since it is not	No

⁹ TUIK Official statistics 2020 "008_Belediye atiklari istatistikleri" (Exported on 21.02.2023)

	business as usual to recycle organic materials in Turkey	
<i>LFG 5</i>	This scenario is not considered as a viable alternative since it is not business as usual to recycle organic materials in Turkey.	No
<i>LFG 6</i>	This scenario is not considered as a viable alternative since incineration is not business as usual in Turkey. Only 0.4% ¹⁰ of the total waste is incinerated and only a fraction of this waste is organics.	No
<i>E 1</i>	This scenario is a considered as a viable alternative to the proposed project activity.	Yes
<i>E 2</i>	Captive Power Plant is defined as an electricity generation facility used and managed by an industrial or commercial energy user for their own energy consumption. Captive power plants can operate off-grid or they can be connected to the electric grid to exchange excess generation. Since there are no dedicated electricity consumption facilities in the baseline scenario this scenario is not considered as a viable alternative to the proposed project activity.	No

¹⁰ TUIK Official statistics 2018 "009_Atik berteraf ve geri kazanım istatistikleri" (Exported on 21.02.2023)

E 3	This scenario is a considered as a viable alternative to the proposed project activity.	Yes
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Outcome of Step 1a:

Two alternatives' scenarios are identified:

Table 3 Alternative scenario combinations applicable to the project activity

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

Step 1.b: Consistency with mandatory laws and regulations

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

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

Relevance of mentioned Laws and Regulations

Electricity Market Law: The purpose of this Law is to ensure the development of financially sound and transparent electricity market operating in a competitive

environment under provisions of civil law and the delivery of sufficient, good quality, low cost and environment-friendly electricity to consumers and to ensure the autonomous regulation and supervision of this market. Among others, the scope of the law also covers generation of electricity. As one of the important aspects of the proposed project activity is electricity generation, the Electricity Market Law is one of the regulating legislations regarding the project activity.

Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy: The purpose of this Law is to expand the utilization of renewable energy resources for generating electrical energy, to benefit from these resources in secure, economic and qualified manner, to increase the diversification of energy resources, to reduce greenhouse gas emissions, to assess waste products, to protect the environment and to develop the related manufacturing sector for realizing these objectives. As one of the important aspects of the proposed project activity is electricity generation from renewable energy sources the “Renewable Energy Law” is one of the regulating legislations regarding the project activity.

The Act governs the principles for the conservation of renewable resource areas and introduces incentives for domestic energy projects, providing feed-in tariffs for electricity from renewable energy sources. The legal entity holding a generation license is granted a \Renewable Energy Resource Certificate\ (RES Certificate) by the Electricity Markets Regulation Authority (EMRA) to identify and monitor the resource type in purchasing and sale of the electrical energy generated from renewable energy resources in the domestic and international markets.

The regulation falls under the “E- Policy” type which gives comparative advantage to less emission intensive technology or fuels (such as electricity utilization from LFG)¹¹.

Environmental Law: This law outlines Turkey’s environmental policy in general terms. It aims to protect the environment and Turkey’s natural resources for the benefit of future generations. It includes the polluter pays principle. Regulations have been issued

¹¹ In line with EB22 Annex3 the impact of this policy is excluded in establishing a baseline scenario since it was adopted after the Marrakesh Accords (11/11/2001).

on air quality protection, water pollution control, environmental impact assessment, waste control, noise control, and the control of hazardous materials. Environmental Law is one of the main legislations regarding the project activity as it relates to waste management activities. The following two sub regulations of this law are specifically related to the Project Activity:

- Regulation on Solid Waste Control: Summarizing, the regulation mentions the obligation of the party undertaking the solid waste management to respect the human health and welfare of the society. Article 8 of the regulation requires landfill gas collection system for energy recovery or flaring of the landfill gas, only in cases it is economically viable. It doesn't prescribe any technology to achieve this nor does it mention any sanction or penalty if solid waste management projects are implemented otherwise. As such the regulation is instructive on the issue of solid waste management rather than normative. It does not mandate the destruction of methane. Although semi-controlled release of landfill gas to the air (a.k.a. 'venting') occurs at several landfills, the law and regulations does not mandate the destruction of methane.

In summary: although solid waste management regulation is being implemented in Turkey, it is neither compiled to nor enforced. The regulations don't define sanctions or penalties. In practice none of the landfill areas comply with these regulations, as indicated in statistics on landfill areas. The majority of landfill areas in Turkey are actually 'waste dumps' where no waste management (including covering of the landfill) implemented.

Outcome of Step 1b:

Both *Scenario 1* and *Scenario 2* as defined above "Alternative scenario combinations applicable to the project activity" are in consistency with mandatory laws and regulations and remain as credible and realistic alternative scenarios to the proposed project activity for further evaluation on identification of the baseline scenario.

Step 2: Barrier analysis

Both *Scenario 1* and *Scenario 2* as defined under Step 1 above are considered as not prevented by barriers.

Step 3: Investment analysis

The objective of Step 3 is to compare the economic or financial attractiveness of the alternative scenarios remaining after Step 2 by conducting an investment analysis. The analyses include all alternative scenarios remaining after step 2 (Scenario 1 and Scenario 2). The latest approved version of the “Methodological tool: Investment analysis” has been used for the analysis.

Scenario 2 corresponds to continuation of the current situation not requiring any investment or expenses to maintain and is financially viable.

Scenario 1 requires an investment and therefore a financial return is expected to determine the viability of the scenario. When analyzing a potential project, investors compare the equity IRR of the project against their required rate of return. The viability of Scenario 1 will be determined through comparing it against a suitable benchmark value. The purpose of the equity IRR calculation is to determine the final return on the initial equity investment. Required/expected returns on equity are appropriate benchmarks for an equity IRR.

Identification of the financial indicator

The expected returns on equity for similar project activities with similar size, technology, output and investment environment is determined from the Project Appraisal Document of World Bank to TSKB (Turkish Industrial Development Bank)¹². According to this study, a typical developer of LFG utilization investment expects an IRRs of 20% (post-tax)¹³. This is a suitable and widely used financial indicator to determine the attractiveness of investments of similar kind.

Calculation of financial indicators for alternative scenarios

¹² Ref: <https://documents1.worldbank.org/curated/en/799701498842988254/pdf/ICR00004069-06192017.pdf>

¹³ Costs considered in the FRR analysis include applicable taxes and duties.

The equity IRR of Scenario 1; Project activity including power generation from LFG without being registered as a VER project activity, has been calculated based on the key financial indicators of the proposed project activity are listed as follows:

Table 4 Key financial parameters applied to the project activity

Parameter	Unit	Value
Total Investment Cost	\$/kW	4,114 ¹⁴
Loan	%	20
Equity	%	80 ¹⁵
Rate	%	3 ¹⁶
Installed Capacity	MW	13.52
Annual Electricity Generation (Net)	MWh/year	85176 ¹⁷
Electricity tariff	\$cent/kWh	5.82 ¹⁸
Annual Operational Expenses	\$/kW	105 ¹⁹

- The calculation of the IRR of the proposed project activity includes all relevant costs and revenues²⁰.
- In line with the requirements of "Investment Analysis", input values used in all investment analysis are valid at the time of investment decision taken by the project participant, which is referred as the date of Board Decision dated 2021.
- 20% debt and 80% equity financing has been considered as default.

¹⁴ Ref: https://www.mmo.org.tr/sites/default/files/14c4511b3c98f14_ek.pdf

¹⁵ Recent study of SHURA Report "Financing Energy Transition in Turkey" indicate RE investments in Turkey show a higher share of loan/equity with an average of 70-80%. Reference: <https://shura.org.tr/wp-content/uploads/2019/10/SHURA-2019-10-Turkiyede-Enerji-Donusumunun-Finansmani.pdf>

¹⁶ The data has been based on Central Bank of Turkey Electronic Data Delivery System (https://evds2.tcmb.gov.tr/index.php?evds/serieMarket/collapse_13/5936/DataGroup/turkish/bie_abres2/) using Euro based Commercial Lending Rates Data sets for year 2021 averages (TP KTF17 EUR). 2021 is the year of investment decision

¹⁷ Based on an average of 6300h/y load.

¹⁸ 2021 average wholesale price for electricity is 51.47 kr/kwh. Ref. https://www.emo.org.tr/genel/bizden_detay.php?kod=138672 . 2021 average exchange rate is 8.89 (https://www.emo.org.tr/genel/bizden_detay.php?kod=138672). The average USD/TL exchange rate is recorded as 8.885 (<https://www.muhasabenews.com/ortalama-doviz-kuru-programi/>)

¹⁹ Ref: https://www.mmo.org.tr/sites/default/files/14c4511b3c98f14_ek.pdf

²⁰ Financial calculation is available to the VVB.

- The equity IRR has been calculated over a 10-year period.
- Only the portion of the investment costs which is financed by equity have been considered as the net cash outflow and the portion of the investment cost which is financed by debt have not been considered as a cash outflow.

The result of the equity IRR calculated for Scenario 1:

Table 5 Equity IRR of Scenario 1

Equity IRR of Scenario 1: Project activity including power generation from LFG without being registered as a VER project activity	-12%
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Based on the financial analysis the long term equity IRR has been calculated as -12%. This is calculated post tax. This is below the financial benchmark of 20% and cannot be considered to be a financially attractive alternative.

Sensitivity Analysis

The applicable tools require a sensitivity analysis that shows whether the conclusion regarding the financial/economic attractiveness is robust to reasonable variations in the critical assumptions. The PDD presents test of equity IRR when critical parameters are changed by 10% when changed in favor of a higher IRR. The result table (Table 5) provides IRR values as a result of each changed parameter and the value of the parameter.

The Equity IRR is mostly impacted from deviations in total investment, electricity price, electricity generation and general overheads. The following table demonstrates the trends of selected parameters within +/- 10% range.

Table 6 Sensitivity Analysis of the equity IRR with variations in selected parameters

Parameter	Value Applied	Equity IRR Reached	Change %
Electricity Price	6.40 \$cent/kWh	-9%	+10%
Electricity Generation	93,6 GWh/y	-10%	+10%
General Overheads	95 \$/kW	-11%	-10%

Total Investment	3702 \$/kW	-10%	-10%
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Outcome of Step 3:

The investment analysis clearly demonstrates that the equity IRR of the proposed project activity without being registered as a VER project (Scenario 1) does not overcome the financial benchmark even with favorable variations and assumptions and thus additional.

The investment analysis further confirms that Scenario 2 "Atmospheric release of the LFG and electricity would have been generated by the existing grid connected power plants as continuation of the situation before the project activity" is the most economically and financially attractive alternative scenario and is considered as the baseline scenario.

Step 4: Common practice

The proposed project activity is not common practice and faces barriers and is not financially attractive unless receives carbon credit. In line with the requirements of the "Combined tool to identify the baseline scenario and demonstrate additionality", the latest version of the "Methodological tool: Common practice" is applied²¹.

Step 1:

In line with the descriptions of the tool, the similar range or the design capacity of the proposed capacity is determined as 6 MW – 20 MW²².

Step 2:

In line with the requirements of the tool, similar project activities are determined based on the following conditions:

²¹ Following the Definitions section of Tool 2 and its footnotes, Methane Destruction is one of the listed measures.

²² Output: The project activity is a Landfill Gas Utilization Project Activity with 13MW installed capacity with an estimated 91GWh/y electricity generation to the grid.

- (a) Projects located in the same area: Turkey is considered to be the (Turkey)
- (b) The projects apply the same measure as proposed project activity. Renewable energy projects are considered as similar project activities.
- (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. Waste to Energy (Biomass) is considered as the same energy source.
- (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. Plants that are generating electricity for the Grid are considered.
- (e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1. In line with the descriptions of the tool, the similar range or the design capacity of the proposed capacity is determined as 6 MW – 20 MW.
- (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 reference date determined as 29.01.2021.

Step 3:

The list of facilities has been reached through EMRA license database²³. VERRA and Gold Standard Registry Public Database have been used to track registered carbon project activities, project activities submitted for registration and validation. In line with the requirements of the tool, N_{all} is determined as 41. This number covers all waste to energy project activities using waste biomass to produce electricity to the grid within 6-20 MW capacity range that are operational before 29.01.2021.

²³ Ref: <https://www.epdk.gov.tr/Detay/Icerik/3-0-86/elektriklisans-islemleri> accessed on 03/03/2023.

Step 4:

Within similar projects identified in Step 3, those that apply technologies that are different to the technology applied in the proposed project activity are determined as N_{diff} . In line with the requirements of the tool, N_{diff} is determined as 40. A facility is considered as different technology if;

- Different fuel is used
- Different promotional policies are implemented.

Step 5:

$F=1-N_{diff}/N_{all}$ 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 is defined with a factor calculated as $F=1- N_{diff}/N_{all}$.

F is calculated as 0.024.

Outcome: The common practice exercise clearly show that project activities similar to proposed project activity are not a common practice and the technology has not yet diffused in Turkey.

B.5. Demonstration of additionality

Specify the methodology, activity requirement or product requirement that establishes deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	n.a.
Describe how the proposed project meets the criteria for deemed additionality.	n.a.

The applicable methodology refers to a combined analysis of baseline and additionality. The exercise of the tool concludes the project activity is additional. Please refer to section B.4 for more detailed analysis on additionality.

B.5.1 Prior Consideration

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In line with the requirements and definitions of GS4GG, the project start date is marked by the contractual agreement for the gas engines on 11/05/2021. The project activity is considered as retroactive since the stakeholder's consultation meeting is conducted on 16/04/2022 and submitted to GS within one year of project start date²⁴.

B.5.2 Ongoing Financial Need

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Ongoing Financial Need will be demonstrated at Design Certification Renewal, as GS 'Principles & Requirements' states.

²⁴ Documentation is applicable to the VVB

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	Target 13.2 Integrate climate change measures into national policies, strategies and planning	The Project Participant will monitor the emission reductions.
1 No Poverty	Target 1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable	The impact will be monitored via number of employment and social security.
3 Good Health and Well Being	Target 3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries	The impact is directly related with the amount of LFG destroyed. The Project Participant will monitor the collected and destroyed amount of LFG.
7 Access to affordable, reliable, sustainable and modern energy for all	Target 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix.	The Project Participant will monitor the renewable electricity generated and delivered to the grid.
8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work	Target 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	The Project Participant will monitor number of jobs created.

11 Make cities and human settlements inclusive, safe, resilient and sustainable	Target 11.16 reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	The Project Participant will monitor the contribution of project activity towards the target.
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B.6.1 Explanation of methodological choices/approaches for estimating the SDG Impact

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13 Climate Action:

High Positive Impact: The Project Activity will result in CO₂ emission reduction by displacing fossil power generation with renewable power generation and avoidance of methane.

The emission reductions resulting from the proposed project are calculated according to the latest version of ACM0001 "Flaring or Use of Landfill Gas".

According to the referred methodology the emission reductions are calculated with the following equation:

$$ER_y = BE_y - PE_y$$

Where:

- ER_y Emission reductions in year y (tCO₂e/year)
- BE_y Baseline emissions in year y (tCO₂e/year)
- PE_y Project emissions in year y (tCO₂e/year)

Baseline emissions

Baseline emissions should 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 project activity;
- C) Heat generation using fossil fuels in the absence of project activity; and
- D) Natural gas used from the natural gas network in the absence of the project activity.

Since there are no heat generations or natural gas usage in the baseline scenario, only baseline emissions from methane emissions from SWDS (A) and electricity generation (B) will be taken into account. The baseline emissions are calculated as follows:

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

Where:

BE_y	Baseline emissions in year y (tCO ₂ e/yr)
$BE_{CH_4,y}$	Baseline emissions of methane from SWDS in year y (tCO ₂ e/yr)
$BE_{EC,y}$	Baseline emissions associated with electricity generation in year y (tCO ₂ eq/yr)

Step (A): Baseline emissions of methane from the SWDS ($BE_{CH_4,y}$)

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

$$BE_{CH_4,y} = (1 - OX_{top-layer}) * (F_{CH_4,PJ,y} - F_{CH_4,BL,y}) * GWP_{CH_4}$$

Where:

$BE_{CH_4,y}$	Baseline emissions of LFG from SWDS in year y (tCO ₂ e/yr)
$OX_{top-layer}$	Fraction of methane in the LFG that would be oxidized in the top layer of the SWDS in the baseline (dimensionless)
$F_{CH_4,PJ,y}$	Amount of methane in the LFG that which is flared and/or used in the project activity in year y (tCH ₄ /yr)
$F_{CH_4,BL,y}$	Amount of methane in the LFG that would be flared in the baseline in year y (tCH ₄ /yr)

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

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

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

Where:

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

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

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

$F_{CH_4,PJ,y}$ is determined using the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” version 03.0.

The tool provides procedures to determine the following parameter:

Parameter	SI Unit	Description
$F_{i,t}$ ²⁵	kg/h	Mass flow of greenhouse gas i (CO ₂ , CH ₄ , N ₂ O, SF ₆ or a PFC) in the gaseous stream in time interval t.

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

²⁵ The parameter ($F_{i,t}$) under the “Tool to determine the mass flow of a greenhouse gas in gaseous stream” corresponds to the parameter ($F_{CH_4,EL,y}$) under ACM0001.

Table 7 Measurement options for $F_{i,t}$

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

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

Option C:

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

$$F_{i,t} = V_{t,wb,n} * v_{i,t,wb} * \rho_{i,n}$$

Where:

$F_{CH_4,t}$	Mass flow of CH ₄ in the gaseous stream in time interval t (kg gas/h)
$V_{t,wb,n}$	Volumetric flow of the gaseous stream in time interval t on a wet basis at normal conditions (m ³ wet gas/h)
$V_{CH_4,t,wb}$	Volumetric fraction of greenhouse gas i in the gaseous stream in time interval t on a wet basis (m ³ gas CH ₄ /m ³ wet gas)
$P_{CH_4,n}$	Density of CH ₄ in the gaseous stream in time interval t (kg gas CH ₄ /m ³ gas CH ₄)
P_n	Absolute pressure at normal conditions (Pa)
MM_{CH_4}	Molecular Mass of CH ₄ (kg/kmol)
R_u	Universal ideal gases content (Pa.m ³ /kmol.K)
T_n	Temperature at normal conditions (K)

The Project will use a flow meter directly measure normalized volume flow of gases ($V_{t,wb,n}$) without any additional pressure and temperature compensation.

Step A.1.1: Ex-ante estimation of $F_{CH_4,PJ,y}$

An ex-ante estimate of $F_{CH_4,PJ,y}$ is required to estimate baseline emissions of methane from the SWDS in order to estimate the emission reductions of the proposed project activity. In accordance with ACM0001 “Flaring or Use of Landfill Gas”, it is determined as follows:

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

Where:

$F_{CH_4,PJ,y}$	Amount of methane in the LFG which is flared and or used in the project activity in year y (tCH ₄ /yr)
$BE_{CH_4,SWDS,y}$	Amount of methane in the LFG that is generated from the SWDS in the baseline scenario in year y (tCO ₂ e/yr)
η_{PJ}	Efficiency of the LFG capture system that will be installed in the project activity
GWP_{CH_4}	Global Warming Potential of CH ₄ (tCO ₂ e/tCH ₄)

$BE_{CH_4,SWDS,y}$ is determined using the methodological tool “Emissions from solid disposal sites” version 08.1. The amount of methane generated from disposal of waste at the SWDS is calculated based on a first order decay (FOD) model. The amount of methane generated from disposal of waste at the SWDS is calculated for year y as follows:

$$BE_{CH_4,SWDS,y} = \phi \cdot (1 - f_{\text{landfill}}) \cdot GWP_{CH_4} \cdot (1 - OX) \cdot \frac{16}{12} \cdot F \cdot DOC_f \cdot MCF \cdot \sum_{x=1}^y \sum_j W_{j,x} \cdot DOC_j \cdot e^{-k_j \cdot (y-x)} \cdot (1 - e^{-k_j})$$

Where:

$BE_{CH_4,SWDS,y}$	Baseline methane emissions occurring in year y generated from waste disposal at a SWDS during a time period ending in year y (tCO ₂ e/yr)
x	Years in time period in which waste is disposed at the SWDS, extending from the first year in time period (x=1) to year y (x=y)

y	Year of the crediting period for which methane emissions are calculated
$DOC_{f,y}$	Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y (weight fraction)
$W_{j,x}$	Amount of solid waste type j disposed or prevented from disposal in the SWDS in the year x (t)
ϕ_y	Model correction factor to account for model uncertainties for year y
f_y	Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y
GWP_{CH_4}	Global Warming Potential of methane
OX	Oxidation factor (reflecting the amount of methane from SWDS that is oxidised in the soil or other material covering the waste)
F	Fraction of methane in the SWDS gas (volume fraction)
MCF_y	Methane correction factor for year y
DOC_j	Fraction of degradable organic carbon in the waste type j (weight fraction)
k_j	Decay rate for the waste type j (1/yr)
j	Type of residual waste or types of waste in the MSW

Parameters required applying the FOD model

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

Table 8 Parameters required to apply FOD model

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

k_j	The following values for the different waste types have been applied as a default value:		
	Waste type j		Boreal and Temperate (MAT < 20°C)
			WET(MAP/PET >1)
Slowly degradable	Pulp, paper, cardboard		0.06
	Wood, wood products and straw		0.03
Moderately degradable	Other (non-food) organic putrescible garden and park waste		0.10
Rapidly degradable	Food, food waste, sewage sludge, beverages and tobacco		0.185
$W_{,x}$	Estimated once. Please refer to table 14		
DOC_j	The following values for the different waste types have been applied as a default value:		
	Waste type j		DOC_j (% wet waste)
	Wood and wood products		43
	Pulp, paper and cardboard		40
	Food, food waste, beverages and tobacco		15
	Textiles		24
	Garden, yard and park waste		20
	Glass, plastic, metal, other inert		0
f_y	A default value of 0		

Determining the model correction factor (ϕ_y)

In line with the requirements of the tool "Emissions from solid disposal sites" a default value: $\phi_y = \phi_{\text{default}}$ will be used. ϕ_{default} is set as 0.75.

Determining the amounts of waste types j disposed in the SWDS ($W_{j,x}$)

The latest figure on the total amount of daily waste is 2000 ton/day. Historical waste input has been estimated using the average population growth rate of Gaziantep²⁶. Waste input is expected throughout the crediting period.

Determining the fraction of DOC that decomposes in the SWDS ($DOC_{f,y}$)

A default value: $DOC_{f,y} = DOC_{f,default}$ will be used. $DOC_{f,default}$ is set as 0.5.

Procedure to determine the methane correction factor (MCF_y)

A default value: $MCF_y = MCF_{default}$ will be used. $DOC_{f,default}$ is set as 1.0, which corresponds to anaerobic managed solid waste disposal sites.

Step A.2: Determination of $F_{CH_4,BL,y}$

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

Table 9 Cases for determining methane captured and destroyed in the baseline

Situation at the start of the project activity:	Requirement to destroy methane	Existing LFG capture and destruction system
Case 1: No requirement to destroy methane exists and no	No	No

²⁶ An average of 1.1% has been considered. https://www.nufusune.com/gaziantep-nufusu#google_vignette

existing LFG capture system		
Case 2: Requirement to destroy methane exists and no existing LFG capture system	Yes	No
Case 3: No requirement to destroy methane exists and a LFG capture system exists	No	Yes
Case4: Requirement to destroy methane exists and LFG capture system exists	Yes	Yes

The situation at the start of the project activity falls under Case 1 therefore:

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

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

The baseline emissions associated with electricity generation in year y ($BE_{EC,y}$) is calculated in accordance with the Methodological tool "Baseline, project and/or leakage emissions from electricity consumption and monitoring electricity generation" version 3. The electricity source k in the tool corresponds to the sources of electricity generated by the grid, which is identified as the most plausible baseline scenario. $EC_{BL,k,y}$ in the tool is equivalent to the net amount of electricity generated using LFG in year y ($EG_{PJ,y}$).

Generic approach

In the generic approach, baseline emissions from consumption of electricity are calculated based on the quantity of electricity consumed, an emission factor for electricity generation and a factor to account for transmission losses, as follows:

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

Where:

$BE_{EC,y}$	Baseline emissions from electricity consumption in year y (tCO ₂ e/yr)
$EC_{BL,k,y}$	Net amount of electricity generated using LFG in year y (MWh/yr)
$EF_{EL,k,y}$	Emission factor for electricity generation source k in year y ((tCO ₂ e/MWh)
$TDL_{k,y}$	Average technical and transmission and distribution losses for providing electricity to source k in year y
k	the sources of electricity generated by the grid

Determination of the emission factor for electricity generation ($EF_{EL,k,y}$)

The emission factor for the electricity generation $EF_{EL,k,y}$ will be determined in accordance with Scenario A (Electricity consumption from the grid) as defined under the “Tool to calculate baseline, project and leakage emissions from electricity consumption” version 07.0.

According to the tool, the project participants can either calculate the combined margin emission factor of the applicable electricity system (Option A1), or could use conservative default values (Option A2). The project participant chooses Option A1, which the combined margin emission factor of the applicable electricity system will be calculated using the procedures in the “Tool to calculate the emission factor for an electricity system” version 7.0.0.

Turkish Ministry of Energy and Natural Resources calculates and publish combined emission factors periodically. The PP opted to use the most up to date official Emission Factor announced by the Ministry²⁷.

The combined margin emissions factor is as follows:

²⁷ Ref: <https://enerji.gov.tr/evced-cevre-ve-iklim-turkiye-ulusal-elektrik-sebekesi-emisyon-faktoru> Published on 20.09.2022. Document available to the VVB.

$$EF_{\text{grid,CM},y} = 0.5552 \text{ tCO}_2/\text{MWh}$$

Project Emissions

In accordance with ACM0001 “Flaring or Use of Landfill Gas”, the project emissions are calculated as follows:

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

Where:

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

Since there are no consumption of fossil fuels due to the project activity, for the purpose other than electricity generation, there are no emissions from fossil fuel consumption and therefore $PE_{FC,y}$ is equal to “0” and has not been included in equation.

The project emissions from consumption of electricity by the project activity $PE_{EC,y}$ shall be 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.

$PE_{EC,y}$ is calculated as follows:

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

Where:

$PE_{EC,y}$ Project emissions from electricity consumption in year y (tCO₂e/year)

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

$EF_{EL,j,y}$ Emission factor for electricity generation for source j in year y (tCO₂e/MWh)

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

The combined margin emission factor of the applicable electricity system, has been determined as emission factor for the electricity system ($EF_{EL,j,y}$), in line with Option A1 of scenario A (Electricity consumption from grid) under the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”.

Leakage

In accordance with ACM0001 “Flaring or Use of Landfill Gas”, no leakage effects are accounted.

1 No Poverty:

High Positive Impact: The project will generate employment and economic development in the region. The project will provide nationally appropriate social protection systems and measures for all employees and their dependents.

In accordance with the latest official social statistics figures (2020 Report²⁸), only 47.5% of the population above 18y are employed and only 17.8% of working force is covered by social security highlighting the importance of employment and social security coverage and positive impact of the project activity in the region specifically to target 1.3 of the SDG.

3 Good health and wellbeing:

High Positive Impact: The project will substitute fossil fuel powered electricity generation as well as increase the local air quality through destruction of methane and landfill gas released under the baseline. Burning LFG to produce electricity destroys most of the non-methane organic compounds (including hazardous air pollutants and VOCs) that are present at low concentrations in uncontrolled LFG, which reduces possible health risks from these compounds. In addition, gas collection can improve

²⁸ Reference: <https://media.iskur.gov.tr/45164/gaziantep.pdf>

safety by reducing explosion hazards from gas accumulation in structures on or near the landfill.

7 Access to affordable, reliable, sustainable and modern energy for all:

High Positive Impact: The project activity is a renewable energy and will displace fossil-generated power. This will increase the share of renewable energy in the energy mix.

According to official statistics (2020 Figures) Coal and natural gas are still dominant sources of electricity generation, with 60% share.

8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work:

High Positive Impact: The project will create employment opportunities. These job opportunities will require both qualified and unqualified people. As a general principle, employment recruitments will be made mostly from the nearby regions and villages especially for the unqualified jobs.

11 Make cities and human settlements inclusive, safe, resilient and sustainable:

High Positive Impact: Gaziantep has a long-term goal is to make the city a sustainable and livable city with the target of becoming more resistant and adaptive, and reducing the total emissions by 40% compared to 2030 BAU emissions. Increasing the share of renewable energy and reduction of emissions through avoided methane emissions are a critical part of the mitigation measures. The project activity will have a significant role to achieve this long-term goal.

B.6.2 Data and parameters fixed ex ante

SDG13

Data/parameter	ID.13.1 / OX_{top_layer}
Unit	Dimensionless
Description	Fraction of methane that would be oxidized in the top layer of the SWDS in the baseline
Source of data	Consistent with how oxidation is accounted for in the methodological tool "Emissions from solid waste disposal sites"
Value(s) applied	0.1
Choice of data or Measurement methods and procedures	As referred under ACM0001
Purpose of data	Calculation of baseline emissions
Additional comment	Applicable to Step A defined under ACM0001

Data/parameter	ID.13.2 / GWP_{CH4}
Unit	tCO ₂ e/tCH ₄
Description	Global Warming Potential of CH ₄
Source of data	IPCC AR5
Value(s) applied	28
Choice of data or Measurement methods and procedures	As referred under ACM0001
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/parameter	ID.13.3 / n_{PJ}
Unit	Dimensionless
Description	Efficiency of the LFG capture system that will be installed in the project activity
Source of data	ACM0001
Value(s) applied	50%
Choice of data or Measurement methods and procedures	Default Value.
Purpose of data	Calculation of baseline emissions
Additional comment	

Data/parameter	ID.13.4 / R_u
Unit	Pa.m ³ /kmol.K
Description	Universal ideal gases constant
Source of data	Tool to determine the mass flow of a greenhouse gas in a gaseous stream
Value(s) applied	8314
Choice of data or Measurement methods and procedures	As referred under "Tool to determine the mass flow of a greenhouse gas in a gaseous stream"
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/parameter	ID.13.5 / MM_{CH_4}
Unit	kg/kmol

Description	Molecular mass of CH ₄								
Source of data	Tool to determine the mass flow of a greenhouse gas in a gaseous stream								
Value(s) applied	<table><tr><td>Compound</td><td>Structure</td><td>Molecular mass (kg/kmol)</td></tr><tr><td>Methane</td><td>CH₄</td><td>16.04</td></tr></table>			Compound	Structure	Molecular mass (kg/kmol)	Methane	CH ₄	16.04
Compound	Structure	Molecular mass (kg/kmol)							
Methane	CH ₄	16.04							
Choice of data or Measurement methods and procedures	As referred under “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”								
Purpose of data	Calculation of baseline emissions								
Additional comment									

Data/parameter	ID.13.6 / P_n		
Unit	Pa		
Description	Total pressure at normal conditions		
Source of data	Tool to determine the mass flow of a greenhouse gas in a gaseous stream		
Value(s) applied	101325 Pa		
Choice of data or Measurement methods and procedures	As referred under "Tool to determine the mass flow of a greenhouse gas in a gaseous stream"		
Purpose of data	Calculation of baseline emissions		
Additional comment			

Data/parameter	ID.13.7 / T_n		
Unit	K		
Description	Temperature at normal conditions		

Source of data	Tool to determine the mass flow of a greenhouse gas in a gaseous stream
Value(s) applied	273.15 K
Choice of data or Measurement methods and procedures	As referred under "Tool to determine the mass flow of a greenhouse gas in a gaseous stream"
Purpose of data	Calculation of baseline emissions
Additional comment	

Data/parameter	ID.13.8 / φ_{default}
Unit	-
Description	Default value for the model correction factor to account for model uncertainties
Source of data	Emissions from solid disposal sites
Value(s) applied	0.75
Choice of data or Measurement methods and procedures	As referred under "Emissions from solid disposal sites"
Purpose of data	Calculation of baseline emissions
Additional comment	The proposed project activity falls under Application A

Data/parameter	ID.13.9 / 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	Emissions from solid disposal sites. Based on extensive review of published literature on this subject, including

	the IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value(s) applied	0.1
Choice of data or Measurement methods and procedures	As referred under "Emissions from solid disposal sites"
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/parameter	ID.13.10 / F
Unit	-
Description	Fraction of methane in the SWDS gas (volume fraction)
Source of data	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value(s) applied	0.5
Choice of data or Measurement methods and procedures	Emissions from solid disposal sites
Purpose of data	Calculation of baseline emissions
Additional comment	Upon biodegradation, organic material is converted to a mixture of methane and carbon dioxide

Data/parameter	ID.13.11 / $DOC_{f,default}$
Unit	Weight fraction
Description	Default value for the fraction of degradable organic carbon (DOC) in MSW that can decompose in the SWDS
Source of data	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value(s) applied	0.5

Choice of data or Measurement methods and procedures	Emissions from solid disposal sites
Purpose of data	Calculation of baseline emissions
Additional comment	The proposed project activity falls under Application A

Data/parameter	ID.13.12 / MCF_{default}
Unit	-
Description	Methane correction factor
Source of data	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value(s) applied	1.0
Choice of data or Measurement methods and procedures	Emissions from solid disposal sites
Purpose of data	Calculation of baseline emissions
Additional comment	The baseline falls under the definition “anaerobic managed solid waste disposal”

Data/parameter	ID.13.13 / DOC_j		
Unit	-		
Description	Fraction of degradable organic carbon in waste type j (weight fraction)		
Source of data	IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Table 2.4 and Table 2.5)		
Value(s) applied	The following values for the different waste types have been applied: <table border="1"> <tr> <th>Waste type j</th><th>DOC_j</th></tr> </table>	Waste type j	DOC_j
Waste type j	DOC_j		

		(% wet waste)
	Wood and wood products	43
	Pulp, paper and cardboard	40
	Food, food waste, beverages and tobacco	15
	Textiles	24
	Garden, yard and park waste	20
	Glass, plastic, metal, other inert	0
Choice of data or Measurement methods and procedures	Emissions from solid disposal sites	
Purpose of data	Calculation of baseline emissions	
Additional comment	-	

Data/parameter	ID.13.14 / k _j																			
Unit	1/yr																			
Description	Decay rate for the waste type j																			
Source of data	IPCC 2006 Guidelines for National Greenhouse Gas Inventories (Volume 5, Table 3.3)																			
Value(s) applied	The following values for the different waste types have been applied: <table><tr><th colspan="2">Waste type j</th><th>Boreal and Temperate (MAT < 20°C)</th></tr><tr><th colspan="2"></th><th>WET(MAP/PET >1)</th></tr><tr><td rowspan="2">Slowly degrading</td><td>Pulp, paper, cardboard</td><td>0.06</td></tr><tr><td>Wood, wood products and straw</td><td>0.03</td></tr><tr><td>Moderately degrading</td><td>Other (non-food) organic putrescible garden and park waste</td><td>0.10</td></tr><tr><td>Rapidly degrading</td><td>Food, food waste, sewage sludge, beverages and tobacco</td><td>0.185</td></tr></table>			Waste type j		Boreal and Temperate (MAT < 20°C)			WET(MAP/PET >1)	Slowly degrading	Pulp, paper, cardboard	0.06	Wood, wood products and straw	0.03	Moderately degrading	Other (non-food) organic putrescible garden and park waste	0.10	Rapidly degrading	Food, food waste, sewage sludge, beverages and tobacco	0.185
Waste type j		Boreal and Temperate (MAT < 20°C)																		
		WET(MAP/PET >1)																		
Slowly degrading	Pulp, paper, cardboard	0.06																		
	Wood, wood products and straw	0.03																		
Moderately degrading	Other (non-food) organic putrescible garden and park waste	0.10																		
Rapidly degrading	Food, food waste, sewage sludge, beverages and tobacco	0.185																		

Choice of data or Measurement methods and procedures	Emissions from solid disposal sites
Purpose of data	Calculation of baseline emissions
Additional comment	MAT is 15 C https://tr.weatherspark.com/y/100231/Gaziantep-T%C3%BCrkiye-Ortalama-Hava-Durumu-Y%C4%B1l-Boyunca) PET is 3.96 mm monthly average (Urfa values have been considered) https://dergipark.org.tr/en/download/article-file/2425367 MAP is 47 mm monthly average https://tr.weatherspark.com/y/100231/Gaziantep-T%C3%BCrkiye-Ortalama-Hava-Durumu-Y%C4%B1l-Boyunca

Data/parameter	EF_{grid,CM,y}
Unit	tCO ₂ /MWh
Description	Combined Margin Emission Factor
Source of data	Emission factors are derived from "Informative Note on Emission Factor of Turkey's National Electricity Grid" (ETKB-EVÇED-FRM-039 Rev.02) published by the Ministry of Energy and Resources.
Value(s) applied	0.5552
Choice of data or Measurement methods and procedures	The value is fixed for the crediting period
Purpose of data	Calculation of Baseline and Project Emissions
Additional comment	

Data/parameter	EF_{grid,OM,y}
Unit	tCO ₂ /MWh
Description	Operating Margin Emission Factor
Source of data	Emission factors are derived from "Informative Note on Emission Factor of Turkey's National Electricity Grid" (ETKB-EVÇED-FRM-039 Rev.02) published by the Ministry of Energy and Resources.
Value(s) applied	0.7424
Choice of data or Measurement methods and procedures	The value is fixed for the crediting period
Purpose of data	Calculation of Baseline and Project Emissions
Additional comment	

Data/parameter	EF_{grid,BM,y}
Unit	tCO ₂ /MWh
Description	Combined Margin Emission Factor
Source of data	Emission factors are derived from "Informative Note on Emission Factor of Turkey's National Electricity Grid" (ETKB-EVÇED-FRM-039 Rev.02) published by the Ministry of Energy and Resources.
Value(s) applied	0.3680
Choice of data or Measurement methods and procedures	The value is fixed for the crediting period
Purpose of data	Calculation of Baseline and Project Emissions
Additional comment	

B.6.3 Ex ante estimation of SDG Impact

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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 presented²⁹.

Emission Reductions

Emission reductions are calculated as follows:

Year	Parameter		
	ER _y (tCO ₂ e/yr)	BE _y (tCO ₂ e/yr)	PE _y (tCO ₂ e/yr)
2022	262,541	262,543	2
2023	295,035	295,037	2
2024	299,272	299,274	2
2025	303,452	303,454	2
2026	307,581	307,583	2

Baseline emissions

Baseline emissions are calculated as follows:

Year	Parameter		
	BE _y (tCO ₂ e/yr)	BE _{CH₄,y} (tCO ₂ e/yr)	BE _{EC,y} (tCO ₂ e/yr)
2022	262,543	236,916	25.627
2023	295,037	241,221	53,816
2024	299,274	245,459	53,816

²⁹ As a general approach; the startin65,853g date of the crediting period has not been taken into account under this section.

2025	303,454	249,638	53,816
2026	307,583	253,767	53,816

Baseline emissions of methane from SWDS

Baseline emissions of methane from SWDS are calculated as follows. A default value of 0.1 has been applied for $OX_{top-layer}$, and 28 for GWP_{CH_4} within the calculation.

Year	Parameter		
	BE_{CH_4} (tCO ₂ /yr)	$FE_{CH_4,PJ,y}$ (tCH ₄ /yr)	$F_{CH_4,BL,y}$ (tCH ₄ /yr)
2022	236,916	9,401	0
2023	241,221	9,572	0
2024	245,459	9,740	0
2025	249,638	9,906	0
2026	253,767	10,070	0

Amount of methane in the LFG which is flared and or used in the project activity

Amount of methane in the LFG which is flared and or used in the project activity in year y has been estimated ex-ante through FOD model. The following default values have been applied to the FOD model:

ϕ_y	0.75
OX	0.1
F	0.5
$DOC_{f,y}$	0.5
MCF_y	1.0

k_j	Waste type j		Boreal and Temperate (MAT < 20°C)
			WET(MAP/PET >1)
	Slowly degradable	Pulp, paper, cardboard	0.06
		Wood, wood products and straw	0.03
	Moderately degradable	Other (non-food) organic putrescible garden and park waste	0.1
	Rapidly degradable	Food, food waste, sewage sludge, beverages and tobacco	0.185
	DOC_j	Waste type j	
Wood and wood products		43	
Pulp, paper and cardboard		40	
Food, food waste, beverages and tobacco		15	
Textiles		24	
Garden, yard and park waste		20	
Glass, plastic, metal, other inert		0	
f_y		0	
n_{PJ}	50%		

Amount of solid waste type j disposed or prevented from disposal in the SWDS.

Waste Type ³⁰	Fraction (%)
Pulp, paper, cardboard (other than sludge)	16
Wood, wood products and straw	2%
Textiles	2%
Other (non-food) organic putrescible garden and park waste	2%
Food, food waste, sewage sludge, beverages and tobacco	49%
Glass, plastic, metal, other inert	29%

Based on the above parameters the amount of methane in the LFG used in the project activity in year y has been estimated ex-ante as follows:

Year	FE _{CH₄,PJ,y} (tCH ₄ /yr)
2022	9,401
2023	9,572
2024	9,740
2025	9,906
2026	10,070

Baseline emissions associated with electricity generation.

Baseline emissions associated with electricity generation are calculated as follows. The amount of estimated electricity generation has been based on an estimated annual operational hour of 6300h.

Year	Parameter
------	-----------

³⁰Waste fraction of the SWDS is taken from official statistics <https://webdosya.csb.gov.tr/db/bolu/icerikler/atiklar-20180222082452.pdf>

	BE_{EL,PJ,y}(tCO₂/yr)	EC_{BL,y} (MWh)	EF_{EL,y} (tCO₂e/MWh)	TDL_y (%)
2022	25.627	40,560	0.5552	13.8
2023	53,816	85,176	0.5552	13.8
2024	53,816	85,176	0.5552	13.8
2025	53,816	85,176	0.5552	13.8
2026	53,816	85,176	0.5552	13.8

Calculating the CO₂ emission factor of the grid

The CO₂ emission factor of the grid (EF_{CO₂,grid,y}) is calculated as the combined margin emission factor (EF_{grid,CM,y}) as followed:

Table 7. Combined margin emission factor

Combined Margin Emission Factor (EF_{grid,CM,y})	Operating Margin Emission Factor (EF_{grid,OM,y})	Build Margin Emission Factor (EF_{grid,BM,y})	Weight of operati ng margin emissio n factor (W_{OM})	Weight of build margin emissi on factor (W_{BM})
tCO₂e/M Wh	tCO₂e/M Wh	tCO₂e/M Wh	%	%
0.5552	0.7424	0.3680	50	50

Emission factors are derived from “Informative Note on Emission Factor of Turkey's National Electricity Grid” (ETKB-EVÇED-FRM-039 Rev.02) published by the Ministry of Energy and Resources.

Project Emissions

The project emissions of the proposed project activity are calculated as follows. For ex-ante purposes the electricity consumption of the proposed project activity is estimated to be approximately 3 MWh/yr.

Project emissions from electricity consumption

Year	Parameter			
	PE _{EC,y} (tCO ₂ /yr)	EC _{PJ,y} (MWh)	EF _{EL,y} (tCO _{2e} /MWh)	TDL _y (%)
2022	2	3	0.5552	13.8
2023	2	3	0.5552	13.8
2024	2	3	0.5552	13.8
2025	2	3	0.5552	13.8
2026	2	3	0.5552	13.8

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

YEAR	BASILINE ESTIMATE	PROJECT ESTIMATE	NET BENEFIT
2022	262,543	2	262,541
2023	295,037	2	295,035
2024	299,274	2	299,272
2025	303,454	2	303,452
2026	307,583	2	307,581
Total	1,467,891	9	1,467,881
Total number of crediting years	5		
Annual average over the crediting period	293,578	2	293,576

The total crediting period adds to a total of 5 years.

Summary of other SDG Impacts

SDG	Baseline estimate	Project estimate	Net benefit
SDG 1 No poverty	Very small share of the regional working force is covered by social security	All employees will be covered by social security	All employees will be covered by social security
SDG 3 Good health and wellbeing	25,661,969 m ³ of LFG released without destruction	All LFG is destroyed	25,661,969 m ³ LFG is destroyed
SDG 7 Access to affordable, reliable, sustainable and modern energy for all	Electricity is generated through a mix of power plants mostly from fossil fuels	85.17 GWh/y renewable electricity	85.17 GWh/y renewable electricity will displace grid electricity.
SDG 8 Sustained, inclusive and sustainable economic growth full and productive employment and decent work for all	Only 47.5% of population above 18y are employed.	Project will generate employment opportunities	Min 25 jobs will be created.
SDG 11 Inclusive, safe, resilient and sustainable cities	LFG emissions have adverse environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	Project will result in reduction of non-methane organic compounds (including Sulfides) that are present at LFG	128,309 m ³ Sulfide is destroyed emission reduction

B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

SDG 13

Data / Parameter	ID.13.16 / Management of SWDS
Unit	-
Description	Management of SWDS
Source of data	One of the following sources could be used: - Original design of the landfill - Technical specifications for the management of the SWDS Local or national regulations
Value(s) applied	n.a.
Measurement methods and procedures	Project participants will refer to the original design of the landfill to ensure that any practice to increase methane generation have been occurring prior to the implementation of the project activity. Any change in the management of the SEDS after the implementation of the project activity should be justified by referring to technical or regulatory specifications.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data / Parameter	ID.13.17 / $V_{t,wb}$
Unit	m ³ wet gas/h
Description	Volumetric flow of the gaseous stream in time interval t on wet basis
Source of data	Volumetric flow meter
Value(s) applied	n.a.
Measurement methods and procedures	Volumetric flow will be monitored with a volumetric flow meter.
Monitoring frequency	Hourly
QA/QC procedures	Periodic calibration against a primary device provided by an independent accredited laboratory. In line with the

	applicable law and regulations, gas meters have a calibration frequency of 10 years.
Purpose of data	Calculation of baseline emissions
Additional comment	The Project uses Thermal Flow Meter. Thermal Mass Flow Meters measure the mass flow of a fluid. An external heat source will heat the pipe or the fluid. Temperature field changes when the fluid flows through the pipe. Thermal mass flow meter measures the relationship between the energy required to increase the temperature of a fluid and the mass of the fluid to measure the mass flow of the fluid. The flowmeters directly measure normalized volume flow of gases without any additional pressure (P_t) and temperature (T_t) compensation.

Data / Parameter	ID.13.18 / $v_{CH_4,t,wb}$
Unit	m ³ gas CH ₄ / m ³ wet gas
Description	Volumetric fraction of CH ₄ in a time interval t on wet basis
Source of data	The volumetric fraction of CH ₄ will be monitored with a gas analyzer
Value(s) applied	n.a.
Measurement methods and procedures	Continuous gas analyzer operating in dry-basis.
Monitoring frequency	Hourly
QA/QC procedures	Calibration should include zero verification with an inert gas (e.g. N ₂) and at least one reading verification with a standard gas (single calibration gas or mixture calibration gas). In line with the applicable law and regulations, gas meters have a calibration frequency of 10 years.
Purpose of data	Calculation of baseline emissions
Additional comment	

Data / Parameter	ID.13.20 / $EC_{BL,y}$
Unit	MWh
Description	Net amount of electricity generated using LFG by the project activity in year y
Source of data	Electricity meters

Value(s) applied	85,176
Measurement methods and procedures	The quantity of net electricity generation supplied to the grid by the project plant will be monitored based on the main meter (also referred as TEİAŞ meters) readings, obtained from OSOS (State Regulated Automated Meter Reading System) system.
Monitoring frequency	Continuous monitoring and monthly recording.
QA/QC procedures	Maintenance and calibration of equipment will be carried out according to the instructions of the manufacturer. The electricity meters are used to measure the net electricity exported to the grid and used for billing purposes. Therefore the meters are sealed by TEİAŞ (Turkish Electricity Transmission CO). There are two official and viable sources where the meter readings could be extracted from. One is the State Regulated Automated Meter Reading System (OSOS) and the other source is the monthly protocols confirmed by the distribution company. State Regulated Automated Meter Reading System will be considered as the main source for this parameter while monthly protocols could be used for cross check. In case of a difference of more than 1% between two sources, the source that leads to lower Emission Reductions will be taken into account for calculation for conservativeness.
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data / Parameter	ID.13.21 / EC_{PJ,y}
Unit	MWh
Description	Quantity of electricity consumed by the project activity.
Source of data	Electricity meters
Value(s) applied	2
Measurement methods and procedures	The quantity of electricity consumed by the project plant will be monitored based on the main meter (also referred as TEİAŞ meters) readings.
Monitoring frequency	Continuous monitoring and monthly recording.
QA/QC procedures	Maintenance and calibration of equipment will be carried out according to the instructions of the manufacturer. The electricity meters are used to measure the net electricity exported to the grid and used for billing

	purposes. Therefore the meters are sealed by TEİAŞ (Turkish Electricity Transmission CO). There are two official and viable sources where the meter readings could be extracted from. One is the State Regulated Automated Meter Reading System (OSOS) and the other source is the monthly protocols confirmed by the distribution company. State Regulated Automated Meter Reading System will be considered as the main source for this parameter while monthly protocols could be used for cross check. In case of a difference of more than 1% between two sources, the source that leads to lower Emission Reductions will be taken into account for calculation for conservativeness.
Purpose of data	Calculation of project emissions
Additional comment	The quantity of electricity consumed is monitored by the same equipment, which monitors the net amount of electricity generated by the project activity.

Data / Parameter	ID.27 / TDL_v
Unit	%
Description	Average technical transmission and distribution losses
Source of data	TEIAS Statistics ³¹
Value(s) applied	13.8% for ex-ante calculations.
Measurement methods and procedures	Will be estimated for the distribution and transmission networks of the electricity grid of the same voltage as the connection where the project activity is connected. The distribution losses can either be calculated by the project participant or be based on references from utilities, network operators or other official documentation (such as protocols for electricity meter readings)
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	-

³¹ Ref: <https://webim.teias.gov.tr/file/01638a5d-94aa-484b-9c48-b4c86fa99469?download>

Purpose of data	Calculation of baseline and project emissions
Additional comment	-

Data / Parameter	ID.SDG.1 / Social security coverage
Unit	%
Description	% of employees with social security
Source of data	Social security documents
Value(s) applied	100% of employees will have social security
Measurement methods and procedures	By checking the social security records of personnel
Monitoring frequency	Each verification
QA/QC procedures	n.a.
Purpose of data	Quantification of SDG Impact
Additional comment	n.a.

Data / Parameter	ID.SDG.3 / LFG destroyed
Unit	m ³
Description	m ³ of LFG destroyed
Source of data	Flow meters
Value(s) applied	25,661,969 m ³ of LFG
Measurement methods and procedures	LFG amount destroyed by utilization is continuously monitored through volumetric flow meters.
Monitoring frequency	Each verification
QA/QC procedures	n.a.
Purpose of data	Quantification of SDG Impact
Additional comment	n.a.

Data / Parameter	ID.SDG.8.a / Quantification of employment
Unit	#
Description	# of jobs created
Source of data	Social security records.
Value(s) applied	Min of 25
Measurement methods and procedures	By checking the social security records of personnel
Monitoring frequency	Each verification

QA/QC procedures	n.a.
Purpose of data	Quantification of SDG Impact
Additional comment	n.a.

Data / Parameter	ID.SDG.8.b / Quality of employment
Unit	#
Description	# of occupational health and security trainings
Source of data	Training log book
Value(s) applied	All personal will be provided health and security trainings training
Measurement methods and procedures	Check of logs
Monitoring frequency	Each verification
QA/QC procedures	n.a.
Purpose of data	Quantification of SDG Impact
Additional comment	n.a.

Data / Parameter	ID.SDG.11 / Air Quality
Unit	m3
Description	Levels of sulphides combusted in the landfill gas engines
Source of data	Calculated based on the amount of methane destroyed.
Value(s) applied	128,309
Measurement methods and procedures	Between 2-5% of volume of the landfill gas is known to contain sulfides ³² . The amount of sulphide will be calculated based on the amount of landfill gas combusted in the engines as followed: $V \text{ sulphide destroyed} = VLFG \text{ destroyed} * 0.005$ Where "V" represents the volume in m3. A conservative approach of 0.5% is set for the sulphide content.
Monitoring frequency	Each Verification
QA/QC procedures	n.a.
Purpose of data	Quantification of SDG Impact

³² Ref: https://www.epa.gov/system/files/documents/2021-07/pdh_chapter1.pdf

Additional comment	n.a.
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B.7.2 Sampling plan

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

B.7.3 Other elements of monitoring plan

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Monitoring will be carried out following the procedures set by the consolidated baseline methodology.

ACM0001 and all applicable tools of the above explained parameters. The monitoring consists of:

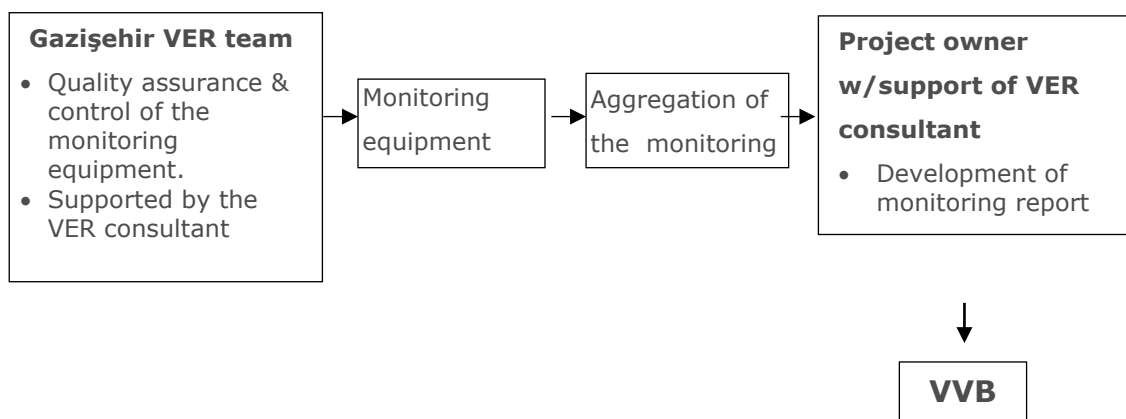
- Amount of landfill gas combusted in power generation units.
- Temperature of the landfill gas sent to power generation to ensure compliance regarding dry basis for measurement.
- Concentration of methane of the landfill gas.
- Total amount of electricity exported to the grid.
- Total amount of the electricity imported from the grid.

Responsibilities for monitoring

The project owner is responsible for the operation and maintenance of the landfill and the installed equipment³³. The project owner is also responsible for the administration of the data, setting up a VER team who will be responsible for monitoring all data required to estimate emission reductions.

In the diagram below the organization of monitoring management and data application is presented.

³³ Except for the electricity meter that monitors both electricity imports and exports, since the monitoring device is sealed by TEİAŞ (Turkish Electricity Transmission Company) and the Project Participant cannot interfere with the device.



Registration of the monitored data

Gazişehir VER-Team will be responsible for quality assurance and quality control of the monitoring equipment. The data measured by the monitoring equipment will be stored and will be processed into a monitoring report, which will be submitted by the project owner. All the monitored data will be stored during the crediting period and for at least two years after the end of the crediting period, whichever occurs later.

Corrective actions and emergency preparedness

The VER-Team will regularly check the monitoring system on errors. In the case of errors, corrective actions will be undertaken by the VER-Team, or if required, by the supplier of the monitoring equipment.

QA/QC procedure

Strong quality assurance and quality control procedure will be taken to monitor the equipment and data collection. Equipment and facilities will be subject to a regular maintenance and testing regime to ensure accuracy following supplier's manual.

Measuring of exported and imported electricity

The main meter for the monitoring of the electricity import and export is at grid connection. There are two official and viable sources where the meter readings could be extracted from. One is the State Regulated Automated Meter Reading System (OSOS) and the other source is the monthly protocols confirmed by the distribution company. State Regulated Automated Meter Reading System will be considered as the main source for this parameter while monthly protocols could be used for cross check. In case of a difference of more than 1% between two sources, the source that leads to

lower Emission Reductions will be taken into account for calculation for conservativeness. The electricity meters are bi directional and will measure both the imported and exported electricity from and to the grid. In line with the applicable law and regulations, gas meters have a calibration frequency of 10 years.

Summary of equipment used in the first monitoring period³⁴:

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

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1 Start date of project

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In line with the requirements and definitions of GS4GG, the project start date is marked by the contractual agreement for the gas engines on 11/05/2021. The project activity

³⁴ The Project Activity is a retroactive project activity and at the time of PDD writing the equipment used to monitor the ERs were known and therefore included in the PDD as an information. Please note that the equipment brand / model accuracy class may differ during crediting phases in line with the Monitoring Plan described under this Design Document and requirements of the Gold Standard.

is considered as retroactive since the stakeholder's consultation meeting is conducted on 16/04/2022 and submitted to GS within one year of project start date.

C.1.2 Expected operational lifetime of project

>>

17 years

C.2. Crediting period of project

C.2.1 Start date of crediting period

>>

01/01/2022

C.2.2 Total length of crediting period

>>

Initial crediting period is 5 years and twice renewable in line with as per para 4.4.2 of Renewable Activity Requirement

SECTION D. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT

D.1 Safeguarding Principles that will be monitored

No safeguard principles will be monitored.

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?	The project activity involves LFG utilization for electricity generation and is not gender sensitive. 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. Turkey is party to Convention on Discrimination since 1972 to prevent any form of discrimination.
Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	No
Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	No

SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

The below is a summary of the 2 step GS4GG Consultation for monitoring purposes. Please refer to the separate Stakeholder Consultation Report for a complete report on the initial consultation and stakeholder feedback round.

E.1 Summary of stakeholder mitigation measures

>>

The proposed project activity is exempted from conducting an Environmental Impact Assessment (EIA) according to Turkish Law and Regulations however the project participant has organized a physical stakeholder meeting on 16/04/2022 in accordance with the requirements of the Gold Standard. The stakeholder's meeting was held in Akbulut Village. In general, the participation to the meeting was good with 19 people. The participants were mostly locals with representations of Chamber of Environmental Engineers and local authorities as well. Also, the project participants have managed female participation to the meeting.

Printed versions of the non-technical description along with the meeting evaluation forms were handed over to the participants before the start of the meeting. The meeting has started with introduction of the representatives from Project Participant, explaining the aim of the meeting. After the presentation a question-and-answer section took place allowing the stakeholders to understand the project in more detail as well as to clarify any questions from the stakeholders.

No comments were received during the LSC meeting that requires modification in the project design. No mitigation measures were adopted.

A Stakeholders Feedback Round (SFR) has been conducted on 09/05/2023.

The key project information including the LSC report, Non-technical Project Description and the draft PDD were sent to all LSC participants and invitees by email.

The documents have been also made publicly available under the following link

https://drive.google.com/drive/folders/13Uehf_DTtZkwKw--OCQOhK8Qg7gSQgRy?usp=sharing

A hard copy of the documents were made available in Muchtar's Office (Village headman) in the Akbulut Village. All stakeholders were invited and encouraged to provide feedback, comments and ask questions through the following channels:

Gazişehir Enerji Üretim Sanayi Ticaret Ltd. Şti.

Tel: 0342 485 10 12

E-mail 1: info@gazisehirenerji.com

E-mail 2: o.akyurek@outlook.com

Website: www.gazisehirenerji.com

[https://drive.google.com/drive/folders/13Uehf_DTtZkwKw--](https://drive.google.com/drive/folders/13Uehf_DTtZkwKw--OCQOhK8Qg7gSQgRy?usp=sharing)

[OCQOhK8Qg7gSQgRy?usp=sharing](https://drive.google.com/drive/folders/13Uehf_DTtZkwKw--OCQOhK8Qg7gSQgRy?usp=sharing)

Address: Akbulut Village Muchtar's office.

E.2 Final continuous input / grievance mechanism

METHOD	INCLUDE ALL DETAILS OF CHOSEN METHOD (S) SO THAT THEY MAY BE UNDERSTOOD AND, WHERE RELEVANT, USED BY READERS.
Continuous Input / Grievance Expression Process Book (mandatory)	A log book will be kept at the landfill site office, which will be accessible all time
GS Contact (mandatory)	help@goldstandard.org
Telephone access (optional)	+90 342 485 10 12 (landline)
Internet/email access (optional)	info@gazisehirenerji.com www.gazisehirenerji.com

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
ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.		
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project developer, its representatives and the Project disrespect internationally proclaimed human rights?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	Is there a risk that rights-holders (e.g., Project-affected stakeholders) do not have the capacity to claim their rights?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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. Please add text here...		
Would the project potentially involve or lead to:		
ERROR! REFERENCE SOURCE NOT FOUND.	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

ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	exacerbation of conflicts among and/or the risk of violence to project-affected communities and individuals?	☐ YES ☐ POTENTIALLY ☒ NO

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

For example, by describing how the project design:

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

The Project Participant and the Proposed Project does respects internationally proclaimed human rights including dignity, cultural property and uniqueness of indigenous people. The project does not discriminate against people. Taking into account the nature of the project activity and existence of comprehensive law and legislative structure that protects human rights in Turkey , the risks involved related with this topic is low.

ERROR! REFERENCE SOURCE NOT FOUND. ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project undermine the principles of non-discrimination, equal treatment, and equal pay for equal work?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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

<u>NOT FOUND.</u>		
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	Does the project limit the participation of women or men based on pregnancy, maternity/paternity leave, or marital status?	☐ YES ☒ NO
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	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
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	Has the project assessed gender risks without referencing the country's gender strategy or equivalent national commitment?	☐ YES ☒ NO
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	Has expert stakeholder(s) been involved, and has their input been requested for the project design on gender equality and women's empowerment?	☐ YES ☒ NO

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

n.a.

Would the project potentially involve or lead to:		
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	adverse impacts on gender equality and/or the situation of women and girls?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	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
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	reproducing discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	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?	☐ YES ☐ POTENTIALLY ☒ NO

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

The project employment policy district does not exclude or prefer people based on race, color, gender, religion, sexual orientation, political opinion, national extraction, social origin or physical or mental disability. The company policy on sexual harassment and abuse of women is strict Turkey is a member country to ILO and has ratified Convention 100 (equal remuneration) and convention 111 (Discrimination in employment/occupation) under the ILO Declaration on Fundamental Principles and Rights at Work.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project involve potential risks to the health and safety of affected communities during its life cycle?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project involve any potential risks to the workers' safety and health?	☐ YES ☒ NO

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

n.a.

Would the project potentially involve or lead to:

ERROR! REFERENCE SOURCE NOT FOUND.	construction and/or infrastructure development (e.g., roads, buildings, dams)?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	air pollution, noise, vibration, traffic, injuries, physical hazards, poor surface water quality due to runoff, erosion, sanitation?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	harm or losses due to failure of structural elements of the project (e.g., collapse of buildings or infrastructure)?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	risks of water-borne or other vector-borne diseases (e.g., temporary breeding habitats), communicable and	☐ YES ☐ POTENTIALLY

<u>NOT FOUND.</u>	noncommunicable diseases, nutritional disorders, mental health?	☒ NO
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	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
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	adverse impacts on ecosystems and ecosystem services relevant to communities' health (e.g., food, surface water purification, natural buffers from flooding)?	☐ YES ☐ POTENTIALLY ☒ NO

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

The project participant is an experienced company on LFG utilization project development and has developed and adopted comprehensive security measures as well as training programs covering occupational health and safety issues. The project complies with the "Occupational Health and Safety Regulations"

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<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	Does the project involve altering, damaging, or removing sites, objects, or structures of significant cultural heritage?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

n.a.

Would the project potentially involve or lead to:

<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	activities adjacent to or within a cultural heritage site?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	significant excavations, demolitions, movement of earth, flooding or other environmental changes?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	alterations to landscapes and natural features with cultural significance?	☐ YES ☐ POTENTIALLY ☒ NO

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	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
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	utilisation of tangible and/or intangible forms (e.g., practices, traditional knowledge) of Cultural Heritage for commercial or other purposes?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	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
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	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
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	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
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	If answer to question above is "YES", has project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA

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

n.a.

ERROR! **REFERENCE** **SOURCE** **NOT** **FOUND.** **ERROR!** **REFERENCE** **SOURCE** **NOT** **FOUND.**

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	Does the project involve any risks related to involuntary relocation of people?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

n.a.

Would the project potentially involve or lead to:		
ERROR! REFERENCE SOURCE NOT FOUND.	risk of forced evictions or involuntary relocation of people?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	temporary or permanent and full or partial physical displacement (including people without legally recognisable claims to land)?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA
If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.		
n.a.		
ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.		
ERROR! REFERENCE SOURCE NOT FOUND.	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.		
n.a.		

Would the project potentially involve or lead to:		
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	Changes in legal arrangements, if yes, are the changes done in line with relevant laws and regulations?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	Changes in legal arrangements, if yes, are these changes agree with free, prior and informed consent of the involved stakeholders?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	Does some other entity (other than the project developer) hold uncontested land title for the entire Project Boundary?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	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. n.a.		
ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.		
ERROR! REFERENCE SOURCE	Does the project involve Indigenous People within the Project area of influence who may be affected directly or indirectly by the Project?	☐ YES ☒ NO

NOT FOUND.		
If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.		
n.a.		
Would the project potentially involve or lead to:		
ERROR! REFERENCE SOURCE NOT FOUND.	affect areas where indigenous peoples are present (including project area of influence)	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	affect areas, land and territory claimed by indigenous peoples?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	impacts (positive or negative) to the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	risk of forcibly removing indigenous people from their lands and territories?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	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?	☐ YES ☐ NO ☒ NA

ERROR! REFERENCE SOURCE NOT FOUND.	- Does the project ensure that the indigenous people receive an equitable sharing of benefits resulting from the use of their traditional knowledge and practices? ? - Does the project ensure that the sharing of benefits resulting from the use of indigenous peoples' traditional knowledge and practices is culturally appropriate and inclusive? - Does the project ensure that the provision of equitable sharing of benefits does not impede land rights or equal access to basic services including health services, clean water, energy, education, safe and decent working conditions, and housing?	
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project lack appropriate feedback and grievance channels for Indigenous Peoples and their representatives?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA
If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.		
n.a.		
ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.		
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project involve, or is it complicit in, contributing to or reinforcing corruption or corrupt projects?	☐ YES ☒ NO

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project have a risk of encouraging bribery, kickbacks, or other unethical behavior?	☐ YES ☒ NO
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If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

ECONOMIC SAFEGUARDING PRINCIPLES

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project involve, facilitate, or condone forced labor, or pose a potential risk of forced labor?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project violate any labor or health and safety laws, international obligations, or ILO conventions?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project violate the principles of equal opportunity and fair treatment in its employment decisions?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project violate national laws, if available regarding non-discrimination in employment?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND. ERROR! REFERENCE SOURCE NOT FOUND.	Does the project allow child labor?	☐ YES ☒ NO

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u> <u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	Does the project have insufficient processes and measures in place to ensure the safety and health of project workers?	☐ YES ☒ NO
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	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
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE NOT</u> <u>FOUND.</u>	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.

n.a.

Would the project potentially involve or lead to:

(NOTE: APPLIES TO BOTH PROJECT AND CONTRACTOR WORKERS)

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	use of forced labour?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	working conditions that do not meet national labour laws and international commitments?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	working conditions that may deny freedom of association and collective bargaining?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	absence of documented working agreements with all individual workers <i>if such agreements do not exist, or do not address working conditions and terms of employment, the project developer shall provide reasonable working conditions and terms of employment.</i>	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR!</u> <u>REFERENCE</u>	use of migrant workers?	☐ YES

<u>SOURCE NOT FOUND.</u>	<i>if engaged, the developer shall ensure that they are engaged substantially equivalent terms and conditions to non-migrant workers carrying out similar work.</i>	☐ POTENTIALLY ☒ NO
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	having no arrangements for basic services ³⁵ for workers? <i>the project developer shall put in place and implement policies on the quality and management of the accommodation and provision of basic services in a manner consistent with the principles of non-discrimination and equal opportunity. Workers' accommodation arrangements should not restrict workers' freedom of movement or of association</i>	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	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
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	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
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	harassment, intimidation, and/or exploitation, especially in regard to women?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	discriminatory working conditions and/or lack of equal opportunity where national law provides provision to address non-discrimination in employment?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	use of child labour? (including third-party engaged workers)	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	inadequate and verifiable mechanisms for age verification?	☐ YES ☒ NO
<u>ERROR! REFERENCE SOURCE</u>	no processes and measures in place for the safety and health of project workers?	☐ YES ☒ NO

³⁵ 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.

NOT FOUND.		
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	No provision to record and document accidents, diseases, incidents, and any resulting injuries, illnesses, or deaths?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	occupational health and safety risks due to physical, chemical, biological and psychosocial hazards (including violence and harassment) throughout the project life-cycle?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	No grievance mechanism available for workers to voice workplace concerns.	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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.

n.a.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.	Is there a risk of project failure during implementation or after project certification due to a lack of financial resources?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project have potential negative impacts or pose a risk to the local economy?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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.

Please add text here...

Would the project involve or lead to:

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	economic impacts (negative/detrimental) to the local economy?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	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.

Please add text here....

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

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<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	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.

n.a.

Would the project involve or lead to:

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	increase greenhouse gas emissions over the Baseline Scenario?	☐ YES ☐ POTENTIALLY ☒ NO
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If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

n.a.

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ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project pose a risk to the availability and reliability of energy supply to other users?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

Would the project involve or lead to:

ERROR! REFERENCE SOURCE NOT FOUND.	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.

n.a.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project increase water usage to a level that will not allow for the maintenance of environmental flows?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project have the potential risk to exceed the rate of recharge for the groundwater source?	☐ YES ☒ NO

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project involve any processes or activities that could contaminate the groundwater and render it unsuitable for use?	☐ YES ☒ NO
---	---	--

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

n.a.

Would the project involve or lead to:

ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	Wastewater discharge of quality that does not meet the required standard for beneficial reuse?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	significant extraction, diversion of ground water? For example, construction of dams, reservoirs, river basin developments, groundwater extraction	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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.

n.a.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project have a risk of negatively impacting the catchment and has it been assessed and addressed?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

Would the project involve or lead to:

ERROR! REFERENCE SOURCE NOT FOUND. - ERROR! REFERENCE SOURCE NOT FOUND.	negatively impact on the catchment area? <i>If yes, Erosion prevention measures, including soil and slope protection measures, must be implemented before project commencement. These measures should involve natural terracing, infiltration strips, permanent ground cover, hedge and tree rows, and effective slope length assessment. Regular reassessment of these measures is necessary.</i>	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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.

n.a.

ERROR! REFERENCE SOURCE NOT FOUND.**ERROR! REFERENCE SOURCE NOT FOUND.**

ERROR! REFERENCE SOURCE NOT FOUND.**ERROR! REFERENCE SOURCE NOT FOUND.**

ERROR! REFERENCE SOURCE NOT FOUND. - ERROR! REFERENCE SOURCE NOT FOUND.	Is there any risk of soil resource degradation or loss of ecosystem services provided by soils in the project? <i>If yes, the project shall maintain healthy soils by minimising negative impacts on soil health, productivity, structure, and water retention. Steps to minimise soil degradation include crop rotation, composting, using N-fixing plants, and reducing tillage and ecologically harmful substances.</i>	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

Would the project involve or lead to:

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	production, harvesting, and/or management of living natural resources by small-scale landholders and/or local communities?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	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.

n.a.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	Does the project have any risks associated with natural or man-made hazards that could result from land use changes due to the project?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

Would the project involve or lead to:

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	any potential risks that require emergency preparedness and response planning?	☐ YES ☐ POTENTIALLY ☒ NO
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	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.

n.a.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project involve the transfer, handling, and use of genetically modified organisms/living modified organisms that may result in adverse effects on biological diversity?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

Would the project involve or lead to:

ERROR! REFERENCE SOURCE NOT FOUND.	the transfer, handling and use of genetically modified organisms/living modified organisms (GMOs/LMOs) that result from modern biotechnology	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	If answer to above question is "yes" has any risks identified in the risk assessment?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	Forestry (for example Afforestation/Reforestation) involving GMO planting? <i>Note - Forestry projects (for example Afforestation/Reforestation) involving GMO planting are not eligible for Certification under Gold Standard for the Global Goals.</i>	☐ YES ☐ NO ☒ NA

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

n.a.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project have a risk of releasing pollutants to air, water, and land in routine, non-routine, or accidental circumstances?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

Would the project involve or lead to:		
ERROR! REFERENCE SOURCE NOT FOUND.	any potential risk of pollutant release that cannot be avoided?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	If answer to above question is "Yes", is there a monitoring plan to ensure that mitigation measures are implemented, and resources are protected?	☐ YES ☐ NO ☒ NA
If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. <i>n.a.</i>		
ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.		
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project involve the generation of waste materials (both hazardous and non-hazardous)?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project involve risk of release of hazardous materials resulting from their production, transportation, handling, storage, or use?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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. <i>n.a.</i>		

Would the project involve or lead to:		
ERROR! REFERENCE SOURCE NOT FOUND.	the generation and management of waste materials?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	treatment, destruction, or disposal of waste material?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	risk of release of hazardous materials resulting from their production, transportation, handling, storage, or use?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	If answer to above question is "yes", does project has measures in place to address health risks?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	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.		
n.a.		
ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.		
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project involve the use of chemical pesticides?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project involve purchase, store, manufacture, trade or use products that fall in Classes IA (extremely hazardous) and IB (highly hazardous)	☐ YES ☒ NO

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project use fertilisers, and if so, are measures being taken to minimise their use and nutrient losses to the environment?	☐ YES ☒ NO
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If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

Would the project involve or lead to:

ERROR! REFERENCE SOURCE NOT FOUND.	chemical pesticides use for pest management?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	If answer to question above is "yes" or "potentially", does project has documented Chemical Pesticides Policy in place?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	purchase, store, use, manufacture, or trade in Class II (moderately hazardous) pesticides?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	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.

n.a.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project have a risk of unsustainable forest management, including timber harvesting?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project pose a risk of depleting biodiversity and ecosystem functionality in areas where improved forest management is undertaken?	☐ YES ☒ NO

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	Does the project risk not meeting requirements for environment-friendly, socially beneficial, and economically viable plantations using native species whenever possible?	☐ YES ☒ NO
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If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	Does the project involve the risk of negatively influencing access to and availability of food for people affected?	☐ YES ☒ NO
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If the answer to the question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

Would the project involve or lead to:

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	modification of the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	☐ YES ☐ POTENTIALLY ☒ NO
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If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

n.a.

ERROR! REFERENCE SOURCE NOT FOUND. ERROR! REFERENCE SOURCE NOT FOUND.

<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	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
<u>ERROR!</u> <u>REFERENCE</u> <u>SOURCE</u> <u>NOT</u> <u>FOUND.</u>	Does the project involve any potential risk of excessive or inadequate use of veterinary medicines?	☐ YES ☒ NO

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project involve the risk of administering synthetic growth promoters, including hormones?	☐ YES ☒ NO
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If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

Would the project involve or lead to:

ERROR! REFERENCE SOURCE NOT FOUND.	animal husbandry or harvesting of fish populations or other aquatic species? ³⁶	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	limiting access for animals to basic needs like drinking water, adequate food, daylight, appropriate shelter etc.?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	inadequate measures to isolate sick animals and control the spread of disease, especially zoonotic diseases?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	inadequate low-stress methods, equipment, and facilities that facilitate calm animal movement.	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	inadequate measures to ensure that animals are exposed to the least stress possible during transportation and slaughtering?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	inappropriate spacing per animal and stocking rates per land unit?	☐ YES ☐ NO ☒ NA

³⁶ 'Involve' means if the project mechanism and/or impact(s) are achieved via changing animal husbandry practices in some way.

ERROR! REFERENCE SOURCE NOT FOUND.	inadequate measures to address the specific needs of aquatic animals?	☐ YES ☐ NO ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND. ERROR! REFERENCE SOURCE NOT FOUND.	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.

n.a.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.	Does the project have the risk of negatively impacting HCV areas and/or critical habitats?	☐ YES ☒ NO
ERROR! REFERENCE SOURCE NOT FOUND.	Does the project in the project area or area of downstream impacts have risks to the following: native tree patches, individual native trees, freshwater resources (including rivers, lakes, swamps, temporary water bodies, and wells), habitats of rare, threatened, and endangered species, and biodiversity-enhancing areas?	☐ YES ☒ NO

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

n.a.

Would the project involve or lead to:

ERROR! REFERENCE SOURCE NOT FOUND.	identified habitats as HCV areas and or Critical habitats?	☐ YES ☐ POTENTIALLY ☒ NO
ERROR! REFERENCE	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,	☐ YES ☐ NO

<u>SOURCE NOT FOUND.</u>	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?	☒ NA
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	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
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	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
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	If the answer to the above question is "yes", will the project have any adverse effects on these areas?	☐ YES ☐ No ☒ NA
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	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
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	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
<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	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.

Please add text here....

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

<u>ERROR! REFERENCE SOURCE NOT FOUND.</u>	Does the project lead to the reduction or negative impact on any recognised Endangered, Vulnerable or Critically Endangered species?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

Would the project involve or lead to:

ERROR! REFERENCE SOURCE NOT FOUND.	distortion of habitats of endangered species?	☐ YES ☐ POTENTIALLY ☒ NA
ERROR! REFERENCE SOURCE NOT FOUND.	If answer to the above question is "yes", does the project plan to protect and enhance them?	☐ YES ☐ POTENTIALLY ☐ NO ☒ N/A
ERROR! REFERENCE SOURCE NOT FOUND.	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.

n.a.

ERROR! REFERENCE SOURCE NOT FOUND.ERROR! REFERENCE SOURCE NOT FOUND.

ERROR! REFERENCE SOURCE NOT FOUND.	Does project introduce any alien species (not currently established in the country or region of the project) into new environments?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

n.a.

Would the project involve or lead to:

ERROR! REFERENCE SOURCE NOT FOUND.	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
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ERROR! REFERENCE SOURCE NOT FOUND.	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
ERROR! REFERENCE SOURCE NOT FOUND.	risk of spreading alien species into areas in which they have not already been established?	☐ YES ☐ POTENTIALLY ☒ NO

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

n.a.

APPENDIX 2 - CONTACT INFORMATION OF PROJECT DEVELOPER(S)

Organization name	Gazişehir Enerji Üretim San. Tic. Ltd. Sti.	
Registration number with relevant authority		
Street/P.O. Box	Kızılırmak Mah. Dumlupınar Bulvarı	
Building	No: 9A/151 Çankaya	
City	ANKARA	
State/Region		
Postcode		
Country	TURKEY	
Telephone	+90 342 485 1012	
E-mail	info@gazisehirenerji.com	
Website		
Contact person	Omer Akyurek	
Title	Consultant	
Salutation	Mr.	
Last name	Akyurek	
Middle name	-	
First name	Omer	
Department	Consultant	
Mobile	+90 530 6680726	
Direct tel.		
Personal e-mail	o.akyurek@outlook.com	

APPENDIX 3 - LUF ADDITIONAL INFORMATION

n.a.

APPENDIX 4 - DESIGN CHANGES

A4.1. Details of proposed or actual design change

>>

n.a.

A4.2. Describe the impacts of design change on the following

a. Additionality

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n.a.

b. Applicability of methodology and other methodological regulatory documents with which the project activity has been certified

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n.a.

c. Compliance with the monitoring plan of the applied methodology

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n.a.

d. Level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan

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n.a.

e. Scale of the project activity

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n.a.

f. Stakeholder consultation

>>

n.a.

g. Sustainable development criteria

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n.a.

h. Safeguarding assessment

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n.a.

i. Compliance with applicable legislation

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n.a.

j. Only for LUF Projects: Transparent summary of all approved changes in Project Area, Eligible Area and accompanying changes in ex-ante emissions removals.

n.a.

Revision 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